



September 17, 2010

Remediation #3459

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

**RE: Second Quarter 2010 Remediation and Monitoring Report  
Frick 18 – 2 & 8 Natural Gas Wellhead Site  
Weld County, Colorado**

Dear Mr. Cox:

LT Environmental, Inc. (LTE) was retained by Noble Energy, Inc. (Noble) to conduct corrective actions at the Frick 18 – 2 & 8 natural gas wellhead site (Site) located approximately 0.4 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 includes two distinct phases. Phase I of the program included the design, installation, and operation and maintenance (O&M) of an air sparging/soil vapor extraction (AS/SVE) system. The AS/SVE system was operated intermittently from August 8, 2008 to February 18, 2010. Phase I of the program was successful in mitigating the majority of subsurface hydrocarbon impacts. Following completion of Phase I of the program, Phase II, which included an enhanced attenuation remedial technology, was initiated.

LTE continues to conduct groundwater monitoring at the Site to evaluate the performance of the remediation program in mitigating groundwater impact. This correspondence is provided as the Second Quarter 2010 Remediation and Monitoring Report, and summarizes activities conducted at the Site from April 1, 2010 through July 31, 2010. Activities conducted during the reporting period included the application of a groundwater amendment to the shallow aquifer, replacement of four groundwater monitoring wells, and quarterly groundwater monitoring.

**Phase I 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 process. AS and SVE wells are connected to a remediation equipment trailer housing the equipment for the AS/SVE system. The remediation system installation was described in the previously submitted report, *Remediation System Installation and Startup, and Pre-System Groundwater Sampling Results*, dated September 11, 2008. The remediation system initiated



operation at the Site on August 8, 2008 and continued operation until February 18, 2010. The system layout is illustrated on Figures 2 and 3.

## **Phase II Remediation System Description**

Phase II of the remediation program included the application of a groundwater amendment to areas of the Site that continue to exhibit low level dissolved hydrocarbon impacts. The Phase II program is designed to both increase the attenuation rate of the plume and decrease the mass flux of hydrocarbons from the source to down-gradient areas. The amendment consists of implementing the BOS200<sup>®</sup> Trap & Treat carbon slurry (BOS200<sup>®</sup>). BOS200<sup>®</sup> is a mixture of granular activated carbon (GAC), petroleum consuming microbes, gypsum, and nutrients. Using this in-situ remediation method, 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 consumed by the bacteria via petroleum oxidation/sulfate reduction biologically mediated reactions. As a result, the remaining hydrocarbon impact is reduced to achieve cleanup goals.

During the period of June 28, 2010 through July 2, 2010, implementation of Phase II of the remedial program was conducted. The groundwater amendment was applied to two distinct areas. The area near MW01, MW02, and SB02R was treated, followed by a second area near the MW10R location (Figure 1). Installation of the groundwater amendment included removing overburden to expose the aquifer, placement of the amendment in the saturated soils, and mixing the amendment with the native materials. The initial area (MW01, MW02, and SB02R) was exposed with the final dimensions of the treatment area approximately 25 feet long by 25 feet wide, and the total depth was 10 feet below ground surface (bgs). The second area was installed around SB10R with final dimensions of 10 feet by 12 feet and the total depth was 6 feet below ground surface. Performance groundwater monitoring will be conducted to evaluate the performance of the remediation program and applicability for site closure status.

## **Monitoring Well Installation and Replacement**

Due to the destruction of monitoring wells during the Phase II installation, LTE replaced four monitoring wells (SB02R(2), SB10R(2), MW01R and MW02R) on July 15, 2010. Drilling was conducted by Alpine Drilling with oversight by LTE. The four monitoring wells were drilled to total depths of 10 to 12 feet bgs. Well completion information for the replacement monitoring wells is included as Attachment 1.

## **Groundwater Sampling Procedures**

On July 28, 2010, nine groundwater monitoring wells were sampled to determine the current plume extent following five months of static evaluation and the Phase II installation. Prior to sampling, depth to groundwater in each monitoring well was measured and recorded for calculating purge volumes (Table 1). The replacement wells were developed by purging ten



casing volumes and allowed to recharge before sampling. All other wells were purged of three casing volumes and then groundwater samples were 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 was utilized to bring the groundwater to the surface for collection with laboratory prepared sample bottles. Groundwater samples were collected in 40-milliliter unpreserved vials, placed on ice, and delivered under chain-of-custody (COC) protocol to Origins Laboratory located in Denver, Colorado. All samples were lab filtered and analyzed for benzene, toluene, ethylbenzene, and total xylenes (BTEX) by Environmental Protection Agency (EPA) Method 8260B.

## **Hydrogeology**

During the July 28, 2010 sampling event, the depth to static groundwater ranged from 2.96 feet below top of casing (btoc) in SB09 and SB10R(2) to 5.87 feet btoc in MW02R (Table 1). The groundwater flow direction was to the east with an average hydraulic gradient of approximately 0.017 feet per foot (ft/ft).

## **Groundwater Analytical Results**

The Colorado Department of Public Health and Environment (CDPHE) Water Quality Control Commission (WQCC) has established Regulation 41 - The Basic Standards for Groundwater (Regulation 41) for BTEX of 5.0 micrograms per liter (ug/L), 560 ug/L, 700 ug/L, and 1,400 ug/L, respectively. Table 2 summarizes groundwater analytical results for samples collected during all monitoring events. The laboratory analytical reports, laboratory quality assurance/quality control data, and COC documentation are presented in Attachment 2.

Nine groundwater samples were collected and submitted to Origins Laboratory for BTEX analysis during the July 28, 2010 sampling event (MW01R, MW02R, SB02R(2), SB03, SB07, SB09, SB10R(2), SB15, and SB16). Groundwater analytical results indicate that benzene was detected above the Regulation 41 standard for benzene in monitoring wells MW01R, SB02R(2), and SB10R(2) at concentrations of 114 ug/L, 5.17 ug/L, and 20.1 ug/L, respectively. BTEX compounds were not detected above the Regulation 41 standards in the remaining samples. Groundwater analytical results for the July 28, 2010 sampling events are summarized in Table 2 and illustrated on Figure 4.

## **Summary and Conclusions**

Since implementation of the Remediation Program, benzene concentrations in monitoring wells MW02/02R, SB09, SB16, SB18/18R, SB20, and SB27 have successfully decreased into compliance with the Regulation 41 standard. These data indicate that cleanup objectives have been attained for these areas, representing successful remediation of approximately 90% of the pre remediation system (August 2008) plume extent, as seen on Figure 5. AS wells installed in November 2009 allowed for a more focused and efficient remedial effort onsite. Remaining areas of the Site exhibiting benzene groundwater concentrations above cleanup goals are in the



vicinity of MW01R, SB02R(2), and SB10R(2). It is expected that the recently completed Phase II program conducted from June 28, 2010 through July 2, 2010 will enhance natural attenuation in the remaining impacted areas of the Site.

The next groundwater sampling event will be conducted in October 2010. Groundwater monitoring will continue to be conducted at the Site on a quarterly basis until site closure status is received from the Colorado Oil and Gas Conservation Commission (COGCC).

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.

A handwritten signature in black ink, appearing to read "Rob Rebel".

Rob Rebel, P.E.  
Project Manager

A handwritten signature in black ink, appearing to read "Steve Kahn".

