

1625 Broadway  
Suite 2200.  
Denver, CO 80202



Tel: 303.228.4000  
Fax: 303.228.4286  
www.nobleenergyinc.com

North America Division

July 9, 2012

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

RE: Ground Water Monitoring Report  
Chesnut G22-6  
Remediation # **4316**  
API 05-123-17715  
Sec. 22, T46N R65W  
Weld County, Colorado

Dear Mr. Chesson:

Please find attached quarterly ground water monitoring report for the Chesnut G 22-6. Noble Energy Inc. would like to claim business confidentiality protection for the information submitted in this letter, the supporting materials attached and all previous and subsequent correspondence related to this matter. Please contact the Noble Energy Environmental Department at (303) 228-4158 if you have any questions or require additional information.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Ryan Bruner'.

Ryan Bruner  
Environmental and Regulatory Supervisor

Attachments



June 29, 2012

Mr. Todd Cullum  
Base Construction Foreman  
Noble Energy, Inc.  
2115 117<sup>th</sup> Avenue  
Greeley, Colorado 80634

**RE: Second Quarter 2012 Remediation and Monitoring Summary Report  
Chesnut G 22-6 Tank Battery  
Weld County, Colorado  
COGCC Tracking #1984181 & Remediation #4316**

Dear Mr. Cullum:

LT Environmental, Inc. (LTE), under the direction of Noble Energy, Inc (Noble), conducted corrective actions at the Chesnut G 22-6 Tank Battery (Site) located approximately 0.5 miles south of the intersection of County Road (CR) 44 and CR 43 in Weld County, Colorado (Figure 1).

Site assessment results were previously discussed in the *LTE Environmental Site Assessment Results*, dated April 15, 2009. Noble is continuing groundwater monitoring at the Site to evaluate the previously identified groundwater impact. Phase I of the remediation program, which included source removal, was conducted in December 2008 and summarized in the *LTE Excavation Summary Report*, dated April 2009. LTE, as directed by Noble, has initiated Phase II of the remediation program, which includes an air sparging/soil vapor extraction (AS/SVE) remediation system to mitigate remaining groundwater impact. This report summarizes activities conducted at the Site from April 1, 2012, through June 19, 2012, including operation and maintenance (O&M) of the remediation system, air emissions sampling, and quarterly groundwater monitoring.

### **Remediation System Description**

The AS system is designed to introduce ambient air into the subsurface water column for dissolved hydrocarbon volatilization and to promote aerobic microbial decomposition of petroleum constituents. The SVE system is designed to volatilize petroleum constituents adsorbed onto soil particles and to remove petroleum vapors released from the groundwater by the AS system. AS and SVE wells are connected to a remediation equipment trailer housing the equipment for the AS/SVE systems (Figures 2 and 3). Additional details of the remediation system were provided in the *LTE Remediation System Installation, Startup, and Groundwater Sampling Results*, dated November 22, 2010.

## **Remediation System Operations and Maintenance**

Remediation system operations (Phase II remediation program) were initiated on August 24, 2010. The AS/SVE systems operated approximately 50 percent during the reporting period. System operations were limited during the reporting period due to high temperatures causing generator shutdowns. As a result, LTE initiated the use of a timer to limit operations to low ambient temperature times of the day, and also increased air circulation and venting of the generator room. Table 1 provides a summary of system operations.

O&M activities conducted during the reporting period included:

- Completing routine weekly O&M checks to monitor and adjust system performance;
- Testing and analyzing air emissions;
- Changing the generator oil;
- Changing the generator spark plugs;
- Adjusting generator valve overhead clearances; and
- Troubleshooting the generator.

## **Soil Vapor Extraction Air Emissions**

An air sample was collected in a Tedlar<sup>®</sup> bag from the SVE discharge stack on May 17, 2012. The sample was delivered under strict chain-of-custody (COC) protocol to Origins Laboratory, Inc. (Origins) in Denver, Colorado, for analysis of benzene, toluene, ethylbenzene, and total xylenes (BTEX) and total petroleum hydrocarbons-gasoline range organics (TPH-GRO) by United States Environmental Protection Agency (EPA) Modified Method TO-15. Laboratory analytical results of the air sample collected on May 17, 2012, are summarized in Table 2 and included in Attachment 1.

As of May 17, 2012, approximately 844 pounds of volatile organic compounds (VOCs) have been removed by the SVE system. Air emission calculations through May 17, 2012, are provided in Table 2.

## **Groundwater Sampling Procedures**

Seventeen groundwater monitoring wells (MW01R, MW02, MW04, MW05, MW06, MW07, MW08R, MW09R, MW10, MW11, MW12, MW13, MW15, MW16R, MW17R, MW23R, and MW26) were sampled at the Site on June 8, 2012, to determine the current plume extent.

Prior to sampling each monitoring well, the depth to groundwater was measured and recorded for calculating purge volumes (Table 3). Each well was purged of three well casing volumes prior

to collection of groundwater samples. Groundwater samples were collected from the well points by advancing disposable 3/16-inch diameter polyvinyl chloride (PVC) tubing inside the 1-inch and 2-inch diameter PVC well casings and extending the tubing to below the groundwater table. A peristaltic pump was utilized to collect the groundwater samples prior to placement into laboratory-prepared sample bottles. Groundwater samples were collected in 40-milliliter vials, placed on ice in a cooler, and delivered under strict COC protocol to eAnalytics Laboratory of Loveland, Colorado. Samples were analyzed for BTEX by EPA Method 8260C.

## **Hydrogeology**

During the June 2012 monitoring event, the depths to groundwater ranged from 4.56 feet below top of casing (btoc) in MW01R to 12.34 feet btoc in MW09R (Table 3). The groundwater flow direction was predominantly to the east with an average hydraulic gradient of approximately 0.027 feet per foot. A relative groundwater elevation map is provided as Figure 4.

## **Groundwater Analytical Results**

The Colorado Department of Public Health and Environment-Water Quality Control Commission has established Regulation 41-The Basic Standards for Ground Water (WQCC Reg 41) for BTEX at 5.0 micrograms per liter ( $\mu\text{g/L}$ ), 560  $\mu\text{g/L}$ , 700  $\mu\text{g/L}$ , and 1,400  $\mu\text{g/L}$ , respectively. Historical analytical results and analytical results for June 2012 are presented in Table 3 and illustrated on Figure 5. Laboratory analytical reports, laboratory quality assurance/quality control data, and COC documentation are presented in Attachment 2.

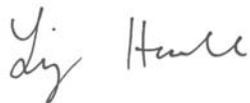
Seventeen groundwater samples were collected during the June 2012 monitoring event. Groundwater analytical results indicated benzene was detected exceeding the WQCC Reg 41 in monitoring wells MW01R, MW04, MW05, MW10, and MW12 at concentrations of 5.8  $\mu\text{g/L}$ , 14.3  $\mu\text{g/L}$ , 337  $\mu\text{g/L}$ , 18.2  $\mu\text{g/L}$ , and 12.8  $\mu\text{g/L}$ , respectively. BTEX compounds were not detected exceeding regulatory standards in the remaining samples.

## **Summary and Conclusions**

Current data suggests a decrease in BTEX since the AS/SVE system began operation with a decrease of approximately 75 percent in the benzene groundwater plume extent, as depicted on Figure 6. However, elevated concentrations of benzene are still present at the Site (Table 3). Noble will conduct groundwater monitoring in September 2012 to assess remediation system performance. LTE, under the direction of Noble, recommends continued AS/SVE system operation and groundwater monitoring at the Site on a quarterly basis.

LTE appreciates the opportunity to provide environmental services to Noble. Please call us at 303-433-9788 if you have any questions or comments regarding this report.

Sincerely,  
LT ENVIRONMENTAL, INC



Liz Houle, E.I.T.  
Staff Engineer



Rob Rebel, P.E.  
Project Manager

Attachments:

Figure 1	Site Location Map
Figure 2	Air Sparging System Layout
Figure 3	Soil Vapor Extraction System Layout
Figure 4	Relative Groundwater Elevation Map
Figure 5	Groundwater Analytical Results
Figure 6	Benzene Groundwater Analytical Results
Table 1	Remediation System Operations Summary
Table 2	Air Emissions Estimate Summary
Table 3	Groundwater Analytical Results
Attachment 1	Air Emissions Laboratory Analytical Report
Attachment 2	Groundwater Laboratory Analytical Report

