

State of Colorado
Oil and Gas Conservation Commission

1120 Lincoln Street, Suite 801, Denver, Colorado 80203 (303)894-2100 Fax:(303)894-2109



FOR OGCC USE ONLY

Received
07/09/2013
Doc# 2614363

SPILL/RELEASE REPORT

This form is to be submitted by the party responsible for the oil and gas spill or release. Any spill or release which may impact waters of the State must be reported as soon as practicable; any spill over 20 bbls must be reported within 24 hours and all spills over five bbls must be reported within ten days. Submit a Site Investigation and Remediation Workplan (Form 27) when requested by the Director.

Spill report taken by:
R. Allison
FACILITY ID:
433534

OPERATOR INFORMATION

Name of Operator: <u>Noble Energy, Inc.</u> OGCC Operator No: <u>100322</u>	Phone Numbers
Address: <u>1625 Broadway Suite 2200</u>	No: <u>720-587-2026</u>
City: <u>Denver</u> State: <u>CO</u> Zip: <u>80202</u>	Fax: <u>303-228-4286</u>
Contact Person: <u>Jacob Evans</u>	E-Mail: <u>jevans@nobleenergyinc.com</u>

DESCRIPTION OF SPILL OR RELEASE

Date of Incident: <u>07/08/2013</u> Facility Name & No.: <u>Ray-Glo-66N64W14SWNW</u>	County: <u>Weld</u>
Type of Facility (well, tank battery, flow line, pit): <u>Historical Water Vault</u>	QtrQtr: <u>SWNW</u> Section: <u>14</u>
Well Name and Number: <u>Ray Glo 3, 4</u>	Township: <u>6N</u> Range: <u>64W</u>
API Number: <u>05-123-12987</u>	Meridian: <u>6PM</u>
Specify volume spilled and recovered (in bbls) for the following materials: Oil spilled: <u>TBD</u> Oil recov'd: <u>0</u> Water spilled: <u>TBD</u> Water recov'd: <u>0</u> Other spilled: <u>NA</u> Other recov'd: <u>NA</u>	
Ground Water impacted? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Surface Water impacted? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Contained within berm? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Area and vertical extent of spill: <u>TBD</u> x
Current land use: <u>Grass</u>	Weather conditions: <u>Hot/Dry</u>
Soil/geology description: <u>Otero Sandy Loam 1-3 percent slopes</u>	
IF LESS THAN A MILE, report distance IN FEET to nearest.... Surface water: <u>0.52 miles E</u> wetlands: <u>NA</u> buildings: <u>403' E</u>	
Livestock: <u>NA</u> water wells: <u>0.24 miles N</u> Depth to shallowest ground water: <u>7' bgs</u>	
Cause of spill (e.g., equipment failure, human error, etc.): <u>Equipment Failure</u> Detailed description of the spill/release incident: <u>Historical impacts were found after removal and relocation of a water vault</u>	

CORRECTIVE ACTION

Describe immediate response (how stopped, contained and recovered):
Historical water vault assessment was conducted and lab analysis indicated impacted soil and groundwater over the applicable COGCC Table 9-10 standards just beneath the historical water vault.

Describe any emergency pits constructed:
NA

How was the extent of contamination determined:
Initial site assessment was conducted using a direct push geo-probe. A monitoring well was installed in the source area directly beneath the removed and abandoned water vault location and two soil samples and one groundwater sample were collected. Lab analytical is attached. Further site investigation is required at the site.

Further remediation activities proposed (attach separate sheet if needed):
Further remediation activities will be discussed in future reports.

Describe measures taken to prevent problem from reoccurring:
Field crews will routinely check water vaults for leaks

OTHER NOTIFICATIONS

List the parties and agencies notified (County, BLM, EPA, DOT, Local Emergency Planning Coordinator or other).

