

804 Grand Ave.  
Platteville, CO 80651



Tel: 970.785.5000  
After Hours: 303.939.8585  
Fax: 970.785.5099  
www.nobleenergyinc.com

North America Division

Remediation #3459

May 23, 2011

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

RE: Groundwater Monitoring Results  
Frick 18-2, 8  
API 05-123-17647  
Sec. 18, T4N, R64W  
Weld County, Colorado

Dear Mr. Chesson:

Please find attached the Quarterly Groundwater Monitoring Report for the Frick 18-2 & 8. 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 (970) 785-5000 if you have any questions or require additional information.

Sincerely,

A handwritten signature in black ink that reads 'Mike Cox'.

Mike Cox  
Environmental Coordinator

A handwritten signature in blue ink that reads 'Todd Cullum'.

Todd Cullum  
Environmental Specialist

Attachments



May 20, 2011

Remediation #3459

Mr. Mike Cox  
Environmental Coordinator  
Noble Energy, Inc.  
804 Grand Avenue  
Platteville, Colorado 80651

**RE: Second Quarter 2011 Remediation and Monitoring Report  
Frick 18-2 & 8 Tank Battery Site  
Weld County, Colorado**

Dear Mr. Cox:

LT Environmental, Inc. (LTE), under the direction of Noble Energy, Inc. (Noble), conducted corrective actions at the Frick 18-2 & 8 tank battery site (Site) located approximately 0.5 miles north of the intersection of Weld County Road (WCR) 44 and WCR 51 in Weld County, Colorado (Figure 1). The remediation program for the Site involved two distinct phases. Phase I of the remediation program involved the design, installation, and operation and maintenance (O&M) of an air sparging/soil vapor extraction (AS/SVE) system. Phase I was successful in mitigating the majority of subsurface hydrocarbon impact. Following completion of Phase I, Noble initiated Phase II, which included an enhanced attenuation remedial technology.

Noble continues to conduct groundwater monitoring at the Site to evaluate the effectiveness of the remediation program in mitigating groundwater impact. This correspondence is the Second Quarter 2011 Remediation and Monitoring Report and summarizes activities conducted at the Site from February 1, 2011, through April 30, 2011. Activities conducted during this reporting period included quarterly groundwater performance monitoring and the decommissioning of the AS/SVE system.

**Phase I Remediation System Description**

The AS/SVE system operated intermittently from August 8, 2008, to February 18, 2010. The AS system introduced ambient air into the subsurface water column to initiate dissolved hydrocarbon volatilization and to promote aerobic microbial decomposition of petroleum constituents. The SVE system volatilized petroleum constituents adsorbed onto soil particles and removed petroleum vapors released from the groundwater by the AS process. AS and SVE wells connected to equipment for the AS/SVE system housed in a remediation equipment trailer. The *Remediation System Installation and Startup, and Pre-System Groundwater Sampling Result* report, dated September 11, 2008, provided additional details of the Phase I remediation program, which is illustrated on Figure 2.

Due to attainment of cleanup goals and mitigation of hydrocarbon impact, the AS/SVE system was decommissioned on February 16 and 18, 2011. The AS and SVE wells and aboveground

pipings were removed and disposed of with Northern Colorado Disposal. Remediation wells were closed in accordance with the Colorado Division of Water Resources, Well Abandonment Procedures.

## **Phase II Remediation System Description**

Phase II of the remediation program included the application of a groundwater amendment to subsurface areas of the Site that continued to exhibit low-level dissolved hydrocarbon impact. Phase II was designed to both increase the attenuation rate of the plume and decrease the mass flux of hydrocarbons from the source to downgradient areas. The amendment consisted of BOS200<sup>®</sup> Trap & Treat carbon slurry (BOS200<sup>®</sup>), which is a mixture of granular activated carbon (GAC), petroleum consuming microbes, gypsum, and nutrients. The GAC initially adsorbs hydrocarbons in the soil and groundwater and immobilizes the impact. Following adsorption, contaminants are co-located with the bacteria, electron acceptors, and nutrients in the carbon matrix and are consumed by the bacteria via petroleum oxidation/sulfate reduction biologically mediated reactions. As a result, the remaining hydrocarbon impact is reduced; thereby achieving cleanup goals.

Implementation of Phase II of the remediation program occurred from June 28 through July 2, 2010. Application of the groundwater amendment occurred at two distinct areas: the area near MW01, MW02, and SB02R and the area near MW10R (Figure 1). Installation of the groundwater amendment involved removing overburden to expose the aquifer, placing the amendment in the saturated soil, and mixing the amendment with native material. The final dimensions of the first treatment area (MW01, MW02, and SB02R) were approximately 25 feet by 25 feet by 10 feet below ground surface (bgs). The final dimensions of the second treatment area (SB10R) were approximately 10 feet by 12 feet by 6 feet bgs.

On November 22, 2010, Phase II of the remediation program was extended. Application of the groundwater amendment continued at two areas. The first area began just south of MW01R, continued south to the MW02R location, and east to the fence, as depicted on Figure 1. The approximate area of treatment was approximately 20 feet by 15 feet by 13 feet bgs. The second treatment area was located at SB10R(2) and was approximately 20 feet by 20 feet by 12 feet bgs, as depicted on Figure 1. Approximately 160 cubic yards of impacted soil was removed from the treatment areas for disposal at Buffalo Ridge Landfill. Three hundred pounds of BOS200<sup>®</sup> was applied before backfilling with clean structural fill from Varra Aggregates. During excavation activities, monitoring wells MW01R, SB02R(2), and SB10R(2) were destroyed and abandoned.

## **Groundwater Monitoring Procedures**

On April 5, 2011, six groundwater monitoring wells were sampled to determine the current plume extent. Prior to sampling, depth to groundwater in each monitoring well was measured and recorded to calculate appropriate purge volumes (Table 1). All groundwater monitoring wells were purged of three well casing volumes. Groundwater samples were then collected from the well points by advancing disposable 3/16-inch diameter polyethylene tubing below the water

table inside 1-inch diameter polyvinyl chloride (PVC) casing. A peristaltic pump transported groundwater to the surface for collection in 40-milliliter unpreserved vials, which were then placed on ice and delivered under chain-of-custody (COC) protocol to Origins Laboratory in Denver, Colorado. All samples were analyzed for benzene, toluene, ethylbenzene, and total xylenes (BTEX) by United States Environmental Protection Agency Method 8260C.

## **Hydrogeology**

During the April 2011 monitoring event, the depth to static groundwater ranged from 2.96 feet below top of casing (btoc) in SB09 to 6.09 feet btoc in MW02R (Table 1). The groundwater flow direction was to the east with an average hydraulic gradient of approximately 0.015 feet per foot.

## **Groundwater Analytical Results**

Six groundwater samples were collected and analyzed for BTEX during the April 2011 monitoring event (MW02R, SB03, SB07, SB09, SB15, and SB16). The Colorado Department of Public Health and Environment (CDPHE) - Water Quality Control Commission (WQCC) Regulation 41 (Reg 41) - The Basic Standards for Ground Water established standards for BTEX compounds at 5.0 micrograms per liter (ug/L), 560 ug/L, 700 ug/L, and 1,400 ug/L, respectively. Groundwater analytical results indicate BTEX compounds were not detected above the WQCC Reg 41 standards in the six groundwater samples collected. Groundwater analytical results for the April 2011 monitoring event are summarized in Table 2 and illustrated on Figures 3 and 4. The laboratory analytical reports, laboratory quality assurance/quality control data, and COC documentation are provided as Attachment 1.

## **Summary and Conclusions**

Since implementation of the remediation program, BTEX concentrations in all monitoring wells have successfully decreased into compliance with the WQCC Reg 41. Performance monitoring data indicates that cleanup objectives were attained, representing successful remediation of the pre-remediation (August 2008) plume extent, as depicted on Figure 4.

