



July 9, 2009

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

**RE: Second Quarter 2009 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 Second Quarter 2009 Remediation and Monitoring Report, and summarizes activities conducted at the Site from April 1, 2009 through June 30, 2009. Activities conducted during the reporting period included operations and maintenance of the remediation system and a 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 began operation at the Site on August 8, 2008. The system layout is illustrated on Figures 2 and 3.



## **Remediation System Operation and Maintenance**

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;
- Installation of generator timer for run time control;
- Generator maintenance, which included changing the oil and oil filters; and
- System transport to another Noble facility (Becky 2-6 wellhead and tank battery) on June 10, 2009.

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. 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. 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 was added to the remediation system following the landowner request, to allow system operation only during daylight hours.

## **Groundwater Sampling Procedures**

On May 26 and 28, 2009, 11 groundwater monitoring wells were sampled to determine the current plume extent following three months of active site remediation. Monitoring well SB16 was not sampled as the ground was saturated with surface water in that area. 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 inside 1-inch diameter polyvinyl chloride (PVC) casing and extending the 3/16-inch diameter tubing below the water table. 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 May 26 and 28, 2009 sampling event, the depth to static groundwater ranged from 0.10 feet below top of casing (btoc) in SB09 to 3.00 feet btoc in SB20 (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 Environmental (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 report, laboratory quality assurance/quality control data, and COC documentation are presented in Attachment 1.

Eleven groundwater samples were collected and submitted to Origins Laboratory for BTEX analysis during the May 26 and 28, 2009 sampling event (MW01, MW02, SB02R, SB03, SB07, SB09, SB10R, SB15, SB18R, SB20, and SB27). Groundwater analytical results indicate that benzene was detected above the Regulation 41 standard for benzene in monitoring wells MW01, MW02, SB02R, SB10R, and SB27 at concentrations ranging from 11.1 ug/L at SB27 to 9,680 ug/L at MW01. BTEX compounds were not detected above the Regulation 41 standards in the remaining samples. Groundwater analytical results for the May 2009 sampling event are summarized in Table 2 and illustrated on Figure 4.

## **Summary and Conclusions**

Since system startup, benzene concentrations in monitoring wells SB07, SB09, SB18/18R, and SB20 have successfully decreased into compliance with the Regulation 41 standard. These data indicate that cleanup objectives have been attained for these areas. In addition, BTEX concentrations are exhibiting a stable and decreasing trend site-wide. Flow controls installed in March 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, SB10R, SB16, and SB27. In order to achieve cleanup goals, continued remediation system operation is recommended with concentrated efforts in areas of the Site in which elevated concentrations of benzene are still present (Table 2).

The next groundwater sampling event will be conducted in August 2009. The remediation system has been mobilized to another Noble site to allow static evaluation at the Site from June to August 2009. 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, E.I.T.  
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 – May 26 and 28, 2009

