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North America Division

June 4, 2009

Mr. Robert Chesson
Department Of Natural Resources
Oil & Gas Conservation Commission
1120 Lincoln St., Suite 801
Denver CO 80203-2136

RE: Well Installation and Groundwater Monitoring Results
UPRC 9-9k, 10k
API 05-123-16382
Sec. 9, T3N R66W
Weld County, Colorado

Dear Mr. Chesson:

Please find attached the well installation and quarterly groundwater report for the above referenced site. Please contact the NEI environmental department at (970) 785-5000 if you have any questions or require additional information.

Sincerely,

A handwritten signature in black ink that appears to read 'Mikel Cox'.

Mikel Cox
Environmental Coordinator

A handwritten signature in black ink that appears to read 'Marty Faraguna'.

Marty Faraguna
Environmental Specialist

Attachments



WELL INSTALLATION AND GROUNDWATER MONITORING REPORT MAY 2009

UPRC 9, 9k, 10k

LT Environmental, Inc. (LTE) was retained by Noble Energy, Inc. (Noble) to install post-remediation monitoring wells and to conduct sampling activities at the UPRC 9, 9k, 10k Tank Battery (Site). Monitoring well installation activities and groundwater sampling occurred on April 14, 2009 and April 28, 2009, respectively. Site history and remediation activities were described in the preceding *Remediation Summary Report*, dated April 2009. This well installation and groundwater monitoring event constitutes the first post remediation performance groundwater monitoring event.

LTE personnel were onsite April 14, 2009 to install three monitoring wells (MW01 through MW03) to determine if impacted groundwater exists at the Site. The monitoring wells were installed using a direct-push drill rig owned and operated by High Plains Drilling of Denver, Colorado, and were advanced to 13 feet below ground surface (bgs). The monitoring wells were completed as 2-foot stickups with 1-inch diameter, 0.010-inch slotted, schedule 40, polyvinyl chloride (PVC) screen from 3 feet bgs to 13 feet bgs. Boreholes were filled with 10-20 silica sand from total depth to 2 feet bgs. Bentonite chips were then placed from the top of the sand pack to ground surface and hydrated. Monitoring well (MW01) was installed to the south of the excavation, as an upgradient well. The remaining two monitoring wells (MW02 and MW03) were installed north of the excavation footprint (downgradient). The locations of the three monitoring wells relative to the excavation are presented as Figure 1. Borehole lithologic logs are included as Appendix A.

Groundwater level measurements were collected from the monitoring wells and are summarized in Table 1. Depth to groundwater, which ranged from 6.12 feet below top of casing (btoc) in MW01 to 6.69 feet btoc in MW03, 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.

Analytical results from the monitoring wells, presented in Table 1, indicate BTEX concentrations in all three wells are in compliance with Colorado Department of Public Health and Environment – Water Quality Control Commission Regulation 41 (WQCC Reg. 41). Monitoring well MW03 was the only well to exhibit concentrations above laboratory method detection limits. MW03 exhibited a benzene concentration of 2.70 micrograms per liter (ug/L), an ethylbenzene concentration of 108 ug/L, and a total xylenes concentration of 519.19 ug/L. The laboratory analytical report is included as Appendix B.



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
UPRC 9, 9k, 10k TANK BATTERY
WELD COUNTY, COLORADO
NOBLE ENERGY, INC.**

MONITORING		DEPTH TO	BENZENE	TOLUENE	ETHYLBENZENE	TOTAL
WELL	DATE	WATER (feet btoc)	(ug/L)	(ug/L)	(ug/L)	XYLENES (ug/L)
MW01	4/28/2009	6.12	<1.0	<1.0	<1.0	<3.0
MW02	4/28/2009	6.52	<1.0	<1.0	<1.0	<3.0
MW03	4/28/2009	6.69	2.70	<1.0	108	519.19
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

