



May 10, 2010

Remediation # 3459

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

**RE: First 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). LTE, on behalf of Noble, has completed remediation system design, installation, startup, and operation and maintenance (O&M) of the air sparging/soil vapor extraction (AS/SVE) system. LTE is continuing to conduct groundwater monitoring at the Site to evaluate the performance of the remediation system in mitigating groundwater impact. This correspondence is provided as the First Quarter 2010 Remediation and Monitoring Report, and summarizes activities conducted at the Site from January 1, 2010 through March 31, 2010. Activities conducted during the reporting period included O&M of the remediation system and one quarterly groundwater monitoring event.

**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. The system layout is illustrated on Figures 2 and 3.



## **Remediation System O&M**

O&M activities conducted in the reporting period included:

- Completion of routine, weekly, monthly, and quarterly O&M checks to monitor and adjust system performance;
- Generator maintenance, which included changing the oil and oil filters;
- AS wellhead flow adjustments to enhance remedial efforts in remaining impacted areas; and
- Transportation of remediation trailer to the Becky 2-6 Site.

The remediation program for this Site includes continued intermittent operation of the AS/SVE system. The system runs intermittently, and on a pulsing/cycling schedule, to maximize remediation efforts and minimize preferential air pathways. Operation of the remediation system is conducted continuously for an approximate three month period, followed by a three month static evaluation with the remediation system inactive. This program will allow for focused removal of hydrocarbon impact along with static evaluations to determine which areas of the Site may require continued operational adjustments. Since additional AS wells were installed in November 2009, the cycling schedule was adjusted to increase the operational time to six months which will then be followed by a three month static evaluation. The SVE system was not utilized during the operating period due to high water table conditions, excess water recovery, and potential for freezing in the above ground recovery lines. The generator timer continues to allow system operation during daylight hours only, per the landowner's request. The Site is currently in a static evaluation period. The remediation trailer was moved to Becky 2-6 on February 18, 2010. The trailer was moved prior to completion of the planned 3 month runtime due to production well maintenance and re-fracing activities.

## **Groundwater Sampling Procedures**

On March 11, 2010, eight groundwater monitoring wells were sampled to determine the current plume extent following five months of system operation. Monitoring wells SB10R and SB16 were sampled on March 17, 2010 because excessive surface water limited access during the March 11, 2010 event. Prior to sampling, depth to groundwater in each monitoring well was measured and recorded for calculating purge volumes (Table 1). Each well was 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 vials, placed on ice, and delivered under chain-of-custody (COC) protocol to Origins Laboratory located in Denver, Colorado. Samples were analyzed for



benzene, toluene, ethylbenzene, and total xylenes (BTEX) by Environmental Protection Agency (EPA) Method 8260B.

## **Hydrogeology**

During the March 11, 2010 sampling event, the depth to static groundwater ranged from 0.40 feet below top of casing (btoc) in SB09 to 1.76 feet btoc in SB27 (Table 1). The groundwater flow direction was to the east with an average hydraulic gradient of approximately 0.011 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.

Eight groundwater samples were collected and submitted to Origins Laboratory for BTEX analysis during the March 11, 2010 sampling event (MW01, MW02, SB02R, SB03, SB07, SB09, SB15, and SB27). Groundwater samples from SB10R and SB16 were collected and submitted to Origins Laboratory for BTEX analysis on March 17, 2010. Groundwater analytical results indicate that benzene was detected above the Regulation 41 standard for benzene in monitoring wells MW01, MW02, SB02R, and SB10R at concentrations of 3,820 ug/L, 7.78 ug/L, 97.6 ug/L and 8.86 ug/L, respectively. BTEX compounds were not detected above the Regulation 41 standards in the remaining samples. Groundwater analytical results for the March 11, 2010 and March 17, 2010 sampling events are summarized in Table 2 and illustrated on Figure 4.

## **Summary and Conclusions**

Since system startup, benzene concentrations in monitoring wells SB03, SB07, SB09, SB15, 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 original 2005 plume extent, as seen on Figure 5. AS wells installed in November 2009 have 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 MW01, MW02, SB02R, and SB10R. In order to achieve cleanup goals, remediation system operation efforts will be concentrated in these areas of the Site.

The next groundwater sampling event will be conducted in June 2010. The remediation trailer was mobilized to another site on February 18, 2010. The Frick site will remain in static



evaluation until June 2010 when the trailer will be re-installed. 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 System Layout