Date	Agency	Contact	Phone	Response
7/8/2013	COGCC	Rick Allison		Left voicemail detailing spill
7/8/2013	Noble Land Dept.			Left message
7/9/2013	COGCC	Rick Allison		Emailed Form 19

Spill/Release Tracking No: 2614363

Ray Glo 3, 4 Historical Water Vault Release



RAYGLO A15-67-1HM
RAYGLO A14-67-1HM
RAYGLO A14-68-1HM
RAYGLO A15-68-1HM

• ANDERSON 15-14

• MCDANIEL 12-15

• RAY-GLO 3

• RAY-GLO 4

• MCKEMNEY 14-13

Release Area



14

• BRUNNER 14-1

• FURROW 14-31

• FOSS 14-42

• HERBS 48-45

• FURROW 14-35



Location Map



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

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

BORING/WELL NO.: MW01
DATE: 6/26/13
LOGGED BY: Chris Roy
DRILL MTHD: Direct Push

PROJECT: Ray-Glo 4
PROJECT NO.: 008312017
DRILLED BY: ACI
SAMPLE MTHD: Continuous

DETECTOR: UltraRae 3000

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: 13' **DTW:** 6'

GROUT: None

CASING LENGTH: 3'

SCREEN LENGTH: 10'

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample	Sample Run	Depth (ft. bgs.)	USCS	Soil Type	Lithology Description	Well Construction
	Dry	0.00				0	SW		SW: 0'-2' - Sand, medium to fine grained, trace clay and gravel, dry, medium brown, well graded, no odor	
		340.8		MW01 @2.5'	5/5		ML		ML: 2'-5' - Sandy Silt, dry, moist @4', stain and odor	
	Moist	438.1				5	SM		SM: 5'-7.5' - Clayey and Silty Sand, fine grained, moist, wet @6', stain and odor	
		458.3		MW01 @5.5'			CL		CL: 7.5'-10' - Sandy Clay, fine grained, wet, medium brown, no odor	
	Wet	14.10			5/5		SP		SP: 10'-13' - Sand, very fine grained, wet, yellow-brown, poorly graded, no odor	
		0.00				10				
		0.00			3/3					
						15			Stickup Height: 2.44'	

Summit Scientific

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

July 02, 2013

Chris Roy
LT Environmental, Inc.
4600 West 60th Avenue
Arvada, CO 80003
RE: NEP - Ray Glo 4

Enclosed are the results of analyses for samples received by Summit Scientific on 06/26/13 17:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Joseph J Egry IV
Laboratory Director

This report shall not be reproduced, except in its entirety, without the written approval of Summit Scientific. Test results relate only to samples analyzed.

Summit Scientific is the sole authority for authorizing edits or modifications to this document. Unauthorized modification of this report is strictly prohibited.



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

Project: NEP - Ray Glo 4

Project Number: 008312017
Project Manager: Chris Roy

Reported:
07/02/13 09:46

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW01@2.5'	R306228-01	Soil	06/26/13 00:00	06/26/13 17:00
MW01@5.5'	R306228-02	Soil	06/26/13 00:00	06/26/13 17:00

Summit Scientific

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

Project: NEP - Ray Glo 4

Project Number: 008312017
Project Manager: Chris Roy

Reported:
07/02/13 09:46

MW01@2.5'
R306228-01 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **06/26/13 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	510	50	mg/kg	1	3062704	06/27/13	06/29/13	8015M	

Date Sampled: **06/26/13 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: o-Terphenyl</i>		95.9 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **06/26/13 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	0.099	0.0050	mg/kg	1	3062706	06/27/13	06/29/13	EPA 8260B	
Benzene	0.011	0.0050	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	0.18	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	14	0.50	"	"	"	"	"	"	

Date Sampled: **06/26/13 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		112 %	23-173		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		118 %	20-170		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		88.0 %	21-167		"	"	"	"	

Soluble Nutrients by EPA 6020/Mod. USDA60 6(2, 3A) - Dry Weight Basis

Date Sampled: **06/26/13 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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LT Environmental, Inc.
4600 West 60th Avenue
Arvada CO, 80003

Project: NEP - Ray Glo 4

Project Number: 008312017
Project Manager: Chris Roy

Reported:
07/02/13 09:46

MW01@2.5'
R306228-01 (Soil)

Summit Scientific

Soluble Nutrients by EPA 6020/Mod. USDA60 6(2, 3A) - Dry Weight Basis

Analyte	Result	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	757	3.02 mg/kg dry	1	3062805	06/28/13	06/28/13	EPA 6020/Mod. USDA60 6(2, 3A)	
Magnesium	228	1.21 "	"	"	"	"	"	
Sodium	109	6.03 "	"	"	"	"	"	

Date Sampled: 06/26/13 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.890		units	"	3070108	07/01/13	07/01/13	"	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: 06/26/13 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.444	0.00100	mmhos/cm	1	3062708	06/27/13	06/27/13	SM 2510B	

