



Remediation #5137

GROUNDWATER MONITORING REPORT OCTOBER 2010

McCLELLAN 3-1

On October 21, 2010, LT Environmental, Inc. (LTE) conducted groundwater sampling on behalf of Noble Energy, Inc., at the McClellan 3-1 Tank Battery (Site). This sampling event constitutes the second post remediation monitoring event at this Site. Site history, remediation activities, well installation, and performance monitoring results have been described in the preceding reports.

Groundwater level measurements were collected from the monitoring wells and are summarized in Table 1. The monitoring wells (MW01, MW02, and MW03) were installed on July 15, 2010. A Site Map is presented on Figure 1.

Depth to groundwater, which ranged from 3.17 feet below top of casing (btoc) in MW02 to 4.24 feet btoc in MW01, was used to calculate well-specific purge volumes. Samples were submitted 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 indicate BTEX concentrations are in compliance with Colorado Department of Public Health and Environment-Water Quality Control Commission Regulation 41 (WQCC Reg 41). The laboratory analytical report is included in the Appendix.

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 January 2010.

TABLE

TABLE 1

**GROUNDWATER ANALYTICAL DATA
MCCLELLAN 3-1, 3-32, 3-35 TANK BATTERY
WELD COUNTY, COLORADO
NOBLE ENERGY, INC.**

MONITORING WELL	DATE	DEPTH TO WATER (feet btoc)	BENZENE (µg/l)	TOLUENE (µg/l)	ETHYLBENZENE (µg/l)	XYLENES (µg/l)
MW01	7/20/2010	4.36	<1.0	<1.0	<1.0	<1.0
	10/21/2010	4.24	<1.0	<1.0	<1.0	<3.0
MW02	7/20/2010	3.23	<1.0	<1.0	<1.0	<1.0
	10/21/2010	3.17	<1.0	<1.0	<1.0	<3.0
MW03	7/20/2010	3.41	<1.0	<1.0	<1.0	<1.0
	10/21/2010	3.2	<1.0	<1.0	<1.0	<3.0
CDPHE WQCC Reg 41			5.0	560	700	1,400

NOTES:

btoc - below top of casing

µg/l - micrograms per liter

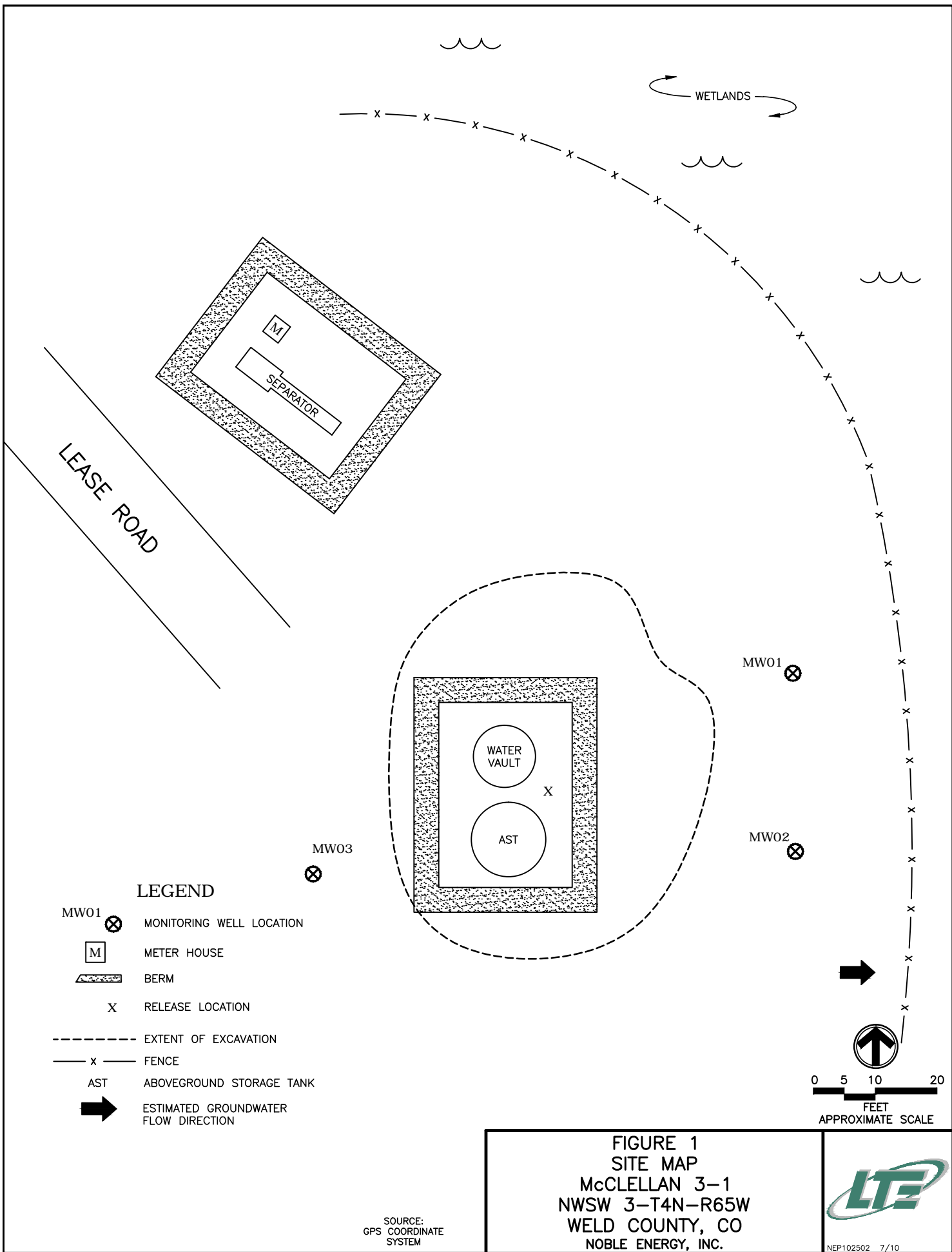
< - indicates result is less than the stated laboratory method reporting limit