Steve Kahn, P.E.  
Senior Engineer

Attachments

Figure 1: Site Map

Figure 2: AS/SVE System Layout

Figure 3: Groundwater Analytical Results – July 28, 2010

Figure 4: Groundwater Analytical Summary

Table 1: Groundwater Elevation Summary

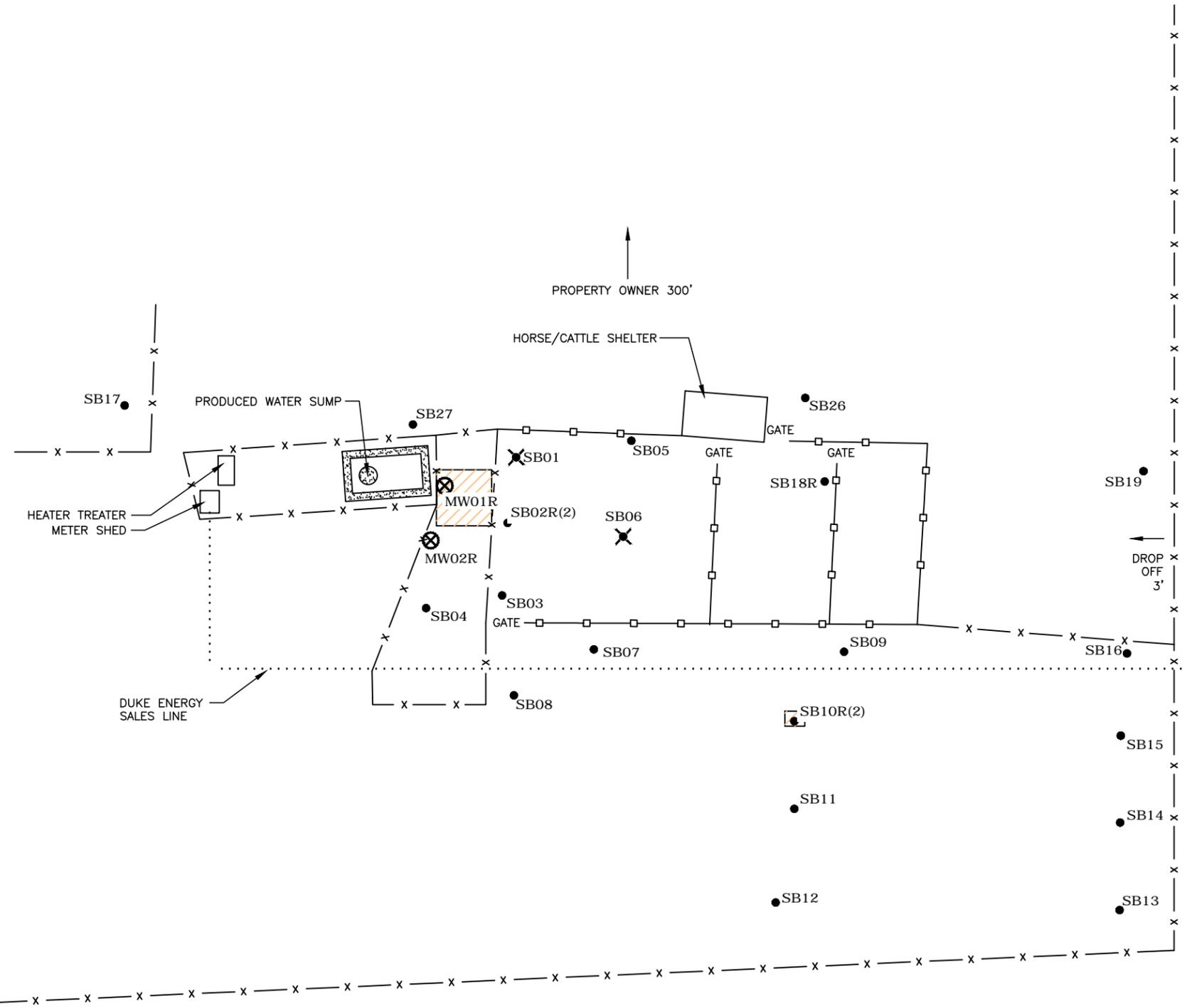
Table 2: Groundwater Analytical Results – Volatile Organic Compounds

Attachment 1: Replacement Well Boring Logs

Attachment 2: Laboratory Analytical Results

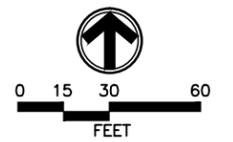
**FIGURES**





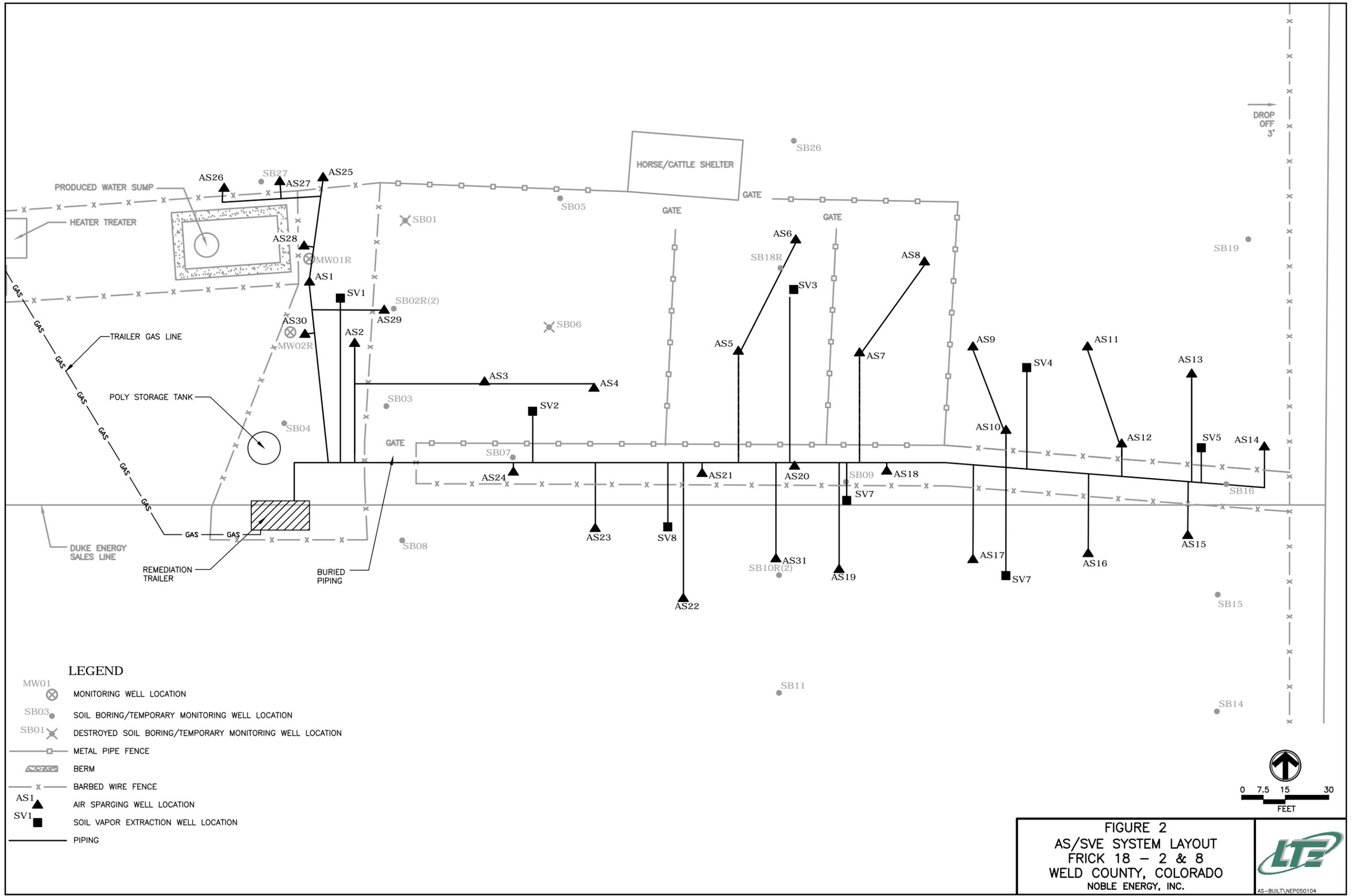
**LEGEND**

- MW01 MONITORING WELL LOCATION
- SB03 SOIL BORING/TEMPORARY MONITORING WELL LOCATION
- SB01 DESTROYED SOIL BORING/TEMPORARY MONITORING WELL LOCATION
- METAL PIPE FENCE
- BARBED WIRE FENCE
- BERM
- TREATMENT AREA