## **FIGURES**

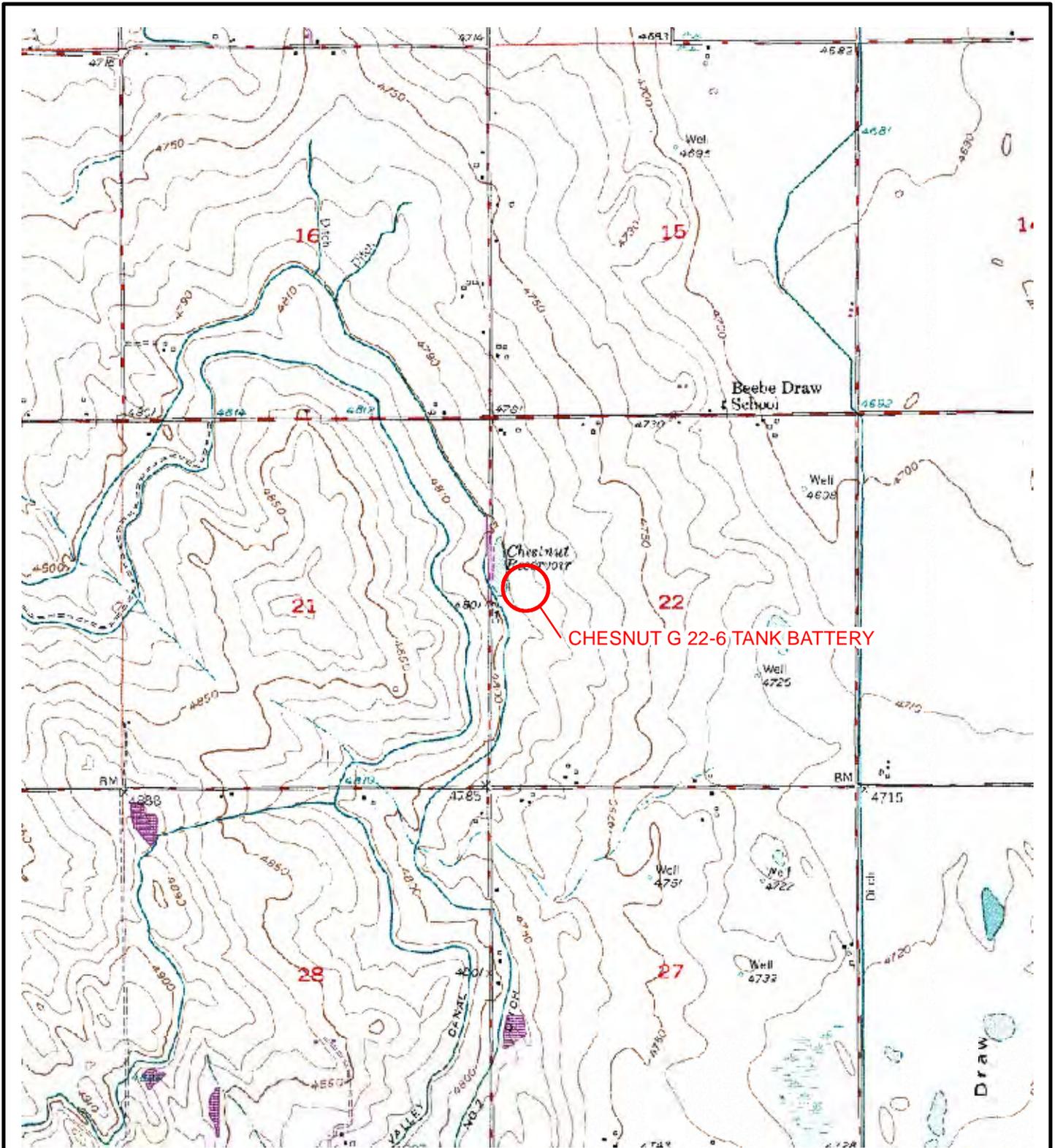


IMAGE COURTESY OF USDA/NRCS, VARIOUS DATES

**LEGEND**

 SITE LOCATION

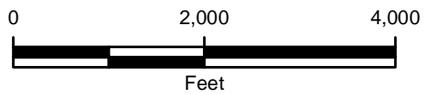
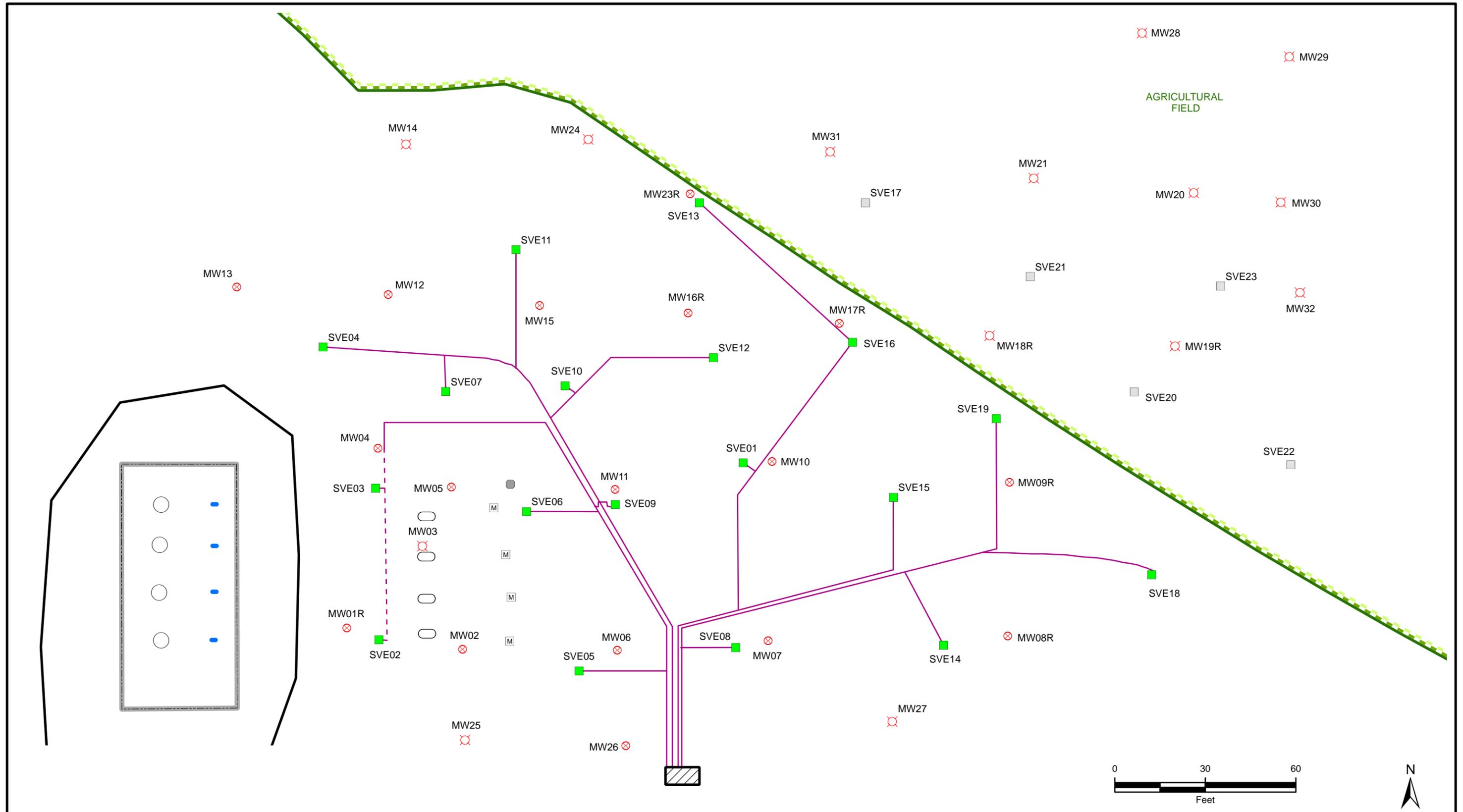


FIGURE 1  
 SITE LOCATION MAP  
 CHESNUT G 22-6 TANK BATTERY  
 WELD COUNTY, COLORADO



NOBLE ENERGY, INC



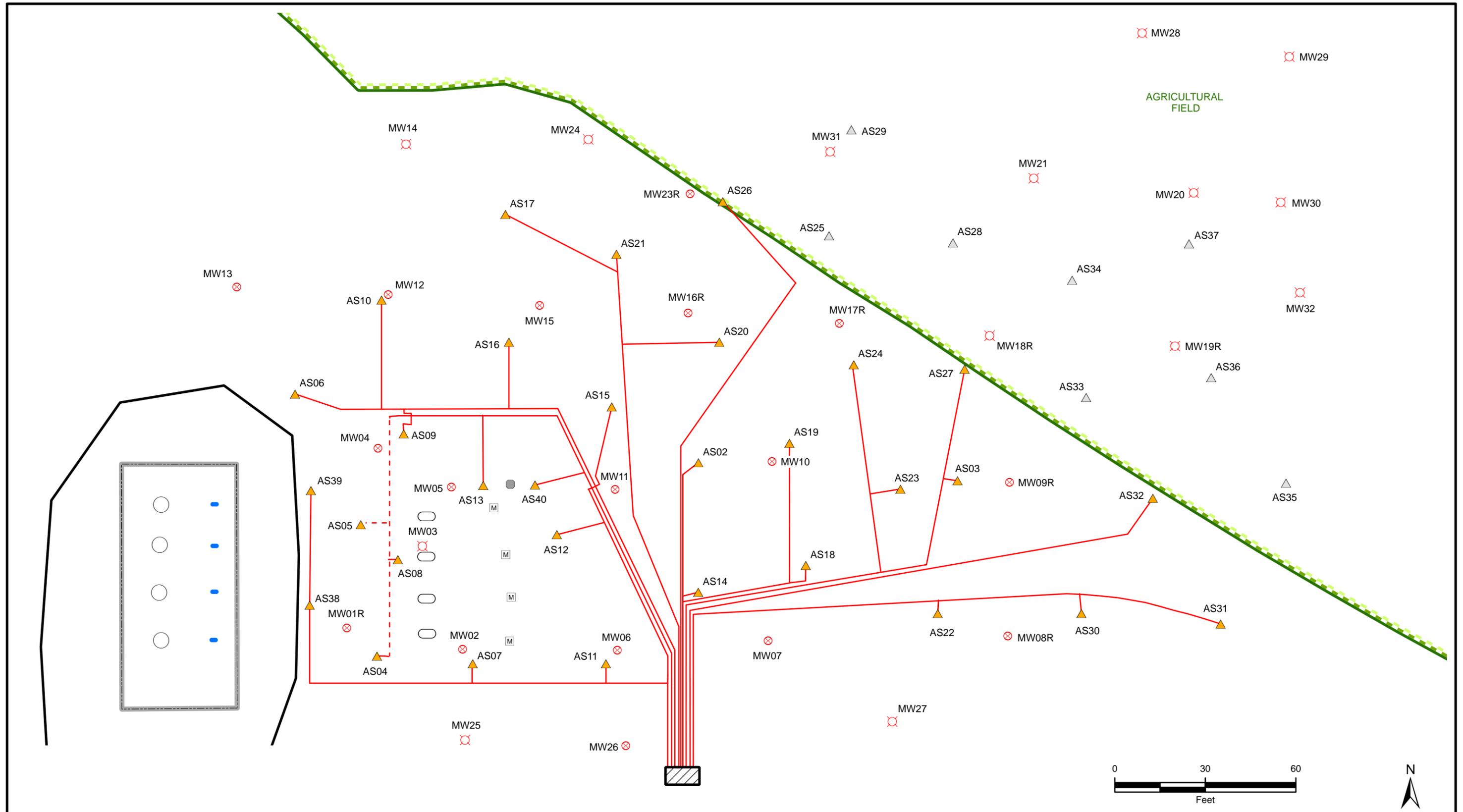
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- |                                      |                                     |                              |                             |
|--------------------------------------|-------------------------------------|------------------------------|-----------------------------|
| EXISTING SOIL VAPOR EXTRACTION WELL  | MONITORING WELL                     | WATER VAULT                  | ACCESS ROAD                 |
| ABANDONED SOIL VAPOR EXTRACTION WELL | ABANDONED/DESTROYED MONITORING WELL | OIL ABOVEGROUND STORAGE TANK | AGRICULTURAL FIELD BOUNDARY |
| ABOVEGROUND PIPING                   | BURNER                              | SEPARATOR                    | REMEDIATION TRAILER         |
| BURIED PIPING                        | METER HOUSE                         |                              | 3 FOOT BERM (METAL)         |