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, total xylenes analyzed by EPA Method 8260B

FIGURE



LEGEND

- MW01  MONITORING WELL LOCATION
-  METER HOUSE
-  BERM
- X RELEASE LOCATION
- EXTENT OF EXCAVATION
- x — FENCE
- AST ABOVEGROUND STORAGE TANK
-  ESTIMATED GROUNDWATER FLOW DIRECTION

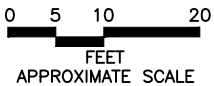


FIGURE 1
SITE MAP
McCLELLAN 3-1
NWSW 3-T4N-R65W
WELD COUNTY, CO
NOBLE ENERGY, INC.



APPENDIX
ANALYTICAL REPORT



10/26/2010

LT Environmental, Inc.

Matthew Harrison

4600 West 60th Avenue

Arvada

CO

80003

Project Name- Noble - McClellan 3-1

Project Number- NEPI025

Attached are your analytical results for Noble - McClellan 3-1 received by Origins Laboratory, Inc. October 21, 2010 4:15 pm. This project is associated with Origins project number X010176-01 .

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.

Thank you for selecting Origins for your analytical needs. Please contact us with any questions concerning this report, or if we can help with anything at all,

Origins Laboratory, Inc.

303.433.1322

o-squad@oelabinc.com

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

Matthew Harrison
Project Number: NEPI025
Project: Noble - McClellan 3-1

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Sampled	Date Received
MW-01	X010176-01	Water	10/21/2010 3:17:00PM	10/21/2010 16:15
MW-02	X010176-02	Water	10/21/2010 3:02:00PM	10/21/2010 16:15
MW-03	X010176-03	Water	10/21/2010 2:48:00PM	10/21/2010 16:15

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,

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

Matthew Harrison
Project Number: NEPI025
Project: Noble - McClellan 3-1

www.originslaboratory.com

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X010176

ORIGINS
LABORATORY, INC

Client: LTE	Project Manager: M. Harrison
Address:	Project Name: McClellan 3-1
Telephone Number:	Project Number: NEPI025
Email Address: M.Harrison@ltenv.com	Samples Collected By: D. Burns

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix			Analysis	Sample Instructions	
				Unpreserved	HCl	HNO ₃	Other	Groundwater	Soil	Air Summa #			Other
MW01	6/21/10	1517	2	X				X					1
MW02	↓	1502	↓	X				X					2
MW03	↓	1448	↓	X				X					3
													4
													5
													6
													7
													8
													9
													10

Relinquished By: [Signature]	Date: 6/21/10	Time: 16:15	Received By: [Signature]	Date: 10/21/10	Time: 16:15
Relinquished By:	Date:	Time:	Received By:	Date:	Time:

Turnaround Time:	Same Day <input type="checkbox"/>	24 Hr <input type="checkbox"/>
	48 Hr <input type="checkbox"/>	72 Hr <input checked="" type="checkbox"/>
	Standard <input type="checkbox"/>	

Units: Barely Measured

1725 Elk Place | Denver, CO 80211 | Phone: 303.433.1322 | Fax: 303.265.9645

Origins Laboratory, Inc.