Figure 3: SVE System Layout

Figure 4: Groundwater Analytical Results – March 11, 2010 and March 17, 2010

Figure 5: Groundwater Analytical Summary

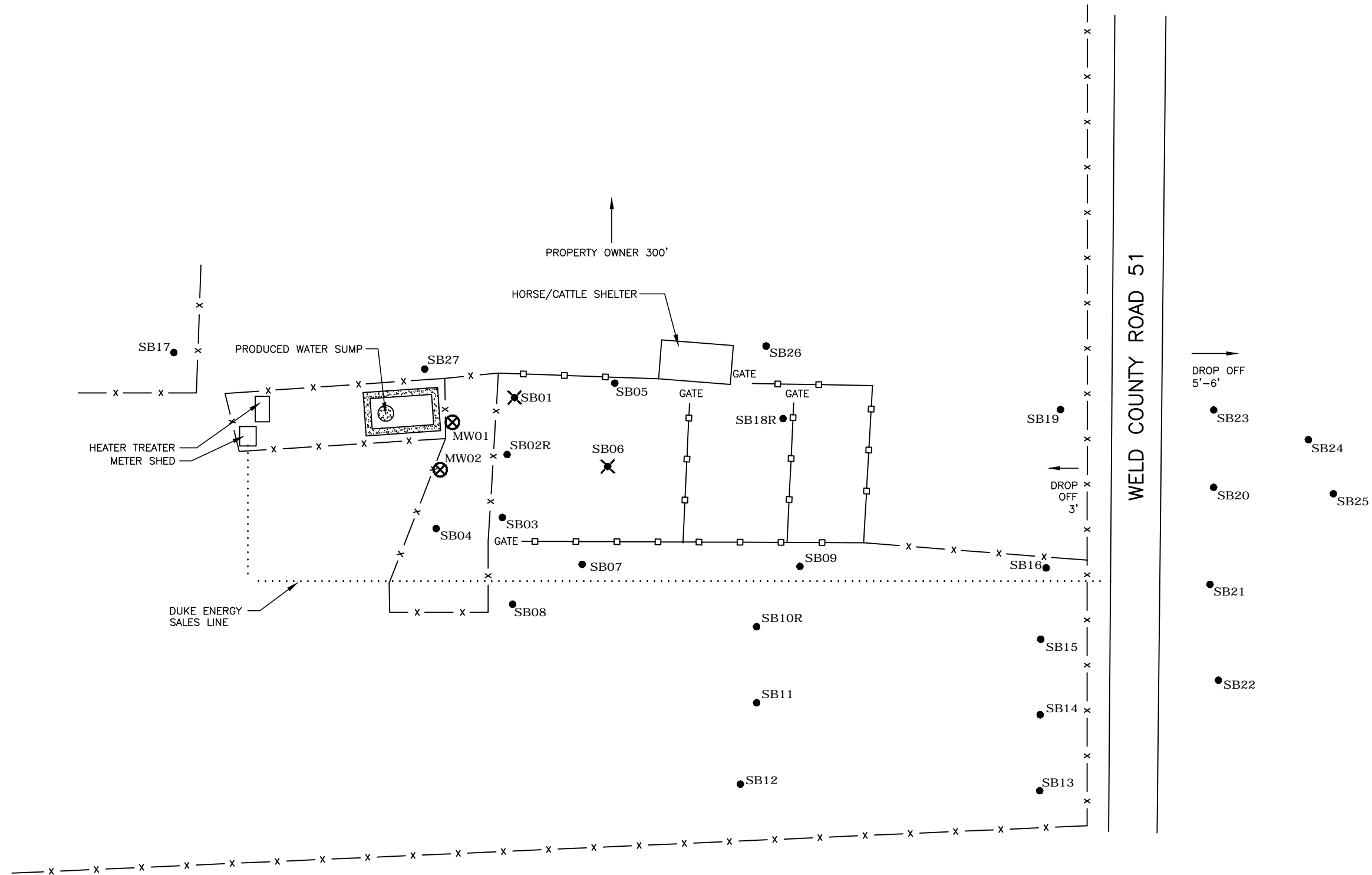
Table 1: Groundwater Elevation Summary

Table 2: Groundwater Analytical Results – Volatile Organic Compounds





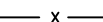