Noble will continue to conduct static groundwater monitoring at the Site with the goal of obtaining four consecutive quarters of groundwater results in compliance with WQCC Reg 41 and site closure status is received from the Colorado Oil and Gas Conservation Commission. At this time, two consecutive quarters of groundwater results in compliance have been achieved. The next groundwater sampling event will be conducted in July 2011.

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.



Rob Rebel, P.E.  
Project Manager



Steve Kahn, P.E.  
Senior Engineer

Attachments (7)

Figure 1: Site Map

Figure 2: AS/SVE System Layout

Figure 3: Groundwater Analytical Results – April 5, 2011

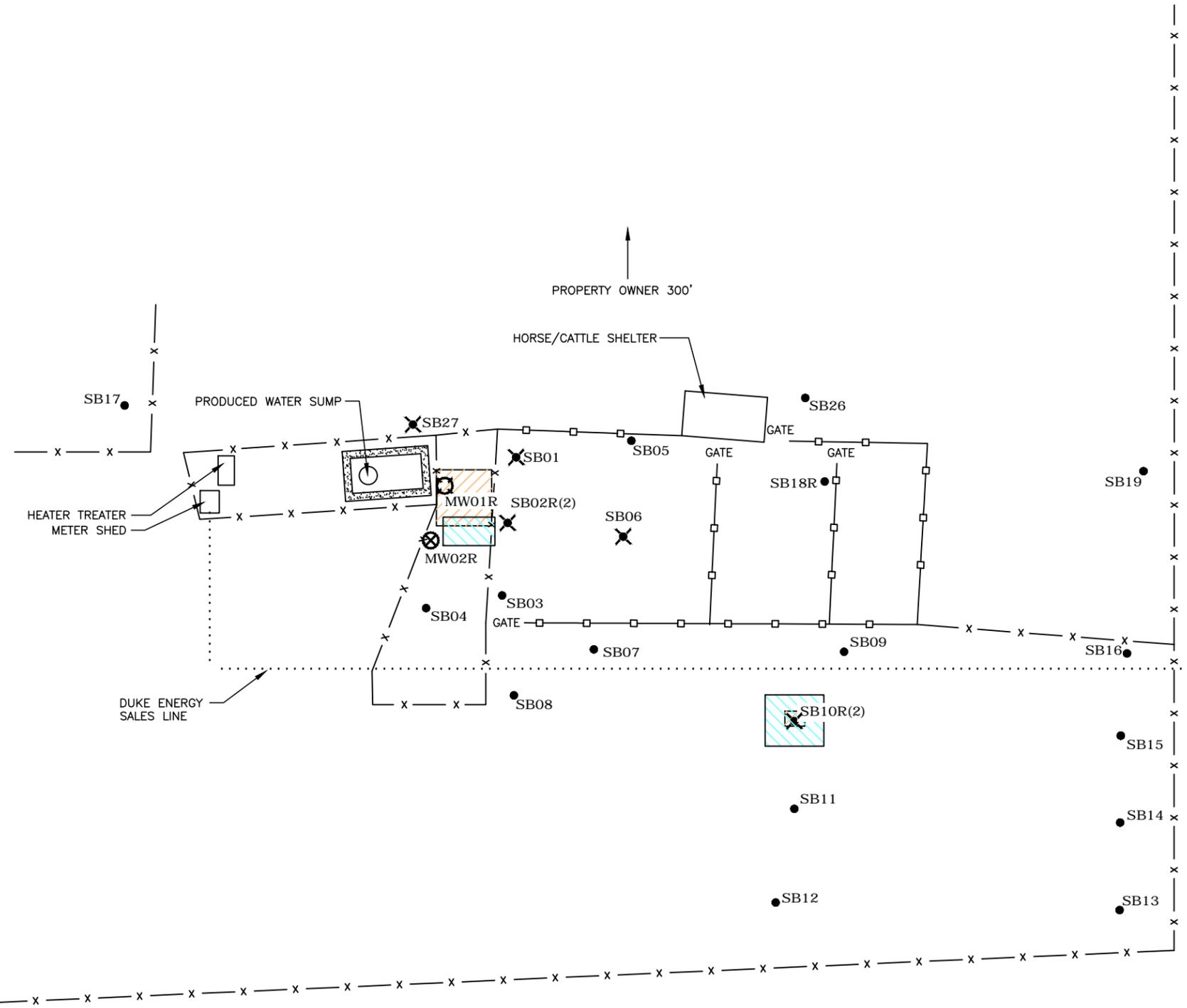
Figure 4: Groundwater Analytical Summary

Table 1: Groundwater Elevation Summary

Table 2: Groundwater Analytical Results – Volatile Organic Compounds

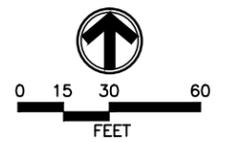
Attachment: Laboratory Analytical Report