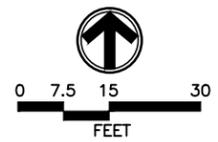
**FIGURE 1**  
**SITE MAP**  
**FRICK 18-2 & 8**  
**WELD COUNTY, COLORADO**  
**NOBLE ENERGY, INC.**





**LEGEND**

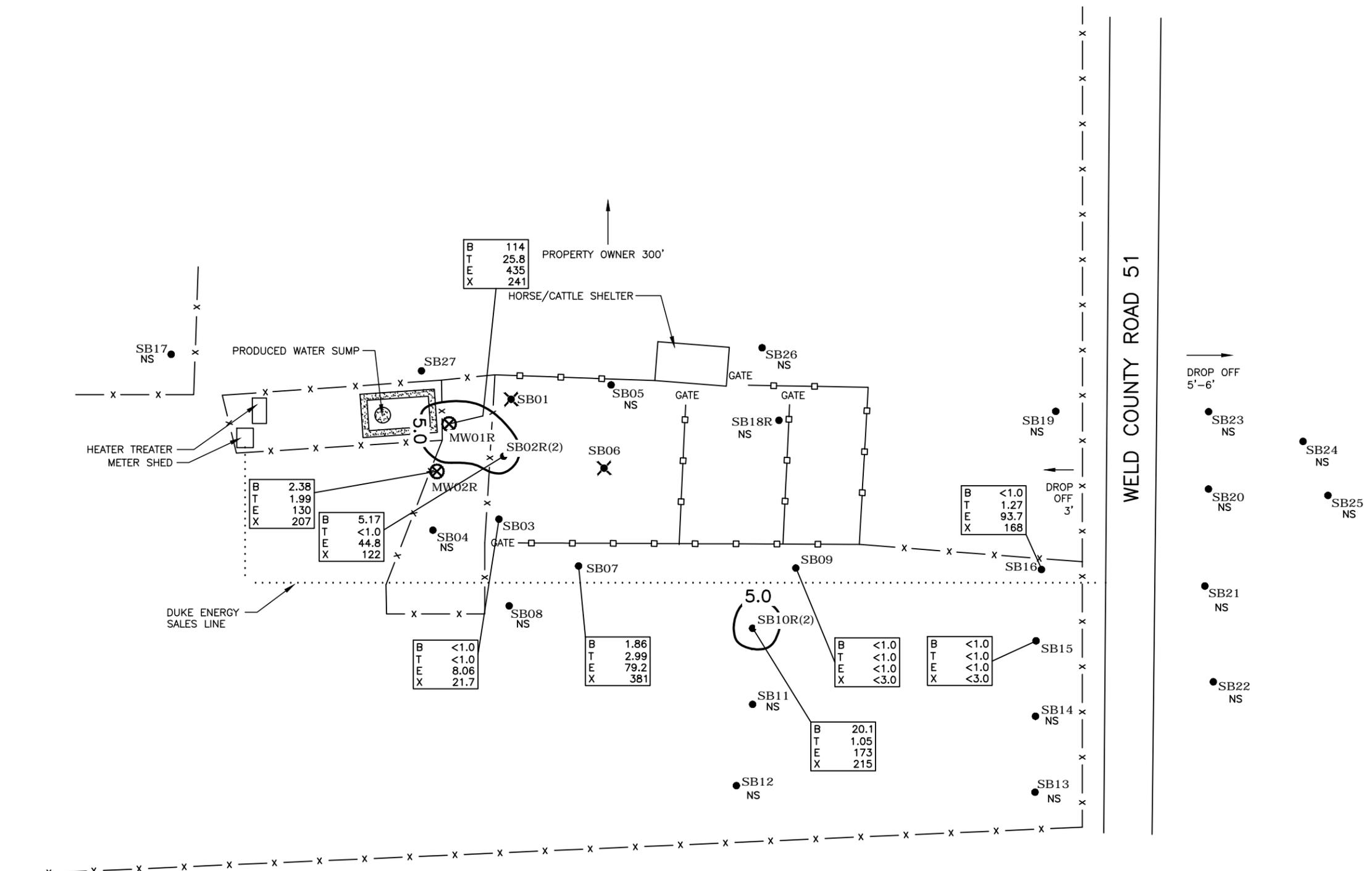
- MW01 MONITORING WELL LOCATION
- SB03 SOIL BORING/TEMPORARY MONITORING WELL LOCATION
- SB01 DESTROYED SOIL BORING/TEMPORARY MONITORING WELL LOCATION
- METAL PIPE FENCE
- BERM
- BARBED WIRE FENCE
- AS1 AIR SPARGING WELL LOCATION
- SV1 SOIL VAPOR EXTRACTION WELL LOCATION
- PIPING



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



AS-BUILT\_NEP050104



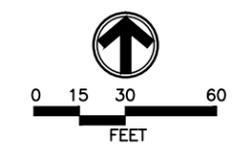
- LEGEND**
- MW01 ⊗ MONITORING WELL LOCATION
  - SB02R ● SOIL BORING/TEMPORARY MONITORING WELL LOCATION
  - SB01 ⊗ DESTROYED SOIL BORING/TEMPORARY MONITORING WELL LOCATION
  - METAL PIPE FENCE
  - x — BARBED WIRE FENCE
  - ▨ BERM

5.0 µg/L — BENZENE ISOCONCENTRATION LINE (SAMPLE DATE)

B	BENZENE
T	TOLUENE
E	ETHYLBENZENE
X	TOTAL XYLENES

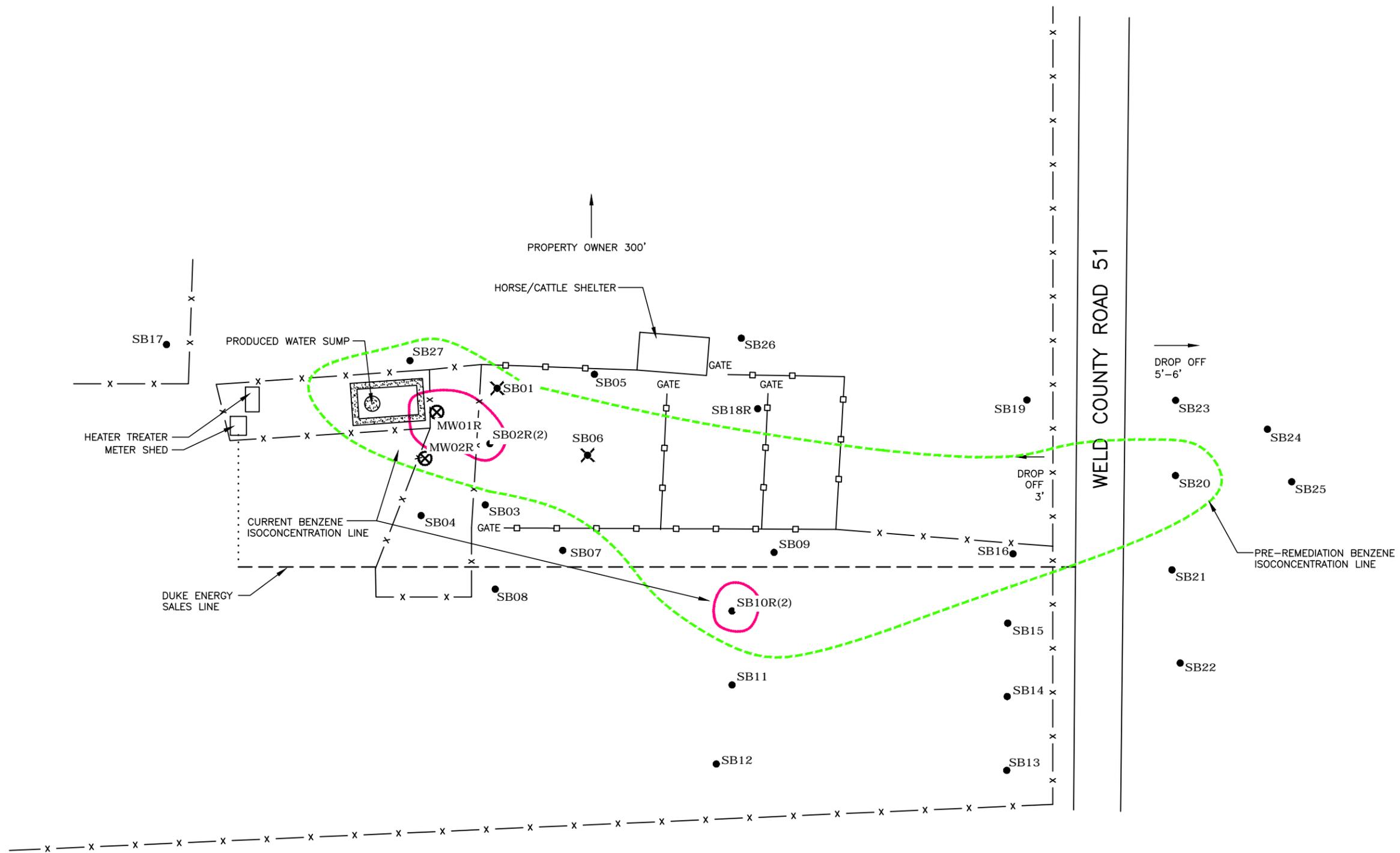
ANALYTICAL RESULTS ARE REPORTED IN MICROGRAMS PER LITER (µg/L)