**FIGURE 3**  
**SOIL VAPOR EXTRACTION SYSTEM LAYOUT**  
**CHESNUT G 22-6 TANK BATTERY**  
**WELD COUNTY, COLORADO**

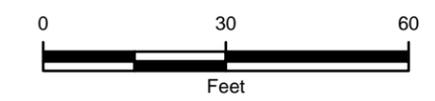
**NOBLE ENERGY, INC.**





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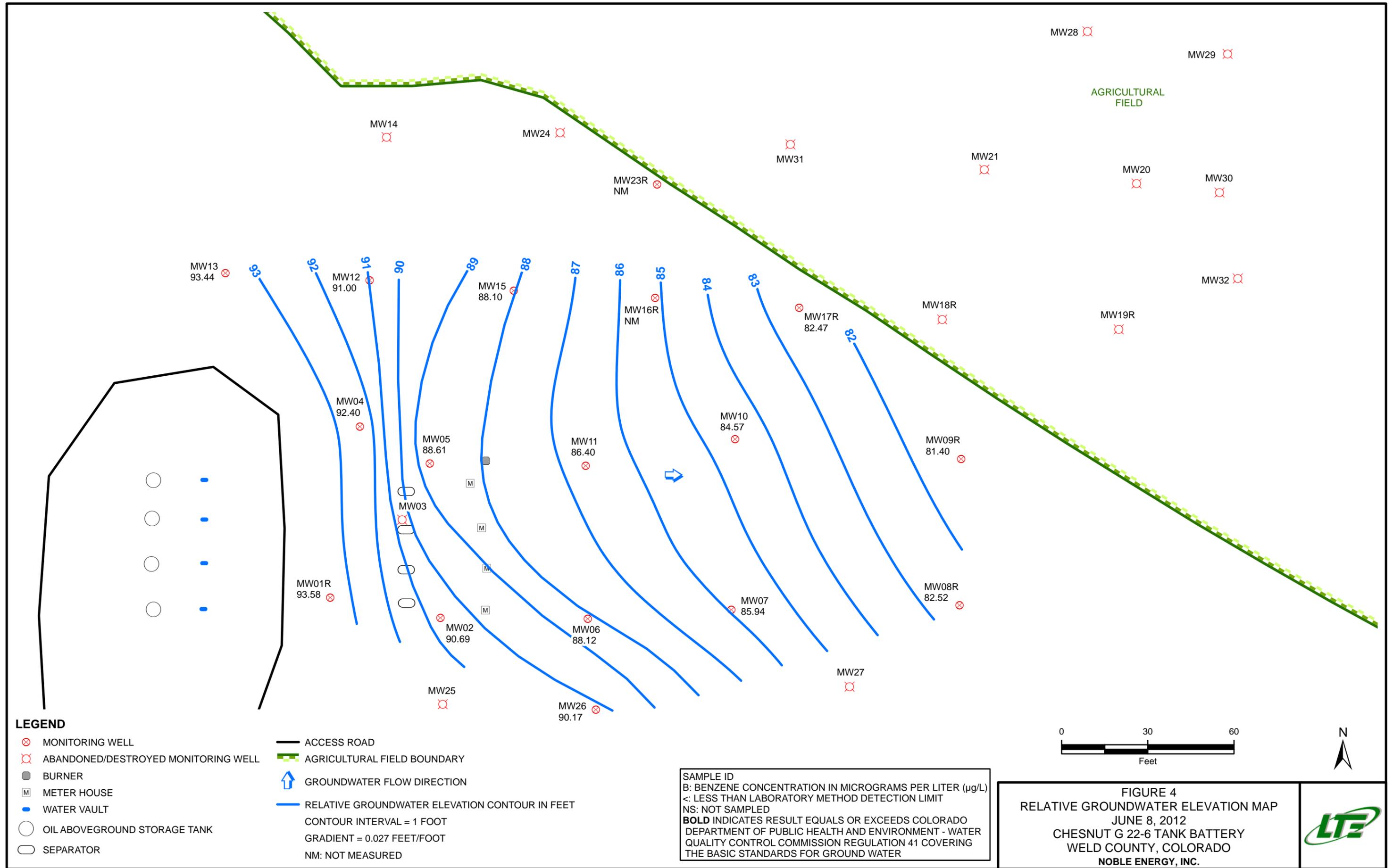
- |                               |                                       |                                |                               |
|-------------------------------|---------------------------------------|--------------------------------|-------------------------------|
| ▲ EXISTING AIR SPARGING WELL  | ⊗ MONITORING WELL                     | ● WATER VAULT                  | — ACCESS ROAD                 |
| △ ABANDONED AIR SPARGING WELL | ⊗ ABANDONED/DESTROYED MONITORING WELL | ○ OIL ABOVEGROUND STORAGE TANK | — AGRICULTURAL FIELD BOUNDARY |
| — ABOVEGROUND PIPING          | ● BURNER                              | ○ SEPARATOR                    | ▨ REMEDIATION TRAILER         |
| - - - BURIED PIPING           | Ⓜ METER HOUSE                         |                                | ▭ 3 FOOT BERM (METAL)         |



**FIGURE 2**  
AIR SPARGING SYSTEM LAYOUT  
CHESNUT G 22-6 TANK BATTERY  
WELD COUNTY, COLORADO

**NOBLE ENERGY, INC.**

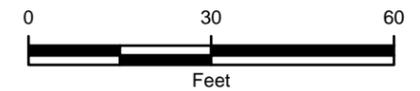




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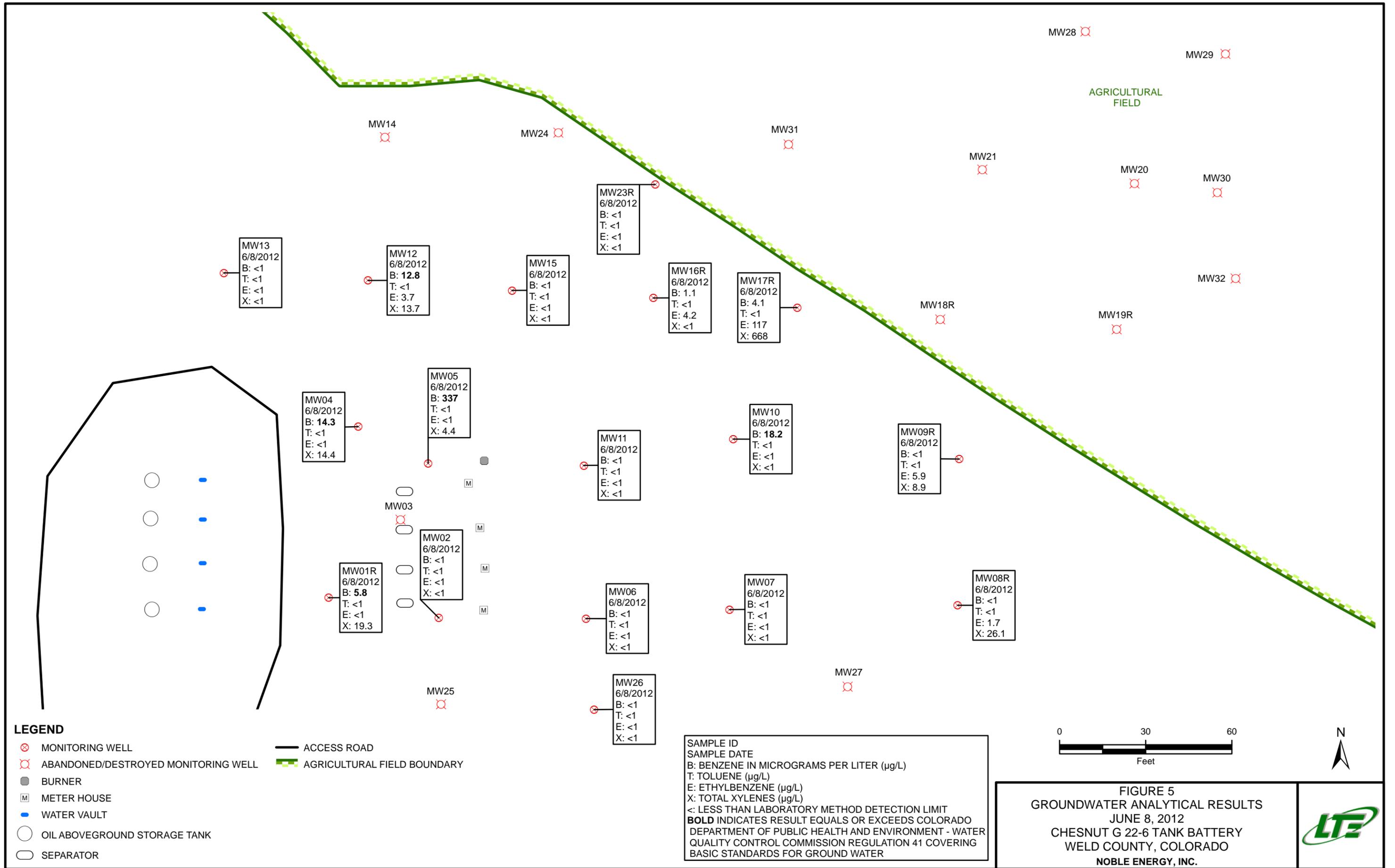
- ⊗ MONITORING WELL
- ⊗ ABANDONED/DESTROYED MONITORING WELL
- BURNER
- Ⓜ METER HOUSE
- WATER VAULT
- OIL ABOVEGROUND STORAGE TANK
- SEPARATOR
- ACCESS ROAD
- AGRICULTURAL FIELD BOUNDARY
- ↑ GROUNDWATER FLOW DIRECTION
- RELATIVE GROUNDWATER ELEVATION CONTOUR IN FEET  
CONTOUR INTERVAL = 1 FOOT  
GRADIENT = 0.027 FEET/FOOT  
NM: NOT MEASURED