## **FIGURES**



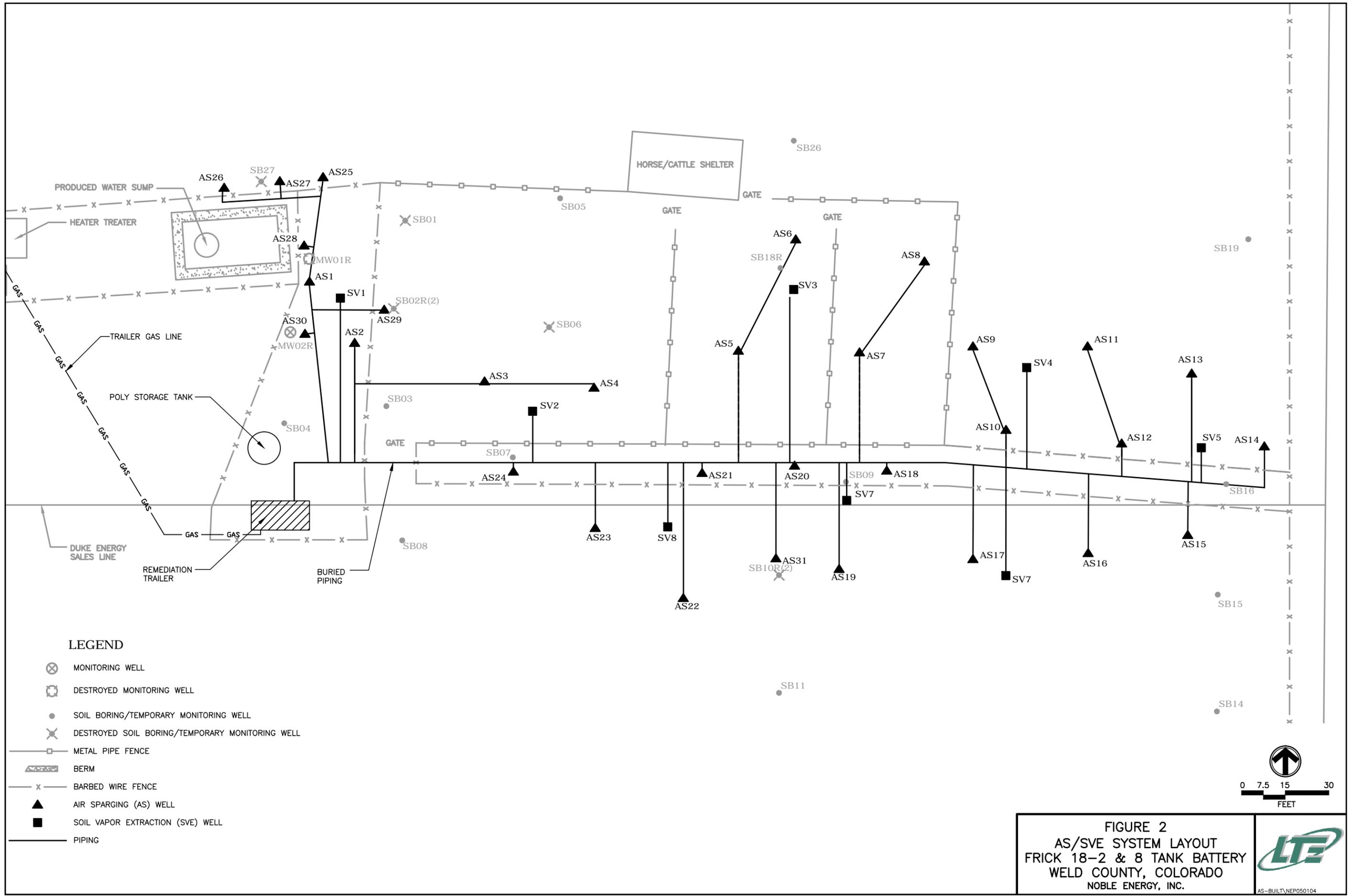
**LEGEND**

- ⊗ MONITORING WELL
- ⊘ DESTROYED MONITORING WELL
- SOIL BORING/TEMPORARY MONITORING WELL
- ⊗ DESTROYED SOIL BORING/TEMPORARY MONITORING WELL
- METAL PIPE FENCE
- x— BARBED WIRE FENCE
- ▨ TREATMENT AREA (6/28/10 - 7/2/10)
- ▨ TREATMENT AREA (11/22/10)
- ▨ BERM



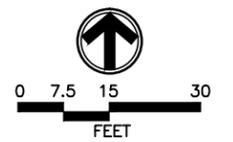
**FIGURE 1**  
**SITE MAP**  
**FRICK 18-2 & 8 TANK BATTERY**  
**WELD COUNTY, COLORADO**  
**NOBLE ENERGY, INC.**





**LEGEND**

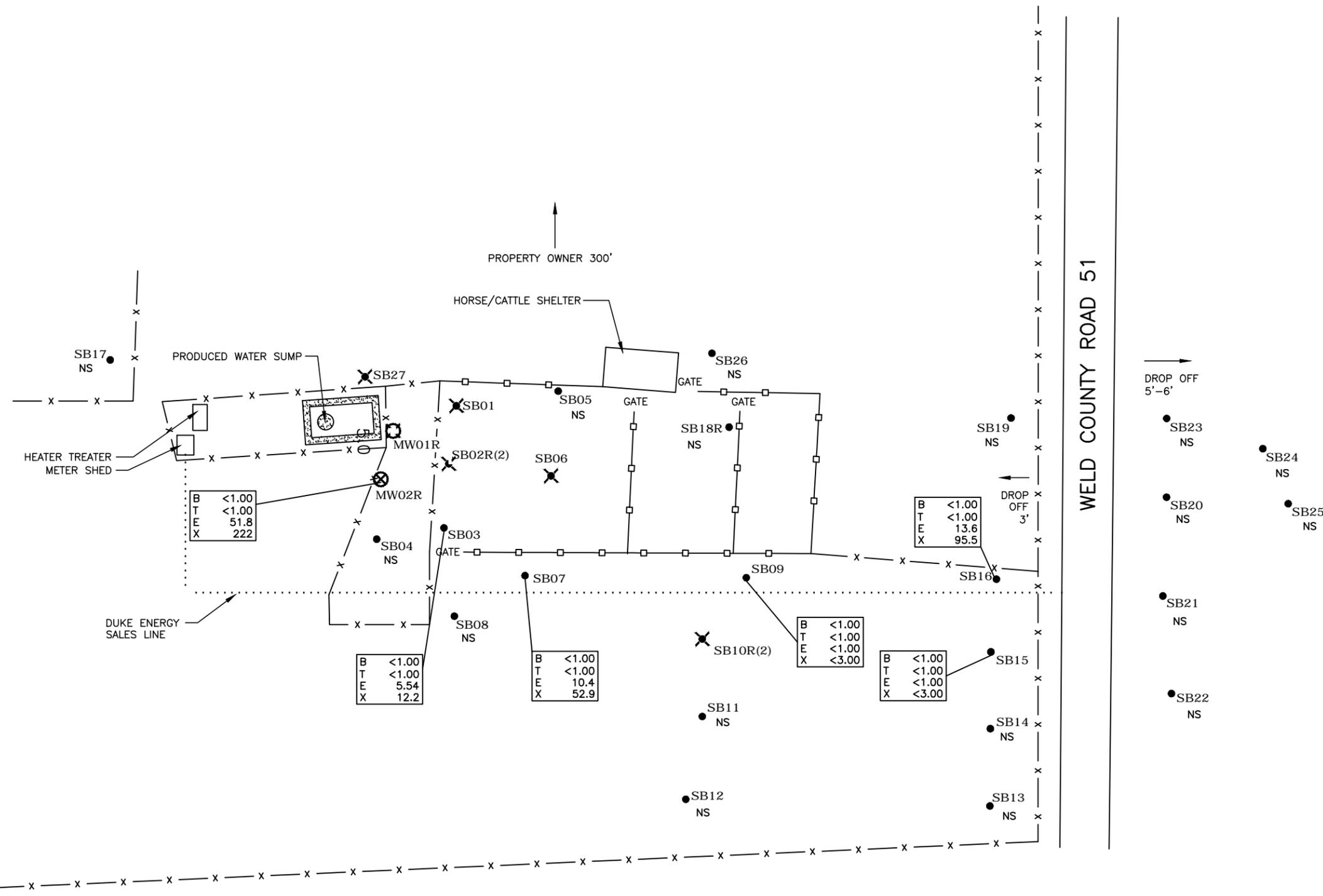
- ⊗ MONITORING WELL
- ⊗ DESTROYED MONITORING WELL
- SOIL BORING/TEMPORARY MONITORING WELL
- ⊗ DESTROYED SOIL BORING/TEMPORARY MONITORING WELL
- METAL PIPE FENCE
- ▨ BERM
- x BARBED WIRE FENCE
- ▲ AIR SPARGING (AS) WELL
- SOIL VAPOR EXTRACTION (SVE) WELL
- PIPING



**FIGURE 2**  
**AS/SVE SYSTEM LAYOUT**  
**FRICK 18-2 & 8 TANK BATTERY**  
**WELD COUNTY, COLORADO**  
**NOBLE ENERGY, INC.**



AS-BUILT\NEP050104



**LEGEND**

- ⊗ MONITORING WELL
- ⊘ DESTROYED MONITORING WELL
- SOIL BORING/TEMPORARY MONITORING WELL
- ⊗ DESTROYED SOIL BORING/TEMPORARY MONITORING WELL
- METAL PIPE FENCE
- x BARBED WIRE FENCE
- ▨ BERM

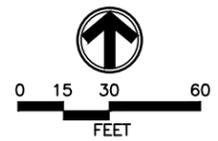
(SAMPLE DATE)

B BENZENE  
T TOLUENE  
E ETHYLBENZENE  
X TOTAL XYLENES

ANALYTICAL RESULTS ARE REPORTED IN MICROGRAMS PER LITER (µg/L)

NS NOT SAMPLED

< INDICATES CONCENTRATION IS LESS THAN STATED METHOD DETECTION LIMIT



**FIGURE 3**  
**GROUNDWATER ANALYTICAL RESULTS**  
 APRIL 5, 2011  
 FRICK 18-2 & 8 TANK BATTERY  
 WELD COUNTY, COLORADO  
 NOBLE ENERGY, INC.