Date Sampled: 06/26/13 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.60	0.100	pH Units	"	3062709	06/27/13	06/27/13	EPA 9045	

Date Sampled: 06/26/13 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	82.9		%	"	3062710	06/27/13	06/27/13	% calculation	

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4600 West 60th Avenue
Arvada CO, 80003

Project: NEP - Ray Glo 4

Project Number: 008312017
Project Manager: Chris Roy

Reported:
07/02/13 09:46

MW01@5.5'
R306228-02 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **06/26/13 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	910	50	mg/kg	1	3062704	06/27/13	06/29/13	8015M	

Date Sampled: **06/26/13 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: o-Terphenyl</i>		100 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **06/26/13 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	0.47	0.0050	mg/kg	1	3062706	06/27/13	06/29/13	EPA 8260B	
Benzene	0.15	0.0050	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	1.2	0.0050	"	"	"	"	"	"	
Xylenes (total)	5.5	1.0	"	100	"	"	"	"	
Gasoline Range Hydrocarbons	470	50	"	"	"	"	"	"	

Date Sampled: **06/26/13 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		109 %	23-173		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		96.3 %	20-170		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		109 %	21-167		"	"	"	"	

Soluble Nutrients by EPA 6020/Mod. USDA60 6(2, 3A) - Dry Weight Basis

Date Sampled: **06/26/13 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Project: NEP - Ray Glo 4

Project Number: 008312017
Project Manager: Chris Roy

Reported:
07/02/13 09:46

MW01@5.5'
R306228-02 (Soil)

Summit Scientific

Soluble Nutrients by EPA 6020/Mod. USDA60 6(2, 3A) - Dry Weight Basis

Analyte	Result	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	2120	3.08 mg/kg dry	1	3062805	06/28/13	06/28/13	EPA 6020/Mod. USDA60 6(2, 3A)	
Magnesium	294	1.23 "	"	"	"	"	"	
Sodium	435	6.16 "	"	"	"	"	"	

Date Sampled: 06/26/13 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	2.35		units	"	3070108	07/01/13	07/01/13	"	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: 06/26/13 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.616	0.00100	mmhos/cm	1	3062708	06/27/13	06/27/13	SM 2510B	

Date Sampled: 06/26/13 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.79	0.100	pH Units	"	3062709	06/27/13	06/27/13	EPA 9045	

Date Sampled: 06/26/13 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	81.2		%	"	3062710	06/27/13	06/27/13	% calculation	

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4600 West 60th Avenue
Arvada CO, 80003

Project: NEP - Ray Glo 4

Project Number: 008312017
Project Manager: Chris Roy

Reported:
07/02/13 09:46

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

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

Batch 3062704 - EPA 3550A

Blank (3062704-BLK1)			Prepared: 06/27/13 Analyzed: 06/28/13								
C10-C28 (DRO)	ND	50	mg/kg								
LCS (3062704-BS1)			Prepared: 06/27/13 Analyzed: 06/28/13								
C10-C28 (DRO)	459	50	mg/kg	501		91.7	73-134				
LCS Dup (3062704-BSD1)			Prepared: 06/27/13 Analyzed: 06/28/13								
C10-C28 (DRO)	460	50	mg/kg	501		91.8	73-134	0.142		11	
Matrix Spike (3062704-MS1)			Source: R306215-01			Prepared: 06/27/13 Analyzed: 06/28/13					
C10-C28 (DRO)	441	50	mg/kg	488	ND	90.2	50-148				
Matrix Spike Dup (3062704-MSD1)			Source: R306215-01			Prepared: 06/27/13 Analyzed: 06/28/13					
C10-C28 (DRO)	390	50	mg/kg	430	ND	90.7	50-148	12.1		13	

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4600 West 60th Avenue
Arvada CO, 80003

Project: NEP - Ray Glo 4

Project Number: 008312017
Project Manager: Chris Roy

Reported:
07/02/13 09:46

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

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

Batch 3062706 - EPA 5030 Soil MS

Blank (3062706-BLK1)

Prepared: 06/27/13 Analyzed: 06/29/13

Naphthalene	ND	0.0050	mg/kg							
Benzene	ND	0.0050	"							
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>0.0428</i>		<i>"</i>	<i>0.0397</i>	<i>108</i>	<i>23-173</i>				
<i>Surrogate: Toluene-d8</i>	<i>0.0380</i>		<i>"</i>	<i>0.0400</i>	<i>95.0</i>	<i>20-170</i>				
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0409</i>		<i>"</i>	<i>0.0400</i>	<i>102</i>	<i>21-167</i>				

