

WELL INSTALLATION AND GROUNDWATER MONITORING REPORT FEBRUARY 2009

STATE 6-36

On February 10, 2009, LTE conducted groundwater sampling on behalf of Noble Energy, Inc. (Noble) at the State 6-36 Tank Battery (Site). This sampling event constitutes the second post-remediation monitoring event at this 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 surrounding the tank battery excavation on October 29, 2008. A Site Map is presented on Figure 1.

Depth to groundwater, which ranged from 8.24 feet below top of casing (btoc) in MW03 to 8.89 feet btoc in MW02, was used to calculate well-specific purge volumes. Following purging, groundwater samples were collected and preserved on ice. Samples were then submitted under 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.

Groundwater analytical results from the monitoring wells, presented in Table 1, indicate BTEX concentrations at sample locations MW01, MW02, and MW03 are below Colorado Groundwater Quality Standards (CGWQS) and laboratory method detection limits. The laboratory analytical report is included as an attachment.

LTE will continue to conduct quarterly groundwater monitoring events with the goal of observing four consecutive quarters with analytical results in compliance with the CGWQS. The next quarterly groundwater sampling event is scheduled for May 2009.



TABLE



TABLE 1

**GROUNDWATER ANALYTICAL DATA
STATE 6-36 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	11/5/2008	9.53	<1.0	<1.0	<1.0	<3.0
	2/10/2009	8.48	<1.0	<1.0	<1.0	<3.0
MW02	11/5/2008	10.30	<1.0	<1.0	<1.0	<3.0
	2/10/2009	8.89	<1.0	<1.0	<1.0	<3.0
MW03	11/5/2008	8.96	<1.0	<1.0	<1.0	<3.0
	2/10/2009	8.24	<1.0	<1.0	<1.0	<3.0
CGWQS			5.0	1,000	700	1,400

NOTES:

btoc - below top of casing

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

ug/L - micrograms per liter

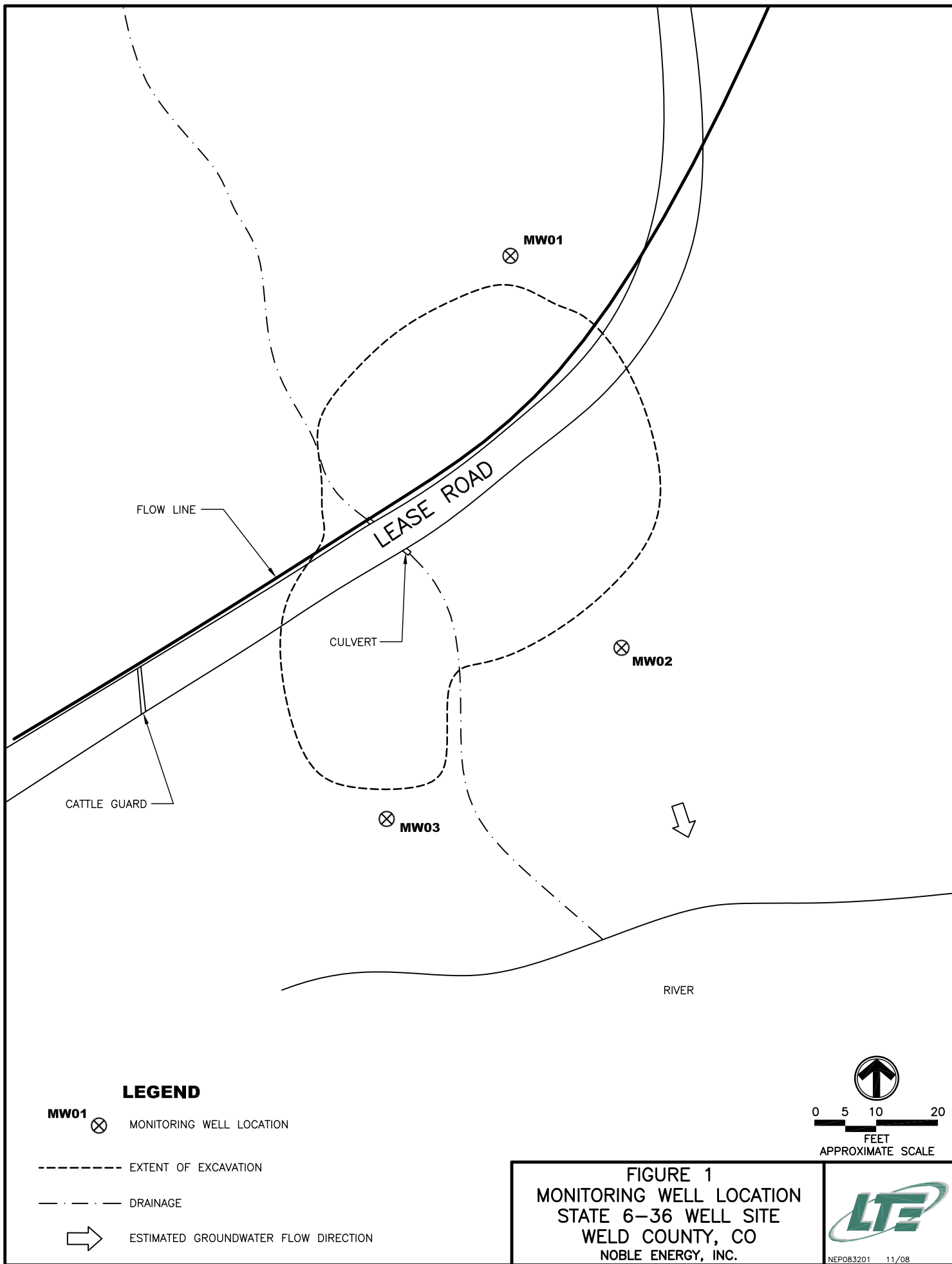
< indicates result is less than the stated laboratory method detection limit