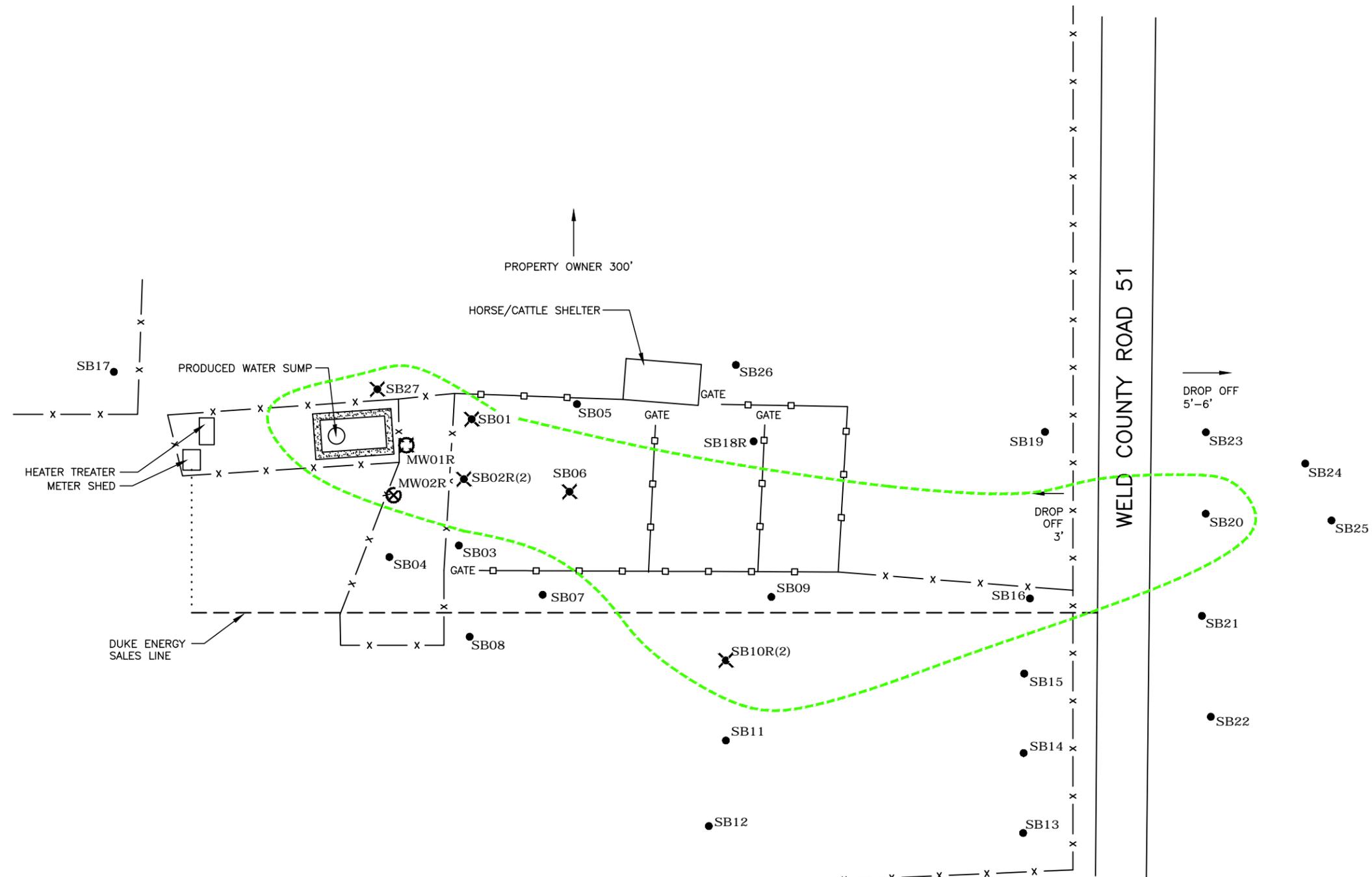


FIGURE 4  
 GROUNDWATER ANALYTICAL SUMMARY  
 FRICK 18-2 & 8 TANK BATTERY  
 WELD COUNTY, COLORADO  
 NOBLE ENERGY, INC.



## **TABLES**

**TABLE 1  
GROUNDWATER ELEVATION SUMMARY**

**FRICK 18-2 & 8 TANK BATTERY  
WELD COUNTY, COLORADO  
NOBLE ENERGY, INC.**

<b>Well ID</b>	<b>Date</b>	<b>Total Depth (ft)</b>	<b>Depth to Water (ft)</b>	<b>TOC Elevation (ft)</b>	<b>Groundwater Elevation (relative ft)</b>	
MW01	10/11/05	17.78	8.80	96.33	87.53	
	01/20/06	17.78	8.23	96.33	88.10	
	03/28/07	17.78	7.63	96.33	88.70	
	08/05/08	17.78	6.27	96.33	90.06	
	11/14/08	17.78	4.32	96.33	92.01	
	11/24/08	17.78	3.49	96.33	92.84	
	02/24/09	17.78	3.31	96.33	93.02	
	05/26/09	17.78	0.70	96.33	95.63	
	08/31/09	17.78	3.75	96.33	92.58	
	12/29/09	17.78	2.22	96.33	94.11	
	03/11/10	17.78	1.43	96.33	94.90	
	MW01R	07/28/10	10.03	5.46	NM	NM
11/22/10		Destroyed				
MW02	10/11/05	18.39	9.68	96.83	87.15	
	01/20/06	18.39	8.78	96.83	88.05	
	03/28/07	18.39	7.95	96.83	88.88	
	08/05/08	18.39	6.51	96.83	90.32	
	11/24/08	18.39	3.78	96.83	93.05	
	02/24/09	18.39	3.31	96.83	93.52	
	05/26/09	18.34	1.00	96.83	95.83	
	08/31/09	18.34	4.10	96.83	92.73	
	12/29/09	18.34	1.84	96.83	94.99	
	03/11/10	18.34	1.50	96.83	95.33	
	MW02R	07/28/10	12.04	5.87	NM	NM
01/19/11		12.04	6.25	NM	NM	
04/05/11		12.04	6.09	NM	NM	
SB01	10/11/05	14.98	8.72	95.82	87.10	
SB02	10/11/05	12.68	9.24	96.06	86.82	
	01/20/06	12.68	8.35	96.06	87.71	
	03/28/07	12.68	7.62	96.06	88.44	
SB02R	02/24/09	12.72	3.15	NM	NM	
	05/26/09	12.72	0.75	NM	NM	
	08/31/09	12.72	4.06	NM	NM	
	12/29/09	12.72	0.00	NM	NM	
	03/11/10	12.72	1.37	NM	NM	
SB02R(2)	07/28/10	10.14	5.20	NM	NM	
	11/22/10	Destroyed				
SB03	10/11/05	15.01	9.50	96.06	86.56	
	01/20/06	15.01	8.45	96.06	87.61	
	03/28/07	15.01	7.64	96.06	88.42	
	08/05/08	15.01	6.34	96.06	89.72	
	11/24/08	15.01	3.44	96.06	92.62	
	02/24/09	15.01	3.05	96.06	93.01	
	05/26/09	15.01	0.85	96.06	95.21	
	08/31/09	15.01	3.58	96.06	92.48	
	12/29/09	15.01	1.90	96.06	94.16	
	03/11/10	15.01	1.15	96.06	94.91	
	07/28/10	14.89	3.40	96.06	92.66	
	01/19/11	14.89	3.71	96.06	92.35	
	04/05/11	14.89	3.51	96.06	92.55	
	SB04	10/11/05	12.86	10.04	97.26	87.22
	SB05	10/11/05	12.09	8.18	94.48	86.30
SB06	10/11/05	12.27	8.56	94.71	86.15	
	01/20/06	12.27	7.60	94.71	87.11	
	03/28/07	12.27	6.94	94.71	87.77	