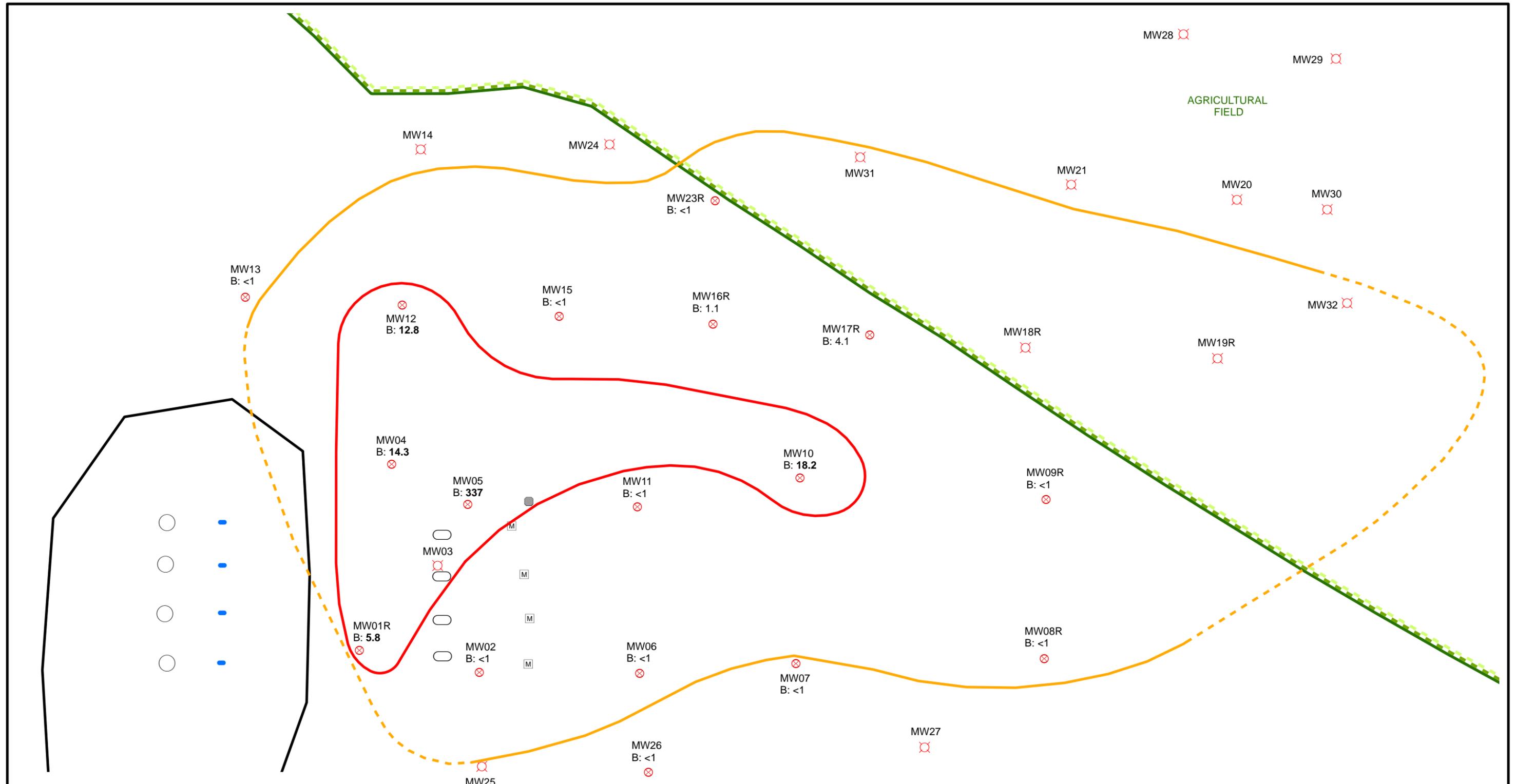
SAMPLE ID  
 B: BENZENE CONCENTRATION IN MICROGRAMS PER LITER (µg/L)  
 <: LESS THAN LABORATORY METHOD DETECTION LIMIT  
 NS: NOT SAMPLED  
**BOLD INDICATES RESULT EQUALS OR EXCEEDS COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT - WATER QUALITY CONTROL COMMISSION REGULATION 41 COVERING THE BASIC STANDARDS FOR GROUND WATER**



**FIGURE 4**  
 RELATIVE GROUNDWATER ELEVATION MAP  
 JUNE 8, 2012  
 CHESNUT G 22-6 TANK BATTERY  
 WELD COUNTY, COLORADO  
 NOBLE ENERGY, INC.



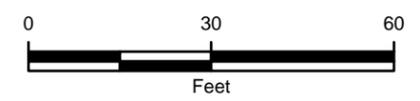




**LEGEND**

- ⊗ MONITORING WELL
- ⊗ ABANDONED/DESTROYED MONITORING WELL
- BURNER
- Ⓜ METER HOUSE
- WATER VAULT
- OIL ABOVEGROUND STORAGE TANK
- SEPARATOR
- ACCESS ROAD
- AGRICULTURAL FIELD BOUNDARY
- 2009 PRE-AS/SVE SYSTEM BENZENE ISOCONCENTRATION CONTOUR (5 µg/L)
- - - DASHED WHERE INFERRED
- JUNE 2012 BENZENE ISOCONCENTRATION CONTOUR (5 µg/L)

SAMPLE ID  
 B: BENZENE CONCENTRATION IN MICROGRAMS PER LITER (µg/L)  
 <: LESS THAN LABORATORY METHOD DETECTION LIMIT  
 NS: NOT SAMPLED  
**BOLD INDICATES RESULT EQUALS OR EXCEEDS COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT - WATER QUALITY CONTROL COMMISSION REGULATION 41 COVERING THE BASIC STANDARDS FOR GROUND WATER**



**FIGURE 6**  
**BENZENE GROUNDWATER ANALYTICAL RESULTS**  
 JUNE 8, 2012  
 CHESNUT G 22-6 TANK BATTERY  
 WELD COUNTY, CO  
 NOBLE ENERGY, INC.



## **TABLES**

TABLE 1

## REMEDIATION SYSTEM OPERATION SUMMARY

CHESNUT G 22-6 TANK BATTERY  
WELD COUNTY, COLORADO  
NOBLE ENERGY INC.

Date	AS Hours	SVE Hours	Generator Hours	System Status Upon Arrival (On/Off)	Notes
8/24/2010	38.9	40.0	47.0	Startup	
9/8/2010	396.4	397.5	404.6	On	
9/27/2010	773.6	782.9	840.0	Off	AS high pressure alarm and SVE VFD fault
9/30/2010	849.4	858.7	916.4	On	
10/21/2010	1350.5	1359.8	1410.1	On	AS outlet pressure gauge broken
11/10/2010	1828.4	1837.8	1885.6	On	AS04 flow controls broken
12/1/2010	2198.1	2231	2361.6	On	
12/2/2010	2223.8	2256.7	2387.4	On	Troubleshooting pressure problems with AS cycles
12/3/2010	2247.0	2280.0	2410.6	On	
12/17/2010	2582.7	2615.7	2746.3	On	
12/20/2010	2614.9	2647.9	2818.3	Off	
12/30/2010	2721.3	2879.0	3049.5	Startup	
1/12/2011	3012.2	3143.5	3362.1	On	
1/17/2011	3129.8	3217.8	3479.7	On	Repair SVE manifold
1/25/2011	3318.8	3406.4	3664.4	On	
2/2/2011	3511.5	3699.1	3862	On	
2/14/2011	3529.8	3617.4	3881.1	Off	System down since 2/10/2011 due to cold weather
2/18/2011	3545.0	3712.4	3976.2	On	AS system down due to high pressure alarm
2/25/2011	3660.7	3879.5	4143.3	On	
3/3/2011	3798.7	4020.8	4284.3	On	Valve adjustments
3/4/2011	3819.5	4042.1	4305.9	On	Repair wellheads and apply CLR to problem wells
3/11/2011	3988.7	4211.3	4475.1	On	
3/18/2011	4155.4	4377.9	4641.4	On	
3/24/2011	4297.4	4520.0	4783.8	On	Clean crank case breather; adjust overhead clearances
3/28/2011	-	-	-	On	Troubleshooting modem
3/31/2011	4465.2	4687.9	4951.7	On	Change spark plugs
4/7/2011	4628.6	4851.7	5115.5	On	
4/8/2011	4655.0	4878.0	-	On	Grease and oil AS and SVE blowers
4/14/2011	476.7	5019.7	5283.9	On	Valve adjustments
4/18/2011	4919.3	5142.3	5406.6	On	
4/26/2011	5083.7	5306.7	5570.4	On	
4/29/2011	5157.9	5381.0	5645.2	On	Install new pressure gauges
5/4/2011	-	-	-	On - SVE Down	SVE system down due to aux #2 alarm
5/6/2011	-	-	-	On - SVE Down	SVE system down due to aux #2 alarm; troubleshooting SVE
5/9/2011	-	-	-	Off	Troubleshooting; change spark plugs
5/12/2011	-	-	-	Off	Troubleshooting
5/17/2011	-	-	-	Off	Troubleshooting
5/19/2011	5321.1	5536.6	5809.5	Off	Troubleshooting - anti-sieze compound causing spark plugs to short out
5/20/2011	5346.1	5536.6	5834.5	On - SVE Down	SVE system down due to aux #2 alarm
5/25/2011	5360.1	5536.6	5848.6	On - SVE Down	SVE system down due to aux #2 alarm
5/27/2011	5405.0	5536.6	5893.8	On - SVE Down	SVE system down due to aux #2 alarm
6/1/2011	-	-	-	On - SVE Down	Troubleshooting SVE
6/2/2011	5547.6	5538.0	6037.1	On - SVE Down	SVE system down due to aux #2 alarm
6/3/2011	5549.3	5539.7	6060.8	On - SVE Down	Troubleshooting SVE
6/9/2011	5689.9	5543.7	6201.4	On - SVE Down	SVE system down due to aux #2 alarm
6/21/2011	-	-	-	On - SVE Down	Fixed SVE shutdowns by replacing PLC card
6/23/2011	6023.0	5589.4	6534.8	On	
6/28/2011	6099.5	5666.0	6611.4	Off	High engine temperature alarm
7/1/2011	6135.0	5702.5	6650.0	Off	High LEL/remote E stop alarm
7/6/2011	6153.8	5792.5	6740.2	On	
7/14/2011	6292.9	5937.7	6885.5	On	
7/19/2011	6372.3	6011.1	6958.9	Off	High engine temperature alarm
7/28/2011	6462.9	6101.8	7049.6	On	
8/3/2011	-	-	-	Off	High engine temperature alarm
8/5/2011	-	-	-	Off	Troubleshooting generator
8/8/2011	-	-	-	Off	Troubleshooting generator
8/12/2011	-	-	-	Off	Troubleshooting generator
8/16/2011	-	-	-	Off	Troubleshooting generator
8/17/2011	6532.9	6172.0	7120.3	Off	Replaced diaphragm in carburetor

TABLE 1

## REMEDIATION SYSTEM OPERATION SUMMARY

CHESNUT G 22-6 TANK BATTERY  
WELD COUNTY, COLORADO  
NOBLE ENERGY INC.