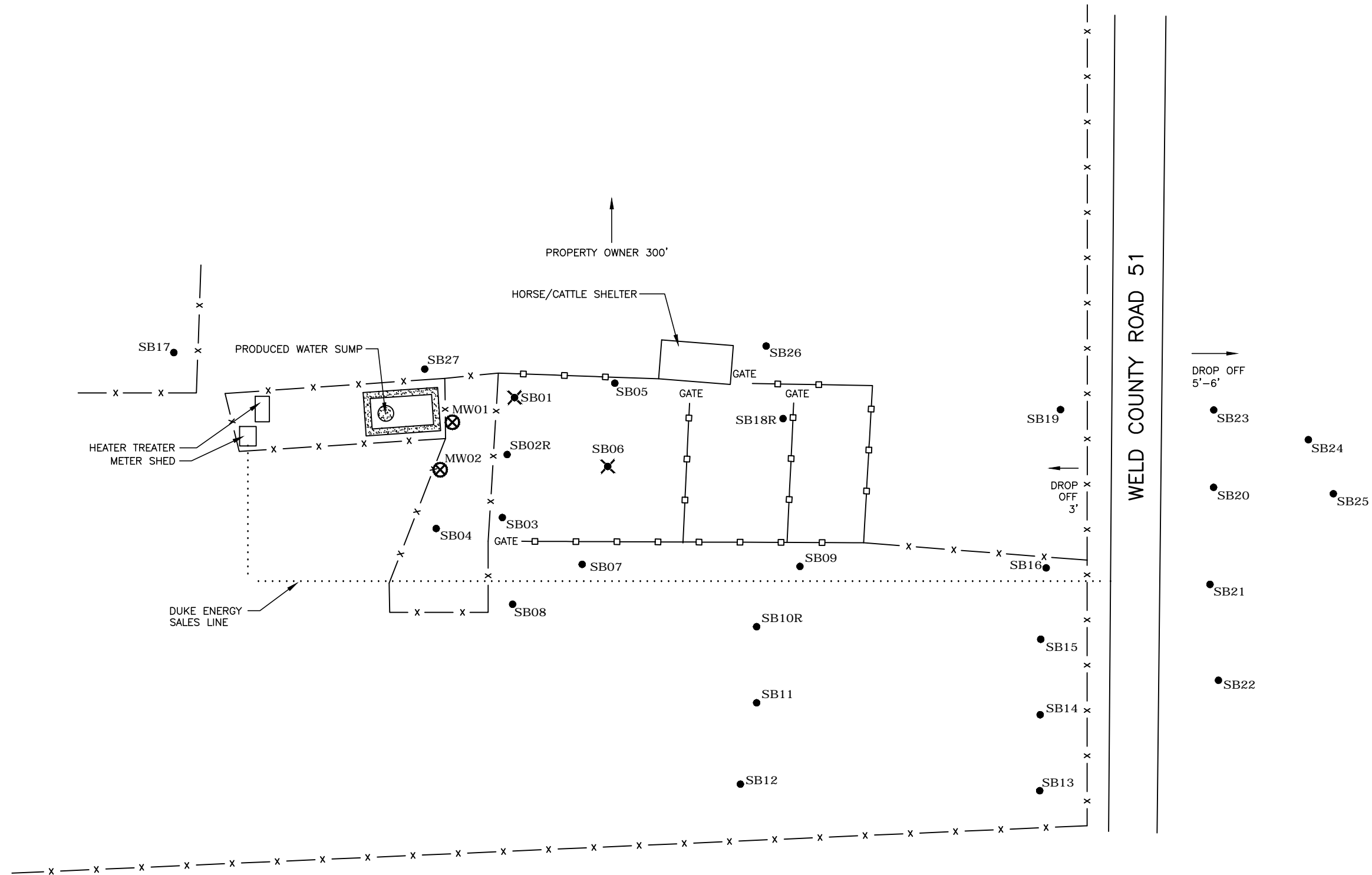
Table 1: Groundwater Elevation Summary

Table 2: Groundwater Analytical Results – Volatile Organic Compounds





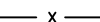
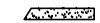
Attachment 1: Laboratory Analytical Report