**TABLE 1 (CONTINUED)  
GROUNDWATER ELEVATION SUMMARY**

**FRICK 18-2 & 8 TANK BATTERY  
WELD COUNTY, COLORADO  
NOBLE ENERGY, INC.**

<b>Well ID</b>	<b>Date</b>	<b>Total Depth (ft)</b>	<b>Depth to Water (ft)</b>	<b>TOC Elevation (ft)</b>	<b>Groundwater Elevation (relative ft)</b>
SB07	10/11/05	12.30	8.86	94.98	86.12
	01/20/06	12.30	7.85	94.98	87.13
	03/28/07	12.30	7.18	94.98	87.80
	02/24/09	12.30	2.63	94.98	92.35
	05/26/09	12.30	0.55	94.98	94.43
	08/31/09	12.30	3.07	94.98	91.91
	12/29/09	12.30	1.50	94.98	93.48
	03/11/10	12.30	0.73	94.98	94.25
	07/28/10	11.78	3.01	NM	NM
	01/19/11	11.78	3.27	NM	NM
	04/05/11	11.78	3.31	NM	NM
SB08	01/20/06	12.18	7.79	NM	NM
SB09	05/28/09	15.04	0.10	NM	NM
	08/31/09	15.04	2.78	NM	NM
	12/29/09	15.04	1.20	NM	NM
	03/11/10	15.04	0.40	NM	NM
	07/28/10	14.81	2.96	NM	NM
	01/19/11	14.81	3.02	NM	NM
	04/05/11	14.81	2.96	NM	NM
SB10R	05/28/09	13.68	0.30	NM	NM
	08/31/09	13.68	1.63	NM	NM
	12/29/09	13.68	0.82	NM	NM
	03/17/10	13.68	0.10	NM	NM
SB10R(2)	07/28/10	10.13	2.96	NM	NM
	11/22/10	Destroyed			
SB11	10/11/05	11.95	7.80	92.87	85.07
	01/20/06	11.95	6.66	92.87	86.21
	03/28/07	11.95	6.06	92.87	86.81
	08/05/08	11.95	4.75	92.87	88.12
	11/24/08	11.95	1.89	92.87	90.98
SB12	10/11/05	11.68	8.23	93.04	84.81
	01/20/06	11.68	6.86	93.04	86.18
	03/28/07	11.68	6.13	93.04	86.91
SB13	10/11/05	11.79	10.23	92.27	82.04
	01/20/06	11.79	9.35	92.27	82.92
	03/28/07	11.79	8.59	92.27	83.86
SB14	10/11/05	12.11	9.95	92.63	82.68
	01/20/06	12.11	9.01	92.63	83.62
	03/28/07	12.11	8.83	92.63	83.80
	08/05/08	12.11	6.07	92.63	86.56
SB15	10/11/05	12.01	10.05	92.80	82.75
	01/20/06	12.01	9.11	92.80	83.69
	03/28/07	12.01	8.95	92.80	83.85
	08/05/08	12.01	7.51	92.80	85.29
	11/24/08	12.01	5.29	92.80	87.51
	02/24/09	12.01	4.41	92.80	88.39
	05/26/09	12.01	0.90	92.80	91.90
	08/31/09	12.01	4.50	92.80	88.30
	12/29/09	12.01	3.08	92.80	89.72
	03/11/10	12.01	1.66	92.80	91.14
	07/28/10	8.81	4.69	92.80	88.11
	01/19/11	8.81	5.01	92.80	87.79
	04/05/11	8.81	4.56	92.80	88.24

**TABLE 1 (CONTINUED)  
GROUNDWATER ELEVATION SUMMARY**

**FRICK 18-2 & 8 TANK BATTERY  
WELD COUNTY, COLORADO  
NOBLE ENERGY, INC.**

<b>Well ID</b>	<b>Date</b>	<b>Total Depth (ft)</b>	<b>Depth to Water (ft)</b>	<b>TOC Elevation (ft)</b>	<b>Groundwater Elevation (relative ft)</b>
SB16	10/11/05	12.06	9.27	92.21	82.94
	01/20/06	12.06	8.38	92.21	83.83
	03/28/07	12.06	8.26	92.21	83.95
	08/05/08	12.06	6.96	92.21	85.25
	11/14/08	12.06	5.62	92.21	86.59
	11/24/08	12.06	4.81	92.21	87.40
	02/24/09	12.06	3.92	92.21	88.29
	08/31/09	12.06	4.00	92.21	88.21
	12/29/09	12.06	2.49	92.21	89.72
	03/17/10	12.06	2.30	92.21	89.91
	07/28/10	12.04	4.24	92.21	87.97
	01/19/11	12.04	4.37	92.21	87.84
	04/05/11	12.04	3.90	92.21	88.31
SB17	10/11/05	14.56	11.02	101.25	90.23
SB18	10/11/05	12.00	8.66	93.63	84.97
	01/20/06	12.00	7.72	93.63	85.91
SB18R	02/24/09	12.86	3.22	NM	NM
	05/28/09	12.86	0.74	NM	NM
SB19	10/11/05	12.08	9.23	92.37	83.14
	01/20/06	12.08	8.39	92.37	83.98
	03/28/07	12.08	8.27	92.37	84.10
SB20	10/11/05	13.27	11.54	93.31	81.77
	01/20/06	13.27	8.65	93.31	84.66
	03/28/07	13.27	10.37	93.31	82.94
	08/05/08	13.27	9.38	93.31	83.93
	11/24/08	13.27	7.18	93.31	86.13
	02/24/09	13.30	6.26	93.31	87.05
	05/26/09	13.30	3.00	93.31	90.31
SB21	10/11/05	13.90	9.91	91.36	81.45
	01/20/06	13.90	7.89	91.36	83.47
	03/28/07	13.90	9.60	91.36	81.76
	11/24/08	13.90	5.13	91.36	86.23
SB22	10/11/05	13.93	9.31	90.57	81.26
SB23	10/11/05	13.70	8.40	89.98	81.58
	01/20/06	13.70	7.15	89.98	82.83
	03/28/07	13.70	8.88	89.98	81.10
	11/24/08	13.70	4.19	89.98	85.79
SB24	10/11/05	13.69	8.00	88.90	80.90
	01/20/06	13.69	6.65	88.90	82.25
	03/28/07	13.69	8.58	88.90	80.32
	11/24/08	13.69	3.72	88.90	85.18

**TABLE 1 (CONTINUED)  
GROUNDWATER ELEVATION SUMMARY**

**FRICK 18-2 & 8 TANK BATTERY  
WELD COUNTY, COLORADO  
NOBLE ENERGY, INC.**

<b>Well ID</b>	<b>Date</b>	<b>Total Depth (ft)</b>	<b>Depth to Water (ft)</b>	<b>TOC Elevation (ft)</b>	<b>Groundwater Elevation (relative ft)</b>
SB25	10/11/05	13.77	7.90	88.48	80.58
	11/24/08	13.77	3.58	88.48	84.90
SB26	10/11/05	11.94	8.91	93.85	84.94
SB27	02/24/09	13.35	3.81	NM	NM
	05/26/09	13.35	1.53	NM	NM
	08/31/09	13.35	4.88	NM	NM
	01/07/10	13.35	3.20	NM	NM
	03/11/10	13.35	1.76	NM	NM