Attachment 1: Laboratory Analytical Reports

## 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

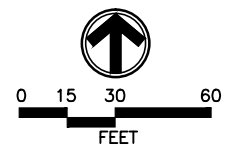
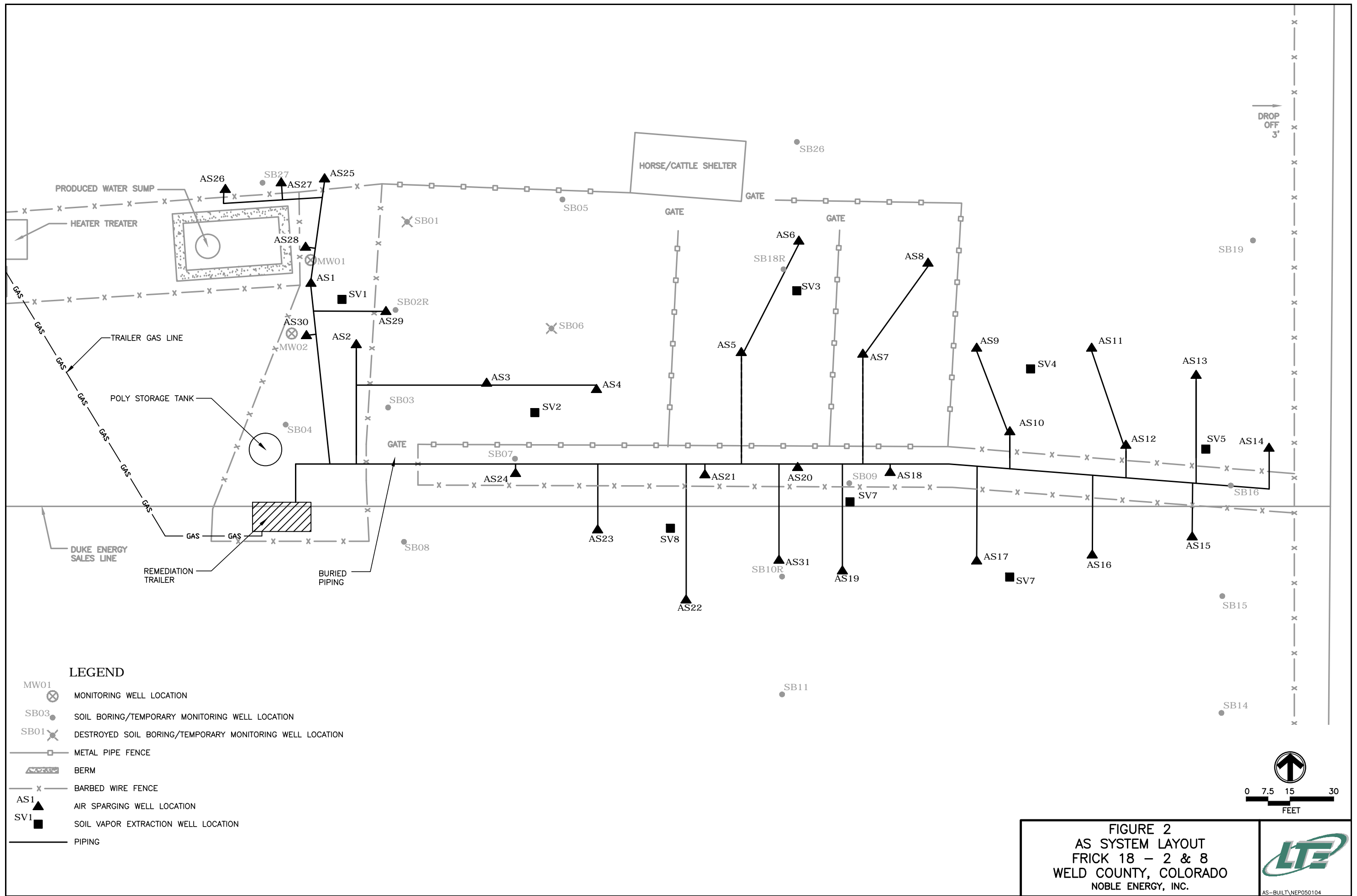
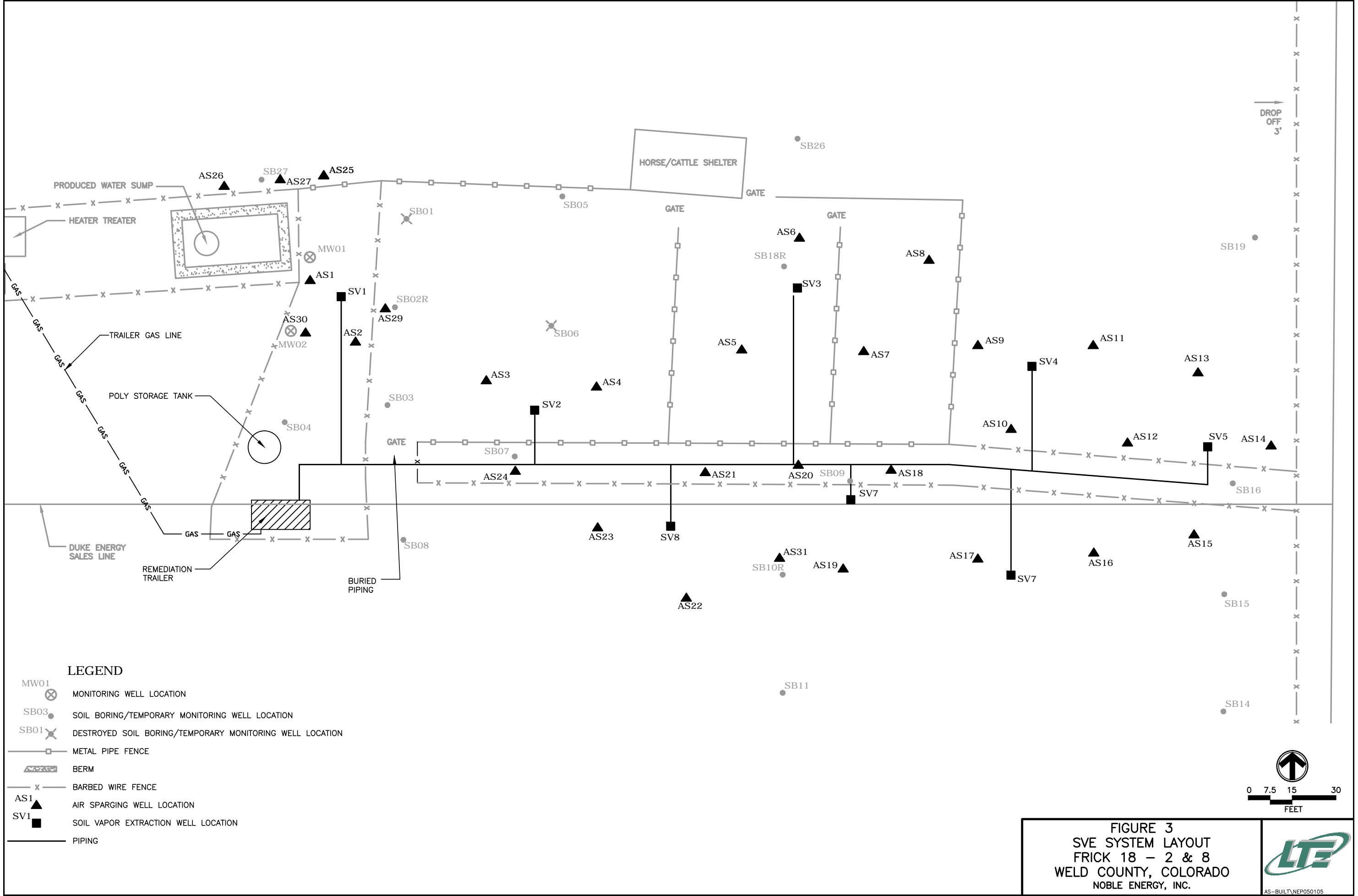


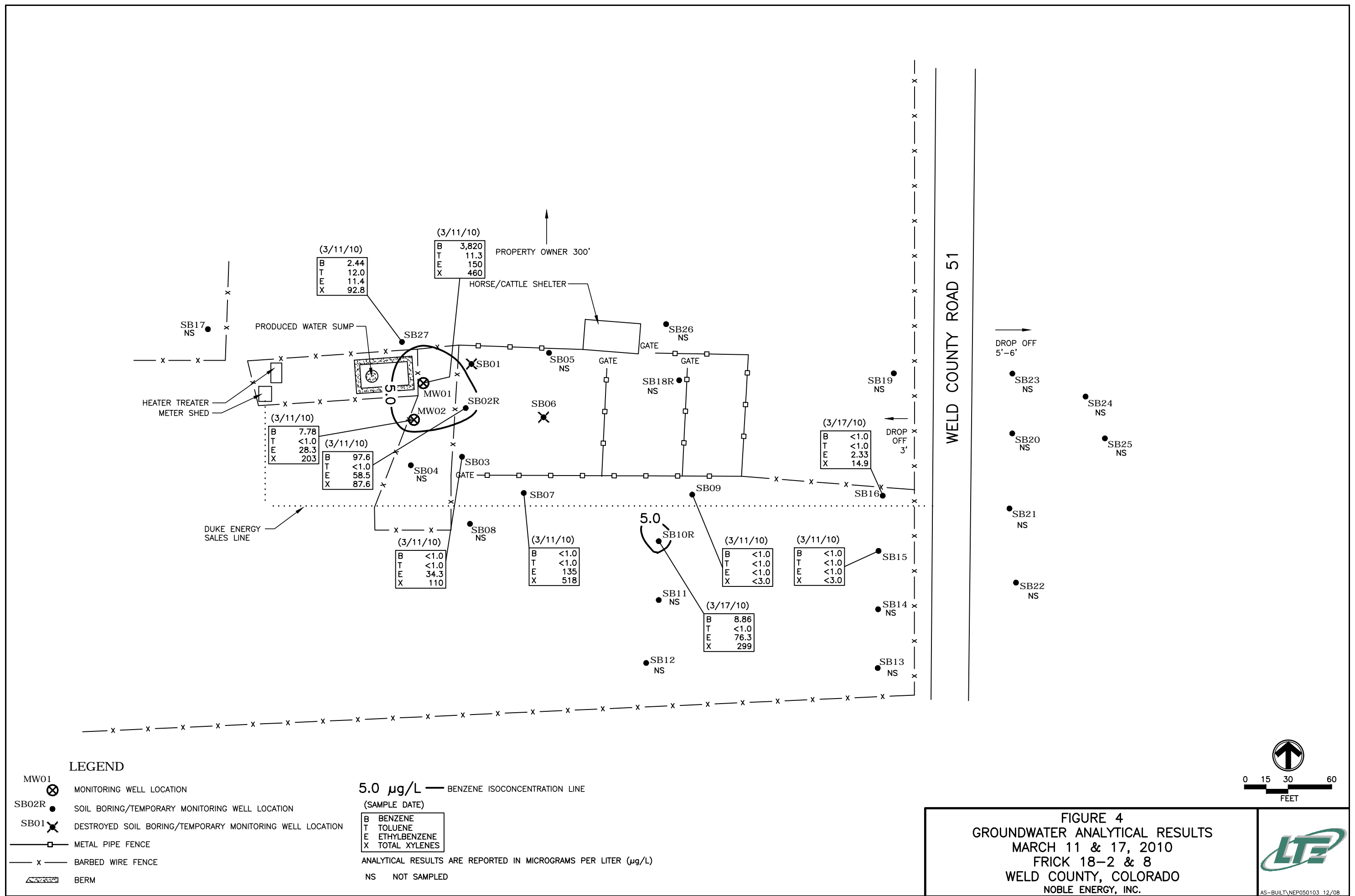
FIGURE 1  
SITE MAP  
FRICK 18-2 & 8  
WELD COUNTY, COLORADO  
NOBLE ENERGY, INC.