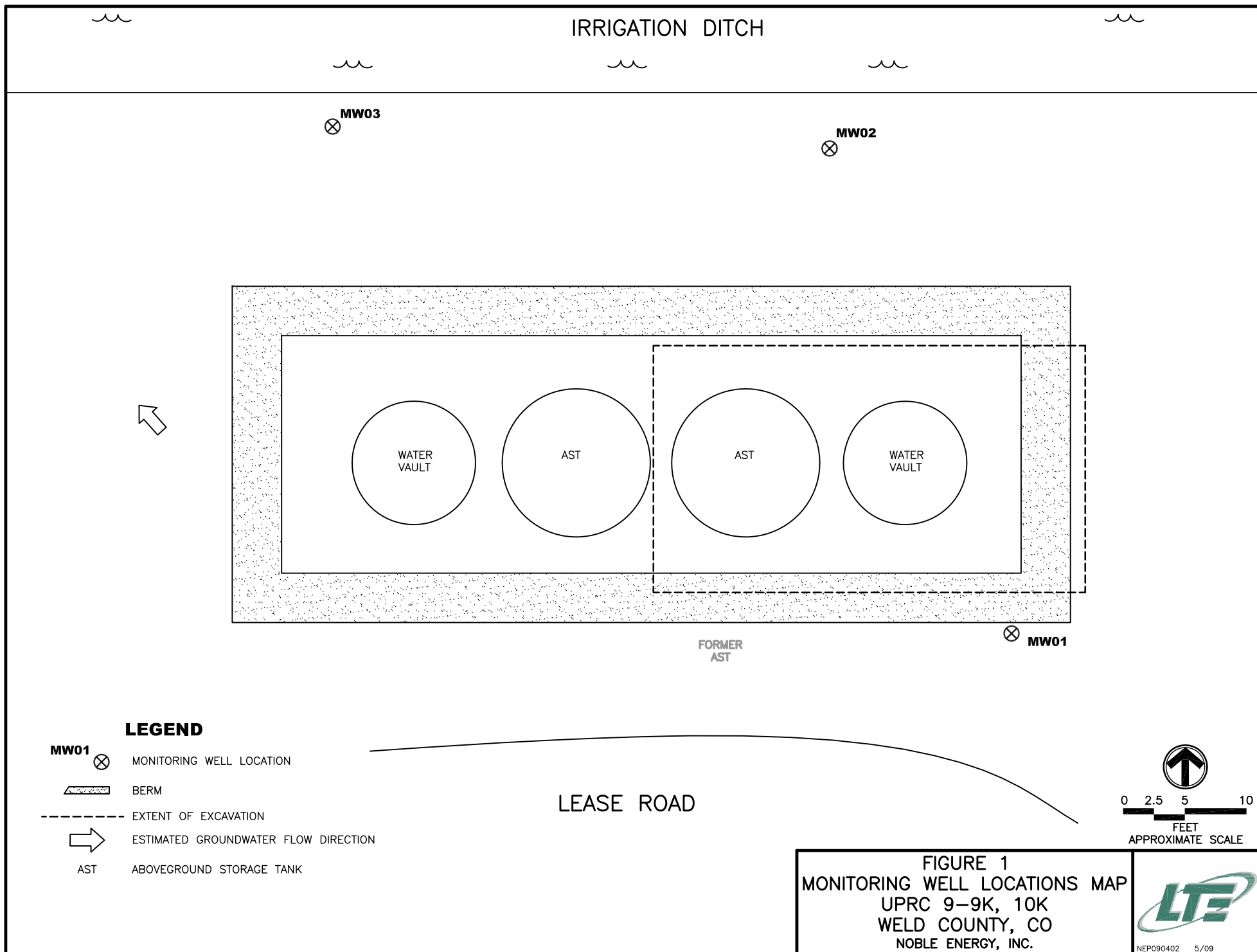
< indicates result is less than the stated laboratory method detection limit

CDPHE WQCC Reg 41 - Colorado Department of Public Health and Environment - Water Quality Control
Commission Regulation 41 covering Basic Standards for Groundwater