**Notes:**

ft - feet

NM - Not measured

TOC - top of casing

All depths measured from the north side of the top of the casing

**TABLE 2  
GROUNDWATER ANALYTICAL RESULTS - VOLATILE ORGANIC COMPOUNDS**

**FRICK 18-2 & 8 TANK BATTERY  
WELD COUNTY, COLORADO  
NOBLE ENERGY, INC**

Sample ID	Sample Date	Volatile Organic Compounds (ug/L)			
		Benzene	Toluene	Ethylbenzene	Total Xylenes
MW01	10/11/05	<b>1,200</b>	4.2	150	562
	01/20/06	<b>1,700</b>	<20	39	337
	03/28/07	<b>1,200</b>	<20.0	27	260
	08/05/08	<b>7,770</b>	111	97.6	812.2
	11/14/08	<b>9,450</b>	129	272	<b>2,858</b>
	11/24/08	<b>9,210</b>	56.8	50.1	<b>2,573</b>
	02/24/09	<b>6,130</b>	23.9	65.7	571.7
	05/26/09	<b>9,680</b>	56.1	633	1,027
	08/31/09	<b>7,000</b>	2.53	163	763.84
	12/29/09	<b>919</b>	<1.0	5.64	35.26
	03/11/10	<b>3,820</b>	11.3	150	459.8
MW01R	07/28/10	<b>114</b>	25.8	43.5	241
	11/22/10	Destroyed			
MW02	10/11/05	<b>390</b>	<1.0	15	285
	01/20/06	<1.0	<1.0	<1.0	<3.0
	03/28/07	1.5	<2.0	<2.0	7.2
	08/05/08	<b>53.8</b>	<1.0	66.7	381.7
	11/24/08	2.15	<1.0	<1.0	8.1
	02/24/09	<b>88.5</b>	<1.0	100	655.6
	05/26/09	<b>65</b>	<1.0	171	1,736.7
	08/31/09	<b>6.81</b>	<1.0	<1.0	2.72
	12/29/09	1.28	<1.0	1.62	14.6
	03/11/10	<b>7.78</b>	<1.0	28.3	203
MW02R	07/28/10	2.38	1.99	130	207
	01/19/11	3.03	1.56	112	514
	04/05/11	<1.00	<1.00	51.8	222
SB01	06/16/05	< 1.0	< 1.0	< 1.0	<3.0
SB02	06/16/05	<b>48</b>	39.8	508	<b>7,160</b>
	10/11/05	3.6	<1.0	170	<b>7,078</b>
	01/20/06	<1.0	<1.0	190	586
	03/28/07	1.2	<2.0	49	38
	08/05/08	Destroyed			
SB02R	02/24/09	<b>30.4</b>	1.91	48.9	266.54
	05/26/09	<b>32.1</b>	<1.0	6.7	48.5
	08/31/09	<b>183</b>	<1.0	383	<b>3,055</b>
	12/29/09	2.23	<1.0	<1.0	24.41
	03/11/10	<b>97.6</b>	<1.0	58.5	87.6
SB02R(2)	07/28/10	<b>5.17</b>	<1.0	44.8	122
	11/22/10	Destroyed			
SB03	06/16/05	<b>630</b>	892	182	<b>2,070</b>
	10/11/05	<b>4,800</b>	280	280	<b>2,150</b>
	01/20/06	<b>2,400</b>	38	170	960
	03/28/07	<b>350</b>	<20.0	230	1,300
	08/05/08	< 1.0	< 1.0	< 1.0	3.41
	11/24/08	<1.0	<1.0	<1.0	<3.0
	02/24/09	<1.0	<1.0	26.6	178
	05/26/09	<1.0	<1.0	16.9	86.4
	08/31/09	<1.0	<1.0	8.75	9.01
	12/29/09	<1.0	<1.0	13.2	52
	03/11/10	<1.0	<1.0	34.3	110
	07/28/10	<1.0	<1.0	8.06	21.7
	01/19/11	2.32	1.53	33.7	60.9
	04/05/11	<1.00	<1.00	5.54	12.2
	SB04	06/16/05	4.8	31.7	46.0
SB05	06/16/05	< 1.0	2.9	3.5	41.8
SB06	06/16/05	<b>9.1</b>	80.3	106	881
	10/11/05	2.9	<1.0	47	221
	01/20/06	<1.0	<1.0	16	61.5
	03/28/07	<1.0	<2.0	<2.0	<6.0
SB07	06/16/05	<b>7,120</b>	<b>3,090</b>	433	<b>4,610</b>
	10/11/05	<b>6,400</b>	200	510	1,000
	01/20/06	<b>3,300</b>	1.2	230	<b>1,698</b>
	03/28/07	<b>2,100</b>	<100.0	210	<b>1,800</b>
	02/24/09	<1.0	<1.0	10.4	76.7
	05/26/09	<1.0	<1.0	<1.0	5.12
	08/31/09	<1.0	<1.0	9.48	63.8
	12/29/09	<1.0	<1.0	56.2	462.08
	03/11/10	<1.0	<1.0	135	517.82
	07/28/10	1.86	2.99	79.2	381
	01/19/11	2.13	1.02	33.1	194
	04/05/11	<1.00	<1.00	10.4	52.9

**TABLE 2 (CONTINUED)**  
**GROUNDWATER ANALYTICAL RESULTS - VOLATILE ORGANIC COMPOUNDS**

**FRICK 18-2 & 8 TANK BATTERY**  
**WELD COUNTY, COLORADO**  
**NOBLE ENERGY, INC**

Sample ID	Sample Date	Volatile Organic Compounds (ug/L)			
		Benzene	Toluene	Ethylbenzene	Total Xylenes
SB08	06/16/05	<b>69.0</b>	80.4	15.5	175
	01/20/06	<1.0	<1.0	<1.0	<3.0
	03/28/07	<1.0	<2.0	<2.0	<6.0
SB09	06/16/05	<b>11.1</b>	7.1	2.4	27.8
	01/20/06	<b>1,800</b>	<1.0	130	1,016
	03/28/07	<b>68</b>	<2.0	25	200
	02/24/09	<b>59</b>	<1.0	<1.0	<3.0
	05/28/09	<1.0	<1.0	<1.0	<3.0
	08/31/09	<1.0	<1.0	<1.0	<3.0
	12/29/09	<1.0	<1.0	<1.0	<3.0
	03/11/10	<1.0	<1.0	<1.0	<3.0
	07/28/10	<1.0	<1.0	<1.0	<1.0
	01/19/11	<1.00	<1.00	<1.00	<1.00
SB10	04/05/11	<1.00	<1.00	<1.00	<3.00
	06/16/05	<b>3,260</b>	<b>1,180</b>	211	<b>2,910</b>
	10/11/05	<b>1,900</b>	450	230	<b>2,030</b>
	01/20/06	<b>1,900</b>	150	170	1,350
	03/28/07	<b>1,600</b>	<20.0	190	<b>1,756</b>
	08/05/08	<b>40.6</b>	<1.0	33.0	68.1
SB10R	11/24/08	Destroyed			
	02/24/09	<b>213</b>	<1.0	124	662
	05/28/09	<b>47.6</b>	<1.0	23	102
	08/31/09	<b>17.3</b>	<1.0	2.68	5.36
	12/29/09	<b>12.1</b>	<1.0	57.7	392
	03/17/10	<b>8.86</b>	<1.0	76.3	299
SB10R(2)	07/28/10	<b>20.1</b>	1.05	173	215
	11/22/10	Destroyed			
SB11	06/17/05	<b>17.6</b>	57.4	185	590
	10/14/05	1.8	<1.0	92	240
	01/20/06	<1.0	<1.0	15	34
	03/28/07	<1.0	<2.0	7.9	12
	08/05/08	<1.0	<1.0	<1.0	<3.0
	11/24/08	<1.0	<1.0	<1.0	<3.0
SB12	06/17/05	<b>15.1</b>	28.7	10.2	103
	10/11/05	1.1	<1.0	<1.0	2.1
	01/20/06	<1.0	<1.0	<1.0	<3.0
	03/28/07	<1.0	<2.0	<2.0	<6.0
SB13	06/17/05	<b>9.2</b>	17.3	6.1	65.4
	10/11/05	2.4	<1.0	<1.0	4.6
	01/20/06	<1.0	<1.0	<1.0	<3.0
	03/28/07	<1.0	<2.0	<2.0	<6.0
SB14	06/17/05	<b>7.5</b>	15.4	7.0	66.3
	10/11/05	<b>17</b>	<1.0	54	150
	01/20/06	1.0	<1.0	5.3	5.6
	03/28/07	<1.0	<2.0	<2.0	<6.0
	08/05/08	<1.0	<1.0	<1.0	<3.0
SB15	06/17/05	<b>21.4</b>	19.0	35.0	812
	10/11/05	<b>14</b>	<1.0	15	110
	01/20/06	<1.0	<1.0	5.4	<3.0
	03/28/07	2.9	<2.0	61.0	101.7
	08/05/08	<1.0	<1.0	<1.0	<3.0
	11/24/08	<1.0	<1.0	<1.0	<3.0
	02/24/09	<1.0	<1.0	2.15	2.73
	05/26/09	<1.0	<1.0	<1.0	<3.0
	08/31/09	<1.0	<1.0	<1.0	<3.0
	12/29/09	<1.0	<1.0	<1.0	<3.0
	03/11/10	<1.0	<1.0	<1.0	<3.0
	07/28/10	<1.0	<1.0	<1.0	<1.0
	01/19/11	2.00	<1.00	<1.00	2.07
	04/05/11	<1.00	<1.00	<1.00	<3.00