LCS (3062706-BS1)

Prepared: 06/27/13 Analyzed: 06/29/13

Naphthalene	0.00255	0.0050	mg/kg			66-138				
Benzene	0.0978	0.0050	"	0.100	97.8	58-130				
Toluene	0.101	0.0050	"	0.100	101	61-134				
Ethylbenzene	0.0960	0.0050	"	0.100	96.0	74-139				
m,p-Xylene	0.170	0.010	"	0.200	84.8	73-137				
o-Xylene	0.106	0.0050	"	0.100	106	73-141				
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0430</i>		<i>"</i>	<i>0.0397</i>	<i>108</i>	<i>23-173</i>				
<i>Surrogate: Toluene-d8</i>	<i>0.0392</i>		<i>"</i>	<i>0.0400</i>	<i>98.1</i>	<i>20-170</i>				
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0411</i>		<i>"</i>	<i>0.0400</i>	<i>103</i>	<i>21-167</i>				

LCS Dup (3062706-BSD1)

Prepared: 06/27/13 Analyzed: 06/29/13

Naphthalene	ND	0.0050	mg/kg			66-138			12	
Benzene	0.0982	0.0050	"	0.100	98.2	58-130	0.490		13	
Toluene	0.102	0.0050	"	0.100	102	61-134	1.01		16	
Ethylbenzene	0.0959	0.0050	"	0.100	95.9	74-139	0.0625		12	
m,p-Xylene	0.172	0.010	"	0.200	86.0	73-137	1.37		14	
o-Xylene	0.108	0.0050	"	0.100	108	73-141	1.12		12	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0425</i>		<i>"</i>	<i>0.0397</i>	<i>107</i>	<i>23-173</i>				
<i>Surrogate: Toluene-d8</i>	<i>0.0389</i>		<i>"</i>	<i>0.0400</i>	<i>97.4</i>	<i>20-170</i>				
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0404</i>		<i>"</i>	<i>0.0400</i>	<i>101</i>	<i>21-167</i>				

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

Project: NEP - Ray Glo 4

Project Number: 008312017
Project Manager: Chris Roy

Reported:
07/02/13 09:46

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

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

Batch 3062706 - EPA 5030 Soil MS

Matrix Spike (3062706-MS1)	Source: R306215-01			Prepared: 06/27/13	Analyzed: 06/29/13					
Naphthalene	0.0668	0.0050	mg/kg	0.147	10-158					
Benzene	0.0886	0.0050	"	0.0988	0.00	89.7	30-131			
Toluene	0.0876	0.0050	"	0.0988	0.00	88.7	30-134			
Ethylbenzene	0.0921	0.0050	"	0.0988	0.0392	53.5	22-153			
m,p-Xylene	0.144	0.010	"	0.198	0.00595	70.0	10-159			
o-Xylene	0.0895	0.0050	"	0.0988	0.00	90.6	31-151			
Surrogate: 1,2-Dichloroethane-d4	0.0440		"	0.0392		112	23-173			
Surrogate: Toluene-d8	0.0430		"	0.0395		109	20-170			
Surrogate: 4-Bromofluorobenzene	0.0408		"	0.0395		103	21-167			

Matrix Spike Dup (3062706-MSD1)	Source: R306215-01			Prepared: 06/27/13	Analyzed: 06/29/13					
Naphthalene	0.0851	0.0050	mg/kg	0.147	10-158	24.1	42			
Benzene	0.0902	0.0050	"	0.0988	0.00	91.3	30-131	1.79	34	
Toluene	0.0871	0.0050	"	0.0988	0.00	88.1	30-134	0.611	30	
Ethylbenzene	0.0972	0.0050	"	0.0988	0.0392	58.6	22-153	5.32	24	
m,p-Xylene	0.139	0.010	"	0.198	0.00595	67.4	10-159	3.58	68	
o-Xylene	0.0851	0.0050	"	0.0988	0.00	86.2	31-151	5.02	38	
Surrogate: 1,2-Dichloroethane-d4	0.0431		"	0.0392		110	23-173			
Surrogate: Toluene-d8	0.0417		"	0.0395		106	20-170			
Surrogate: 4-Bromofluorobenzene	0.0404		"	0.0395		102	21-167			