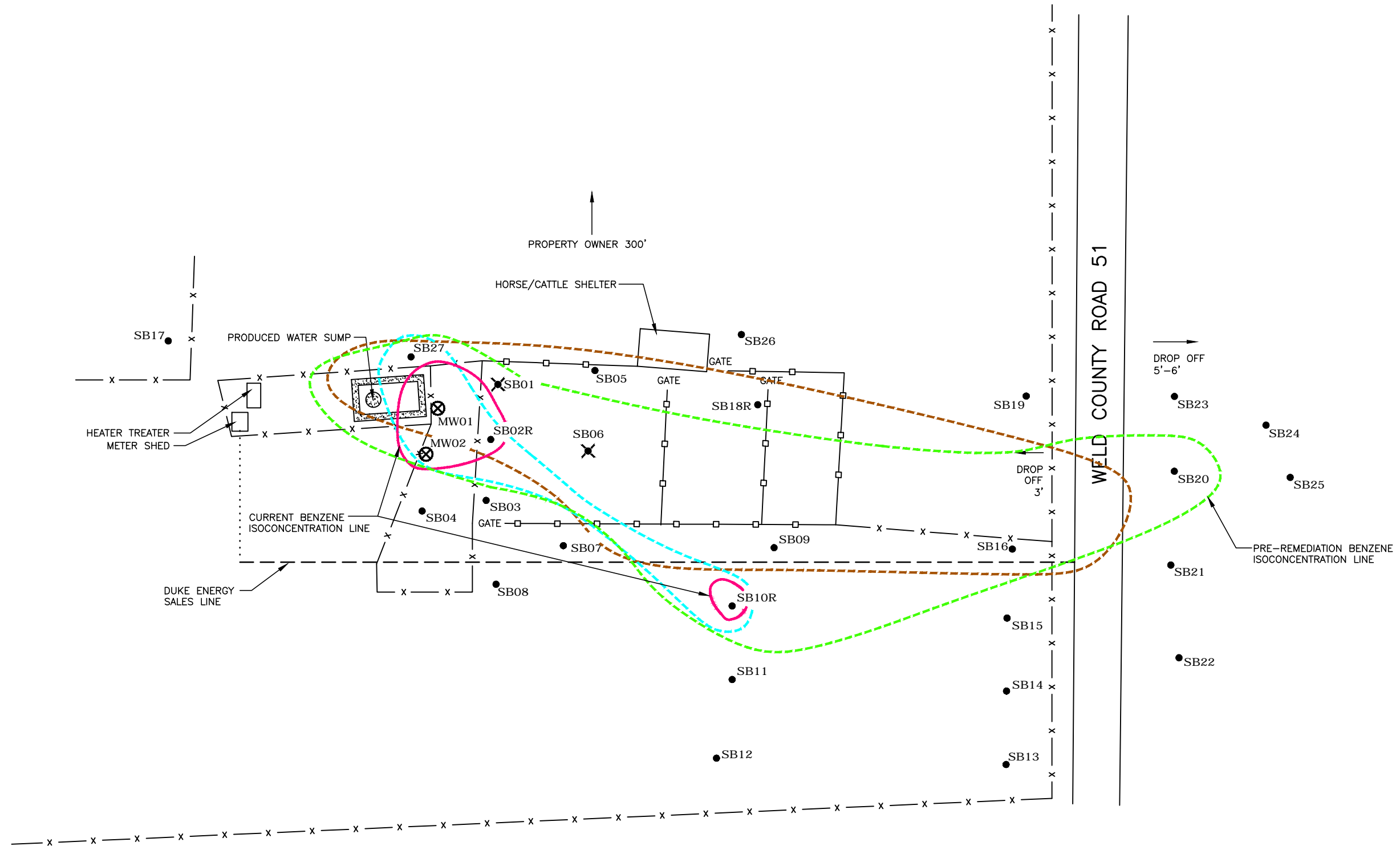






















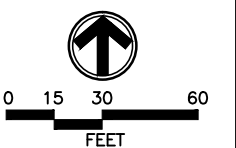
# LEGEND

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

-  5.0 MICROGRAMS PER LITER ( $\mu\text{g/L}$ ) BENZENE ISOCONCENTRATION LINE (MARCH 2010)
-  5.0  $\mu\text{g/L}$  BENZENE ISOCONCENTRATION LINE (AUGUST 2009)
-  5.0  $\mu\text{g/L}$  BENZENE ISOCONCENTRATION LINE (NOVEMBER 2008)
-  PRE-REMEDATION SYSTEM 5.0  $\mu\text{g/L}$  BENZENE ISOCONCENTRATION LINE (AUGUST 2008)