Date	AS Hours	SVE Hours	Generator Hours	System Status Upon Arrival (On/Off)	Notes
8/23/2011	6629.8	6268.9	7217.4	On	Generator did not restart
8/31/2011	-	-	7233.6	Off	Troubleshooting generator
9/14/2011	6646.3	6285.6	7234.3	Off	Troubleshooting generator
9/27/2011	6734.5	6374	7386	Off	Troubleshooting generator
10/5/2011	6759.5	6398.9	7450	Off	High engine temperature alarm
10/10/2011	6880.3	6519.8	7570.9	On	
10/21/2011	7141.1	6780.6	7831.7	On	High engine temperature alarm
10/28/2011	7217.1	6856.8	7907.8	Off	
11/3/2011	7357.3	6997	8048.2	On	
11/14/2011	7523.9	7163.7	8241.2	Off	Off to repair leaking gasket found on 11/11/11
11/18/2011	7617.7	7257.6	8335.1	On	
11/21/2011	7687.5	7327.9	8405.4	On	
11/23/2011	7712.6	7353	8451.3	On	
12/15/2011	7723.1	7363.7	8544.3	Off	
12/29/2011	7724.7	7365.3	8682.3	Off	Troubleshooting generator
1/5/2012	7729.0	7369.3	8819.8	Off	Troubleshooting generator
1/12/2012	7898.1	7538.5	8989.0	On	Changed oil; adjusted flows
1/18/2012	7915.1	7555.5	9106.9	Off	
1/24/2012	7921.1	7561.8	9115.0	Off	
1/26/2012	7957.6	7598.1	9156.7	Off	
1/30/2012	7995.5	7636.3	9195.4	Off	
2/10/2012	8257.5	7898.8	9457.9	On	
2/15/2012	8374.7	8015.6	9574.6	On	Replaced torn head gasket; adjusted flows
2/22/2012	-	-	9666.9	On	Emptied knockout tank
2/27/2012	8663.6	8304.1	9786.6	On	Changed alternator belt
3/6/2012	8807.4	8447.9	10007.5	Off	High engine temperature alarm
3/7/2012	8808.3	8448.9	10008.5	Off	High engine temperature alarm
3/14/2012	-	-	-	Off	Removed radiator for cleaning
3/15/2012	-	-	-	Off	Reinstalled radiator
3/22/2012	9049.7	8690.3	10250.0	On	Changed oil; changed air filter; adjusted flows
3/27/2012	9165.2	8805.8	10365.5	On	
4/6/2012	-	9048.6	10608.2	On	Changed spark plugs; cleaned crankcase breather; greased SVE; adjusted flows
4/10/2012	9500.4	9141	10700.7	On	
4/19/2012	9719.1	9359.8	10919.4	On	Changed oil; greased AS blower
4/23/2012	-	-	-		Completed oil reservoir wiring
4/24/2012	9814.8	9455.6	11015.3	Off	High engine temperature alarm; changed AS oil
4/30/2012	9816.2	9457	11016.5	Off	
5/8/2012	9910.2	9551	11110.7	Off	High engine temperature alarm
5/17/2012	10125.6	9766.5	11326.2	On	Stack sample collected
5/25/2012	10241.1	9881.9	11442.5	Off	High LEL/remote E stop alarm; changed oil
5/31/2012	-	-	-	Off	High engine temperature alarm; changed spark plugs; changed SVE oil; cleaned crankcase breather
6/4/2012	-	-	-	Off	Knockout tank high-level alarm; high engine temperature alarm - set timer
6/5/2012	-	-	-	Off	High engine temperature alarm
6/12/2012	-	-	11562.6	Off	High engine temperature alarm
6/13/2012	10285.0	9926	11563.2	Off	High LEL/remote E stop alarm
6/19/2012	10286.3	9927.3	11564.6	Off	High engine temperature alarm
Operational % Since Startup	51%	48%	60%		
Operational % in Quarter	47%	49%	54%		

## NOTES:

AS - air sparging

SVE - soil vapor extraction

% - percent

VFD - variable frequency drive

CLR - calcium, lime, rust remover

- Indicates no reading was collected

LEL - lower explosive limit

PLC - programmable logic controller

TABLE 2

AIR EMISSIONS ESTIMATE SUMMARY

CHESNUT G 22-6 TANK BATTERY  
WELD COUNTY, COLORADO  
NOBLE ENERGY INC.

Sample Information and Lab Analysis								
Date	Total Flow (cf)	Delta Flow (cf)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	TVPH (µg/L)	PID (ppm)
9/8/2010	2,574,000	2,574,000	0.087	0.048	0.021	0.311	7.44	4.9
9/22/2010	4,464,000	1,890,000	0.039	0.048	0.0074	0.098	7.7	0.6
10/21/2010	10,342,320	5,878,320	2.0	0.015	2.7	5.4	1.2	0
2/25/2011	28,484,160	18,141,840	0.049	0.055	0.065	0.35	450	93.3
6/2/2011	41,918,010	13,433,850	0.330	0.047	0.026	1.38	370	54.1
8/17/2011	46,863,210	4,945,200	0.0008	0.0077	0.0071	0.0105	1.6	0.9
11/14/2011	54,003,450	7,140,240	0.387	0.1675	0.118	0.169	10.55	1.5
2/15/2012	61,159,410	7,155,960	0.229	1.850	0.289	2.065	3.010	8.9
5/17/2012	74,816,430	13,657,020	0.0068	0.055	0.0098	0.127	20.0	0

Emission Calculations						
Date	Flow Rate (cfm)	Benzene (lb/hr)	Toluene (lb/hr)	Ethylbenzene (lb/hr)	Total Xylenes (lb/hr)	TVPH (lb/hr)
9/8/2010	120	0.0000	0.0000	0.0000	0.0001	0.0033
9/22/2010	120	0.0000	0.0000	0.0000	0.0000	0.0035
10/21/2010	140	0.0010	0.0000	0.0014	0.0028	0.0006
2/25/2011	120	0.0000	0.0000	0.0000	0.0002	0.2020
6/2/2011	135	0.0002	0.0000	0.0000	0.0007	0.1868
8/17/2011	130	0.0000	0.0000	0.0000	0.0000	0.0008
11/14/2011	120	0.0002	0.0001	0.0001	0.0001	0.0047
2/15/2012	140	0.0001	0.0010	0.0002	0.0011	0.0016
5/17/2012	130	0.0000	0.0000	0.0000	0.0001	0.0097

Tons Emitted Over Total Operating Time								
Date	Total Operational Hours	Delta Hours	Benzene (lbs)	Toluene (lbs)	Ethylbenzene (lbs)	Total Xylenes (lbs)	TVPH (lbs)	TVPH (tons)
9/8/2010	397.5	357.5	0.01	0.01	0.00	0.05	1.19	0.00
9/22/2010	660.0	262.5	0.00	0.01	0.00	0.01	0.91	0.00
10/21/2010	1,359.8	699.8	0.73	0.01	0.99	1.98	0.44	0.00
2/25/2011	3,879.5	2,519.7	0.05	0.06	0.07	0.40	508.89	0.25
6/2/2011	5,538.0	1,658.5	0.28	0.04	0.02	1.16	309.84	0.15
8/17/2011	6,172.0	634.0	0.00	0.00	0.00	0.00	0.49	0.00
11/14/2011	7,163.7	991.7	0.17	0.07	0.05	0.08	4.70	0.00
2/15/2012	8,015.6	851.9	0.10	0.83	0.13	0.92	1.34	0.00
5/17/2012	9,766.5	1,750.9	0.01	0.05	0.01	0.11	17.03	0.01
		<b>Sum</b>	<b>1.36</b>	<b>1.07</b>	<b>1.28</b>	<b>4.70</b>	<b>844.83</b>	<b>0.42</b>

NOTES:

- cf - cubic feet
- µg/L - micrograms per liter
- TVPH - total volatile petroleum hydrocarbons
- PID - photo-ionization detector
- ppm - parts per million
- cfm - cubic feet per minute
- lb/hr - pounds per hour
- lbs - pounds
- Italicized values are reported as one half the detection limit for a non-detected result.

TABLE 3

## GROUNDWATER ANALYTICAL RESULTS

CHESNUT G 22-6 TANK BATTERY  
WELD COUNTY, COLORADO  
NOBLE ENERGY, INC.

Well ID	Date	Depth to Water/<Product> (feet btoc)	Relative Groundwater Elevation (feet)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
MW01	1/13/2009	15.11	NM	<b>26,400</b>	<b>8,320</b>	536	<b>8,800</b>
	3/5/2010	14.60	NM	<b>26,100</b>	<b>6,270</b>	666	<b>11,090</b>
MW01R	9/20/2010	NM	NM	Could Not Locate Well			
	12/2/2010	8.68	88.25	<b>5,600</b>	161	37.1	<b>1,550</b>
	3/14/2011	15.33	81.60	<b>1,010</b>	<1.00	<1.00	12.8
	6/2/2011	9.89	87.04	<b>1,080</b>	<1.0	13.5	<b>1,400</b>
	9/12/2011	2.96	93.97	<b>1,560</b>	<1.0	84.5	<b>1,510</b>
	12/9/2011	7.80	89.13	<b>427</b>	<1.0	34.5	945
	3/22/2012	13.50	83.43	<1.0	4.17	<1.0	<1.0
	6/8/2012	4.56	93.58	<b>5.8</b>	<1	<1	19.3
MW02	1/13/2009	15.12	83.02	<b>3,460</b>	<b>1,420</b>	199	<b>6,120</b>
	3/5/2010	15.95	82.19	<b>857</b>	3.61	151	<b>1,448.61</b>
	9/20/2010	6.00	92.14	<b>338</b>	<1.0	104	<b>2,256.14</b>
	12/2/2010	10.04	88.10	<b>125</b>	<1.0	147	<b>1,590</b>
	3/14/2011	16.40	81.74	<b>37.4</b>	<1.00	22.0	266
	6/2/2011	13.02	85.12	<1.0	<1.0	<1.0	<3.0
	9/12/2011	5.38	92.76	4.9	<1.0	2.4	9.5
	12/9/2011	10.00	88.14	<1.0	<1.0	2.17	20.4
	3/22/2012	16.19	81.95	1	2.36	9.88	47.2
	6/8/2012	7.45	90.69	<1	<1	<1	<1
MW03	1/13/2009	15.06	NM	<b>11,700</b>	<b>7,860</b>	195	<b>5,950</b>
				Destroyed			
MW04	1/13/2009	13.13	84.15	<b>19,700</b>	<b>7,460</b>	555	<b>9,990</b>
	3/5/2010	15.71 *sheen	81.57	Sample not collected			
	9/20/2010	3.70	93.58	<b>563</b>	<10.0	<10.0	<b>6,027</b>
	12/2/2010	9.33	87.95	<b>664</b>	42	19.1	<b>4,710</b>
	3/14/2011	14.94	82.34	<b>713</b>	<10.0	113	<b>6,510</b>
	6/2/2011	9.10	88.18	<b>233</b>	<1.0	31.8	457
	9/12/2011	3.40	93.88	<b>23.8</b>	<1.0	6.8	124
	12/9/2011	9.60	87.68	<b>57.2</b>	<1.0	3.62	90.3
	3/22/2012	14.21	83.07	<b>295</b>	5.33	5.99	53.7
	6/8/2012	4.57	92.40	<b>14.3</b>	<1	<1	14.4
MW05	1/13/2009	14.58	82.39	<b>15,500</b>	<b>14,900</b>	412	<b>6,860</b>
	3/5/2010	16.06 * sheen	80.91	Sample not collected			
	9/20/2010	6.60	90.37	<b>12,700</b>	<b>1,500</b>	522	<b>8,190</b>
	12/2/2010	10.48	86.49	<b>14,700</b>	185	122	<b>5,650</b>
	3/14/2011	16.16	80.81	<b>67.9</b>	<1.00	<1.00	112
	6/2/2011	13.25	83.72	<b>143</b>	<1.0	<1.0	13.0
	9/12/2011	5.96	91.01	<b>5,050</b>	22.5	59.1	<b>2,680</b>
	12/9/2011	10.70	86.27	<b>8,790</b>	10.6	<10.0	659
	3/22/2012	NM	NM	Not Sampled - Dry			
	6/8/2012	8.36	88.61	<b>337</b>	<1	<1	4.4
MW06	2/19/2009	17.24	79.73	<b>305</b>	15.8	167	<b>2,476</b>
	3/5/2010	16.47	80.87	1.27	<1.0	8.77	9.60
	9/20/2010	6.95	90.39	<1.0	<1.0	3.51	13.0
	12/2/2010	11.01	86.33	<1.0	<1.0	28.8	205
	3/14/2011	16.91	80.43	<1.00	<1.00	42.8	317
	6/2/2011	14.30	83.04	<1.0	<1.0	2.1	4.9
	9/12/2011	6.51	90.83	<1.0	<1.0	<1.0	<3.0
	12/9/2011	10.80	86.54	<1.0	<1.0	<1.0	<3.0
	3/22/2012	17.08	80.26	<1.0	<1.0	1.46	4.9
	6/8/2012	9.22	88.12	<1	<1	<1	<1