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Project: NEP - Ray Glo 4
Project Number: 008312017
Project Manager: Chris Roy

Reported:
07/02/13 09:46

Soluble Nutrients by EPA 6020/Mod. USDA60 6(2, 3A) - Dry Weight Basis - Quality Control
Summit Scientific

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

Batch 3062805 - General Preparation

Blank (3062805-BLK1)

Prepared & Analyzed: 06/28/13

Calcium	ND	3.00	mg/kg wet						
Magnesium	ND	1.00	"						
Sodium	ND	5.00	"						

LCS (3062805-BS1)

Prepared & Analyzed: 06/28/13

Calcium	378	3.00	mg/kg wet	383	98.7	77-118			
Magnesium	200	1.00	"	192	104	77-117			
Sodium	484	5.00	"	479	101	80-119			

LCS Dup (3062805-BSD1)

Prepared & Analyzed: 06/28/13

Calcium	393	3.00	mg/kg wet	383	103	77-118	3.97	14	
Magnesium	204	1.00	"	192	106	77-117	2.18	12	
Sodium	506	5.00	"	479	106	80-119	4.61	14	

Matrix Spike (3062805-MS1)

Source: R306211-01

Prepared & Analyzed: 06/28/13

Calcium	554	3.36	mg/kg dry	424	73.4	114	13-170		
Magnesium	296	1.12	"	212	39.6	121	34-152		
Sodium	1610	5.61	"	530	857	143	43-155		

Matrix Spike Dup (3062805-MSD1)

Source: R306211-01

Prepared & Analyzed: 06/28/13

Calcium	406	3.36	mg/kg dry	425	73.4	78.1	13-170	31.0	37
Magnesium	224	1.12	"	213	39.6	86.3	34-152	28.0	33
Sodium	1150	5.61	"	532	857	56.1	43-155	33.1	25

Summit Scientific

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

Project: NEP - Ray Glo 4

Project Number: 008312017
 Project Manager: Chris Roy

Reported:
 07/02/13 09:46

Physical Parameters by APHA/ASTM/EPA Methods - Quality Control
Summit Scientific

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

Batch 3062708 - General Preparation

Duplicate (3062708-DUP1)	Source: R306228-01			Prepared & Analyzed: 06/27/13						
Specific Conductance (EC)	0.446	0.00100	mmhos/cm		0.444			0.427	20	

Batch 3062709 - General Preparation

LCS (3062709-BS1)	Prepared & Analyzed: 06/27/13									
pH	8.00	0.100	pH Units	8.00	100	0-200				

Duplicate (3062709-DUP1)	Source: R306228-01			Prepared & Analyzed: 06/27/13						
pH	8.61	0.100	pH Units		8.60			0.116	20	

Batch 3062710 - General Preparation

Duplicate (3062710-DUP1)	Source: R306228-01			Prepared & Analyzed: 06/27/13						
% Solids	81.8		%		82.9			1.34	20	

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4600 West 60th Avenue
Arvada CO, 80003

Project: NEP - Ray Glo 4

Project Number: 008312017
Project Manager: Chris Roy

Reported:
07/02/13 09:46

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

Summit Scientific

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

July 08, 2013

Chris Roy
LT Environmental, Inc.
4600 West 60th Avenue
Arvada, CO 80003
RE: NEP - Ray Glo 4

Enclosed are the results of analyses for samples received by Summit Scientific on 06/28/13 17:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Joseph J Egry IV
Laboratory Director

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

Project: NEP - Ray Glo 4

Project Number: 008312017
 Project Manager: Chris Roy

Reported:
 07/08/13 11:31

MW01
R307004-01 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **06/28/13 12:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	120	1.0	ug/l	1	3070313	07/03/13	07/04/13	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	220	1.0	"	"	"	"	"	"	
Xylenes (total)	2000	100	"	100	"	"	07/04/13	"	

Date Sampled: **06/28/13 12:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		100 %	37-154		"	"	07/04/13	"	
<i>Surrogate: Toluene-d8</i>		94.4 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		105 %	45-146		"	"	"	"	

Summit Scientific

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

Project: NEP - Ray Glo 4

Project Number: 008312017
Project Manager: Chris Roy

Reported:
07/08/13 11:31

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

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

Batch 3070313 - EPA 5030 Water MS

Blank (3070313-BLK1)