NOTE:  
REMEDICATION SYSTEM BEGAN OPERATION ON  
AUGUST 8, 2008

FIGURE 5  
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
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
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
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
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
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
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
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

**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
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	<b>1,200</b>	4.2	150	562
	1/20/2006	<b>1,700</b>	<20	39	337
	3/28/2007	<b>1,200</b>	<20.0	27	260
	8/5/2008	<b>7,770</b>	111	97.6	812.2
	11/14/2008	<b>9,450</b>	129	272	<b>2,858</b>
	11/24/2008	<b>9,210</b>	56.8	50.1	<b>2,573</b>
	2/24/2009	<b>6,130</b>	23.9	65.7	571.7
	5/26/2009	<b>9,680</b>	56.1	633	1,027
	8/31/2009	<b>7,000</b>	2.53	163	763.84
	12/29/2009	<b>919</b>	<1.0	5.64	35.26
	3/11/2010	<b>3,820</b>	11.3	150	459.8
MW02	10/11/2005	<b>390</b>	<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	<b>53.8</b>	<1.0	66.7	381.7
	11/24/2008	2.15	<1.0	<1.0	8.1
	2/24/2009	<b>88.5</b>	<1.0	100	655.6
	5/26/2009	<b>65</b>	<1.0	171	1,736.7
	8/31/2009	<b>6.81</b>	<1.0	<1.0	2.72
	12/29/2009	1.28	<1.0	1.62	14.6
	3/11/2010	<b>7.78</b>	<1.0	28.3	203
SB01	6/16/2005	< 1.0	< 1.0	< 1.0	<3.0
SB02	6/16/2005	<b>48</b>	39.8	508	<b>7,160</b>
	10/11/2005	3.6	<1.0	170	<b>7,078</b>
	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	<b>30.4</b>	1.91	48.9	266.54
	5/26/2009	<b>32.1</b>	<1.0	6.7	48.5
	8/31/2009	<b>183</b>	<1.0	383	<b>3,055</b>
	12/29/2009	2.23	<1.0	<1.0	24.41
	3/11/2010	<b>97.6</b>	<1.0	58.5	87.6
SB03	6/16/2005	<b>630</b>	892	182	<b>2,070</b>
	10/11/2005	<b>4,800</b>	280	280	<b>2,150</b>
	1/20/2006	<b>2,400</b>	38	170	960
	3/28/2007	<b>350</b>	<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
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	<b>9.1</b>	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	<b>7,120</b>	<b>3,090</b>	433	<b>4,610</b>
	10/11/2005	<b>6,400</b>	200	510	1,000
	1/20/2006	<b>3,300</b>	1.2	230	<b>1,698</b>
	3/28/2007	<b>2,100</b>	<100.0	210	<b>1,800</b>
	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





**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	<b>69.0</b>	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	<b>11.1</b>	7.1	2.4	27.8
	1/20/2006	<b>1,800</b>	<1.0	130	1,016
	3/28/2007	<b>68</b>	<2.0	25	200
	2/24/2009	<b>59</b>	<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
SB10	6/16/2005	<b>3,260</b>	<b>1,180</b>	211	<b>2,910</b>
	10/11/2005	<b>1,900</b>	450	230	<b>2,030</b>
	1/20/2006	<b>1,900</b>	150	170	1,350
	3/28/2007	<b>1,600</b>	<20.0	190	<b>1,756</b>
	8/5/2008	<b>40.6</b>	<1.0	33.0	68.1
	11/24/2008	Destroyed			
SB10R	2/24/2009	<b>213</b>	<1.0	124	662
	5/28/2009	<b>47.6</b>	<1.0	23	102
	8/31/2009	<b>17.3</b>	<1.0	2.68	5.36
	12/29/2009	<b>12.1</b>	<1.0	57.7	392
	3/17/2010	<b>8.86</b>	<1.0	76.3	299
SB11	6/17/2005	<b>17.6</b>	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	<b>15.1</b>	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	<b>9.2</b>	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	<b>7.5</b>	15.4	7.0	66.3
	10/11/2005	<b>17</b>	<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	<b>21.4</b>	19.0	35.0	812
	10/11/2005	<b>14</b>	<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

**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
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**  
**LABORATORY ANALYTICAL REPORTS**





3/16/2010

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. March 11, 2010 3:08 pm. This project is associated with Origins project number X003089-01 .

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: NEPO505.01  
Project: Noble - Frick 18-2&8

**CROSS REFERENCE REPORT**

Sample ID	Laboratory ID	Matrix	Sampled	Date Received
MW01	X003089-01	Water	3/11/2010 8:50:00AM	03/11/2010 15:08
MW02	X003089-02	Water	3/11/2010 9:00:00AM	03/11/2010 15:08
SB02R	X003089-03	Water	3/11/2010 9:15:00AM	03/11/2010 15:08
SB03	X003089-04	Water	3/11/2010 9:20:00AM	03/11/2010 15:08
SB07	X003089-05	Water	3/11/2010 9:40:00AM	03/11/2010 15:08
SB09	X003089-06	Water	3/11/2010 9:55:00AM	03/11/2010 15:08
SB15	X003089-07	Water	3/11/2010 10:35:00AM	03/11/2010 15:08
SB27	X003089-08	Water	3/11/2010 10:50:00AM	03/11/2010 15:08

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, Laboratory Manager

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

page 1 of 1

ORIGINS  
LABORATORY, INC

Client: LTE  
Address: 4600 West 60th Ave  
Telephone Number: 303-433-9788  
Email Address: rebel@ltenu.com

Project Manager: Rob Rebel  
Project Name: Frick 18-2 & 8  
Project Number: NEP0505  
Samples Collected By: Gavin Cassan

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix			Analysis	Sample Instructions	
				Unpreserved	HCl	HNO <sub>3</sub>	Other	Groundwater	Soil	Air Summa #			Other
MW01	3/11/10	8:50	3		X			X				1	
MW02	3/11/10	9:00	3		X			X				2	
SB02R	3/11/10	9:15	3		X			X				3	
SB03	3/11/10	9:20	3		X			X				4	
SB07	3/11/10	9:40	3		X			X				5	
SB09	3/11/10	9:55	3		X			X				6	
SB15	3/11/10	10:35	3		X			X				7	
SB27	3/11/10	10:50	3		X			X				8	
												9	
												10	

Relinquished By: [Signature] Date: 3/11/10 Time: 15:08  
Relinquished By: [Signature] Date: 3/11/10 Time: 16:05

Turnaround Time: Same Day ☐ 24 Hr ☐ 48 Hr ☒ 72 Hr ☐ Standard ☐

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

Origins Laboratory, Inc.

