

GROUNDWATER MONITORING REPORT OCTOBER 2009

STRONG 21-15JI

On August 24, 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 third 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 3.55 feet below top of casing (btoc) in MW03 to 3.64 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.

LTE will continue to conduct quarterly groundwater monitoring events with the goal of observing four consecutive quarters of analytical results in compliance with WQCC Reg 41. The next quarterly groundwater sampling event is scheduled for November 2009.

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 |
| 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 |
| 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 |
| CDPHE WQCC Reg 41 | | | 5.0 | 560 | 700 | 1,400 |

NOTES:

btoc - below top of casing

ug/L - micrograms per liter

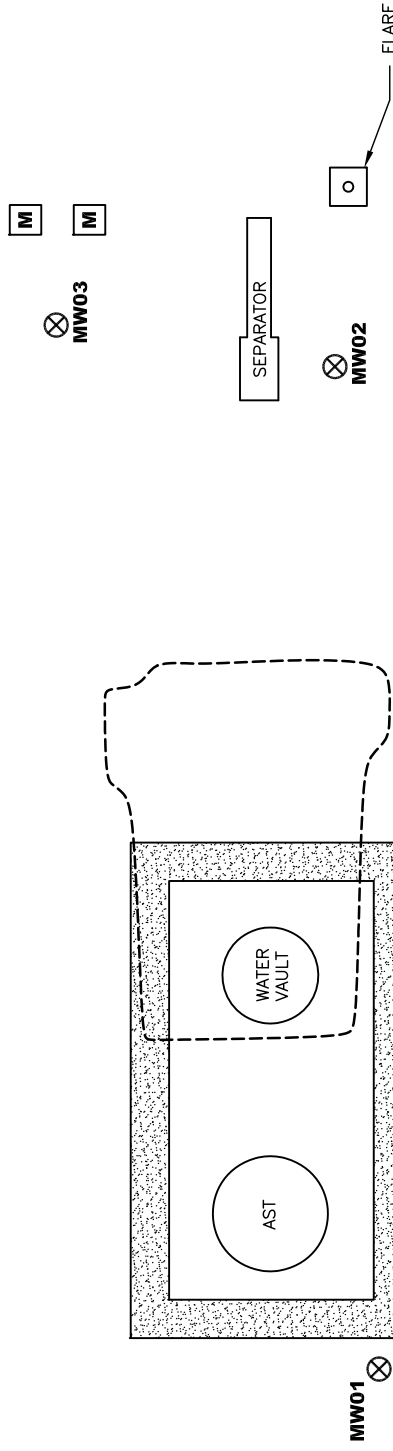
< - indicates result is less than the stated laboratory method detection limit

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



LEGEND

- MW01** MONITORING WELL LOCATION
- METER HOUSE
- BERM
- EXTENT OF EXCAVATION
- ESTIMATED GROUNDWATER FLOW DIRECTION
- AST** ABOVEGROUND STORAGE TANK



0 5 10 20
FEET
APPROXIMATE SCALE

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

October 09, 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. 8/24/2009 2:05:00PM. 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: NEP0833
Project: Noble – Strong 21–15Jl,23

CROSS REFERENCE REPORT

| Sample ID | Laboratory ID | Matrix | Sampled | Date Received |
|-----------|---------------|--------|----------------------|------------------|
| MW-01 | X908080-01 | Water | 8/24/2009 11:25:00AM | 08/24/2009 14:05 |
| MW-02 | X908080-02 | Water | 8/24/2009 11:30:00AM | 08/24/2009 14:05 |
| MW-03 | X908080-03 | Water | 8/24/2009 11:35:00AM | 08/24/2009 14:05 |

Origins Laboratory, Inc.

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

page 1 of 1
X408080



originslaboratory.com

Client: LT ENV.
Address: 4600 West 60th Avenue
Telephone Number: 303.265.9645
E-Mail Address: brian.dodek@ltenv.com
Project Manager: Brian Dodek
Project Name: Strong 21-15JL
Project Number: NEP0833
Samples Collected by: PA. Horvath

| Sample ID - Description | Date Sampled | Time Sampled | Number of Containers | Preservative | | | | Matrix | | | Analysis | | Sample Instructions |
|-------------------------------------|----------------------|-------------------|---------------------------------|----------------------|-------------------|--|--------------------------------|------------------------|------|------------------------|----------|--|---------------------|
| | | | | Unpreserved | HCl | HNO ₃ | Other - | Groundwater | Soil | Air - Summa Canister # | Other - | | |
| MW01 | 8/24/09 | 1125 | 2 | X | | | | X | | | | | 1 |
| MW02 | 8/24/09 | 1130 | 1 | I | | | | I | | | | | 2 |
| MW03 | 8/24/09 | 1135 | 1 | I | | | | I | | | | | 3 |
| | | | | | | | | | | | | | 4 |
| | | | | | | | | | | | | | 5 |
| | | | | | | | | | | | | | 6 |
| | | | | | | | | | | | | | 7 |
| | | | | | | | | | | | | | 8 |
| | | | | | | | | | | | | | 9 |
| | | | | | | | | | | | | | 10 |
| Relinquished by: <u>[Signature]</u> | Date: <u>8/24/09</u> | Time: <u>1405</u> | Received by: <u>[Signature]</u> | Date: <u>8/24/09</u> | Time: <u>1405</u> | Temperature Upon Receipt: <u>24-hr</u> | Turn Around Time: <u>24-hr</u> | Standard: <u>72-hr</u> | | | | | |