Noelle E Doyle

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

Matthew Harrison
Project Number: NEPI025
Project: Noble - McClellan 3-1

MW-01

10/21/2010 3:17:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X010176-01 (Water)

BTEX by EPA 8260B

Benzene	ND	1.00	ug/L	1	0J22002	10/22/2010	10/23/2010
Toluene	ND	1.00	"	"	"	"	"
Ethylbenzene	ND	1.00	"	"	"	"	"
m,p-Xylene	ND	2.00	"	"	"	"	"
o-Xylene	ND	1.00	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	109 %	73.5-130	"	"	"
Surrogate: Toluene-d8	95.5 %	79.3-113	"	"	"
Surrogate: 4-Bromofluorobenzene	102 %	81.5-117	"	"	"

Origins Laboratory, Inc.



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4600 West 60th Avenue
Arvada CO 80003

Matthew Harrison
Project Number: NEPI025
Project: Noble - McClellan 3-1

MW-02

10/21/2010 3:02:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
XO10176-02 (Water)

BTEX by EPA 8260B

Benzene	ND	1.00	ug/L	1	OJ22002	10/22/2010	10/23/2010
Toluene	ND	1.00	"	"	"	"	"
Ethylbenzene	ND	1.00	"	"	"	"	"
m,p-Xylene	ND	2.00	"	"	"	"	"
o-Xylene	ND	1.00	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	107 %	73.5-130			"	"	"
Surrogate: Toluene-d8	95.8 %	79.3-113			"	"	"
Surrogate: 4-Bromofluorobenzene	105 %	81.5-117			"	"	"

Origins Laboratory, Inc.



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Project Number: NEPI025
Project: Noble - McClellan 3-1

MW-03

10/21/2010 2:48:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X010176-03 (Water)

BTEX by EPA 8260B

Benzene	ND	1.00	ug/L	1	0J22002	10/22/2010	10/23/2010
Toluene	ND	1.00	"	"	"	"	"
Ethylbenzene	ND	1.00	"	"	"	"	"
m,p-Xylene	ND	2.00	"	"	"	"	"
o-Xylene	ND	1.00	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	106 %	73.5-130	"	"	"
Surrogate: Toluene-d8	94.8 %	79.3-113	"	"	"
Surrogate: 4-Bromofluorobenzene	108 %	81.5-117	"	"	"

Origins Laboratory, Inc.



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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 OJ22002 - EPA 5030B

Blank (OJ22002-BLK1)

Prepared: 10/22/2010 Analyzed: 10/25/2010

Benzene	ND	1.00	ug/L
Toluene	ND	1.00	"
Ethylbenzene	ND	1.00	"
m,p-Xylene	ND	2.00	"
o-Xylene	ND	1.00	"

Surrogate: 1,2-Dichloroethane-d4	68.9	"	62.5	110	73.5-130
Surrogate: Toluene-d8	59.2	"	62.5	94.7	79.3-113
Surrogate: 4-Bromofluorobenzene	65.4	"	62.5	105	81.5-117

LCS (OJ22002-BSI)

Prepared: 10/22/2010 Analyzed: 10/25/2010

Benzene	49.7	1.00	ug/L	50.0	99.4	77.3-128
Toluene	48.2	1.00	"	50.0	96.3	81.7-118

Surrogate: 1,2-Dichloroethane-d4	69.1	"	62.5	111	73.5-130
Surrogate: Toluene-d8	59.0	"	62.5	94.5	79.3-113
Surrogate: 4-Bromofluorobenzene	67.5	"	62.5	108	81.5-117

Matrix Spike (OJ22002-MSI)

Source: X010175-02

Prepared: 10/22/2010 Analyzed: 10/25/2010

Benzene	49.8	1.00	ug/L	50.0	ND	99.6	74.5-132
Toluene	48.0	1.00	"	50.0	ND	96.1	74.2-116

Surrogate: 1,2-Dichloroethane-d4	68.6	"	62.5	110	73.5-130
Surrogate: Toluene-d8	58.7	"	62.5	94.0	79.3-113
Surrogate: 4-Bromofluorobenzene	66.4	"	62.5	106	81.5-117

Matrix Spike Dup (OJ22002-MSD1)

Source: X010175-02

Prepared: 10/22/2010 Analyzed: 10/25/2010

Benzene	49.8	1.00	ug/L	50.0	ND	99.6	74.5-132	0.0603	13.1
Toluene	48.2	1.00	"	50.0	ND	96.3	74.2-116	0.270	21.2

Surrogate: 1,2-Dichloroethane-d4	68.4	"	62.5	109	73.5-130
Surrogate: Toluene-d8	59.4	"	62.5	95.0	79.3-113
Surrogate: 4-Bromofluorobenzene	66.1	"	62.5	106	81.5-117

Origins Laboratory, Inc.



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Project: Noble - McClellan 3-1

Notes and Definitions

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

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