NS NOT SAMPLED



**FIGURE 3**  
**GROUNDWATER ANALYTICAL RESULTS**  
 JULY 28, 2010  
 FRICK 18-2 & 8  
 WELD COUNTY, COLORADO  
 NOBLE ENERGY, INC.



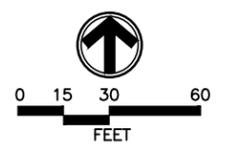


**LEGEND**

- MW01 MONITORING WELL LOCATION
- SB02R SOIL BORING/TEMPORARY MONITORING WELL LOCATION
- SB01 DESTROYED SOIL BORING/TEMPORARY MONITORING WELL LOCATION
- x — BARBED WIRE FENCE
- □ — METAL PIPE FENCE
- BERM

- 5.0 MICROGRAMS PER LITER (µg/L) BENZENE ISOCONCENTRATION LINE (JULY 2010)
- PRE-REMEDIAION SYSTEM 5.0 µg/L BENZENE ISOCONCENTRATION LINE (AUGUST 2008)

NOTE:  
REMEDIAION SYSTEM BEGAN OPERATION ON  
AUGUST 8, 2008



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



## TABLES



**TABLE 1  
GROUNDWATER ELEVATION SUMMARY**

**FRICK 18 - 2 & 8  
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
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
	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	
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	NM	NM	
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  
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
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
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
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



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

**FRICK 18 - 2 & 8**  
**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
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  
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

All depths measured from the north side of the top of the casing (TOC).



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

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

Sample ID	Sample Date	Volatile Organic Compounds (ug/L)			
		Benzene	Toluene	Ethylbenzene	Total Xylenes
MW01	10/11/2005	1,200	4.2	150	562
	1/20/2006	1,700	<20	39	337
	3/28/2007	1,200	<20.0	27	260
	8/5/2008	7,770	111	97.6	812.2
	11/14/2008	9,450	129	272	2,858
	11/24/2008	9,210	56.8	50.1	2,573
	2/24/2009	6,130	23.9	65.7	571.7
	5/26/2009	9,680	56.1	633	1,027
	8/31/2009	7,000	2.53	163	763.84
	12/29/2009	919	<1.0	5.64	35.26
	3/11/2010	3,820	11.3	150	459.8
MW01R	7/28/2010	114	25.8	43.5	241
MW02	10/11/2005	390	<1.0	15	285
	1/20/2006	<1.0	<1.0	<1.0	<3.0
	3/28/2007	1.5	<2.0	<2.0	7.2
	8/5/2008	53.8	<1.0	66.7	381.7
	11/24/2008	2.15	<1.0	<1.0	8.1
	2/24/2009	88.5	<1.0	100	655.6
	5/26/2009	65	<1.0	171	1,736.7
	8/31/2009	6.81	<1.0	<1.0	2.72
	12/29/2009	1.28	<1.0	1.62	14.6
	3/11/2010	7.78	<1.0	28.3	203
MW02R	7/28/2010	2.38	1.99	130	207
SB01	6/16/2005	< 1.0	< 1.0	< 1.0	<3.0
SB02	6/16/2005	48	39.8	508	7,160
	10/11/2005	3.6	<1.0	170	7,078
	1/20/2006	<1.0	<1.0	190	586
	3/28/2007	1.2	<2.0	49	38
	8/5/2008	Destroyed			
SB02R	2/24/2009	30.4	1.91	48.9	266.54
	5/26/2009	32.1	<1.0	6.7	48.5
	8/31/2009	183	<1.0	383	3,055
	12/29/2009	2.23	<1.0	<1.0	24.41
	3/11/2010	97.6	<1.0	58.5	87.6
SB02R(2)	7/28/2010	5.17	<1.0	44.8	122
SB03	6/16/2005	630	892	182	2,070
	10/11/2005	4,800	280	280	2,150
	1/20/2006	2,400	38	170	960
	3/28/2007	350	<20.0	230	1,300
	8/5/2008	< 1.0	< 1.0	< 1.0	3.41
	11/24/2008	<1.0	<1.0	<1.0	<3.0
	2/24/2009	<1.0	<1.0	26.6	178
	5/26/2009	<1.0	<1.0	16.9	86.4
	8/31/2009	<1.0	<1.0	8.75	9.01
	12/29/2009	<1.0	<1.0	13.2	52
	3/11/2010	<1.0	<1.0	34.3	110
7/28/2010	<1.0	<1.0	8.06	21.7	
SB04	6/16/2005	4.8	31.7	46.0	62.6
SB05	6/16/2005	< 1.0	2.9	3.5	41.8
SB06	6/16/2005	9.1	80.3	106	881
	10/11/2005	2.9	<1.0	47	221
	1/20/2006	<1.0	<1.0	16	61.5
	3/28/2007	<1.0	<2.0	<2.0	<6.0
SB07	6/16/2005	7,120	3,090	433	4,610
	10/11/2005	6,400	200	510	1,000
	1/20/2006	3,300	1.2	230	1,698
	3/28/2007	2,100	<100.0	210	1,800
	2/24/2009	<1.0	<1.0	10.4	76.7
	5/26/2009	<1.0	<1.0	<1.0	5.12
	8/31/2009	<1.0	<1.0	9.48	63.8
	12/29/2009	<1.0	<1.0	56.2	462.08
	3/11/2010	<1.0	<1.0	135	517.82
	7/28/2010	1.86	2.99	79.2	381