TABLE 2 (CONTINUED)  
GROUNDWATER ANALYTICAL RESULTS - VOLATILE ORGANIC COMPOUNDS

FRICK 18-2 & 8 TANK BATTERY  
WELD COUNTY, COLORADO  
NOBLE ENERGY, INC

Sample ID	Sample Date	Volatile Organic Compounds (ug/L)			
		Benzene	Toluene	Ethylbenzene	Total Xylenes
SB16	06/17/05	7,630	8,210	463	6,770
	10/11/05	5,400	4,600	470	5,280
	01/20/06	4,300	4,300	290	3,530
	03/28/07	2,600	4,400	400	5,860
	08/05/08	933	86.7	395	3,831
	11/14/08	<1.0	<1.0	3.31	4.75
	11/24/08	727	45.9	562	6,906
	02/24/09	196	13.4	453	5,093
	08/31/09	4.1	<1.0	111	694
	12/29/09	<1.0	<1.0	55.3	391
	03/17/10	<1.0	<1.0	2.33	14.9
	07/28/10	<1.0	1.27	93.7	168
	01/19/11	2.30	1.40	145	994
04/05/11	<1.00	<1.00	13.6	95.5	
SB17	06/27/05	< 1.0	< 1.0	< 1.0	< 3.0
SB18	06/17/05	1,060	190	6.2	870
	10/11/05	1,000	18	290	2,778
	01/20/06	41	50	35	700
	03/28/07	Destroyed			
SB18R	02/24/09	<1.0	<1.0	103	428.05
	05/28/09	<1.0	<1.0	8.16	27.6
SB19	06/17/05	29.9	51.3	9.6	109
	10/11/05	<1.0	<1.0	<1.0	<3.0
	01/20/06	<1.0	<1.0	<1.0	<3.0
	03/28/07	<1.0	<2.0	<2.0	<6.0
SB20	07/18/05	5,640	< 10	321	4,780
	10/11/05	2,800	2.0	260	2,500
	01/20/06	<50	<50	<1.0	2.8
	03/28/07	140	<2.0	21	130
	08/05/08	25.3	<1.0	28.9	200.46
	11/24/08	2.74	<1.0	<1.0	7.98
	02/24/09	1.12	<1.0	4.26	20.0
	05/26/09	<1.0	<1.0	<1.0	<3.0
SB21	07/18/05	209	< 1.0	1.9	22.3
	10/11/05	11	< 1.0	<1.0	<3.0
	01/20/06	<1.0	<1.0	<1.0	<3.0
	03/28/07	<1.0	<2.0	<2.0	<6.0
	11/24/08	<1.0	<1.0	11.8	49.5
SB22	07/18/05	< 1.0	< 1.0	< 1.0	3.2
SB23	07/18/05	13.2	< 1.0	1.5	22.8
	10/11/05	<1.0	< 1.0	<1.0	<3.0
	01/20/06	1.0	<1.0	<1.0	<3.0
	03/28/07	<1.0	<2.0	<2.0	<6.0
	11/24/08	<1.0	<1.0	<1.0	<3.0
SB24	07/18/05	21.0	< 1.0	2.7	38.9
	10/11/05	<1.0	<1.0	<1.0	<3.0
	01/20/06	<1.0	< 1.0	<1.0	<3.0
	03/28/07	<1.0	<2.0	<2.0	<6.0
	11/24/08	<1.0	<1.0	<1.0	<3.0
SB25	07/18/05	< 1.0	< 1.0	< 1.0	7
	11/24/08	<1.0	<1.0	<1.0	<3.0
SB26	07/18/05	1.8	4.7	51.4	648

**TABLE 2 (CONTINUED)**  
**GROUNDWATER ANALYTICAL RESULTS - VOLATILE ORGANIC COMPOUNDS**

**FRICK 18-2 & 8 TANK BATTERY**  
**WELD COUNTY, COLORADO**  
**NOBLE ENERGY, INC**

Sample ID	Sample Date	Volatile Organic Compounds (ug/L)			
		Benzene	Toluene	Ethylbenzene	Total Xylenes
SB27	02/24/09	<b>24.7</b>	494	91.9	1,077
	05/26/09	<b>11.1</b>	188	<1.0	421.9
	08/31/09	<b>90.5</b>	300	18.6	348.4
	01/07/10	3.64	144	17.3	311.3
	03/11/10	2.44	12.0	11.4	92.7
Water Well	06/17/05	< 1.0	< 1.0	< 1.0	< 3.0
	10/11/05	< 1.0	< 1.0	< 1.0	< 3.0
	01/20/06	< 1.0	< 1.0	< 1.0	< 3.0
	03/28/07	<1.0	<2.0	<2.0	<6.0
<b>CDPHE-WQCC Regulation 41 Groundwater Standards</b>		<b>5.0</b>	<b>560</b>	<b>700</b>	<b>1,400</b>

**Notes:**

ug/L - micrograms per liter

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

< indicates analytical result is less than the laboratory detection limit

**Bold** indicates concentration exceeds CDPHE-WQCC Regulation 41 Groundwater Standards

Analysis by Environmental Protection Agency Method 8260B (2/24/09 through 1/19/11) and 8260C (4/5/11).

**ATTACHMENT**  
**LABORATORY ANALYTICAL REPORT**

April 08, 2011

LT Environmental, Inc.

Rob Rebel

4600 West 60th Avenue

Arvada CO 80003

**Project Name - Noble - Frick 18-2&8**

**Project Number - NEP0505**

Attached are you analytical results for Noble - Frick 18-2&8 received by Origins Laboratory, Inc. April 05, 2011. This project is associated with Origins project number X104036-01.

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



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

Project Number: NEP0505  
Project Name: Noble - Frick 18-2&8

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW02R	X104036-01	Water	April 5, 2011 12:20	04/05/2011 16:15
SB03	X104036-02	Water	April 5, 2011 12:35	04/05/2011 16:15
SB07	X104036-03	Water	April 5, 2011 12:50	04/05/2011 16:15
SB09	X104036-04	Water	April 5, 2011 12:55	04/05/2011 16:15
SB16	X104036-05	Water	April 5, 2011 12:40	04/05/2011 16:15
SB15	X104036-06	Water	April 5, 2011 12:15	04/05/2011 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, President

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

Project Number: NEP0505  
 Project Name: Noble - Frick 18-2&8

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X104036 page 1 of 1

Client: LTE  
 Address:  
 Telephone Number:  
 Email Address:

Project Manager: Rob Repel  
 Project Name: Frick 18-2, + 8  
 Project Number: NEP0505  
 Samples Collected By: D. Burns, L. Houle

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

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix			Analysis	Sample Instructions	
				Unpreserved	HCl	HNO <sub>3</sub>	Other	Groundwater	Soil	Dr. Summa #			Other
M4022	4.5.11	1220	2	X				X				Lab Filtered	1
5803	4.5.11	1235	2	X				X					2
5807	4.5.11	1250	2	X				X					3
5809	4.5.11	1255	2	X				X					4
5810	4.5.11	1240	2	X				X					5
5815	4.5.11	1215	2	X				X					6
													7
													8
													9
													10

Reinquisitioned By: [Signature] Date: 4/5/11 Time: 1615  
 Received By: [Signature] Date: 4/5/11 Time: 1615  
 Turnaround Time: Same Day  24 Hr  48 Hr  72 Hr  Standard

Data Results Standard

Origins Laboratory, Inc.