FIGURE

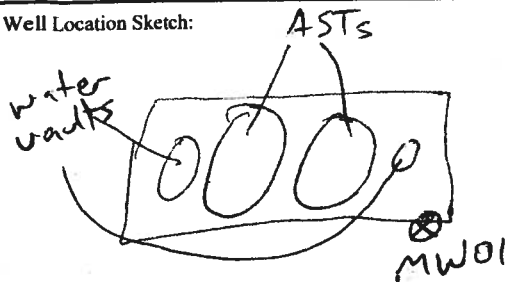




APPENDIX A
BOREHOLE LITHOLOGIC LOGS



Well Location Sketch:



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LT Environmental, Inc.

4600 W. 60th Avenue

Arvada, Colorado 80003

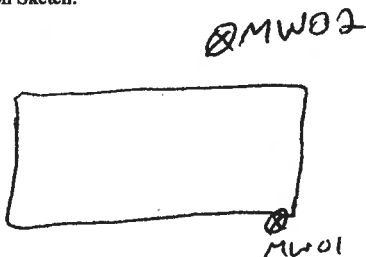
BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number:	MW 01	Project:	UPRC 9, 9k, 10k
Date:	14 4/14/2009	Project Number:	NEP0904
Logged By:	TED	Drilled By:	High Plains Drilling
Drilling Method:	Direct Push	Sampling Method:	Continuous
Seal:	Bentonite Chips	Grout:	Bentonite
Gravel Pack:	CSSI 10x20	Diameter:	Length:
Casing Type:	Sch 40 PVC	1"	3'
Screen Type:	Sch 40 PVC	Diameter:	Length:
Slot:	0.01	1"	10'
		Total Depth:	13'
		Depth to Liquid:	
		Depth to Water:	6'

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion Diagram
					0					
	Moist	0.0	No		2			CL	clay, sandy very fine - fine	
		3.1	Yes		4				Some staining 3-4ft	
	↓	0.0	No		6				high hardness increasing w/ depth	
	Wet		No		8					
	↓		No		10					
	W		No		12			SW	sandy, fine-coarse nodular	
					14					
					16					
					18					
					20					
					22					
					24					
					26					
					28					
					30					
					32					
					34					
					36					
					38					
					40					

TD - 13'

Well Location Sketch:



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BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number:

MW 02

Project:

UPRC 9, 9k, 10k

Date:

4/14/2009

Project Number:

NEP0904

Logged By:

TED

Drilled By:

High Plains Drilling

Elevation:

Detector:

MiniRAE 2000

Drilling Method:

Direct Push

Sampling Method:

Continuous

Gravel Pack:

CSSI 10x20

Seal:

Bentonite Chips

Grout:

Bentonite

Casing Type:

Sch 40 PVC

Diameter:

1"

Length:

3'

Hole Diameter:

2"

Depth to Liquid:

Screen Type:

Sch 40 PVC

Slot:

0.01

Diameter:

1"

Length:

10'

Total Depth:

13'

Depth to Water:

6'

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion Diagram
					0					
	Moist	0.0	No		2				CL	
	↓	0.0	No		4				Clay, sandy very fine - fine coarse	
	↓	0.0	No		6				no odor, lt. brown	
	Wet		No		8					
	↓		No		10					
	↓		No		12				SW Sand, fine-coarse, no odor	
					14					
					16					
					18					
					20					
					22					
					24					
					26					
					28					
					30					
					32					
					34					
					36					
					38					
					40					

TD-13'

Well Location Sketch:

MW03

MW02



MW01



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BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number:

MW 03

Project:

UPRC 9, 9k, 10k

Date:

4/14/2009

Project Number:

NEP0904

Logged By:

TED

Drilled By:

High Plains Drilling

Elevation:

Detector:

MiniRAE 2000

Drilling Method:

Direct Push

Sampling Method:

Continuous

Gravel Pack:

CSSI 10x20

Seal:

Bentonite Chips

Grout:

Bentonite

Casing Type:

Sch 40 PVC

Diameter:

1"

Length:

3'

Hole Diameter:

2"

Depth to Liquid:

Screen Type:

Sch 40 PVC

Slot:

0.01

Diameter:

1"

Length:

10'

Total Depth:

13'

Depth to Water:

6'

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion Diagram
					0					
	Moist				2				CL clay, sandy very fine → coarse lt. brown, no odor increasing clay, less sand with depth	
	↓				4					
					6					
	Wet				8					
	↓				10					
					12					
					14					
					16					
					18					
					20					
					22					
					24					
					26					
					28					
					30					
					32					
					34					
					36					
					38					
					40					

APPENDIX B
LABORATORY ANALYTICAL REPORT





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

April 30, 2009

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

Brian Dodek
Project Number: NEP0904
Project: Noble – UPRC 9, 9k– 10k

Attached are the analytical results for Noble – UPRC 9, 9k– 10k received by Origins Laboratory, Inc. 4/28/2009 2:58:00PM. 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.

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

Brian Dodek
Project Number: NEP0904
Project: Noble – UPRC 9, 9k– 10k

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Sampled	Date Received
MW01	X904082-01	Water	4/28/2009 1:45:00PM	04/28/2009 14:58
MW02	X904082-02	Water	4/28/2009 1:50:00PM	04/28/2009 14:58
MW03	X904082-03	Water	4/28/2009 1:55:00PM	04/28/2009 14:58

Origins Laboratory, Inc.

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Noelle E Doyle, Laboratory Manager

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

Brian Dodek
Project Number: NEP0904
Project: Noble - UPRC 9, 9k- 10k

X904082
page 1 of 1



originslaboratory.com

Client: LT E
Address: ON FILE
Telephone Number: ON FILE
E-Mail Address: ON FILE

Project Manager: BDD
Project Name: UPRC 9, 9k, 10k
Project Number: NEP0904
Samples Collected by: TED

Sample ID - Description	Date Sampled	Time Sampled	Number of Containers	Preservative				Matrix			Analysis	Sample Instructions
				Unpreserved	HCl	HNO ₃	Other - ICF	Soil	Groundwater	Air - Summa Canister #		
MW01	4/28/09	1345	3		X	X	X				X X X	1
MW02	4/28/09	1350			X	X	X				X X X	2
MW03	4/28/09	1355			X	X	X				X X X	3
												4
												5
												6
												7
												8
												9
												10
Relinquished by: <u>SED</u>	Date: <u>4/28/09</u>	Time: <u>1458</u>	Received by: <u>[Signature]</u>	Date: <u>4/28/09</u>	Time: <u>1458</u>	Received by: <u>[Signature]</u>	Date: <u>4/28/09</u>	Time: <u>1458</u>	Temperature Upon Receipt: <u>37C</u>	Turn Around Time: <u>24-hr</u>	Standard: <u>72-hr</u>	

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

Origins Laboratory, Inc.

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Noelle E Doyle, Laboratory Manager

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

Brian Dodek
Project Number: NEP0904
Project: Noble – UPRC 9, 9k– 10k

MW01
X904082-01 (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	9D29001	04/29/2009	04/29/2009
Toluene	ND	0.00100	"	"	"	"	"
Ethylbenzene	ND	0.00100	"	"	"	"	"
o-Xylene	ND	0.00100	"	"	"	"	"
m,p-Xylene	ND	0.00200	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	103 %	70.3-128	"	"	"
Surrogate: Toluene-d8	97.6 %	78.8-125	"	"	"
Surrogate: 4-Bromofluorobenzene	121 %	75.5-131	"	"	"

Origins Laboratory, Inc.

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Brian Dodek
Project Number: NEP0904
Project: Noble – UPRC 9, 9k– 10k

MW02

X904082-02 (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	9D29001	04/29/2009	04/29/2009
Toluene	ND	0.00100	"	"	"	"	"
Ethylbenzene	ND	0.00100	"	"	"	"	"
o-Xylene	ND	0.00100	"	"	"	"	"
m,p-Xylene	ND	0.00200	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	99.0 %	70.3-128	"	"	"
Surrogate: Toluene-d8	101 %	78.8-125	"	"	"
Surrogate: 4-Bromofluorobenzene	125 %	75.5-131	"	"	"

Origins Laboratory, Inc.