TABLE 3 (CONTINUED)

## GROUNDWATER ANALYTICAL RESULTS

CHESNUT G 22-6 TANK BATTERY  
WELD COUNTY, COLORADO  
NOBLE ENERGY, INC.

Well ID	Date	Depth to Water/<Product> (feet btoc)	Relative Groundwater Elevation (feet)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
MW07	2/19/2009	19.18	75.41	3.99	7.09	64.1	288.67
	3/5/2010	15.93	78.66	<b>5.47</b>	<1.0	4.11	55.02
	9/20/2010	7.35	87.24	<1.0	<1.0	<1.0	<3.0
	12/2/2010	10.32	84.27	<1.0	<1.0	<1.0	<1.0
	3/14/2011	16.12	78.47	<1.00	<1.00	<1.00	<3.00
	6/2/2011	14.59	80.00	<1.0	<1.0	<1.0	<3.0
	9/12/2011	6.25	88.34	<1.0	<1.0	<1.0	<3.0
	12/9/2011	NM	NM		Could Not Locate Well		
	3/22/2012	16.42	78.17	<1.0	<1.0	<1.0	<1.0
	6/8/2012	8.65	85.94	<1	<1	<1	<1
MW08	2/19/2009	18.03	NM	<b>34.3</b>	<b>2,000</b>	202	<b>4,213</b>
MW08R	9/20/2010	10.90	83.61	1.21	<1.0	118	657.4
	12/2/2010	12.94	81.57	<1.0	<1.0	<1.0	119
	3/14/2011	18.61	75.90	<1.00	<1.00	<1.00	1,070
	6/2/2011	17.80	76.71	<1.0	<1.0	207	587
	9/12/2011	9.66	84.85	<1.0	<1.0	44.6	241
	12/9/2011	12.67	81.84	<1.0	<1.0	9.99	68.6
	3/22/2012	18.67	75.84	<1.0	8.37	16.3	109
	6/8/2012	11.99	82.52	<1	<1	1.7	26.1
MW09	2/19/2009	18.96	NM	<b>1,250</b>	23.0	19.0	25.28
MW09R	9/20/2010	10.75	82.99	<b>3,350</b>	<1.0	368	<b>1,891.7</b>
	12/2/2010	12.79	80.95	<b>10.2</b>	<10.0	85.2	392
	3/14/2011	17.67	76.07	<b>422</b>	<1.0	200	644
	6/2/2011	17.02	76.72	<b>902</b>	<1.0	303	<b>1,490</b>
	9/12/2011	9.57	84.17	1.1	<1.0	128	609
	12/9/2011	12.50	81.24	1.79	<1.0	13.7	28.5
	3/22/2012	17.81	75.93	1.64	8	14.5	43.4
	6/8/2012	12.34	81.40	<1	<1	5.9	8.9
MW10	2/19/2009	17.34	76.83	<b>10,300</b>	374	412	<b>2,435</b>
	3/5/2010	16.46	77.71	<b>9,790</b>	581	452	<b>3,707</b>
	9/20/2010	7.70	86.47	<b>4,130</b>	50.0	434	<b>4,280</b>
	12/2/2010	10.83	83.34	<b>1,560</b>	<10.0	33.5	1,100
	3/14/2011	12.25	81.92	<b>1,070</b>	<1.00	12.6	476
	6/2/2011	12.35	81.82	<1.0	<1.0	<1.0	<3.0
	9/12/2011	7.01	87.16	<b>310</b>	<1.0	107	250
	12/9/2011	10.62	83.55	<b>243</b>	<1.0	53.2	279
	3/22/2012	16.37	77.80	<b>30.3</b>	1.75	<1.0	<1.0
	6/8/2012	9.60	84.57	<b>18.2</b>	<1	<1	<1
MW11	2/19/2009	17.67	78.49	<b>6,130</b>	48.5	43.4	818.6
	3/5/2010	16.38	79.78	<b>10,500</b>	<1.0	10.1	497
	9/20/2010	7.20	88.96	<b>2,670</b>	<1.0	<1.0	235.88
	12/2/2010	11.55	84.61	<b>835</b>	<10.0	<10.0	57.1
	3/14/2011	16.27	79.89	<b>180</b>	<1.00	<1.00	<3.00
	6/2/2011	13.82	82.34	<1.0	<1.0	<1.0	<3.0
	9/12/2011	7.11	89.05	<1.0	<1.0	<1.0	<3.0
	12/9/2011	11.31	84.85	<1.0	<1.0	<1.0	<3.0
	3/22/2012	16.85	79.31	<1.0	2	<1.0	<1.0
	6/8/2012	9.76	86.40	<1	<1	<1	<1

TABLE 3 (CONTINUED)

GROUNDWATER ANALYTICAL RESULTS

CHESNUT G 22-6 TANK BATTERY  
WELD COUNTY, COLORADO  
NOBLE ENERGY, INC.

Well ID	Date	Depth to Water/<Product> (feet btoc)	Relative Groundwater Elevation (feet)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
MW12	2/19/2009	14.81	81.95	<b>1,970</b>	257	138	423
	3/5/2010	14.63	82.13	<b>465</b>	24.5	42.7	199.9
	9/20/2010	4.10	92.66	<b>9.92</b>	<1.0	<1.0	171.07
	12/2/2010	13.41	83.35	<1.0	<1.0	<1.0	<1.0
	3/14/2011	14.91	81.85	2.35	<1.00	13.5	250
	6/2/2011	10.42	86.34	<1.0	<1.0	<1.0	<3.0
	9/12/2011	3.47	93.29	<b>58.7</b>	<1.0	<1.0	6.4
	12/9/2011	10.35	86.41	<1.0	<1.0	<1.0	<3.0
	3/22/2012	15.25	81.51	<1.0	2	1.4	4.98
	6/8/2012	5.76	91.00	<b>12.8</b>	<1	3.7	13.7
MW13	2/19/2009	15.13	83.32	<1.0	<1.0	<1.0	<3.0
	3/5/2010	15.11	83.34	<1.0	<1.0	<1.0	<3.0
	9/20/2010	3.80	94.65	<1.0	<1.0	<1.0	<3.0
	12/2/2010	10.60	87.85	<1.0	<1.0	<1.0	<1.0
	3/14/2011	15.21	83.24	<1.00	<1.00	<1.00	<3.00
	6/2/2011	7.41	91.04	<1.0	<1.0	<1.0	<3.0
	9/12/2011	2.94	95.51	<1.0	<1.0	<1.0	<3.0
	12/9/2011	11.04	87.41	<1.0	<1.0	<1.0	<3.0
	3/22/2012	15.73	82.72	<1.0	1.87	<1.0	<1.0
	6/8/2012	5.01	93.44	<1	<1	<1	<1
MW14	2/19/2009	14.32	NM	<1.0	<1.0	<1.0	<3.0
	3/5/2012	NM	NM	Destroyed			
MW15	2/19/2009	14.95	78.55	<b>2,490</b>	<b>3,380</b>	150	<b>1,732</b>
	3/5/2010	13.00	80.50	<b>998</b>	<b>1,890</b>	141	<b>2,026</b>
	9/20/2010	2.80	90.70	<b>107</b>	<1.0	<1.0	417.3
	12/2/2010	8.24	85.26	<b>133</b>	<1.0	<1.0	470
	3/14/2011	12.96	80.54	<b>181</b>	<1.00	135	<b>1,580</b>
	6/2/2011	7.44	86.06	<b>35.4</b>	<1.0	15.6	308
	9/12/2011	2.44	91.06	<b>15.2</b>	<1.0	29.1	249
	12/9/2011	10.30	83.20	<1.0	<1.0	<1.0	<3.0
	3/22/2012	15.31	78.19	<1.0	2.09	<1.0	<1.0
	6/8/2012	5.40	88.10	<1	<1	<1	<1
MW16	2/19/2009	15.25	NM	<b>1,060</b>	16.2	156	37.5
MW16R	3/22/2012	15.58	NM	<1.0	<1.0	<1.0	<1.0
	6/8/2012	8.59	NM	1.1	<1	4.2	<1
MW17 MW17R	2/19/2009	15.93 <15.91>	NM	<b>3,680</b>	<b>9,940</b>	<b>775</b>	1,075
	9/20/2010	7.92	84.99	<1.0	<1.0	46.1	256.31
	12/2/2010	11.10	81.81	3.10	<1.0	112	570
	3/14/2011	15.62	77.29	<b>9.19</b>	<1.00	52.6	470
	6/2/2011	13.53	79.38	3.4	<1.0	16.5	448
	9/12/2011	6.93	85.98	<1.0	<1.0	45.1	275
	12/9/2011	11.11	81.80	<b>9.28</b>	<1.0	141	1,090
	3/22/2012	15.89	77.02	<b>5.4</b>	2.59	85.3	616
	6/8/2012	10.44	82.47	4.1	<1	117	668
	MW18 MW18R	2/19/2009	16.22	NM	<b>1,410</b>	80.9	51.0
3/14/2011		16.25	75.85	<1.00	<1.00	<1.00	<3.00
6/2/2011		15.24	76.86	<1.0	<1.0	<1.0	<3.0
9/12/2011		8.76	83.34	<1.0	<1.0	<1.0	<3.0
2/28/2012		NM	NM	Abandoned per COGCC approval			

TABLE 3 (CONTINUED)

GROUNDWATER ANALYTICAL RESULTS

CHESNUT G 22-6 TANK BATTERY  
WELD COUNTY, COLORADO  
NOBLE ENERGY, INC.