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

MW-01

X908080-01 (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 | 9H25001 | 08/25/2009 | 08/25/2009 |
| Toluene | ND | 0.00100 | " | " | " | " | " |
| Ethylbenzene | ND | 0.00100 | " | " | " | " | " |
| o-Xylene | ND | 0.00100 | " | " | " | " | " |
| m,p-Xylene | ND | 0.00200 | " | " | " | " | " |

| | | | | | |
|----------------------------------|--------|----------|---|---|---|
| Surrogate: 1,2-Dichloroethane-d4 | 101 % | 85.7–134 | " | " | " |
| Surrogate: Toluene-d8 | 103 % | 81.4–121 | " | " | " |
| Surrogate: 4-Bromofluorobenzene | 99.0 % | 74.7–127 | " | " | " |

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

MW-02

X908080-02 (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 | 9H25001 | 08/25/2009 | 08/25/2009 |
| Toluene | ND | 0.00100 | " | " | " | " | " |
| Ethylbenzene | ND | 0.00100 | " | " | " | " | " |
| o-Xylene | ND | 0.00100 | " | " | " | " | " |
| m,p-Xylene | ND | 0.00200 | " | " | " | " | " |

| | | | | | |
|----------------------------------|--------|----------|---|---|---|
| Surrogate: 1,2-Dichloroethane-d4 | 101 % | 85.7-134 | " | " | " |
| Surrogate: Toluene-d8 | 103 % | 81.4-121 | " | " | " |
| Surrogate: 4-Bromofluorobenzene | 98.4 % | 74.7-127 | " | " | " |

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

MW-03

X908080-03 (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 | 9H25001 | 08/25/2009 | 08/25/2009 |
| Toluene | ND | 0.00100 | " | " | " | " | " |
| Ethylbenzene | ND | 0.00100 | " | " | " | " | " |
| o-Xylene | ND | 0.00100 | " | " | " | " | " |
| m,p-Xylene | ND | 0.00200 | " | " | " | " | " |

| | | | | | |
|----------------------------------|--------|----------|---|---|---|
| Surrogate: 1,2-Dichloroethane-d4 | 102 % | 85.7-134 | " | " | " |
| Surrogate: Toluene-d8 | 107 % | 81.4-121 | " | " | " |
| Surrogate: 4-Bromofluorobenzene | 99.8 % | 74.7-127 | " | " | " |

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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 |
|---------|--------|-----------------|-------|-------------|---------------|------|-------------|-----|-----------|-------|
|---------|--------|-----------------|-------|-------------|---------------|------|-------------|-----|-----------|-------|

Batch 9H25001 – EPA 5030B

Blank (9H25001–BLK1)

Prepared: 08/25/2009 Analyzed: 08/25/2009

| | | | | | | | | | | |
|----------------------------------|------|-------|------|------|--|------|----------|--|--|--|
| 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 | 60.7 | | ug/L | 62.5 | | 97.1 | 85.7–134 | | | |
| Surrogate: Toluene-d8 | 65.4 | | " | 62.5 | | 105 | 81.4–121 | | | |
| Surrogate: 4-Bromofluorobenzene | 60.4 | | " | 62.5 | | 96.7 | 74.7–127 | | | |

LCS (9H25001–BS1)

Prepared: 08/25/2009 Analyzed: 08/25/2009

| | | | | | | | | | | |
|----------------------------------|------|-------|------|--------|--|------|----------|--|--|--|
| Benzene | 0.06 | 0.001 | mg/L | 0.0500 | | 114 | 74.9–126 | | | |
| Toluene | 0.06 | 0.001 | " | 0.0500 | | 121 | 73.3–128 | | | |
| Surrogate: 1,2-Dichloroethane-d4 | 61.8 | | ug/L | 62.5 | | 98.9 | 85.7–134 | | | |
| Surrogate: Toluene-d8 | 63.6 | | " | 62.5 | | 102 | 81.4–121 | | | |
| Surrogate: 4-Bromofluorobenzene | 61.1 | | " | 62.5 | | 97.8 | 74.7–127 | | | |

Matrix Spike (9H25001–MS1)

Source: X908075–02

Prepared: 08/25/2009 Analyzed: 08/25/2009

| | | | | | | | | | | |
|----------------------------------|------|-------|------|--------|----|------|----------|--|--|------|
| Benzene | 0.05 | 0.001 | mg/L | 0.0500 | ND | 100 | 78.1–132 | | | |
| Toluene | 0.06 | 0.001 | " | 0.0500 | ND | 122 | 71.7–124 | | | |
| Surrogate: 1,2-Dichloroethane-d4 | 41.6 | | ug/L | 62.5 | | 66.5 | 85.7–134 | | | S–GC |
| Surrogate: Toluene-d8 | 75.8 | | " | 62.5 | | 121 | 81.4–121 | | | |
| Surrogate: 4-Bromofluorobenzene | 59.5 | | " | 62.5 | | 95.1 | 74.7–127 | | | |

Matrix Spike Dup (9H25001–MSD1)

Source: X908075–02

Prepared: 08/25/2009 Analyzed: 08/25/2009

| | | | | | | | | | | |
|----------------------------------|------|-------|------|--------|----|------|----------|------|------|-------|
| Benzene | 0.05 | 0.001 | mg/L | 0.0500 | ND | 106 | 78.1–132 | 5.75 | 24.8 | |
| Toluene | 0.06 | 0.001 | " | 0.0500 | ND | 130 | 71.7–124 | 6.41 | 25 | QM–07 |
| Surrogate: 1,2-Dichloroethane-d4 | 42.8 | | ug/L | 62.5 | | 68.4 | 85.7–134 | | | S–GC |
| Surrogate: Toluene-d8 | 77.0 | | " | 62.5 | | 123 | 81.4–121 | | | S–GC |
| Surrogate: 4-Bromofluorobenzene | 58.2 | | " | 62.5 | | 93.1 | 74.7–127 | | | |

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Notes and Definitions

| | |
|-------|--|
| S-GC | Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the remaining surrogate. |
| 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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