[Signature]

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, Laboratory Manager

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

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

## MW01

3/11/2010 8:50:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
---------	--------	-----------------	-------	----------	-------	----------	----------	-------

Origins Laboratory, Inc.  
X003089-01 (Water)

### BTEX by EPA 8260B

Benzene	3820	50.0	ug/L	50	OC14001	03/14/2010	03/16/2010	
Toluene	11.3	1.00	"	1	"	"	03/15/2010	
Ethylbenzene	150	1.00	"	"	"	"	"	
o-Xylene	33.8	1.00	"	"	"	"	"	
m,p-Xylene	426	100	"	50	"	"	03/16/2010	
Xylenes, total	460	50.0	"	"	"	"	03/15/2010	

Surrogate: 1,2-Dichloroethane-d4	95.0 %	73.5-130			"	"	03/16/2010	
Surrogate: Toluene-d8	89.1 %	79.3-113			"	"	"	
Surrogate: 4-Bromofluorobenzene	91.5 %	81.5-117			"	"	"	

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, Laboratory Manager



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

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

## MW02

3/11/2010 9:00:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
---------	--------	-----------------	-------	----------	-------	----------	----------	-------

Origins Laboratory, Inc.  
X003089-02 (Water)

### BTEX by EPA 8260B

Benzene	7.78	1.00	ug/L	1	OC14001	03/14/2010	03/16/2010	
Toluene	ND	1.00	"	"	"	"	03/15/2010	
Ethylbenzene	28.3	1.00	"	"	"	"	03/16/2010	
o-Xylene	ND	1.00	"	"	"	"	03/15/2010	
m,p-Xylene	203	2.00	"	"	"	"	03/16/2010	
Xylenes, total	203	1.00	"	"	"	"	03/15/2010	

Surrogate: 1,2-Dichloroethane-d4	104 %	73.5-130			"	"	03/16/2010	
Surrogate: Toluene-d8	88.4 %	79.3-113			"	"	"	
Surrogate: 4-Bromofluorobenzene	93.0 %	81.5-117			"	"	"	

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, Laboratory Manager

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

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

**SB02R****3/11/2010 9:15:00AM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
---------	--------	-----------------	-------	----------	-------	----------	----------	-------

Origins Laboratory, Inc.  
X003089-03 (Water)

**BTEX by EPA 8260B**

Benzene	97.6	1.00	ug/L	1	OC14001	03/14/2010	03/15/2010
Toluene	ND	1.00	"	"	"	"	"
Ethylbenzene	58.5	1.00	"	"	"	"	"
Xylenes, total	87.6	1.00	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	103 %	73.5-130	"	"	"
Surrogate: Toluene-d8	96.9 %	79.3-113	"	"	"
Surrogate: 4-Bromofluorobenzene	99.0 %	81.5-117	"	"	"

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, Laboratory Manager

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

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

## SB03

3/11/2010 9:20:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
---------	--------	-----------------	-------	----------	-------	----------	----------	-------

Origins Laboratory, Inc.  
X003089-04 (Water)

### BTEX by EPA 8260B

Benzene	ND	1.00	ug/L	1	OC14001	03/14/2010	03/15/2010	
Toluene	ND	1.00	"	"	"	"	"	
Ethylbenzene	34.3	1.00	"	"	"	"	"	
o-Xylene	ND	1.00	"	"	"	"	"	
m,p-Xylene	110	2.00	"	"	"	"	"	
Xylenes, total	110	1.00	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	103 %	73.5-130			"	"	"	
Surrogate: Toluene-d8	99.7 %	79.3-113			"	"	"	
Surrogate: 4-Bromofluorobenzene	99.9 %	81.5-117			"	"	"	

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, Laboratory Manager

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

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

## SB07

3/11/2010 9:40:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
---------	--------	-----------------	-------	----------	-------	----------	----------	-------

Origins Laboratory, Inc.  
X003089-05 (Water)

### BTEX by EPA 8260B

Benzene	ND	1.00	ug/L	1	OC14001	03/14/2010	03/15/2010	
Toluene	ND	1.00	"	"	"	"	"	
Ethylbenzene	135	1.00	"	"	"	"	"	
o-Xylene	1.82	1.00	"	"	"	"	"	
m,p-Xylene	516	100	"	50	"	"	03/16/2010	
Xylenes, total	518	50.0	"	"	"	"	03/15/2010	

Surrogate: 1,2-Dichloroethane-d4	102 %	73.5-130			"	"	03/16/2010	
Surrogate: Toluene-d8	88.4 %	79.3-113			"	"	"	
Surrogate: 4-Bromofluorobenzene	89.4 %	81.5-117			"	"	"	

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, Laboratory Manager

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

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

SB09

3/11/2010 9:55:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
---------	--------	-----------------	-------	----------	-------	----------	----------	-------

Origins Laboratory, Inc.  
X003089-06 (Water)

## BTEX by EPA 8260B

Benzene	ND	1.00	ug/L	1	OC14001	03/14/2010	03/15/2010	
Toluene	ND	1.00	"	"	"	"	"	
Ethylbenzene	ND	1.00	"	"	"	"	"	
o-Xylene	ND	1.00	"	"	"	"	"	
m,p-Xylene	ND	2.00	"	"	"	"	"	
Xylenes, total	ND	1.00	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	105 %	73.5-130			"	"	"	
Surrogate: Toluene-d8	102 %	79.3-113			"	"	"	
Surrogate: 4-Bromofluorobenzene	98.1 %	81.5-117			"	"	"	

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, Laboratory Manager

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

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

## SB15

3/11/2010 10:35:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
---------	--------	-----------------	-------	----------	-------	----------	----------	-------

Origins Laboratory, Inc.  
X003089-07 (Water)