Well ID	Date	Depth to Water/<Product> (feet btoc)	Relative Groundwater Elevation (feet)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
MW19	2/25/2009	16.67	NM	<b>329</b>	<1.0	1.45	6.65
MW19R	3/14/2011	17.44	74.27	<1.00	<1.00	<1.00	<3.00
	6/2/2011	16.96	74.75	<1.0	<1.0	<1.0	<3.0
	9/12/2011	10.61	81.10	<1.0	<1.0	<1.0	<3.0
	2/28/2012	NM	NM	Abandoned per COGCC approval			
MW20	2/25/2009	17.55	NM	2.13	2.34	16.0	3.27
				Destroyed			
MW21	2/25/2009	16.87	NM	2.00	<1.0	<1.0	11.9
				Destroyed			
MW22	2/25/2009	16.70	NM	<b>8.70</b>	40.7	3.78	22.65
				Destroyed			
MW23	2/25/2009	15.25	NM	<b>32.9</b>	5.29	9.01	38.36
MW23R	3/22/2012	16.20	NM	<1.0	2.33	<1.0	<1.0
	6/8/2012	9.38	NM	<1	<1	<1	<1
MW24	2/25/2009	14.87	NM	1.02	<1.0	<1.0	<3.0
				Destroyed			
MW25	2/25/2009	18.20	NM	<1.0	<1.0	<1.0	4.01
	3/5/2010	17.46	NM	<1.0	<1.0	<1.0	<3.0
				Destroyed			
MW26	2/25/2009	18.02	78.14	<1.0	<1.0	<1.0	<3.0
	3/5/2010	17.36	78.80	<1.0	<1.0	<1.0	<3.0
	9/20/2010	5.10	91.06	<1.0	<1.0	<1.0	<3.0
	12/2/2010	8.78	87.38	<1.0	<1.0	<1.0	<1.0
	3/14/2011	15.63	80.53	<1.00	<1.00	<1.00	<3.00
	6/2/2011	11.67	84.49	<1.0	<1.0	<1.0	<3.0
	9/12/2011	4.02	92.14	<1.0	<1.0	<1.0	<3.0
	12/9/2011	NM	NM	<1.0	<1.0	<1.0	<3.0
	3/22/2012	NM	NM	Not Sampled - Dry			
	6/8/2012	5.99	90.17	<1	<1	<1	<1
MW27	2/25/2009	19.98	NM	<1.0	<1.0	<1.0	<3.0
				Destroyed			
MW28	2/25/2009	15.82	NM	<1.0	<1.0	<1.0	<3.0
				Destroyed			
MW29	2/25/2009	16.77	NM	<1.0	<1.0	<1.0	<3.0
				Destroyed			
MW30	2/25/2009	16.86	NM	<1.0	<1.0	<1.0	<3.0
				Destroyed			
MW31	3/14/2011	14.83	76.86	<1.00	<1.00	<1.00	<3.00
	6/2/2011	11.11	80.58	<1.0	<1.0	<1.0	<3.0
	9/12/2011			Destroyed			
MW32	3/14/2011	18.47	72.41	<1.00	<1.00	<1.00	<3.00
	6/2/2011	18.27	72.61	<1.0	<1.0	<1.0	<3.0
	9/12/2011	12.92	77.96	<1.0	<1.0	<1.0	<3.0
	2/28/2012	NM	NM	Abandoned per COGCC approval			
<b>CDPHE WQCC Reg 41</b>				<b>5.0</b>	<b>560</b>	<b>700</b>	<b>1,400</b>

NOTES:

btoc - below top of casing

µg/L - micrograms per liter

NM - not measured

< indicates result is less than the stated laboratory reporting limit

**Bold** indicates concentration exceeds CDPHE WQCC Reg 41.

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

Commission Regulation 41 covering The Basic Standards for Ground Water

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

COGCC - Colorado Oil and Gas Conservation Commission

**ATTACHMENT 1**

**AIR EMISSIONS LABORATORY ANALYTICAL REPORT**

May 24, 2012

LT Environmental, Inc.

Brian Dodek

4600 West 60th Avenue

Arvada CO 80003

---

Project Name - Noble - Chestnut G 22-6

Project Number - NEP0839

Attached are you analytical results for Noble - Chestnut G 22-6 received by Origins Laboratory, Inc. May 17, 2012. This project is associated with Origins project number X205089-01.

The analytical results in the following report were analyzed under the guidelines of EPA Methods. These methods are identified as follows; "SW" are defined in SW-846, "EPA" are defined in 40CFR part 136 and "SM" are defined in the most current revision of Standard Methods For the Examination of Water and Wastewater.

The analytical results apply specifically to the samples and analyses specified per the attached Chain of Custody. As such, this report shall not be reproduced except in full, without the written approval of Origin's laboratory.

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



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

Brian Dodek  
Project Number: NEP0839  
Project: Noble - Chestnut G 22-6

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Stack 01	X205089-01	Air	May 17, 2012 13:10	05/17/2012 15:20

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, President



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

Brian Dodek  
 Project Number: NEP0839  
 Project: Noble - Chestnut G 22-6

Origins Laboratory

F-012207-01-R1  
 Effective Date: 01/09/12

**Sample Receipt Checklist**

Origins Work Order: X205089 Client: LT  
 Checklist Completed by: [Signature] Client Project ID: CHESTNUT  
 Date/time completed: 5/17/12 15:27 Shipped Via: H/D  
 (UPS, FedEx, Hand Delivered, Pick-up, etc.)  
 Airbill #: N/A  
 Matrix(s) Received: (Check all that apply): Soil/Solid \_\_\_\_\_ Water X Other: Air  
 (Describe)  
 Cooler Number/Temperature: 126.9 °C \_\_\_\_\_ °C \_\_\_\_\_ °C \_\_\_\_\_ °C  
 Thermometer ID: 1001

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C <sup>(1)</sup> ?			X	air
Is there ice present (document if blue ice is used)			X	air
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)		X		
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)		X		
Were all samples received intact <sup>(1)</sup> ?	X			
Was adequate sample volume provided <sup>(1)</sup> ?	X			
Are short holding time analytes or samples with HTs due within 48 hours present <sup>(1)</sup> ?		X		
Is a chain-of-custody (COC) present and filled out completely <sup>(1)</sup> ?	X			
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	X			
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	X			
Is the COC properly relinquished by the client with date and time recorded <sup>(1)</sup> ?	X			
For volatiles in water – is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.			X	air
Are samples preserved that require preservation and was it checked <sup>(1)</sup> ? (note ID of confirmation instrument used in comments) / (preservation is not confirmed for subcontracted analyses in order to insure sample integrity)/(pH <2 for samples preserved with HNO3, HCL, H2SO4) / (pH >10 for samples preserved with NaAsO2+NaOH, ZnAc+NaOH)			X	air
Additional Comments (if any):				

<sup>(1)</sup>If NO, then contact the client before proceeding with analysis and note date/time and person contacted as well as the corrective action to in the additional comments (above) and the case narrative.

[Signature]  
 Reviewed by (Project Manager)

5-18-12 15:10  
 Date/Time Reviewed

Origins Laboratory, Inc.

[Signature]

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Noelle E Doyle, President

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

Brian Dodek  
 Project Number: NEP0839  
 Project: Noble - Chestnut G 22-6

Stack 01  
 5/17/2012 1:10:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**AIR TOXICS LTD.**  
 X205089-01 (Air)

**Modified TO-15**

BENZENE	6.8	2.6	ug/m3	1.61	P052305		05/23/2012	
ETHYL BENZENE	9.8	3.5	"	"	"	"	"	"
M,P-XYLENE	84	3.5	"	"	"	"	"	"
O-XYLENE	43	3.5	"	"	"	"	"	"
TOLUENE	55	3.0	"	"	"	"	"	"
TPH REF. TO GASOLINE (MW=100)	20000	160	"	"	"	"	"	"

Surrogate: 1,2-DICHLOROETHANE-D4	101 %	70-130			"	"	"	
Surrogate: 4-BROMOFLUOROBENZENE	106 %	70-130			"	"	"	
Surrogate: TOLUENE-D8	106 %	70-130			"	"	"	

Origins Laboratory, Inc.



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Noelle E Doyle, President

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

Brian Dodek  
 Project Number: NEP0839  
 Project: Noble - Chestnut G 22-6

**Volatile Organic Compounds by EPA Method 8260B in Air - 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 2E22010 - Default Prep - Air**

**Blank (2E22010-BLK1)**

Prepared: 05/22/2012 Analyzed: 05/22/2012

Gasoline Range Hydrocarbons	207	200	ug/m <sup>3</sup> Air							
Benzene	ND	1.27	"							
Toluene	ND	4.00	"							
Ethylbenzene	ND	4.00	"							
Xylenes, total	ND	4.00	"							

<i>Surrogate: 1,2-Dichloroethane-d4</i>	74.0		"	80.0		92.4	70-130			
<i>Surrogate: Toluene-d8</i>	78.3		"	77.8		101	70-130			
<i>Surrogate: 4-Bromofluorobenzene</i>	149		"	136		109	70-130			

**LCS (2E22010-BS1)**

Prepared: 05/22/2012 Analyzed: 05/22/2012

Benzene	38.7	1.27	ug/m <sup>3</sup> Air	32.6		119	70-130			
Toluene	45.7	4.00	"	39.6		116	70-130			
Ethylbenzene	52.5	4.00	"	45.6		115	70-130			
m,p-Xylene	123	5.00	"	116		106	70-130			
o-Xylene	51.2	4.00	"	46.5		110	70-130			

<i>Surrogate: 1,2-Dichloroethane-d4</i>	73.7		"	80.0		92.1	70-130			
<i>Surrogate: Toluene-d8</i>	75.1		"	77.8		96.5	70-130			
<i>Surrogate: 4-Bromofluorobenzene</i>	129		"	136		95.1	70-130			

**LCS Dup (2E22010-BSD1)**

Prepared: 05/22/2012 Analyzed: 05/22/2012

Benzene	33.6	1.27	ug/m <sup>3</sup> Air	32.6		103	70-130	14.1	20	
Toluene	42.2	4.00	"	39.6		107	70-130	8.06	20	
Ethylbenzene	46.9	4.00	"	45.6		103	70-130	11.4	20	
m,p-Xylene	114	5.00	"	116		97.8	70-130	8.14	20	
o-Xylene	46.4	4.00	"	46.5		99.8	70-130	9.96	20	

<i>Surrogate: 1,2-Dichloroethane-d4</i>	75.8		"	80.0		94.7	70-130			
<i>Surrogate: Toluene-d8</i>	76.6		"	77.8		98.4	70-130			
<i>Surrogate: 4-Bromofluorobenzene</i>	128		"	136		93.9	70-130			

Origins Laboratory, Inc.