Noelle E Doyle, President

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

Project Number: NEP0505  
 Project Name: Noble - Frick 18-2&8

MW02R  
 4/5/2011 12:20:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.  
 X104036-01 (Water)

**BTEX by EPA 8260C**

Benzene	ND	1.00	ug/L	1	1D06006	04/06/2011	04/07/2011	
Toluene	ND	1.00	"	"	"	"	"	
Ethylbenzene	51.8	1.00	"	"	"	"	"	
Xylenes, total	222	3.00	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	97.7 %	70-130			"	"	"	
Surrogate: Toluene-d8	107 %	70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	107 %	70-130			"	"	"	

Origins Laboratory, Inc.



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Noelle E Doyle, President

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

Project Number: NEP0505  
Project Name: Noble - Frick 18-2&8

SB03

4/5/2011 12:35:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.  
X104036-02 (Water)

**BTEX by EPA 8260C**

Benzene	ND	1.00	ug/L	1	1D06006	04/06/2011	04/07/2011	
Toluene	ND	1.00	"	"	"	"	"	
Ethylbenzene	5.54	1.00	"	"	"	"	"	
Xylenes, total	12.2	3.00	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	93.8 %	70-130			"	"	"	
Surrogate: Toluene-d8	103 %	70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	109 %	70-130			"	"	"	

Origins Laboratory, Inc.



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

Project Number: NEP0505  
Project Name: Noble - Frick 18-2&8

SB07

4/5/2011 12:50:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.  
X104036-03 (Water)

**BTEX by EPA 8260C**

Benzene	ND	1.00	ug/L	1	1D06006	04/06/2011	04/07/2011	
Toluene	ND	1.00	"	"	"	"	"	
Ethylbenzene	10.4	1.00	"	"	"	"	"	
Xylenes, total	52.9	3.00	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	93.2 %	70-130			"	"	"	
Surrogate: Toluene-d8	101 %	70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	108 %	70-130			"	"	"	

Origins Laboratory, Inc.



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

Project Number: NEP0505  
 Project Name: Noble - Frick 18-2&8

SB09

4/5/2011 12:55:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.  
 X104036-04 (Water)

**BTEX by EPA 8260C**

Benzene	ND	1.00	ug/L	1	1D06006	04/06/2011	04/07/2011	
Toluene	ND	1.00	"	"	"	"	"	
Ethylbenzene	ND	1.00	"	"	"	"	"	
Xylenes, total	ND	3.00	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	95.5 %	70-130			"	"	"	
Surrogate: Toluene-d8	101 %	70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	111 %	70-130			"	"	"	

Origins Laboratory, Inc.



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Noelle E Doyle, President

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

Project Number: NEP0505  
 Project Name: Noble - Frick 18-2&8

SB16  
 4/5/2011 12:40:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.  
 X104036-05 (Water)

**BTEX by EPA 8260C**

Benzene	ND	1.00	ug/L	1	1D06006	04/06/2011	04/08/2011	
Toluene	ND	1.00	"	"	"	"	"	
Ethylbenzene	13.6	1.00	"	"	"	"	"	
Xylenes, total	95.5	3.00	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	96.8 %	70-130			"	"	04/07/2011	
Surrogate: Toluene-d8	102 %	70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	110 %	70-130			"	"	"	

Origins Laboratory, Inc.



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

Project Number: NEP0505  
 Project Name: Noble - Frick 18-2&8

SB15

4/5/2011 12:15:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.  
 X104036-06 (Water)

**BTEX by EPA 8260C**

Benzene	ND	1.00	ug/L	1	1D06006	04/06/2011	04/07/2011	
Toluene	ND	1.00	"	"	"	"	"	
Ethylbenzene	ND	1.00	"	"	"	"	"	
Xylenes, total	ND	3.00	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	96.8 %	70-130			"	"	"	
Surrogate: Toluene-d8	103 %	70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	109 %	70-130			"	"	"	

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Project Number: NEP0505  
 Project Name: Noble - Frick 18-2&8

Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control  
 Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1D06006 - EPA 5030B										
Blank (1D06006-BLK1) <span style="float: right;">Prepared: 04/06/2011 Analyzed: 04/06/2011</span>										
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	"							
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>56.0</i>		<i>"</i>	<i>62.5</i>		<i>89.6</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>63.5</i>		<i>"</i>	<i>62.5</i>		<i>102</i>	<i>70-130</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>68.3</i>		<i>"</i>	<i>62.5</i>		<i>109</i>	<i>70-130</i>			

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Project Number: NEP0505  
 Project Name: Noble - Frick 18-2&8

Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control  
 Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1D06006 - EPA 5030B										
LCS (1D06006-BS1) <span style="float: right;">Prepared: 04/06/2011 Analyzed: 04/06/2011</span>										
Benzene	47.7	1.00	ug/L	50.0		95.4	70-130			
Toluene	49.5	1.00	"	50.0		99.0	70-130			
Ethylbenzene	49.1	1.00	"	50.0		98.2	70-130			
m,p-Xylene	95.8	2.00	"	100		95.8	70-130			
o-Xylene	49.5	1.00	"	50.0		99.0	70-130			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>57.9</i>		<i>"</i>	<i>62.5</i>		<i>92.6</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>64.0</i>		<i>"</i>	<i>62.5</i>		<i>102</i>	<i>70-130</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>64.7</i>		<i>"</i>	<i>62.5</i>		<i>104</i>	<i>70-130</i>			

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Project Number: NEP0505  
 Project Name: Noble - Frick 18-2&8

**Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch 1D06006 - EPA 5030B</b>										
<b>Matrix Spike (1D06006-MS1)</b>			<b>Source: X104013-02</b>			<b>Prepared: 04/06/2011 Analyzed: 04/06/2011</b>				
Benzene	48.3	1.00	ug/L	50.0	ND	96.5	70-130			
Toluene	49.0	1.00	"	50.0	ND	98.0	70-130			
Ethylbenzene	48.7	1.00	"	50.0	ND	97.3	70-130			
m,p-Xylene	99.9	2.00	"	100	ND	99.9	70-130			
o-Xylene	50.2	1.00	"	50.0	ND	100	70-130			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>59.5</i>		<i>"</i>	<i>62.5</i>		<i>95.2</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>62.7</i>		<i>"</i>	<i>62.5</i>		<i>100</i>	<i>70-130</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>64.6</i>		<i>"</i>	<i>62.5</i>		<i>103</i>	<i>70-130</i>			

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Project Number: NEP0505  
 Project Name: Noble - Frick 18-2&8

**Volatile Organic Compounds by GC/MS SW846 8260C - 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 1D06006 - EPA 5030B

Matrix Spike Dup (1D06006-MSD1)	Source: X104013-02			Prepared: 04/06/2011 Analyzed: 04/06/2011						
Benzene	46.9	1.00	ug/L	50.0	ND	93.8	70-130	2.84	20	
Toluene	48.7	1.00	"	50.0	ND	97.3	70-130	0.696	20	
Ethylbenzene	46.8	1.00	"	50.0	ND	93.5	70-130	3.98	20	
m,p-Xylene	85.0	2.00	"	100	ND	85.0	70-130	16.0	20	
o-Xylene	48.3	1.00	"	50.0	ND	96.6	70-130	3.96	20	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>59.6</i>		<i>"</i>	<i>62.5</i>		<i>95.3</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>63.9</i>		<i>"</i>	<i>62.5</i>		<i>102</i>	<i>70-130</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>65.6</i>		<i>"</i>	<i>62.5</i>		<i>105</i>	<i>70-130</i>			

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Project Number: NEP0505  
Project Name: Noble - Frick 18-2&8

**Notes and Definitions**

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

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