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

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

Sample ID	Sample Date	Volatile Organic Compounds (ug/L)			
		Benzene	Toluene	Ethylbenzene	Total Xylenes
SB08	6/16/2005	69.0	80.4	15.5	175
	1/20/2006	<1.0	<1.0	<1.0	<3.0
	3/28/2007	<1.0	<2.0	<2.0	<6.0
SB09	6/16/2005	11.1	7.1	2.4	27.8
	1/20/2006	1,800	<1.0	130	1,016
	3/28/2007	68	<2.0	25	200
	2/24/2009	59	<1.0	<1.0	<3.0
	5/28/2009	<1.0	<1.0	<1.0	<3.0
	8/31/2009	<1.0	<1.0	<1.0	<3.0
	12/29/2009	<1.0	<1.0	<1.0	<3.0
	3/11/2010	<1.0	<1.0	<1.0	<3.0
7/28/2010	<1.0	<1.0	<1.0	<1.0	
SB10	6/16/2005	3,260	1,180	211	2,910
	10/11/2005	1,900	450	230	2,030
	1/20/2006	1,900	150	170	1,350
	3/28/2007	1,600	<20.0	190	1,756
	8/5/2008	40.6	<1.0	33.0	68.1
	11/24/2008	Destroyed			
SB10R	2/24/2009	213	<1.0	124	662
	5/28/2009	47.6	<1.0	23	102
	8/31/2009	17.3	<1.0	2.68	5.36
	12/29/2009	12.1	<1.0	57.7	392
	3/17/2010	8.86	<1.0	76.3	299
SB10R(2)	7/28/2010	20.1	1.05	173	215
SB11	6/17/2005	17.6	57.4	185	590
	10/14/2005	1.8	<1.0	92	240
	1/20/2006	<1.0	<1.0	15	34
	3/28/2007	<1.0	<2.0	7.9	12
	8/5/2008	<1.0	<1.0	<1.0	<3.0
	11/24/2008	<1.0	<1.0	<1.0	<3.0
SB12	6/17/2005	15.1	28.7	10.2	103
	10/11/2005	1.1	<1.0	<1.0	2.1
	1/20/2006	<1.0	<1.0	<1.0	<3.0
	3/28/2007	<1.0	<2.0	<2.0	<6.0
SB13	6/17/2005	9.2	17.3	6.1	65.4
	10/11/2005	2.4	<1.0	<1.0	4.6
	1/20/2006	<1.0	<1.0	<1.0	<3.0
	3/28/2007	<1.0	<2.0	<2.0	<6.0
SB14	6/17/2005	7.5	15.4	7.0	66.3
	10/11/2005	17	<1.0	54	150
	1/20/2006	1.0	<1.0	5.3	5.6
	3/28/2007	<1.0	<2.0	<2.0	<6.0
	8/5/2008	<1.0	<1.0	<1.0	<3.0
SB15	6/17/2005	21.4	19.0	35.0	812
	10/11/2005	14	<1.0	15	110
	1/20/2006	<1.0	<1.0	5.4	<3.0
	3/28/2007	2.9	<2.0	61.0	101.7
	8/5/2008	<1.0	<1.0	<1.0	<3.0
	11/24/2008	<1.0	<1.0	<1.0	<3.0
	2/24/2009	<1.0	<1.0	2.15	2.73
	5/26/2009	<1.0	<1.0	<1.0	<3.0
	8/31/2009	<1.0	<1.0	<1.0	<3.0
	12/29/2009	<1.0	<1.0	<1.0	<3.0
	3/11/2010	<1.0	<1.0	<1.0	<3.0
	7/28/2010	<1.0	<1.0	<1.0	<1.0



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

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

Sample ID	Sample Date	Volatile Organic Compounds (ug/L)			
		Benzene	Toluene	Ethylbenzene	Total Xylenes
SB16	6/17/2005	7,630	8,210	463	6,770
	10/11/2005	5,400	4,600	470	5,280
	1/20/2006	4,300	4,300	290	3,530
	3/28/2007	2,600	4,400	400	5,860
	8/5/2008	933	86.7	395	3,831
	11/14/2008	<1.0	<1.0	3.31	4.75
	11/24/2008	727	45.9	562	6,906
	2/24/2009	196	13.4	453	5,093
	8/31/2009	4.1	<1.0	111	694
	12/29/2009	<1.0	<1.0	55.3	391
	3/17/2010	<1.0	<1.0	2.33	14.9
	7/28/2010	<1.0	1.27	93.7	168
SB17	6/27/2005	< 1.0	< 1.0	< 1.0	< 3.0
SB18	6/17/2005	1,060	190	6.2	870
	10/11/2005	1,000	18	290	2,778
	1/20/2006	41	50	35	700
	3/28/2007	Destroyed			
SB18R	2/24/2009	<1.0	<1.0	103	428.05
	5/28/2009	<1.0	<1.0	8.16	27.6
SB19	6/17/2005	29.9	51.3	9.6	109
	10/11/2005	<1.0	<1.0	<1.0	<3.0
	1/20/2006	<1.0	<1.0	<1.0	<3.0
	3/28/2007	<1.0	<2.0	<2.0	<6.0
SB20	7/18/2005	5,640	< 10	321	4,780
	10/11/2005	2,800	2.0	260	2,500
	1/20/2006	<50	<50	<1.0	2.8
	3/28/2007	140	<2.0	21	130
	8/5/2008	25.3	<1.0	28.9	200.46
	11/24/2008	2.74	<1.0	<1.0	7.98
	2/24/2009	1.12	<1.0	4.26	20.0
	5/26/2009	<1.0	<1.0	<1.0	<3.0
SB21	7/18/2005	209	< 1.0	1.9	22.3
	10/11/2005	11	< 1.0	<1.0	<3.0
	1/20/2006	<1.0	<1.0	<1.0	<3.0
	3/28/2007	<1.0	<2.0	<2.0	<6.0
	11/24/2008	<1.0	<1.0	11.8	49.5
SB22	7/18/2005	< 1.0	< 1.0	< 1.0	3.2
SB23	7/18/2005	13.2	< 1.0	1.5	22.8
	10/11/2005	<1.0	< 1.0	<1.0	<3.0
	1/20/2006	1.0	<1.0	<1.0	<3.0
	3/28/2007	<1.0	<2.0	<2.0	<6.0
	11/24/2008	<1.0	<1.0	<1.0	<3.0
SB24	7/18/2005	21.0	< 1.0	2.7	38.9
	10/11/2005	<1.0	<1.0	<1.0	<3.0
	1/20/2006	<1.0	< 1.0	<1.0	<3.0
	3/28/2007	<1.0	<2.0	<2.0	<6.0
	11/24/2008	<1.0	<1.0	<1.0	<3.0
SB25	7/18/2005	< 1.0	< 1.0	< 1.0	7
	11/24/2008	<1.0	<1.0	<1.0	<3.0
SB26	7/18/2005	1.8	4.7	51.4	648



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

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

Sample ID	Sample Date	Volatile Organic Compounds (ug/L)			
		Benzene	Toluene	Ethylbenzene	Total Xylenes
SB27	2/24/2009	<b>24.7</b>	494	91.9	1,077
	5/26/2009	<b>11.1</b>	188	<1.0	421.9
	8/31/2009	<b>90.5</b>	300	18.6	348.4
	1/7/2010	3.64	144	17.3	311.3
	3/11/2010	2.44	12.0	11.4	92.7
Water Well	6/17/2005	< 1.0	< 1.0	< 1.0	< 3.0
	10/11/2005	< 1.0	< 1.0	< 1.0	< 3.0
	1/20/2006	< 1.0	< 1.0	< 1.0	< 3.0
	3/28/2007	<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

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

Analysis by Environmental Protection Agency Method 8260B.