CGWQS - Colorado Groundwater Quality Standards



FIGURE





ATTACHMENT
ANALYTICAL LABORATORY REPORT





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

February 13, 2009

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

Brian Dodek
Project Number: NEP0832
Project: Noble – State 6–36

Attached are the analytical results for Noble – State 6–36 received by Origins Laboratory, Inc. 2/10/2009 3:01:00PM. Please let us know if you have any questions, or if we can help with anything at all.

A handwritten signature in black ink, appearing to read "Noelle E Doyle", is positioned above the printed name.

Laboratory Manager
Noelle E Doyle

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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303.433.1322 | Laboratory
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LT Environmental, Inc.
4600 West 60th Avenue
Arvada CO 80003

Brian Dodek
Project Number: NEP0832
Project: Noble – State 6–36

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Sampled	Date Received
MW01	X902033-01	Water	2/10/2009 11:40:00AM	02/10/2009 15:01
MW02	X902033-02	Water	2/10/2009 11:45:00AM	02/10/2009 15:01
MW03	X902033-03	Water	2/10/2009 11:50:00AM	02/10/2009 15:01

Origins Laboratory, Inc.

Noelle E Doyle, Laboratory Manager

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 4600 West 60th Avenue
 Arvada CO 80003

Brian Dodek
 Project Number: NEP0832
 Project: Noble – State 6–36

X402033
 page 1 of 1



originslaboratory.com

Client: LT
 Address: 4600 W 60th
 Telephone Number: Arvada 80003
 E-Mail Address: ONFILE

Project Manager: BDD
 Project Name: State 6-36
 Project Number: NEP 0832
 Samples Collected by: TED

Sample ID - Description	Date Sampled	Time Sampled	Number of Containers	Preservative				Matrix			Analysis	Sample Instructions
				Unpreserved	HCl	HNO ₃	Other - FCE	Groundwater	Soil	Air - Summa Canister #		
MW01	2/10/09	1140	3	X			X	X				1
MW02	2/10/09	1145	1	X			X	X				2
MW03	2/10/09	1150	1	X			X	X				3
												4
												5
												6
												7
												8
												9
												10

Relinquished by: HTD Date: 2/10/09 Time: 1601
 Relinquished by: HTD Date: 2/10/09 Time: 1601

Temperature Upon Receipt: 38C
 Turn Assured Time: 24-hr
 Same Day: X
 48-hr:
 72-hr:
 Standard: 1501

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Origins Laboratory, Inc.

Noelle E Doyle, Laboratory Manager

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MW01

X902033–01 (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	9B11003	02/11/2009	02/12/2009
Toluene	ND	0.00100	"	"	"	"	"
Ethylbenzene	ND	0.00100	"	"	"	"	"
o-Xylene	ND	0.00100	"	"	"	"	"
m,p-Xylene	ND	0.00200	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	117 %	70.3–123	"	"	"
Surrogate: Toluene-d8	80.2 %	75.9–123	"	"	"
Surrogate: 4-Bromofluorobenzene	108 %	83–123	"	"	"

Origins Laboratory, Inc.

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MW02

X902033–02 (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	9B11003	02/11/2009	02/12/2009
Toluene	ND	0.00100	"	"	"	"	"
Ethylbenzene	ND	0.00100	"	"	"	"	"
o-Xylene	ND	0.00100	"	"	"	"	"
m,p-Xylene	ND	0.00200	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	117 %	70.3–123	"	"	"
Surrogate: Toluene-d8	80.8 %	75.9–123	"	"	"
Surrogate: 4-Bromofluorobenzene	109 %	83–123	"	"	"

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MW03

X902033–03 (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	9B11003	02/11/2009	02/12/2009
Toluene	ND	0.00100	"	"	"	"	"
Ethylbenzene	ND	0.00100	"	"	"	"	"
o-Xylene	ND	0.00100	"	"	"	"	"
m,p-Xylene	ND	0.00200	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	116 %	70.3–123	"	"	"
Surrogate: Toluene-d8	78.8 %	75.9–123	"	"	"
Surrogate: 4-Bromofluorobenzene	108 %	83–123	"	"	"