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

Brian Dodek  
Project Number: NEP0839  
Project: Noble - Chestnut G 22-6

**Volatile Organic Compounds by EPA Method 8260B in Air - 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 2E22010 - Default Prep - Air

Origins Laboratory, Inc.



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Noelle E Doyle, President

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

Brian Dodek  
 Project Number: NEP0839  
 Project: Noble - Chestnut G 22-6

**ETO15 - Quality Control  
 AIR TOXICS LTD.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch P052305 - NONE

**BLK1 (1205492-02A)**

Prepared: Analyzed: 05/23/2012

M,P-XYLENE	ND	2.2	ug/m3				-			U
BENZENE	ND	1.6	"				-			U
O-XYLENE	ND	2.2	"				-			U
TOLUENE	ND	1.9	"				-			U
TPH REF. TO GASOLINE (MW=100)	ND	100	"				-			U
ETHYL BENZENE	ND	2.2	"				-			U

<i>Surrogate: 1,2-DICHLOROETHANE-D4</i>	100		"	100		98	70-130			
<i>Surrogate: 4-BROMOFLUOROBENZENE</i>	180		"	180		103	70-130			
<i>Surrogate: TOLUENE-D8</i>	110		"	100		105	70-130			

**CC1 (1205492-03A)**

Prepared: Analyzed: 05/23/2012

ETHYL BENZENE	220		ug/m3	220		102	70-130			
TPH REF. TO GASOLINE (MW=100)	2000		"	2000		100	70-130			
TOLUENE	180		"	190		98	70-130			
M,P-XYLENE	230		"	220		105	70-130			
BENZENE	150		"	160		92	70-130			
O-XYLENE	220		"	220		101	70-130			

<i>Surrogate: TOLUENE-D8</i>	100		"	100		102	70-130			
<i>Surrogate: 4-BROMOFLUOROBENZENE</i>	180		"	180		103	70-130			
<i>Surrogate: 1,2-DICHLOROETHANE-D4</i>	100		"	100		96	70-130			

**BS1 (1205492-04A)**

Prepared: Analyzed: 05/23/2012

O-XYLENE	230		ug/m3	220		107	70-130			
TOLUENE	180		"	190		96	70-130			
M,P-XYLENE	240		"	220		111	70-130			

Origins Laboratory, Inc.



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Noelle E Doyle, President

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

Brian Dodek  
 Project Number: NEP0839  
 Project: Noble - Chestnut G 22-6

**ETO15 - Quality Control**  
**AIR TOXICS LTD.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch P052305 - NONE

**BS1 (1205492-04A)**

Prepared: Analyzed: 05/23/2012

ETHYL BENZENE	220		ug/m3	220		104	70-130			
BENZENE	150		"	160		94	70-130			
<i>Surrogate:</i> 1,2-DICHLOROETHANE-D4	100		"	100		95	70-130			
<i>Surrogate:</i> TOLUENE-D8	100		"	100		103	70-130			
<i>Surrogate:</i> 4-BROMOFLUOROBENZENE	190		"	180		106	70-130			

**BD1 (1205492-04AA)**

Prepared: Analyzed: 05/23/2012

BENZENE	150		ug/m3	160		93	70-130	1.1	25	
ETHYL BENZENE	220		"	220		103	70-130	0.97	25	
M,P-XYLENE	250		"	220		114	70-130	2.7	25	
O-XYLENE	250		"	220		114	70-130	6.3	25	
TOLUENE	180		"	190		98	70-130	2.1	25	
<i>Surrogate:</i> TOLUENE-D8	100		"	100		103	70-130			
<i>Surrogate:</i> 1,2-DICHLOROETHANE-D4	100		"	100		98	70-130			
<i>Surrogate:</i> 4-BROMOFLUOROBENZENE	220		"	180		122	70-130			

Origins Laboratory, Inc.



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Noelle E Doyle, President

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

Brian Dodek  
Project Number: NEP0839  
Project: Noble - Chestnut G 22-6

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**Notes and Definitions**

- U      COMPOUND ANALYZED FOR BUT NOT DETECTED ABOVE THE DETECTION LIMIT
- 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, President

**ATTACHMENT 2**  
**GROUNDWATER LABORATORY ANALYTICAL REPORT**

# Certificate of Analysis



June 12, 2012

Client: LT Environmental  
4600 West 60th Avenue  
Arvada, Colorado 80003

Project: Chesnat G22-6

Lab ID: 060804

Date Received: 06/08/12

Number of Samples Received: 17

Sample Condition: Samples arrived intact and in appropriate sample containers

Sample Temperature: Within acceptable range of 2-6° C, or as specified in EPA Method

Analysis	EPA Method	Lab ID on COC
BTEX	8260C	1 - 17

All quality control analyses associated with the requested analyses were satisfactorily passed before the samples were run. If you have any questions please give us a call, we are happy to help.

Thank you for allowing eAnalytics Laboratory to provide laboratory services for you, we truly appreciate your business.

Sincerely,

A handwritten signature in black ink, appearing to read "Chris Dieken".

Christopher Dieken  
Quality Assurance Manager  
eAnalytics Laboratory  
(970) 667-6975  
info@eAnalyticsLab.com

# Certificate of Analysis

Chain of Custody



June 12, 2012

Chain of Custody Form

eANALYTICS LABORATORY			CLIENT INFORMATION												ANALYSIS INFORMATION											
1767 Rocky Mountain Avenue Loveland CO 80538			Phone: (970) 667-6975				Fax: (970) 669-0941				www.eAnalyticsLab.com				(Select analysis by checking box on corresponding sample line)											
(*New Clients please fill out completely)			Company: <u>LT Environmental</u>												Matrix (S) Soil (W) Water (V) Vapor (O) Other											
Project: <u>Nobel Chemat G22-6</u>			Project Manager: <u>Rob Rebel</u>												Number of Containers											
Sampler: <u>Jeromy Espinoza / Ryan Kriebeger</u>			Phone/E-mail: <u>303-433-9788</u>												Matrix (S) Soil (W) Water (V) Vapor (O) Other											
Address: <u>4600 W 60th Ave</u>			Address: <u>Arvada, CO</u>												BTEX (EPA 8015)											
Lab ID			Sample Name			Sampling Date/Time			Vapor BTEX (EPA TO-14)																	
01			MW01R			1450 AM			Full VOC (EPA 8260)																	
02			MW02			1140 PM			Semi-Volatiles 8270 / PAH																	
03			MW04			1210 AM			RCRA 8 Metals (Total / TCLP / Dissolved)																	
04			MW05			1345 AM			React. / Ignit. / Corrosivity / Paint Filter																	
05			MW06			1115 PM			pH / TSS / TDS																	
06			MW07			1445 AM			Metals (Specify)																	
07			MW08R			1520 AM			PCBs																	
08			MW09R			1530 AM			Anions (Specify)																	
09			MW10			1430 AM			Other Analysis																	
10			MW11			1415 AM																				
11			MW12			1310 AM																				
12			MW13			1330 AM																				
13			MW15			1500 AM																				
14			MW17R			1510 AM																				
15			MW26			1050 PM																				
Comments: <u>BTEX only</u>																										
Turnaround Time (Business Days) TAT begins when sample is received by eANALYTICS						Record of Custody						Date: <u>6/8/12</u>														
<input checked="" type="radio"/> Normal (5-10 Days) <input type="radio"/> 3 Day (1.25x) <input type="radio"/> 2 Day (1.5x) <input type="radio"/> 1 Day (2x) <input type="radio"/> Same Day (3x)						Rush analysis requires an extra charge. If possible please inform eANALYTICS in advance for rush analysis.						Relinquished by: <u>[Signature]</u>			Date: <u>6/8/12</u>											
Colorado OPS Project: Yes / No						For eANALYTICS Use						Company: <u>LTENV</u>			Time: AM / PM											
Samples Received Intact: <input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No						Received Within Temperature Range (2-6°C): <input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No						Company: <u>[Signature]</u>			Date: <u>6/8/12</u>											
Sample Preservative: <input checked="" type="checkbox"/> None / <input type="checkbox"/> Acid / <input type="checkbox"/> Other												Company: <u>eANALYTICS</u>			Time: <u>5:00</u>											

WO # 060804

eANALYTICS: Environmental testing made Easy

Page 1 of 2







# Certificate of Analysis

**Quality Control  
Analysis**



**June 12, 2012**

Client: LT Environmental  
4600 West 60th Avenue  
Arvada, Colorado 80003

Project: Chesnat G22-6

Lab ID: 060804

Matrix: WATER  
Batch ID: EA 06-09-12  
EA 06-11-12

EPA Method: 8260      BTEX

Sample Name	Benzene	Ethyl - Benzene	Toluene	Total Xylenes	Date Analyzed	Lab ID
Laboratory Control Sample	91	102	90	88	06/09/12	L 06-09-12
(Acceptable 70-130%)	% Rec	% Rec	% Rec	% Rec		
Calibration Verification	88	92	98	101	06/09/12	C 06-09-12
(Acceptable 80-120%)	% Rec	% Rec	% Rec	% Rec		
Reagent Blank	< 1	< 1	< 1	< 1	06/09/12	RB 06-09-12
	ug/L	ug/L	ug/L	ug/L		
Laboratory Control Sample	102	101	99	100	06/11/12	L 06-11-12
(Acceptable 70-130%)	% Rec	% Rec	% Rec	% Rec		
Calibration Verification	101	98	104	94	06/11/12	C 06-11-12
(Acceptable 80-120%)	% Rec	% Rec	% Rec	% Rec		
Reagent Blank	< 1	< 1	< 1	< 1	06/11/12	RB 06-11-12
	ug/L	ug/L	ug/L	ug/L		

*Todd Rhea*

Laboratory Manager - eAnalytics Laboratory