



WELL INSTALLATION AND GROUNDWATER MONITORING REPORT MAY 2009

STATE 6-36

On May 18, 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 third 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 as Figure 1.

Depth to groundwater, which ranged from 8.31 feet below top of casing (btoc) in MW03 to 8.80 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 in compliance with Colorado Department of Public Health and Environment – Water Quality Control Division Regulation 41 (WQCC Reg 41) and below 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 WQCC Reg 41. The next quarterly groundwater sampling event is scheduled for August 2009.

TABLE



TABLE 1

**GROUNDWATER ANALYTICAL DATA
STATE 6-36 TANK BATTERY
WELD COUNTY, COLORADO
NOBLE ENERGY, INC.**

MONITORING		DEPTH TO				TOTAL
WELL	DATE	WATER	BENZENE	TOLUENE	ETHYLBENZENE	XYLENES
		(feet btoc)	(ug/L)	(ug/L)	(ug/L)	(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
	5/18/2009	8.32	<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
	5/18/2009	8.80	<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
	5/18/2009	8.31	<1.0	<1.0	<1.0	<3.0
CDPHE WQCC Reg 41			5.0	560	700	1,400

NOTES:

btoc - below top of casing

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

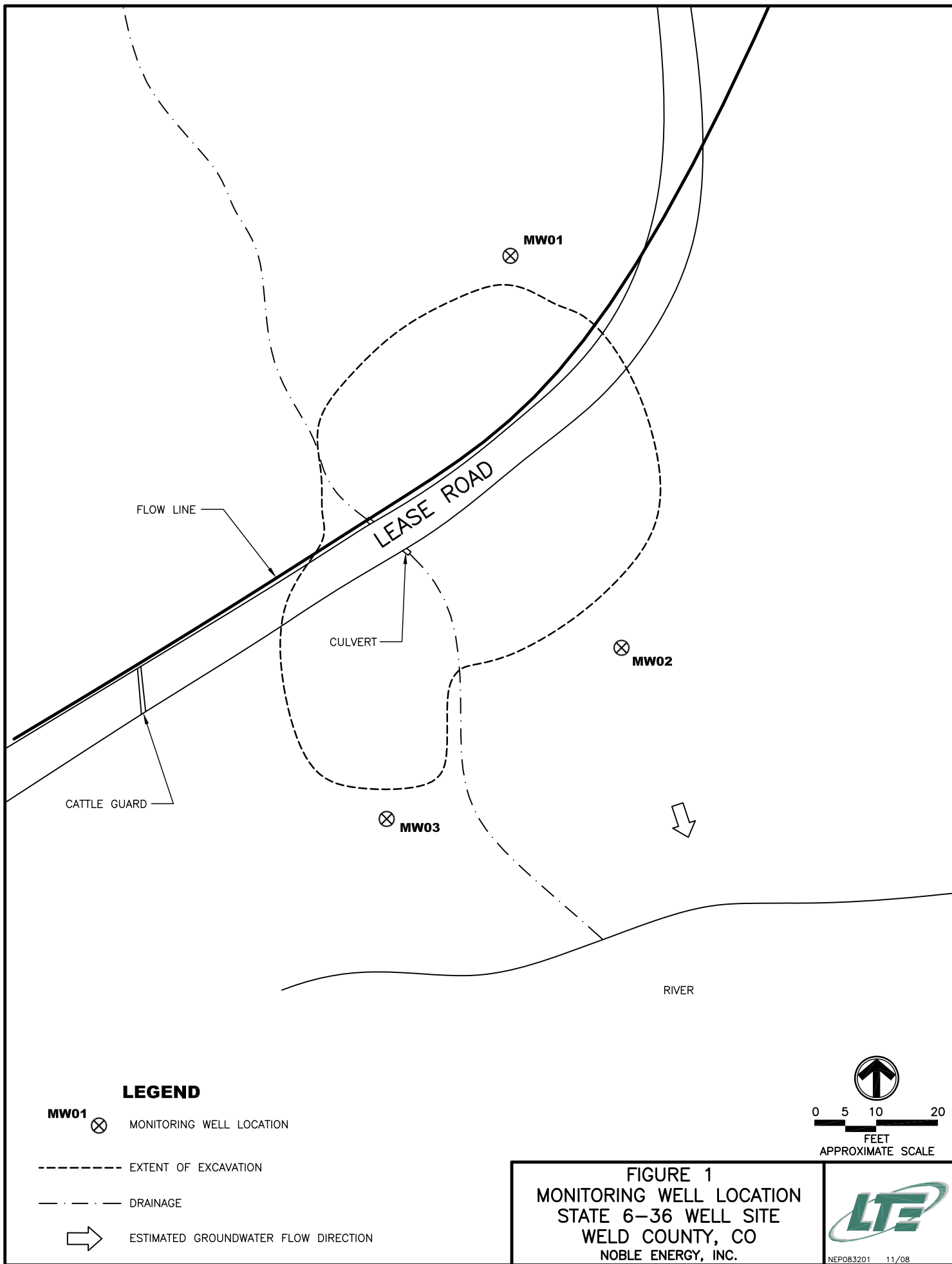
ug/L - micrograms per liter

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

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

FIGURE





ATTACHMENT
ANALYTICAL LABORATORY REPORT





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

May 21, 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. 5/18/2009 2:55:00PM. 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.

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



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	X905072-01	Water	5/18/2009 12:40:00PM	05/18/2009 14:55
MW02	X905072-02	Water	5/18/2009 12:35:00PM	05/18/2009 14:55
MW03	X905072-03	Water	5/18/2009 12:30:00PM	05/18/2009 14:55

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 E Doyle, Laboratory Manager

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



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

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

X905072

page 1 of 1



originslaboratory.com

Client: LTE
Address: _____
Telephone Number: ON FILE
E-Mail Address: _____
Project Manager: BDD
Project Name: State 6-36
Project Number: NEP0832
Samples Collected by: TE

Sample ID - Description	Date Sampled	Time Sampled	Number of Containers	Preservative				Matrix			Analysis	Sample Instructions
				Unpreserved	HCl	HNO ₃	Other - <u>Te</u>	Soil	Air - Summa Canister #	Other - <u>YX BTEX 626</u>		
MW01	5/18/09	1240	3	X	X	X	X	X				1
MW02	5/18/09	1235	1	X	X	X	X	X				2
MW03	5/18/09	1230	1	X	X	X	X	X				3
												4
												5
												6
												7
												8
												9
												10