< indicates analytical result is less than the laboratory detection limit



**ATTACHMENT 1**  
**REPLACEMENT WELL BORING LOGS**



Well Location Sketch:



Compliance - Engineering - Remediation  
 LT Environmental, Inc.  
 4600 W. 60th Avenue  
 Arvada, Colorado 80003

**BORING LOG/MONITORING WELL COMPLETION DIAGRAM**

Boring/Well Number: **MW01 R** Project: **Frick 18-2, 8**  
 Date: **7-15-10** Project Number: **NEP0505**  
 Logged By: **DG** Drilled By: **Alpine**  
 Drilling Method: **Direct Push** Sampling Method: **Cont.**

Elevation: \_\_\_\_\_ Detector: **Mini Rae 2000**

Gravel Pack: **CSSI 10x20**

Seal: **Bentonite**

Grout: **NA**

Casing Type: **Sch 40 PVC**

Diameter: **1"** Length: **6'**

Hole Diameter: **2"**

Depth to Liquid: \_\_\_\_\_

Screen Type: **Sch 40 PVC**

Slot: **0.01**

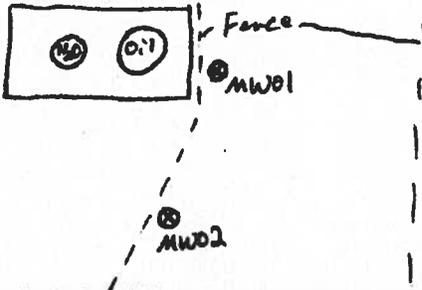
Diameter: **1"** Length: **5'**

Total Depth: **10'**

Depth to Water: **5'**

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion Diagram
					0					
	Moist				2			OH	- Brown organic silty clay, moist-v. moist, med. plasticity, no staining, no odor	
		2ch			4			SP		- Brown fine-med. sand, wet, staining from 8'-9', odor
	Wet	1,333			8			SC	- Gray clayey fine sand, wet, mild staining, mild odor	
		100			10					
					12					
					14					
					16					
					18					
					20					
					22					
					24					
					26					
					28					
					30					
					32					
					34					
					36					
					38					

Well Location Sketch:



Compliance - Engineering - Remediation  
 LT Environmental, Inc.  
 4600 W. 60th Avenue  
 Arvada, Colorado 80003

**BORING LOG/MONITORING WELL COMPLETION DIAGRAM**

Boring/Well Number: **MW02R** Project: **Frick 18-2, 8**  
 Date: **7-15-10** Project Number: **NEP0505**  
 Logged By: **DG** Drilled By: **Alpine**

Elevation: \_\_\_\_\_ Detector: **MiniKac 2000** Drilling Method: **Direct Push** Sampling Method: **Cont.**

Gravel Pack: **CSSI 10x20** Seal: **Bentonite** Grout: **NA**

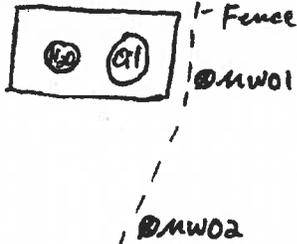
Casing Type: **Sch 40 PVC** Diameter: **1"** Length: **7'** Hole Diameter: **2"** Depth to Liquid: \_\_\_\_\_

Screen Type: **Sch 40 PVC** Slot: **0.01** Diameter: **1"** Length: **5'** Total Depth: **10'12"** Depth to Water: **5'**

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion Diagram
					0				
	Moist	2.1			2		OH	- Brown sandy organic clay, moisture increases downwards to very moist, low-med. plasticity, no staining, no odor	
					4				
	Wet	3,485			8		SW	- Brown fine sand, wet, staining from 9'-10', odor	
		1,866			10				
		6.9			12		CL	- Brown silty clay, wet, med.-high plasticity, no staining, no odor	
					14				
					16				
					18				
					20				
					22				
					24				
					26				
					28				
					30				
					32				
					34				
					36				
					38				
					40				

Well set at <sup>12'</sup>10', per Rob Rebel

Well Location Sketch:



Compliance - Engineering - Remediation  
 LT Environmental, Inc.  
 4600 W. 60th Avenue  
 Arvada, Colorado 80003

**BORING LOG/MONITORING WELL COMPLETION DIAGRAM**

Boring/Well Number: **SB02R(2)** Project: **Frick 18-2, 8**  
 Date: **7-15-10** Project Number: **NEP0505**  
 Logged By: **DG** Drilled By: **Alpine**  
 Drilling Method: **Direct Push** Sampling Method: **Cont.**

Elevation: \_\_\_\_\_ Detector: **Mini Rae 2000**

Gravel Pack: **CSSI 10x20** Seal: **Bentonite** Grout: **NA**

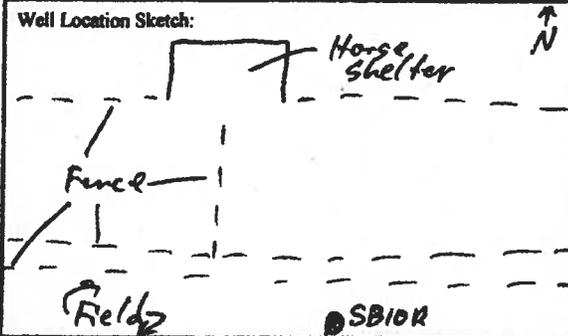
Casing Type: **Sch 40 PVC** Diameter: **1"** Length: **6'** Hole Diameter: **2"** Depth to Liquid: \_\_\_\_\_

Screen Type: **Sch 40 PVC** Slot: **0.01** Diameter: **1"** Length: **5'** Total Depth: **10'** Depth to Water: **5'**

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion Diagram
------------------------	------------------	-------------	----------	----------	------------------	------------	----------	----------------	-------------------	-------------------------

					0					
	Moist				2				SC - Interbedded brown sandy organic clays and brown fine sands, moist, no staining, no odor. - Brown clayey fine sand, wet, staining from 9'-10', odor.	
		4.3			4					
	Wet				6					
		631			8					
					10					
					12					
					14					
					16					
					18					
					20					
					22					
					24					
					26					
					28					
					30					
					32					
					34					
					36					
					38					

Well Location Sketch:



Compliance - Engineering - Remediation

LT Environmental, Inc.  
4800 W. 60th Avenue  
Arvada, Colorado 80003

**BORING LOG/MONITORING WELL COMPLETION DIAGRAM**

Boring/Well Number: SB10R (2)	Project: Frick 18-2,8
Date: 7-15-10	Project Number: NEPO505
Logged By: DG	Drilled By: Alpine
Drilling Method: Direct Push	Sampling Method: Cont.

Elevation: \_\_\_\_\_ Detector: Minikae 2000

Gravel Pack: CSSI 10x20

Seal: Bentonite GROUT: NA

Casing Type: Sch 40 PVC

Diameter: 1" Length: 6' Hole Diameter: 2" Depth to Liquid: \_\_\_\_\_

Screen Type: Sch 40 PVC Slot: 0.01

Diameter: 1" Length: 5' Total Depth: 10' Depth to Water: 5'

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion Diagram
					0				
	Moist				2			- Brown clayey fine sand, moist, no staining, no odor.	
		3.3			4		SC		
	Wet				6			- Brown clayey medium sand, wet, no staining, no odor - Brown fine sand, wet, staining from 9'-10', odor	
		76.3			8		SW		
					10				
					12				
					14				
					16				
					18				
					20				
					22				
					24				
					26				
					28				
					30				
					32				
					34				
					36				
					38				

**ATTACHMENT 2**  
**LABORATORY ANALYTICAL RESULTS**



08/02/2010

LT Environmental, Inc.

Rob Rebel

4600 West 60th Avenue

Arvada CO 80003

Project Name- Noble - Frick 18-2&8

Project Number- NEP0505.01

Attached are your analytical results for Noble - Frick 18-2&8 received by Origins Laboratory, Inc. July 28, 2010 2:40 pm. This project is associated with Origins project number X007209-01 .

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

Rob Rebel  
Project Number: NEP0505.01  
Project: Noble - Frick 18-2&8

## CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Sampled	Date Received
MW01R	X007209-01	Water	7/28/2010 11:30:00AM	07/28/2010 14:40
MW02R	X007209-02	Water	7/28/2010 11:55:00AM	07/28/2010 14:40
SB02R(2)	X007209-03	Water	7/28/2010 1:40:00PM	07/28/2010 14:40
SB03	X007209-04	Water	7/28/2010 12:15:00PM	07/28/2010 14:40
SB07	X007209-05	Water	7/28/2010 12:35:00PM	07/28/2010 14:40
SB09	X007209-06	Water	7/28/2010 12:50:00PM	07/28/2010 14:40
SB16	X007209-07	Water	7/28/2010 1:00:00PM	07/28/2010 14:40
SB15	X007209-08	Water	7/28/2010 1:05:00PM	07/28/2010 14:40
SB10R(2)	X007209-09	Water	7/28/2010 1:25:00PM	07/28/2010 14:40

Origins Laboratory, Inc.