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Noelle E Doyle, Laboratory Manager

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LT Environmental, Inc.
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Arvada CO 80003

Brian Dodek
Project Number: NEP0904
Project: Noble – UPRC 9, 9k– 10k

MW03

X904082–03 (Water)

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Notes
		Limit							

Origins Laboratory, Inc.

BTEX by EPA 8260B

Benzene	0.00270	0.00100	mg/L	1	9D29001	04/29/2009	04/29/2009
Toluene	ND	0.00100	"	"	"	"	"
Ethylbenzene	0.108	0.00100	"	"	"	"	"
o-Xylene	0.00219	0.00100	"	"	"	"	"
m,p-Xylene	0.517	0.00200	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	99.9 %	70.3–128	"	"	"
Surrogate: Toluene-d8	98.0 %	78.8–125	"	"	"
Surrogate: 4-Bromofluorobenzene	101 %	75.5–131	"	"	"

Origins Laboratory, Inc.

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Noelle E Doyle, Laboratory Manager

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

Brian Dodek
Project Number: NEP0904
Project: Noble – UPRC 9, 9k– 10k

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 9D29001 – EPA 5030B

Blank (9D29001–BLK1)

Prepared: 04/29/2009 Analyzed: 04/29/2009

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	64.1		ug/L	62.5		103	70.3–128			
Surrogate: Toluene-d8	64.0		"	62.5		102	78.8–125			
Surrogate: 4-Bromofluorobenzene	70.8		"	62.5		113	75.5–131			

LCS (9D29001–BS1)

Prepared: 04/29/2009 Analyzed: 04/29/2009

Benzene	0.05	0.001	mg/L	0.0500		104	64.2–124			
Toluene	0.06	0.001	"	0.0500		113	63.9–119			
Surrogate: 1,2-Dichloroethane-d4	62.6		ug/L	62.5		100	70.3–128			
Surrogate: Toluene-d8	64.9		"	62.5		104	78.8–125			
Surrogate: 4-Bromofluorobenzene	68.8		"	62.5		110	75.5–131			

Matrix Spike (9D29001–MS1)

Source: X904075–03

Prepared: 04/29/2009 Analyzed: 04/29/2009

Benzene	0.14	0.001	mg/L	0.0500	0.10	92.5	64.2–124			
Toluene	0.06	0.001	"	0.0500	ND	112	63.9–119			
Surrogate: 1,2-Dichloroethane-d4	61.3		ug/L	62.5		98.1	70.3–128			
Surrogate: Toluene-d8	62.9		"	62.5		101	78.8–125			
Surrogate: 4-Bromofluorobenzene	66.0		"	62.5		106	75.5–131			

Matrix Spike Dup (9D29001–MSD1)

Source: X904075–03

Prepared: 04/29/2009 Analyzed: 04/29/2009

Benzene	0.14	0.001	mg/L	0.0500	0.10	85.4	64.2–124	2.49	25	
Toluene	0.06	0.001	"	0.0500	ND	112	63.9–119	0.661	25	
Surrogate: 1,2-Dichloroethane-d4	62.7		ug/L	62.5		100	70.3–128			
Surrogate: Toluene-d8	64.8		"	62.5		104	78.8–125			
Surrogate: 4-Bromofluorobenzene	64.2		"	62.5		103	75.5–131			

Origins Laboratory, Inc.

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Noelle E Doyle, Laboratory Manager

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LT Environmental, Inc.
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Arvada CO 80003

Brian Dodek
Project Number: NEP0904
Project: Noble – UPRC 9, 9k– 10k

Notes and Definitions

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

Origins Laboratory, Inc.

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Noelle E Doyle, Laboratory Manager