Prepared & Analyzed: 07/03/13

Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes (total)	ND	1.0	"							
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>14.1</i>		<i>"</i>	<i>13.2</i>		<i>107</i>	<i>37-154</i>			
<i>Surrogate: Toluene-d8</i>	<i>12.7</i>		<i>"</i>	<i>13.3</i>		<i>95.6</i>	<i>45-149</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>12.9</i>		<i>"</i>	<i>13.3</i>		<i>97.1</i>	<i>45-146</i>			

Blank (3070313-BLK2)

Prepared & Analyzed: 07/03/13

Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes (total)	ND	1.0	"							
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>13.9</i>		<i>"</i>	<i>13.2</i>		<i>105</i>	<i>37-154</i>			
<i>Surrogate: Toluene-d8</i>	<i>12.7</i>		<i>"</i>	<i>13.3</i>		<i>95.3</i>	<i>45-149</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>12.8</i>		<i>"</i>	<i>13.3</i>		<i>95.8</i>	<i>45-146</i>			

LCS (3070313-BS1)

Prepared & Analyzed: 07/03/13

Benzene	25.0	1.0	ug/l	33.3		75.2	51-132			
Toluene	26.5	1.0	"	33.3		79.5	51-138			
Ethylbenzene	27.9	1.0	"	33.3		83.6	58-146			
m,p-Xylene	59.0	2.0	"	66.7		88.5	57-144			
o-Xylene	29.1	1.0	"	33.3		87.3	53-146			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>14.2</i>		<i>"</i>	<i>13.2</i>		<i>108</i>	<i>37-154</i>			
<i>Surrogate: Toluene-d8</i>	<i>12.6</i>		<i>"</i>	<i>13.3</i>		<i>94.7</i>	<i>45-149</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>12.9</i>		<i>"</i>	<i>13.3</i>		<i>97.0</i>	<i>45-146</i>			

LCS (3070313-BS2)

Prepared & Analyzed: 07/03/13

Benzene	25.8	1.0	ug/l	33.3		77.5	51-132			
Toluene	27.4	1.0	"	33.3		82.2	51-138			
Ethylbenzene	28.9	1.0	"	33.3		86.6	58-146			
m,p-Xylene	60.6	2.0	"	66.7		90.9	57-144			
o-Xylene	29.8	1.0	"	33.3		89.3	53-146			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>14.2</i>		<i>"</i>	<i>13.2</i>		<i>108</i>	<i>37-154</i>			
<i>Surrogate: Toluene-d8</i>	<i>12.6</i>		<i>"</i>	<i>13.3</i>		<i>94.2</i>	<i>45-149</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>12.7</i>		<i>"</i>	<i>13.3</i>		<i>95.4</i>	<i>45-146</i>			

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

Project: NEP - Ray Glo 4

Project Number: 008312017
Project Manager: Chris Roy

Reported:
07/08/13 11:31

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

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

Batch 3070313 - EPA 5030 Water MS

LCS Dup (3070313-BSD1)

Prepared & Analyzed: 07/03/13

Benzene	25.2	1.0	ug/l	33.3		75.7	51-132	0.756	17	
Toluene	26.4	1.0	"	33.3		79.3	51-138	0.302	17	
Ethylbenzene	28.4	1.0	"	33.3		85.3	58-146	1.95	16	
m,p-Xylene	59.6	2.0	"	66.7		89.5	57-144	1.08	16	
o-Xylene	29.2	1.0	"	33.3		87.7	53-146	0.480	15	
Surrogate: 1,2-Dichloroethane-d4	13.5		"	13.2		102	37-154			
Surrogate: Toluene-d8	12.7		"	13.3		95.5	45-149			
Surrogate: 4-Bromofluorobenzene	12.6		"	13.3		94.9	45-146			

LCS Dup (3070313-BSD2)

Prepared & Analyzed: 07/03/13

Benzene	27.5	1.0	ug/l	33.3		82.5	51-132	6.34	17	
Toluene	29.1	1.0	"	33.3		87.3	51-138	5.98	17	
Ethylbenzene	30.4	1.0	"	33.3		91.3	58-146	5.26	16	
m,p-Xylene	63.9	2.0	"	66.7		95.9	57-144	5.35	16	
o-Xylene	31.1	1.0	"	33.3		93.4	53-146	4.43	15	
Surrogate: 1,2-Dichloroethane-d4	14.5		"	13.2		109	37-154			
Surrogate: Toluene-d8	12.7		"	13.3		95.5	45-149			
Surrogate: 4-Bromofluorobenzene	12.8		"	13.3		95.6	45-146			