### BTEX by EPA 8260B

Benzene	ND	1.00	ug/L	1	OC14001	03/14/2010	03/15/2010	
Toluene	ND	1.00	"	"	"	"	"	
Ethylbenzene	ND	1.00	"	"	"	"	"	
o-Xylene	ND	1.00	"	"	"	"	"	
m,p-Xylene	ND	2.00	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	98.6 %	73.5-130			"	"	"	
Surrogate: Toluene-d8	100 %	79.3-113			"	"	"	
Surrogate: 4-Bromofluorobenzene	100 %	81.5-117			"	"	"	

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, Laboratory Manager

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

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

## SB27

3/11/2010 10:50:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
---------	--------	-----------------	-------	----------	-------	----------	----------	-------

Origins Laboratory, Inc.  
X003089-08 (Water)

### BTEX by EPA 8260B

Benzene	2.44	1.00	ug/L	1	OC14001	03/14/2010	03/15/2010	
Toluene	12.0	1.00	"	"	"	"	"	
Ethylbenzene	11.4	1.00	"	"	"	"	"	
o-Xylene	15.1	1.00	"	"	"	"	"	
m,p-Xylene	77.6	2.00	"	"	"	"	"	
Xylenes, total	92.8	1.00	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	106 %	73.5-130			"	"	"	
Surrogate: Toluene-d8	95.3 %	79.3-113			"	"	"	
Surrogate: 4-Bromofluorobenzene	97.0 %	81.5-117			"	"	"	

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, Laboratory Manager

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
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

### Batch OC14001 - EPA 5030B

#### Blank (OC14001-BLK1)

Prepared: 03/14/2010 Analyzed: 03/14/2010

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

Surrogate: 1,2-Dichloroethane-d4	61.8	"	62.5	99.0	73.5-130
Surrogate: Toluene-d8	63.9	"	62.5	102	79.3-113
Surrogate: 4-Bromofluorobenzene	63.0	"	62.5	101	81.5-117

#### Blank (OC14001-BLK2)

Prepared: 03/14/2010 Analyzed: 03/14/2010

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

Surrogate: 1,2-Dichloroethane-d4	62.1	"	62.5	99.4	73.5-130
Surrogate: Toluene-d8	64.2	"	62.5	103	79.3-113
Surrogate: 4-Bromofluorobenzene	63.7	"	62.5	102	81.5-117

#### LCS (OC14001-BS1)

Prepared: 03/14/2010 Analyzed: 03/14/2010

Benzene	50.3	1.00	ug/L	50.0	101	77.3-128
Toluene	46.4	1.00	"	50.0	92.7	81.7-118

Surrogate: 1,2-Dichloroethane-d4	59.5	"	62.5	95.2	73.5-130
Surrogate: Toluene-d8	63.0	"	62.5	101	79.3-113
Surrogate: 4-Bromofluorobenzene	62.1	"	62.5	99.3	81.5-117

#### LCS (OC14001-BS2)

Prepared: 03/14/2010 Analyzed: 03/14/2010

Benzene	53.6	1.00	ug/L	50.0	107	77.3-128
Toluene	53.3	1.00	"	50.0	107	81.7-118

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, Laboratory Manager



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 OC14001 - EPA 5030B</b>										
<b>LCS (OC14001-BS2)</b>					Prepared: 03/14/2010 Analyzed: 03/14/2010					
Surrogate: 1,2-Dichloroethane-d4	60.3		ug/L	62.5		96.5	73.5-130			
Surrogate: Toluene-d8	64.5		"	62.5		103	79.3-113			
Surrogate: 4-Bromofluorobenzene	62.6		"	62.5		100	81.5-117			
<b>Matrix Spike (OC14001-MS1)</b>					Source: X003089-06		Prepared: 03/14/2010 Analyzed: 03/14/2010			
Benzene	52.2	1.00	ug/L	50.0	ND	104	74.5-132			
Toluene	51.7	1.00	"	50.0	ND	103	74.2-116			
Surrogate: 1,2-Dichloroethane-d4	59.8		"	62.5		95.7	73.5-130			
Surrogate: Toluene-d8	65.7		"	62.5		105	79.3-113			
Surrogate: 4-Bromofluorobenzene	62.3		"	62.5		99.7	81.5-117			
<b>Matrix Spike (OC14001-MS2)</b>					Source: X003089-07		Prepared: 03/14/2010 Analyzed: 03/14/2010			
Benzene	48.8	1.00	ug/L	50.0	ND	97.6	74.5-132			
Toluene	44.2	1.00	"	50.0	ND	88.4	74.2-116			
Surrogate: 1,2-Dichloroethane-d4	61.6		"	62.5		98.5	73.5-130			
Surrogate: Toluene-d8	63.7		"	62.5		102	79.3-113			
Surrogate: 4-Bromofluorobenzene	61.4		"	62.5		98.2	81.5-117			
<b>Matrix Spike Dup (OC14001-MSD1)</b>					Source: X003089-06		Prepared: 03/14/2010 Analyzed: 03/14/2010			
Benzene	53.6	1.00	ug/L	50.0	ND	107	74.5-132	2.78	13.1	
Toluene	51.0	1.00	"	50.0	ND	102	74.2-116	1.42	21.2	
Surrogate: 1,2-Dichloroethane-d4	61.7		"	62.5		98.7	73.5-130			
Surrogate: Toluene-d8	63.9		"	62.5		102	79.3-113			
Surrogate: 4-Bromofluorobenzene	63.3		"	62.5		101	81.5-117			
<b>Matrix Spike Dup (OC14001-MSD2)</b>					Source: X003089-07		Prepared: 03/14/2010 Analyzed: 03/14/2010			
Benzene	53.1	1.00	ug/L	50.0	ND	106	74.5-132	8.34	13.1	
Toluene	49.2	1.00	"	50.0	ND	98.4	74.2-116	10.7	21.2	
Surrogate: 1,2-Dichloroethane-d4	63.0		"	62.5		101	73.5-130			
Surrogate: Toluene-d8	63.9		"	62.5		102	79.3-113			
Surrogate: 4-Bromofluorobenzene	62.3		"	62.5		99.7	81.5-117			

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, Laboratory Manager

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
---------	--------	--------------------	-------	----------------	------------------	------	----------------	-----	--------------	-------

Batch OC14001 - EPA 5030B

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, Laboratory Manager

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.



*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, Laboratory Manager



3/19/2010

LT Environmental, Inc.