*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*

\_\_\_\_\_  
Noelle E Doyle.

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

Rob Rebel  
 Project Number: NEP0505.01  
 Project: Noble - Frick 18-2&8

www.originslaboratory.com

X007209

page 1 of 1

ORIGINS  
 LABORATORY, INC

Client: LTE  
 Address:  
 Telephone Number:  
 Email Address:

Project Manager: R. Rebel/M. Harrison  
 Project Name: Frick 18-2+8  
 Project Number: NEP 0505  
 Samples Collected By: D. Buins/B. Fetter

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix			Analysis	Sample Instructions	Turnaround Time:
				Unpreserved	HCl	HNO <sub>3</sub>	Other	Groundwater	Soil	Air Summa #			
MW01R	7/28/10	1130	2	X	X	X	X	X	X	X	X	X	24 Hr <input type="checkbox"/>
MW02R		1155	1	X	X	X	X	X	X	X	X	X	48 Hr <input type="checkbox"/>
SB02R(2)		1340	1	X	X	X	X	X	X	X	X	X	72 Hr <input checked="" type="checkbox"/>
SB03		1215	1	X	X	X	X	X	X	X	X	X	Standard <input type="checkbox"/>
SB07		1235	1	X	X	X	X	X	X	X	X	X	
SB09		1250	1	X	X	X	X	X	X	X	X	X	
SB16		1300	1	X	X	X	X	X	X	X	X	X	
SB15		1305	1	X	X	X	X	X	X	X	X	X	
SB10R(2)		1325	1	X	X	X	X	X	X	X	X	X	
Relinquished By:	Date:	Time:	Received By:	Date:	Time:	Relinquished By:	Date:	Time:	Received By:	Date:	Time:	Turnaround Time:	
<i>[Signature]</i>	7/28/10	1446	<i>[Signature]</i>	7/28/10	1446	<i>[Signature]</i>	7/28/10	1446	<i>[Signature]</i>	7/28/10	1446	24 Hr <input type="checkbox"/>	
Relinquished By:	Date:	Time:	Received By:	Date:	Time:	Relinquished By:	Date:	Time:	Received By:	Date:	Time:	Turnaround Time:	
<i>[Signature]</i>			<i>[Signature]</i>			<i>[Signature]</i>			<i>[Signature]</i>			48 Hr <input type="checkbox"/>	
												72 Hr <input checked="" type="checkbox"/>	
												Standard <input type="checkbox"/>	

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

Origins Laboratory, Inc.

*[Handwritten Signature]*

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Noelle E Doyle,

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

Rob Rebel  
Project Number: NEP0505.01  
Project: Noble - Frick 18-2&8

**MWO1R**

7/28/2010 11:30:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.  
X007209-01 (Water)

**BTEX by EPA 8260B**

Benzene	0.114	0.00100	mg/L	1	OG29001	07/29/2010	07/29/2010	
Toluene	0.0258	0.00100	"	"	"	"	"	
Ethylbenzene	0.0435	0.00100	"	"	"	"	"	
Xylenes, total	0.241	0.00100	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	102 %	73.5-130			"	"	"	
Surrogate: Toluene-d8	101 %	79.3-113			"	"	"	
Surrogate: 4-Bromofluorobenzene	92.9 %	81.5-117			"	"	"	

Origins Laboratory, Inc.



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

Rob Rebel  
Project Number: NEP0505.01  
Project: Noble - Frick 18-2&8

**MW02R**

7/28/2010 11:55:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.  
X007209-02 (Water)

**BTEX by EPA 8260B**

Benzene	0.00238	0.00100	mg/L	1	OG29001	07/29/2010	07/29/2010	
Toluene	0.00199	0.00100	"	"	"	"	"	
Ethylbenzene	0.130	0.00100	"	"	"	"	"	
Xylenes, total	0.207	0.00100	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	102 %	73.5-130			"	"	"	
Surrogate: Toluene-d8	103 %	79.3-113			"	"	"	
Surrogate: 4-Bromofluorobenzene	91.2 %	81.5-117			"	"	"	

Origins Laboratory, Inc.



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

Rob Rebel  
Project Number: NEP0505.01  
Project: Noble - Frick 18-2&8

**SBO2R(2)**

7/28/2010 1:40:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.  
X007209-03 (Water)

**BTEX by EPA 8260B**

Benzene	0.00517	0.00100	mg/L	1	OG29001	07/29/2010	07/29/2010	
Toluene	ND	0.00100	"	"	"	"	"	
Ethylbenzene	0.0448	0.00100	"	"	"	"	"	
Xylenes, total	0.122	0.00100	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	95.8 %	73.5-130			"	"	"	
Surrogate: Toluene-d8	99.7 %	79.3-113			"	"	"	
Surrogate: 4-Bromofluorobenzene	101 %	81.5-117			"	"	"	

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

Rob Rebel  
Project Number: NEP0505.01  
Project: Noble - Frick 18-2&8

**SB03**

7/28/2010 12:15:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.  
X007209-04 (Water)

**BTEX by EPA 8260B**

Benzene	ND	0.00100	mg/L	1	OG29001	07/29/2010	07/29/2010	
Toluene	ND	0.00100	"	"	"	"	"	
Ethylbenzene	0.00806	0.00100	"	"	"	"	"	
Xylenes, total	0.0217	0.00100	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	95.2 %	73.5-130			"	"	"	
Surrogate: Toluene-d8	99.8 %	79.3-113			"	"	"	
Surrogate: 4-Bromofluorobenzene	102 %	81.5-117			"	"	"	

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Arvada CO 80003

Rob Rebel  
Project Number: NEP0505.01  
Project: Noble - Frick 18-2&8

**SB07**

7/28/2010 12:35:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.  
X007209-05 (Water)

**BTEX by EPA 8260B**

Benzene	0.00186	0.00100	mg/L	1	OG29001	07/29/2010	07/30/2010	
Toluene	0.00299	0.00100	"	"	"	"	"	
Ethylbenzene	0.0792	0.00100	"	"	"	"	"	
Xylenes, total	0.381	0.0100	"	10	"	"	07/29/2010	

Surrogate: 1,2-Dichloroethane-d4	95.4 %	73.5-130			"	"	"	
Surrogate: Toluene-d8	100 %	79.3-113			"	"	"	
Surrogate: 4-Bromofluorobenzene	101 %	81.5-117			"	"	"	

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Arvada CO 80003

Rob Rebel  
Project Number: NEP0505.01  
Project: Noble - Frick 18-2&8

**SB09**

7/28/2010 12:50:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.  
X007209-06 (Water)

**BTEX by EPA 8260B**

Benzene	ND	0.00100	mg/L	1	OG29001	07/29/2010	07/29/2010	
Toluene	ND	0.00100	"	"	"	"	"	
Ethylbenzene	ND	0.00100	"	"	"	"	"	
Xylenes, total	ND	0.00100	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	95.5 %	73.5-130			"	"	"	
Surrogate: Toluene-d8	100 %	79.3-113			"	"	"	
Surrogate: 4-Bromofluorobenzene	98.3 %	81.5-117			"	"	"	

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4600 West 60th Avenue  
Arvada CO 80003

Rob Rebel  
Project Number: NEP0505.01  
Project: Noble - Frick 18-2&8

**SB16**

7/28/2010 1:00:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.  
X007209-07 (Water)

**BTEX by EPA 8260B**

Benzene	ND	0.00100	mg/L	1	OG29001	07/29/2010	07/29/2010	
Toluene	0.00127	0.00100	"	"	"	"	"	
Ethylbenzene	0.0937	0.00100	"	"	"	"	"	
Xylenes, total	0.168	0.00100	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	96.6 %	73.5-130			"	"	"	
Surrogate: Toluene-d8	100 %	79.3-113			"	"	"	
Surrogate: 4-Bromofluorobenzene	100 %	81.5-117			"	"	"	