Relinquished by: <u>J=Q</u>	5/18/09	14:55		Received by: <u>[Signature]</u>				Time: <u>14:55</u>			Date: <u>5/18/09</u>	Temperature Upon Receipt: <u>37</u>
Relinquished by:				Received by:				Time:			Date: <u>5/18/09</u>	Turn Around Time: <u>37</u>
											Same Day	24-hr
											48-hr	72-hr
											Standard	

4640 North Pecos Street | Unit C | Denver, Colorado 80211 | Laboratory - 303.433.1322 | Fax - 303.265.9645

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 E Doyle, Laboratory Manager

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



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

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

MW01

X905072–01 (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	9E19004	05/19/2009	05/20/2009
Toluene	ND	0.00100	"	"	"	"	"
Ethylbenzene	ND	0.00100	"	"	"	"	"
o-Xylene	ND	0.00100	"	"	"	"	"
m,p-Xylene	ND	0.00200	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	107 %	70.3–128	"	"	"
Surrogate: Toluene-d8	98.6 %	78.8–125	"	"	"
Surrogate: 4-Bromofluorobenzene	102 %	75.5–131	"	"	"

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 E Doyle, Laboratory Manager

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



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

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

MW02

X905072–02 (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	9E19004	05/19/2009	05/20/2009
Toluene	ND	0.00100	"	"	"	"	"
Ethylbenzene	ND	0.00100	"	"	"	"	"
o-Xylene	ND	0.00100	"	"	"	"	"
m,p-Xylene	ND	0.00200	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	107 %	70.3–128	"	"	"
Surrogate: Toluene-d8	98.6 %	78.8–125	"	"	"
Surrogate: 4-Bromofluorobenzene	103 %	75.5–131	"	"	"

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 E Doyle, Laboratory Manager

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



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

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

MW03

X905072–03 (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	9E19004	05/19/2009	05/20/2009
Toluene	ND	0.00100	"	"	"	"	"
Ethylbenzene	ND	0.00100	"	"	"	"	"
o-Xylene	ND	0.00100	"	"	"	"	"
m,p-Xylene	ND	0.00200	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	107 %	70.3–128	"	"	"
Surrogate: Toluene-d8	97.8 %	78.8–125	"	"	"
Surrogate: 4-Bromofluorobenzene	104 %	75.5–131	"	"	"

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 E Doyle, Laboratory Manager

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



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

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

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
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

Batch 9E19004 – EPA 5030B

Blank (9E19004–BLK1)

Prepared: 05/19/2009 Analyzed: 05/19/2009

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	69.0		ug/L	62.5		110	70.3–128			
Surrogate: Toluene-d8	61.7		"	62.5		98.8	78.8–125			
Surrogate: 4-Bromofluorobenzene	63.3		"	62.5		101	75.5–131			

