

GROUNDWATER MONITORING REPORT/ NO FURTHER ACTION REQUEST JANUARY 2010

STRONG 21-15JI

On November 19, 2009, LT Environmental, Inc. (LTE) conducted groundwater sampling on behalf of Noble Energy, Inc. (Noble) at the Strong 21-15JI Tank Battery (Site). This sampling event constitutes the fourth post-remediation monitoring event at the Site. Site history, remediation activities, and groundwater monitoring results have been described in preceding reports.

Groundwater level measurements were collected from the monitoring wells and are summarized in Table 1. Monitoring wells (MW01, MW02, and MW03) were installed on January 30, 2009. A Site Map is presented on Figure 1.

Depth to groundwater, which ranged from 7.89 feet below top of casing (btoc) in MW03 to 8.37 feet btoc in MW01, was used to calculate well-specific purge volumes. Following purging, groundwater samples were collected and preserved on ice. Samples were submitted under a strict chain of custody protocol to Origins Laboratory, Inc. of Denver, Colorado for analysis of benzene, toluene, ethylbenzene, and total xylenes (BTEX) by United States Environmental Protection Agency Method 8260B.

Analytical results from the monitoring wells, presented in Table 1, indicate BTEX concentrations are in compliance with Colorado Department of Public Health and Environmental – Water Quality Control Commission Regulation 41 (WQCC Reg 41). The laboratory analytical report is included in the Appendix.

As seen in the previously submitted *Remediation Summary Report* (February 2009), soil impacts have been removed to below the regulatory standard. This groundwater sampling event constitutes the fourth consecutive quarterly groundwater sampling event which has reported groundwater analytical results in compliance with WQCC Reg 41. As soil and groundwater have been remediated to achieve cleanup goals, LTE on behalf of Noble, requests that the Colorado Oil and Gas Conservation Commission grant a No Further Action condition for the Strong 21-15JI Tank Battery Site.

TABLE

TABLE 1

**GROUNDWATER ANALYTICAL DATA
STRONG 21-15JI TANK BATTERY
WELD COUNTY, COLORADO
NOBLE ENERGY, INC.**

MONITORING		DEPTH TO				
WELL	DATE	WATER (feet btoc)	BENZENE (ug/L)	TOLUENE (ug/L)	ETHYLBENZENE (ug/L)	XYLENES (ug/L)
MW01	2/6/2009	9.84	<1.0	<1.0	<1.0	<3.0
	5/13/2009	10.33	<1.0	<1.0	<1.0	<3.0
	8/24/2009	3.64	<1.0	<1.0	<1.0	<3.0
	11/19/2009	8.37	<1.0	<1.0	<1.0	<3.0
MW02	2/6/2009	9.40	<1.0	<1.0	<1.0	<3.0
	5/13/2009	9.92	<1.0	<1.0	<1.0	<3.0
	8/24/2009	3.60	<1.0	<1.0	<1.0	<3.0
	11/19/2009	7.90	<1.0	<1.0	<1.0	<3.0
MW03	2/6/2009	9.39	<1.0	<1.0	<1.0	<3.0
	5/13/2009	9.91	<1.0	<1.0	<1.0	<3.0
	8/24/2009	3.55	<1.0	<1.0	<1.0	<3.0
	11/19/2009	7.89	<1.0	<1.0	<1.0	<3.0
CDPHE WQCC Reg 41			5.0	560	700	1,400

NOTES:

btoc - below top of casing

ug/L - micrograms per liter

< - indicates result is less than the stated laboratory method detection limit

CDPHE WQCC Reg 41 - Colorado Department of Public Health and Environment - Water Quality Control

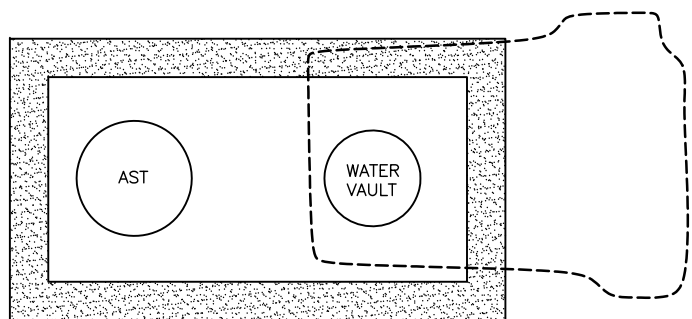
Commission Regulation 41 covering Basic Standards for Groundwater

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

FIGURE



MW01



MW03

M
M

SEPARATOR

MW02



FLARE

LEGEND

MW01



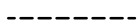
MONITORING WELL LOCATION



METER HOUSE



BERM



EXTENT OF EXCAVATION



ESTIMATED GROUNDWATER FLOW DIRECTION

AST

ABOVEGROUND STORAGE TANK

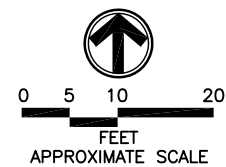


FIGURE 1
SITE MAP
STRONG 21-15 JI
WELD COUNTY, CO
NOBLE ENERGY, INC.



NEP083302

APPENDIX
ANALYTICAL REPORT



4640 Pecos Street | Unit C | Denver, Colorado 80211
303.433.1322 Phone 303.265.9645 Fax

November 30, 2009

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

Brian Dodek
Project Number: NEP0833
Project: Noble – Strong 21-15Jl,23

Attached are the analytical results for Noble – Strong 21-15Jl,23 received by Origins Laboratory, Inc. 11/23/2009 11:45:00AM. Please let us know if you have any questions, or if we can help with anything at all.