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Arvada CO 80003

Rob Rebel  
Project Number: NEP0505.01  
Project: Noble - Frick 18-2&8

**SB15**

7/28/2010 1:05:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.  
X007209-08 (Water)

**BTEX by EPA 8260B**

Benzene	ND	0.00100	mg/L	1	OG29001	07/29/2010	07/30/2010	
Toluene	ND	0.00100	"	"	"	"	"	
Ethylbenzene	ND	0.00100	"	"	"	"	"	
Xylenes, total	ND	0.00100	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	97.4 %	73.5-130			"	"	"	
Surrogate: Toluene-d8	100 %	79.3-113			"	"	"	
Surrogate: 4-Bromofluorobenzene	99.2 %	81.5-117			"	"	"	

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Arvada CO 80003

Rob Rebel  
Project Number: NEP0505.01  
Project: Noble - Frick 18-2&8

**SB10R(2)**

7/28/2010 1:25:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.  
X007209-09 (Water)

**BTEX by EPA 8260B**

Benzene	0.0201	0.00100	mg/L	1	OG29001	07/29/2010	07/30/2010	
Toluene	0.00105	0.00100	"	"	"	"	"	
Ethylbenzene	0.173	0.00100	"	"	"	"	"	
Xylenes, total	0.215	0.00100	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	100 %	73.5-130			"	"	"	
Surrogate: Toluene-d8	99.1 %	79.3-113			"	"	"	
Surrogate: 4-Bromofluorobenzene	83.2 %	81.5-117			"	"	"	

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LT Environmental, Inc.  
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 Arvada CO 80003

Rob Rebel  
 Project Number: NEP0505.01  
 Project: Noble - Frick 18-2&8

**Volatile Organic Compounds by EPA Method 8260B - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch OG29001 - EPA 5030B**

**Blank (OG29001-BLK1)**

Prepared: 07/29/2010 Analyzed: 07/29/2010

Benzene	ND	0.001	mg/L							
Toluene	ND	0.001	"							
Ethylbenzene	ND	0.001	"							
m,p-Xylene	ND	0.002	"							
o-Xylene	ND	0.001	"							
Xylenes, total	ND	0.001	"							

Surrogate: 1,2-Dichloroethane-d4	62.7		ug/L	62.5		100	73.5-130			
Surrogate: Toluene-d8	62.0		"	62.5		99.2	79.3-113			
Surrogate: 4-Bromofluorobenzene	63.3		"	62.5		101	81.5-117			

**Blank (OG29001-BLK2)**

Prepared: 07/29/2010 Analyzed: 07/29/2010

Benzene	ND	0.001	mg/L							
Toluene	ND	0.001	"							
Ethylbenzene	ND	0.001	"							
m,p-Xylene	ND	0.002	"							
o-Xylene	ND	0.001	"							
Xylenes, total	ND	0.001	"							

Surrogate: 1,2-Dichloroethane-d4	61.5		ug/L	62.5		98.5	73.5-130			
Surrogate: Toluene-d8	62.8		"	62.5		101	79.3-113			
Surrogate: 4-Bromofluorobenzene	62.3		"	62.5		99.7	81.5-117			

**LCS (OG29001-BS1)**

Prepared: 07/29/2010 Analyzed: 07/29/2010

Benzene	0.04	0.001	mg/L	0.0500		82.8	77.3-128			
Toluene	0.05	0.001	"	0.0500		93.7	81.7-118			
Surrogate: 1,2-Dichloroethane-d4	59.8		ug/L	62.5		95.6	73.5-130			
Surrogate: Toluene-d8	62.6		"	62.5		100	79.3-113			
Surrogate: 4-Bromofluorobenzene	62.2		"	62.5		99.5	81.5-117			

Origins Laboratory, Inc.



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Noelle E Doyle,

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

Rob Rebel  
Project Number: NEP0505.01  
Project: Noble - Frick 18-2&8

**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
<b>Batch OG29001 - EPA 5030B</b>										
<b>LCS (OG29001-BS2)</b>					Prepared: 07/29/2010 Analyzed: 07/29/2010					
Benzene	0.04	0.001	mg/L	0.0500		84.7	77.3-128			
Toluene	0.05	0.001	"	0.0500		96.4	81.7-118			
Surrogate: 1,2-Dichloroethane-d4	59.8		ug/L	62.5		95.7	73.5-130			
Surrogate: Toluene-d8	62.5		"	62.5		100	79.3-113			
Surrogate: 4-Bromofluorobenzene	62.8		"	62.5		101	81.5-117			
<b>Matrix Spike (OG29001-MS1)</b>					Source: X007218-02		Prepared: 07/29/2010 Analyzed: 07/29/2010			
Benzene	0.04	0.001	mg/L	0.0500	0.0008	83.3	74.5-132			
Toluene	0.05	0.001	"	0.0500	0.0006	94.3	74.2-116			
Surrogate: 1,2-Dichloroethane-d4	60.4		ug/L	62.5		96.7	73.5-130			
Surrogate: Toluene-d8	62.7		"	62.5		100	79.3-113			
Surrogate: 4-Bromofluorobenzene	63.4		"	62.5		101	81.5-117			
<b>Matrix Spike (OG29001-MS2)</b>					Source: X007218-07		Prepared: 07/29/2010 Analyzed: 07/29/2010			
Benzene	0.04	0.001	mg/L	0.0500	ND	87.6	74.5-132			
Toluene	0.05	0.001	"	0.0500	0.0007	96.7	74.2-116			
Surrogate: 1,2-Dichloroethane-d4	62.2		ug/L	62.5		99.5	73.5-130			
Surrogate: Toluene-d8	62.3		"	62.5		99.6	79.3-113			
Surrogate: 4-Bromofluorobenzene	63.0		"	62.5		101	81.5-117			
<b>Matrix Spike Dup (OG29001-MSD1)</b>					Source: X007218-02		Prepared: 07/29/2010 Analyzed: 07/29/2010			
Benzene	0.04	0.001	mg/L	0.0500	0.0008	84.3	74.5-132	1.17	13.1	
Toluene	0.05	0.001	"	0.0500	0.0006	95.3	74.2-116	0.978	21.2	
Surrogate: 1,2-Dichloroethane-d4	62.0		ug/L	62.5		99.2	73.5-130			
Surrogate: Toluene-d8	61.9		"	62.5		99.1	79.3-113			
Surrogate: 4-Bromofluorobenzene	62.0		"	62.5		99.2	81.5-117			
<b>Matrix Spike Dup (OG29001-MSD2)</b>					Source: X007218-07		Prepared: 07/29/2010 Analyzed: 07/29/2010			
Benzene	0.04	0.001	mg/L	0.0500	ND	85.3	74.5-132	2.64	13.1	
Toluene	0.05	0.001	"	0.0500	0.0007	92.9	74.2-116	3.99	21.2	

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

Rob Rebel  
 Project Number: NEP0505.01  
 Project: Noble - Frick 18-2&8

**Volatile Organic Compounds by EPA Method 8260B - Quality Control  
 Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch OG29001 - EPA 5030B

**Matrix Spike Dup (OG29001-MSD2)**

Source: X007218-07

Prepared: 07/29/2010 Analyzed: 07/29/2010

Surrogate: 1,2-Dichloroethane-d4	61.2		ug/L	62.5		97.9	73.5-130			
Surrogate: Toluene-d8	62.2		"	62.5		99.5	79.3-113			
Surrogate: 4-Bromofluorobenzene	62.5		"	62.5		100	81.5-117			

Origins Laboratory, Inc.



\_\_\_\_\_  
 Noelle E Doyle.

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

Rob Rebel  
Project Number: NEP0505.01  
Project: Noble - Frick 18-2&8

**Notes and Definitions**

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

Origins Laboratory, Inc.



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Noelle E Doyle.