Blank (9E19004–BLK2)

Prepared: 05/19/2009 Analyzed: 05/19/2009

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	69.8		ug/L	62.5		112	70.3–128			
Surrogate: Toluene-d8	59.8		"	62.5		95.7	78.8–125			
Surrogate: 4-Bromofluorobenzene	63.1		"	62.5		101	75.5–131			

LCS (9E19004–BS1)

Prepared: 05/19/2009 Analyzed: 05/19/2009

Benzene	0.05	0.001	mg/L	0.0500		109	75.3–134			
Toluene	0.06	0.001	"	0.0500		126	73.2–130			
Surrogate: 1,2-Dichloroethane-d4	69.4		ug/L	62.5		111	70.3–128			
Surrogate: Toluene-d8	58.9		"	62.5		94.3	78.8–125			
Surrogate: 4-Bromofluorobenzene	62.4		"	62.5		99.9	75.5–131			

LCS (9E19004–BS2)

Prepared: 05/19/2009 Analyzed: 05/19/2009

Benzene	0.05	0.001	mg/L	0.0500		108	75.3–134			
Toluene	0.06	0.001	"	0.0500		127	73.2–130			

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 E Doyle, Laboratory Manager

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



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

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

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
Batch 9E19004 – EPA 5030B										
LCS (9E19004–BS2)					Prepared: 05/19/2009 Analyzed: 05/19/2009					
Surrogate: 1,2–Dichloroethane–d4	69.3		ug/L	62.5		111	70.3–128			
Surrogate: Toluene–d8	59.6		"	62.5		95.4	78.8–125			
Surrogate: 4–Bromofluorobenzene	64.5		"	62.5		103	75.5–131			
Matrix Spike (9E19004–MS1)					Source: X905069–04 Prepared: 05/19/2009 Analyzed: 05/19/2009					
Benzene	0.05	0.001	mg/L	0.0500	0.0007	108	75.3–134			
Toluene	0.05	0.001	"	0.0500	0.01	82.1	73.2–130			
Surrogate: 1,2–Dichloroethane–d4	69.5		ug/L	62.5		111	70.3–128			
Surrogate: Toluene–d8	58.3		"	62.5		93.3	78.8–125			
Surrogate: 4–Bromofluorobenzene	64.5		"	62.5		103	75.5–131			
Matrix Spike (9E19004–MS2)					Source: X905069–05 Prepared: 05/19/2009 Analyzed: 05/19/2009					
Benzene	0.05	0.001	mg/L	0.0500	ND	110	75.3–134			
Toluene	0.05	0.001	"	0.0500	0.01	76.2	73.2–130			
Surrogate: 1,2–Dichloroethane–d4	70.2		ug/L	62.5		112	70.3–128			
Surrogate: Toluene–d8	58.5		"	62.5		93.6	78.8–125			
Surrogate: 4–Bromofluorobenzene	63.8		"	62.5		102	75.5–131			
Matrix Spike Dup (9E19004–MSD1)					Source: X905069–04 Prepared: 05/19/2009 Analyzed: 05/19/2009					
Benzene	0.06	0.001	mg/L	0.0500	0.0007	109	75.3–134	1.15	25	
Toluene	0.06	0.001	"	0.0500	0.01	86.4	73.2–130	3.97	25	
Surrogate: 1,2–Dichloroethane–d4	68.7		ug/L	62.5		110	70.3–128			
Surrogate: Toluene–d8	59.2		"	62.5		94.7	78.8–125			
Surrogate: 4–Bromofluorobenzene	65.2		"	62.5		104	75.5–131			
Matrix Spike Dup (9E19004–MSD2)					Source: X905069–05 Prepared: 05/19/2009 Analyzed: 05/19/2009					
Benzene	0.06	0.001	mg/L	0.0500	ND	111	75.3–134	1.11	25	
Toluene	0.06	0.001	"	0.0500	0.01	88.8	73.2–130	11.9	25	
Surrogate: 1,2–Dichloroethane–d4	70.3		ug/L	62.5		112	70.3–128			

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.

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



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

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

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
---------	--------	--------------------	-------	----------------	------------------	------	----------------	-----	--------------	-------

Batch 9E19004 – EPA 5030B

Matrix Spike Dup (9E19004–MSD2)

Source: X905069–05

Prepared: 05/19/2009 Analyzed: 05/19/2009

Surrogate: Toluene-d8	58.7	ug/L	62.5	93.9	78.8–125
Surrogate: 4–Bromofluorobenzene	65.5	"	62.5	105	75.5–131

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 E Doyle, Laboratory Manager

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



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

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

Notes and Definitions

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

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 E Doyle, Laboratory Manager