Noelle E Doyle
Laboratory Manager

The analytical results in the following report were analyzed under the guidelines of EPA Methods specified in SW-846. The analytical results apply specifically to the samples and analyses specified per the attached Chain of Custody. This laboratory report is intended solely for the above addressee and it is only to be used and or reproduced in its entirety.

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

Brian Dodek
Project Number: NEP0833
Project: Noble – Strong 21–15Jl,23

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Sampled	Date Received
MW-01	X911089-01	Water	11/20/2009 2:30:00PM	11/23/2009 11:45
MW-02	X911089-02	Water	11/20/2009 2:00:00PM	11/23/2009 11:45
MW-03	X911089-03	Water	11/20/2009 1:30:00PM	11/23/2009 11:45

Origins Laboratory, Inc.

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Noelle E Doyle, Laboratory Manager

Brian Dodek

Project Number: NEP0833

Project: Noble – Strong 21–15J1,23

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Project: Noble – Strong 21–15Jl,23

MW-01

X911089-01 (Water)

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Notes
		Limit							

Origins Laboratory, Inc.

BTEX by EPA 8260B

Benzene	ND	0.00100	mg/L	1	9K23004	11/23/2009	11/23/2009
Toluene	ND	0.00100	"	"	"	"	"
Ethylbenzene	ND	0.00100	"	"	"	"	"
o-Xylene	ND	0.00100	"	"	"	"	"
m,p-Xylene	ND	0.00200	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	125 %	76.8-127	"	"	"
Surrogate: Toluene-d8	83.0 %	71.4-123	"	"	"
Surrogate: 4-Bromofluorobenzene	116 %	87.6-133	"	"	"

Origins Laboratory, Inc.

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MW-02

X911089-02 (Water)

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Notes
		Limit							

Origins Laboratory, Inc.

BTEX by EPA 8260B

Benzene	ND	0.00100	mg/L	1	9K23004	11/23/2009	11/30/2009
Toluene	ND	0.00100	"	"	"	"	"
Ethylbenzene	ND	0.00100	"	"	"	"	"
o-Xylene	ND	0.00100	"	"	"	"	"
m,p-Xylene	ND	0.00200	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	83.3 %	76.8-127	"	"	"
Surrogate: Toluene-d8	119 %	71.4-123	"	"	"
Surrogate: 4-Bromofluorobenzene	113 %	87.6-133	"	"	"

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MW-03

X911089-03 (Water)

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Notes
		Limit							

Origins Laboratory, Inc.

BTEX by EPA 8260B

Benzene	ND	0.00100	mg/L	1	9K23004	11/23/2009	11/30/2009
Toluene	ND	0.00100	"	"	"	"	"
Ethylbenzene	ND	0.00100	"	"	"	"	"
o-Xylene	ND	0.00100	"	"	"	"	"
m,p-Xylene	ND	0.00200	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	84.9 %	76.8-127	"	"	"
Surrogate: Toluene-d8	117 %	71.4-123	"	"	"
Surrogate: 4-Bromofluorobenzene	117 %	87.6-133	"	"	"

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 9K23004 – EPA 5030B

Blank (9K23004–BLK1)

Prepared: 11/23/2009 Analyzed: 11/23/2009

Benzene	ND	0.001	mg/L
Toluene	ND	0.001	"
Ethylbenzene	ND	0.001	"
o-Xylene	ND	0.001	"
m,p-Xylene	ND	0.002	"

Surrogate: 1,2-Dichloroethane-d4	70.9	ug/L	62.5	113	76.8–127
Surrogate: Toluene-d8	56.0	"	62.5	89.6	71.4–123
Surrogate: 4-Bromofluorobenzene	69.6	"	62.5	111	87.6–133

LCS (9K23004–BS1)

Prepared: 11/23/2009 Analyzed: 11/23/2009

Benzene	0.04	0.001	mg/L	0.0500	79.7	79.3–122
Toluene	0.04	0.001	"	0.0500	81.5	73.4–130
Surrogate: 1,2-Dichloroethane-d4	70.3		ug/L	62.5	113	76.8–127
Surrogate: Toluene-d8	54.7		"	62.5	87.5	71.4–123
Surrogate: 4-Bromofluorobenzene	69.5		"	62.5	111	87.6–133

Matrix Spike (9K23004–MS1)

Source: X911088–01

Prepared: 11/23/2009 Analyzed: 11/23/2009

Benzene	0.04	0.001	mg/L	0.0500	ND	78.8	80.2–129	QM-07
Toluene	0.04	0.001	"	0.0500	ND	79.8	74.8–126	
Surrogate: 1,2-Dichloroethane-d4	74.0		ug/L	62.5		118	76.8–127	
Surrogate: Toluene-d8	54.1		"	62.5		86.6	71.4–123	
Surrogate: 4-Bromofluorobenzene	70.4		"	62.5		113	87.6–133	

Matrix Spike Dup (9K23004–MSD1)

Source: X911088–01

Prepared: 11/23/2009 Analyzed: 11/23/2009

Benzene	0.04	0.001	mg/L	0.0500	ND	77.9	80.2–129	1.10	18.7	QM-07
Toluene	0.04	0.001	"	0.0500	ND	77.0	74.8–126	3.55	21.9	
Surrogate: 1,2-Dichloroethane-d4	72.5		ug/L	62.5		116	76.8–127			
Surrogate: Toluene-d8	53.1		"	62.5		85.0	71.4–123			
Surrogate: 4-Bromofluorobenzene	69.6		"	62.5		111	87.6–133			

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Notes and Definitions

QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

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