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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 9B11003 – EPA 5030B

Blank (9B11003–BLK1)

Prepared: 02/11/2009 Analyzed: 02/11/2009

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	65.3		ug/L	62.5		104	70.3–123			
Surrogate: Toluene-d8	53.4		"	62.5		85.5	75.9–123			
Surrogate: 4-Bromofluorobenzene	66.0		"	62.5		106	83–123			

Blank (9B11003–BLK2)

Prepared: 02/11/2009 Analyzed: 02/11/2009

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	66.1		ug/L	62.5		106	70.3–123			
Surrogate: Toluene-d8	53.3		"	62.5		85.2	75.9–123			
Surrogate: 4-Bromofluorobenzene	66.8		"	62.5		107	83–123			

LCS (9B11003–BS1)

Prepared: 02/11/2009 Analyzed: 02/11/2009

Benzene	0.06	0.001	mg/L	0.0500		114	64.2–124			
Toluene	0.05	0.001	"	0.0500		94.0	63.9–119			
Surrogate: 1,2-Dichloroethane-d4	66.7		ug/L	62.5		107	70.3–123			
Surrogate: Toluene-d8	53.0		"	62.5		84.8	75.9–123			
Surrogate: 4-Bromofluorobenzene	64.4		"	62.5		103	83–123			

LCS (9B11003–BS2)

Prepared: 02/11/2009 Analyzed: 02/11/2009

Benzene	0.06	0.001	mg/L	0.0500		116	64.2–124			
Toluene	0.05	0.001	"	0.0500		96.4	63.9–119			

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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 9B11003 – EPA 5030B

LCS (9B11003–BS2)

Prepared: 02/11/2009 Analyzed: 02/11/2009

Surrogate: 1,2-Dichloroethane-d4	66.1		ug/L	62.5		106	70.3–123			
Surrogate: Toluene-d8	52.8		"	62.5		84.4	75.9–123			
Surrogate: 4-Bromofluorobenzene	65.5		"	62.5		105	83–123			

Matrix Spike (9B11003–MS1)

Source: X902029–01

Prepared: 02/11/2009 Analyzed: 02/11/2009

Benzene	0.06	0.001	mg/L	0.0500	ND	114	64.2–124			
Toluene	0.05	0.001	"	0.0500	ND	94.8	63.9–119			
Surrogate: 1,2-Dichloroethane-d4	67.8		ug/L	62.5		109	70.3–123			
Surrogate: Toluene-d8	51.7		"	62.5		82.8	75.9–123			
Surrogate: 4-Bromofluorobenzene	65.6		"	62.5		105	83–123			

Matrix Spike (9B11003–MS2)

Source: X902031–01

Prepared: 02/11/2009 Analyzed: 02/11/2009

Benzene	0.06	0.001	mg/L	0.0500	ND	117	64.2–124			
Toluene	0.05	0.001	"	0.0500	ND	97.1	63.9–119			
Surrogate: 1,2-Dichloroethane-d4	67.7		ug/L	62.5		108	70.3–123			
Surrogate: Toluene-d8	52.6		"	62.5		84.2	75.9–123			
Surrogate: 4-Bromofluorobenzene	67.8		"	62.5		108	83–123			

Matrix Spike Dup (9B11003–MSD1)

Source: X902029–01

Prepared: 02/11/2009 Analyzed: 02/11/2009

Benzene	0.06	0.001	mg/L	0.0500	ND	116	64.2–124	1.64	25	
Toluene	0.05	0.001	"	0.0500	ND	93.2	63.9–119	1.72	25	
Surrogate: 1,2-Dichloroethane-d4	68.9		ug/L	62.5		110	70.3–123			
Surrogate: Toluene-d8	52.3		"	62.5		83.7	75.9–123			
Surrogate: 4-Bromofluorobenzene	67.0		"	62.5		107	83–123			

Matrix Spike Dup (9B11003–MSD2)

Source: X902031–01

Prepared: 02/11/2009 Analyzed: 02/11/2009

Benzene	0.06	0.001	mg/L	0.0500	ND	118	64.2–124	0.733	25	
Toluene	0.05	0.001	"	0.0500	ND	95.7	63.9–119	1.41	25	
Surrogate: 1,2-Dichloroethane-d4	69.5		ug/L	62.5		111	70.3–123			

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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 9B11003 – EPA 5030B

Matrix Spike Dup (9B11003–MSD2)

Source: X902031–01

Prepared: 02/11/2009 Analyzed: 02/11/2009

Surrogate: Toluene-d8	51.6	ug/L	62.5	82.5	75.9–123
Surrogate: 4-Bromofluorobenzene	65.0	"	62.5	104	83–123

Origins Laboratory, Inc.

Noelle E Doyle, Laboratory Manager

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Notes and Definitions

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

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