Rob Rebel

4600 West 60th Avenue

Arvada

CO

80003

Project Name- Noble - Frick 18-2&8

Project Number- NEP0505

Attached are your analytical results for Noble - Frick 18-2&8 received by Origins Laboratory, Inc. March 17, 2010 2:02 pm. This project is associated with Origins project number X003114-01 .

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

Page 1 of 7



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

Rob Rebel  
Project Number: NEPO505  
Project: Noble - Frick 18-2&8

## CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Sampled	Date Received
SB10R	X003114-01	Water	3/17/2010 12:50:00PM	03/17/2010 14:02
SB16	X003114-02	Water	3/17/2010 1:00:00PM	03/17/2010 14:02

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, Laboratory Manager

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

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

www.originslaboratory.com

page 1 of 1

X003114

ORIGINS  
LABORATORY, INC

Project Manager: Rob Rebel  
Project Name: Frick 18-2 & 8  
Project Number: NEP0505  
Samples Collected By: G. Cassen

Client: LTL  
Address: 4600 W 60th Ave  
Telephone Number: 303-433-9788  
Email Address: rebel@ltenv.com

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix			Analysis	Sample Instructions	
				Unpreserved	HCl	HNO <sub>3</sub>	Other	Groundwater	Soil	Air Summa Canister #			Other
SB10R	3/17/10	12:50	3	X				X				1	
SB16	3/17/10	13:00	3	X				X				2	
												3	
												4	
												5	
												6	
												7	
												8	
												9	
												10	

Relinquished By:	Date:	Time:	Received By:	Date:	Time:	Turnaround Time:
M. L.	3/17/10	14:02				Same Day <input type="checkbox"/> 24 Hr <input type="checkbox"/>
						48 Hr <input type="checkbox"/> 72 Hr <input checked="" type="checkbox"/>
						Standard <input type="checkbox"/>

Order Date: 3/17/10

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

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, Laboratory Manager

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

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

**SB10R****3/17/2010 12:50:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
---------	--------	--------------------	-------	----------	-------	----------	----------	-------

Origins Laboratory, Inc.  
X003114-01 (Water)

**BTEX by EPA 8260B**

Benzene	8.86	1.00	ug/L	1	OC18001	03/18/2010	03/18/2010	
Toluene	ND	1.00	"	"	"	"	"	
Ethylbenzene	76.3	1.00	"	"	"	"	"	
o-Xylene	ND	1.00	"	"	"	"	"	
m,p-Xylene	299	2.00	"	"	"	"	"	
Xylenes, total	299	1.00	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	105 %	73.5-130			"	"	"	
Surrogate: Toluene-d8	93.6 %	79.3-113			"	"	"	
Surrogate: 4-Bromofluorobenzene	95.6 %	81.5-117			"	"	"	

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, Laboratory Manager

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

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

## SB16

3/17/2010 1:00:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
---------	--------	-----------------	-------	----------	-------	----------	----------	-------

Origins Laboratory, Inc.  
X003114-02 (Water)

### BTEX by EPA 8260B

Benzene	ND	1.00	ug/L	1	OC18001	03/18/2010	03/18/2010	
Toluene	ND	1.00	"	"	"	"	"	
Ethylbenzene	2.33	1.00	"	"	"	"	"	
o-Xylene	ND	1.00	"	"	"	"	"	
m,p-Xylene	14.9	2.00	"	"	"	"	"	
Xylenes, total	14.9	1.00	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	105 %	73.5-130			"	"	"	
Surrogate: Toluene-d8	96.7 %	79.3-113			"	"	"	
Surrogate: 4-Bromofluorobenzene	97.3 %	81.5-117			"	"	"	

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, Laboratory Manager



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

Rob Rebel  
Project Number: NEP0505  
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 OC18001 - EPA 5030B</b>										
<b>Blank (OC18001-BLK1)</b>					Prepared: 03/18/2010 Analyzed: 03/18/2010					
Benzene	ND	1.00	ug/L							
Toluene	ND	1.00	"							
Ethylbenzene	ND	1.00	"							
o-Xylene	ND	1.00	"							
m,p-Xylene	ND	2.00	"							
Surrogate: 1,2-Dichloroethane-d4	65.0		"	62.5		104	73.5-130			
Surrogate: Toluene-d8	61.5		"	62.5		98.4	79.3-113			
Surrogate: 4-Bromofluorobenzene	60.9		"	62.5		97.5	81.5-117			
<b>LCS (OC18001-BS1)</b>					Prepared: 03/18/2010 Analyzed: 03/18/2010					
Benzene	53.6	1.00	ug/L	50.0		107	77.3-128			
Toluene	52.0	1.00	"	50.0		104	81.7-118			
Surrogate: 1,2-Dichloroethane-d4	64.8		"	62.5		104	73.5-130			
Surrogate: Toluene-d8	62.0		"	62.5		99.2	79.3-113			
Surrogate: 4-Bromofluorobenzene	59.4		"	62.5		95.0	81.5-117			
<b>Matrix Spike (OC18001-MS1)</b>					Source: X003113-01	Prepared: 03/18/2010 Analyzed: 03/18/2010				
Benzene	51.7	1.00	ug/L	50.0	ND	103	74.5-132			
Toluene	48.6	1.00	"	50.0	0.44	96.2	74.2-116			
Surrogate: 1,2-Dichloroethane-d4	63.4		"	62.5		101	73.5-130			
Surrogate: Toluene-d8	60.8		"	62.5		97.2	79.3-113			
Surrogate: 4-Bromofluorobenzene	59.4		"	62.5		95.1	81.5-117			
<b>Matrix Spike Dup (OC18001-MSD1)</b>					Source: X003113-01	Prepared: 03/18/2010 Analyzed: 03/18/2010				
Benzene	51.9	1.00	ug/L	50.0	ND	104	74.5-132	0.367	13.1	
Toluene	47.1	1.00	"	50.0	0.44	93.2	74.2-116	3.12	21.2	
Surrogate: 1,2-Dichloroethane-d4	63.3		"	62.5		101	73.5-130			
Surrogate: Toluene-d8	60.3		"	62.5		96.5	79.3-113			
Surrogate: 4-Bromofluorobenzene	60.6		"	62.5		96.9	81.5-117			

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, Laboratory Manager

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

Rob Rebel  
Project Number: NEP0505  
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.



*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, Laboratory Manager