Matrix Spike (3070313-MS1)

Source: R306276-04

Prepared & Analyzed: 07/03/13

Benzene	25.1	1.0	ug/l	33.3	ND	75.4	34-141			
Toluene	26.9	1.0	"	33.3	ND	80.6	27-151			
Ethylbenzene	27.5	1.0	"	33.3	ND	82.6	29-160			
m,p-Xylene	58.4	2.0	"	66.7	ND	87.5	20-166			
o-Xylene	28.5	1.0	"	33.3	ND	85.4	33-159			
Surrogate: 1,2-Dichloroethane-d4	14.4		"	13.2		109	37-154			
Surrogate: Toluene-d8	12.6		"	13.3		94.3	45-149			
Surrogate: 4-Bromofluorobenzene	12.8		"	13.3		95.7	45-146			

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

Project: NEP - Ray Glo 4

Project Number: 008312017
Project Manager: Chris Roy

Reported:
07/08/13 11:31

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

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

Batch 3070313 - EPA 5030 Water MS

Matrix Spike (3070313-MS2)	Source: R306276-05			Prepared & Analyzed: 07/03/13						
Benzene	201	1.0	ug/l	33.3	172	86.0	34-141			
Toluene	27.8	1.0	"	33.3	ND	83.3	27-151			
Ethylbenzene	28.7	1.0	"	33.3	ND	86.0	29-160			
m,p-Xylene	60.0	2.0	"	66.7	ND	89.9	20-166			
o-Xylene	39.6	1.0	"	33.3	9.69	89.6	33-159			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>15.0</i>		<i>"</i>	<i>13.2</i>		<i>113</i>	<i>37-154</i>			
<i>Surrogate: Toluene-d8</i>	<i>12.8</i>		<i>"</i>	<i>13.3</i>		<i>95.7</i>	<i>45-149</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>12.8</i>		<i>"</i>	<i>13.3</i>		<i>96.1</i>	<i>45-146</i>			

Matrix Spike Dup (3070313-MSD1)	Source: R306276-04			Prepared & Analyzed: 07/03/13						
Benzene	25.3	1.0	ug/l	33.3	ND	75.8	34-141	0.556	32	
Toluene	26.7	1.0	"	33.3	ND	80.0	27-151	0.747	25	
Ethylbenzene	28.1	1.0	"	33.3	ND	84.2	29-160	1.91	50	
m,p-Xylene	59.8	2.0	"	66.7	ND	89.7	20-166	2.40	36	
o-Xylene	29.0	1.0	"	33.3	ND	86.9	33-159	1.74	26	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>14.1</i>		<i>"</i>	<i>13.2</i>		<i>107</i>	<i>37-154</i>			
<i>Surrogate: Toluene-d8</i>	<i>12.6</i>		<i>"</i>	<i>13.3</i>		<i>94.3</i>	<i>45-149</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>12.8</i>		<i>"</i>	<i>13.3</i>		<i>96.3</i>	<i>45-146</i>			

Matrix Spike Dup (3070313-MSD2)	Source: R306276-05			Prepared & Analyzed: 07/03/13						
Benzene	190	1.0	ug/l	33.3	172	55.5	34-141	5.20	32	
Toluene	28.2	1.0	"	33.3	ND	84.6	27-151	1.47	25	
Ethylbenzene	29.3	1.0	"	33.3	ND	87.8	29-160	2.04	50	
m,p-Xylene	61.4	2.0	"	66.7	ND	92.2	20-166	2.44	36	
o-Xylene	38.4	1.0	"	33.3	9.69	86.0	33-159	3.08	26	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>14.1</i>		<i>"</i>	<i>13.2</i>		<i>106</i>	<i>37-154</i>			
<i>Surrogate: Toluene-d8</i>	<i>12.6</i>		<i>"</i>	<i>13.3</i>		<i>94.4</i>	<i>45-149</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>12.7</i>		<i>"</i>	<i>13.3</i>		<i>95.0</i>	<i>45-146</i>			

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

Project: NEP - Ray Glo 4

Project Number: 008312017
Project Manager: Chris Roy

Reported:
07/08/13 11:31

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