## 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

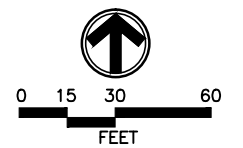
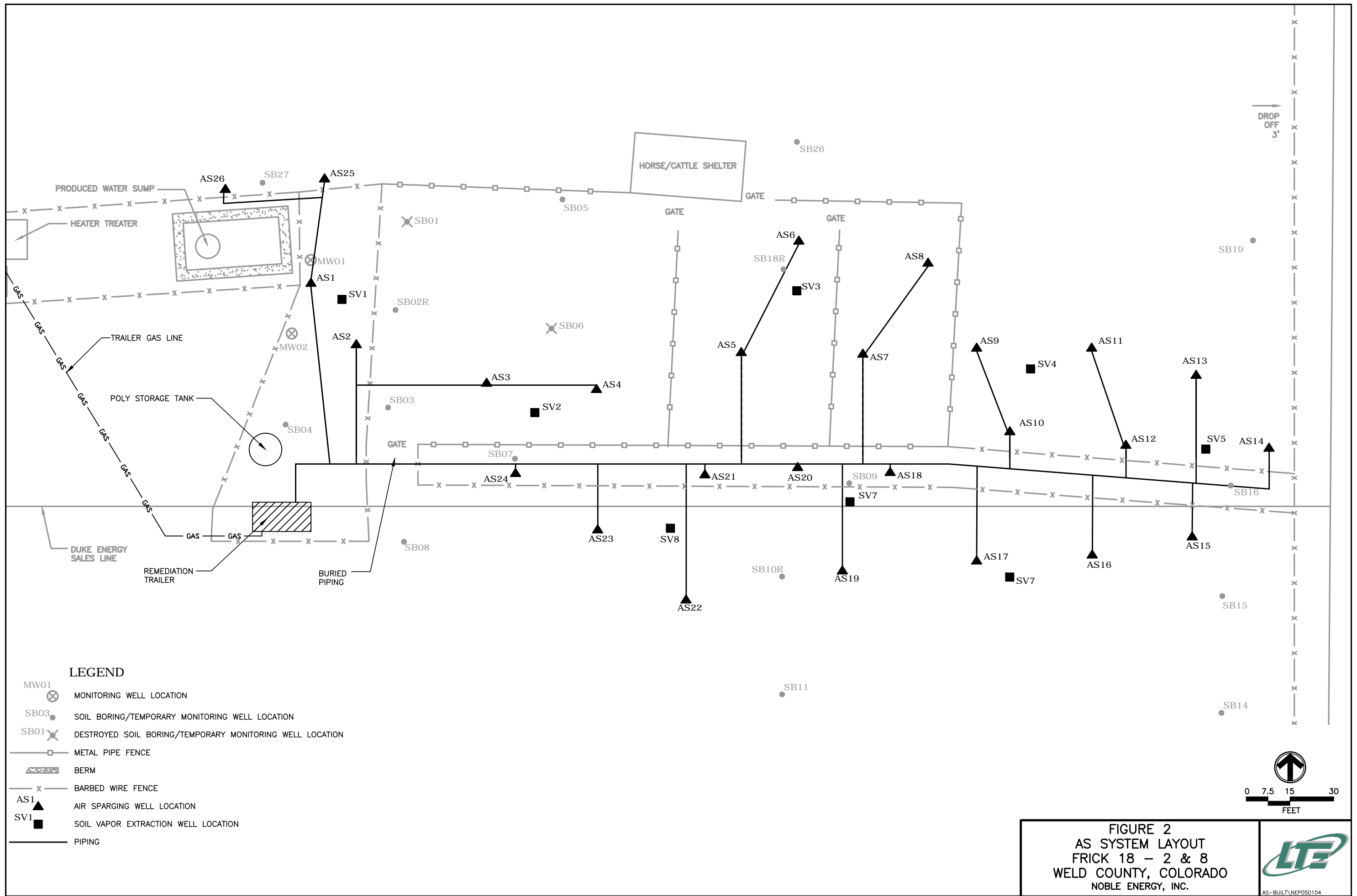
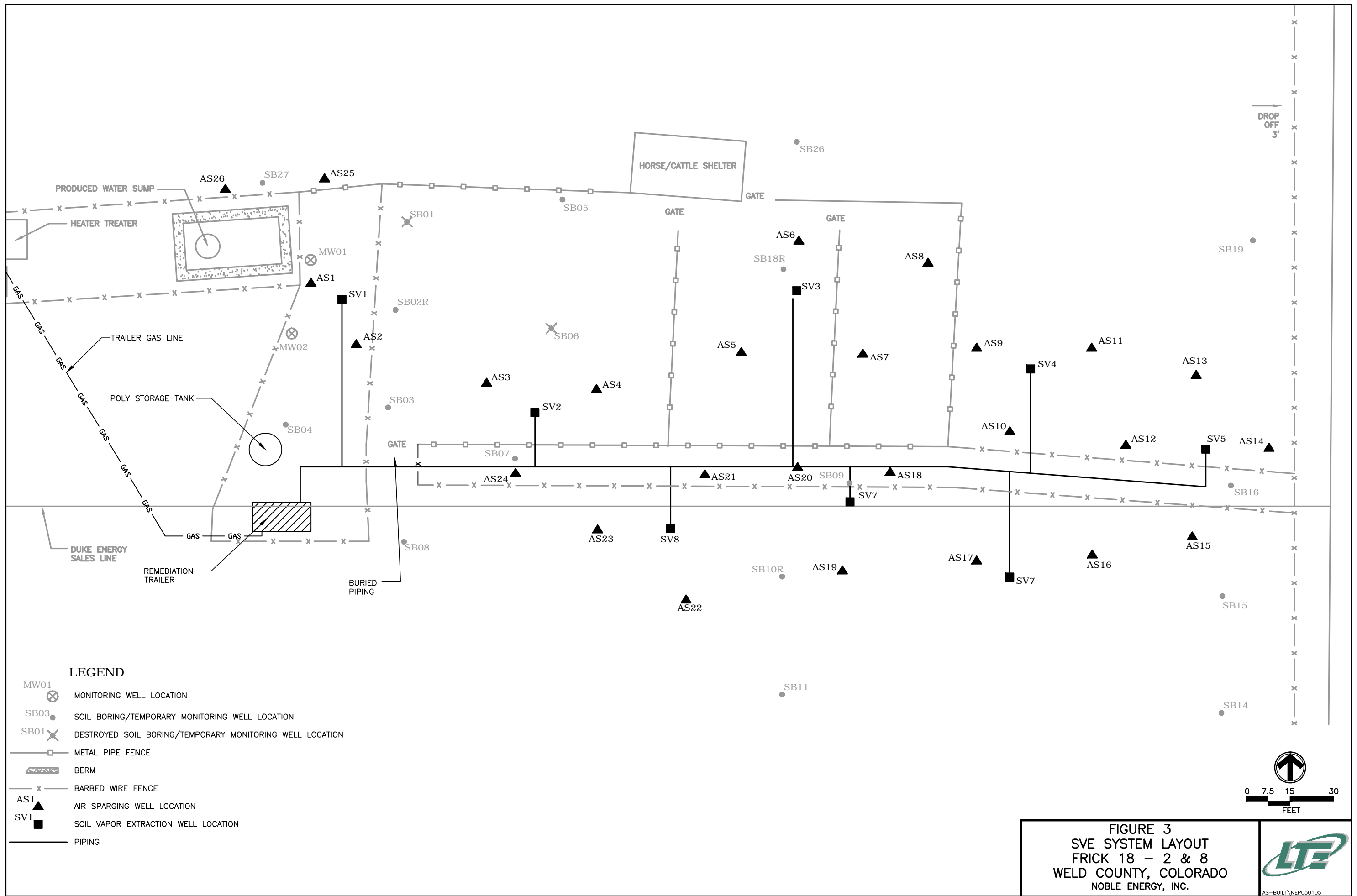


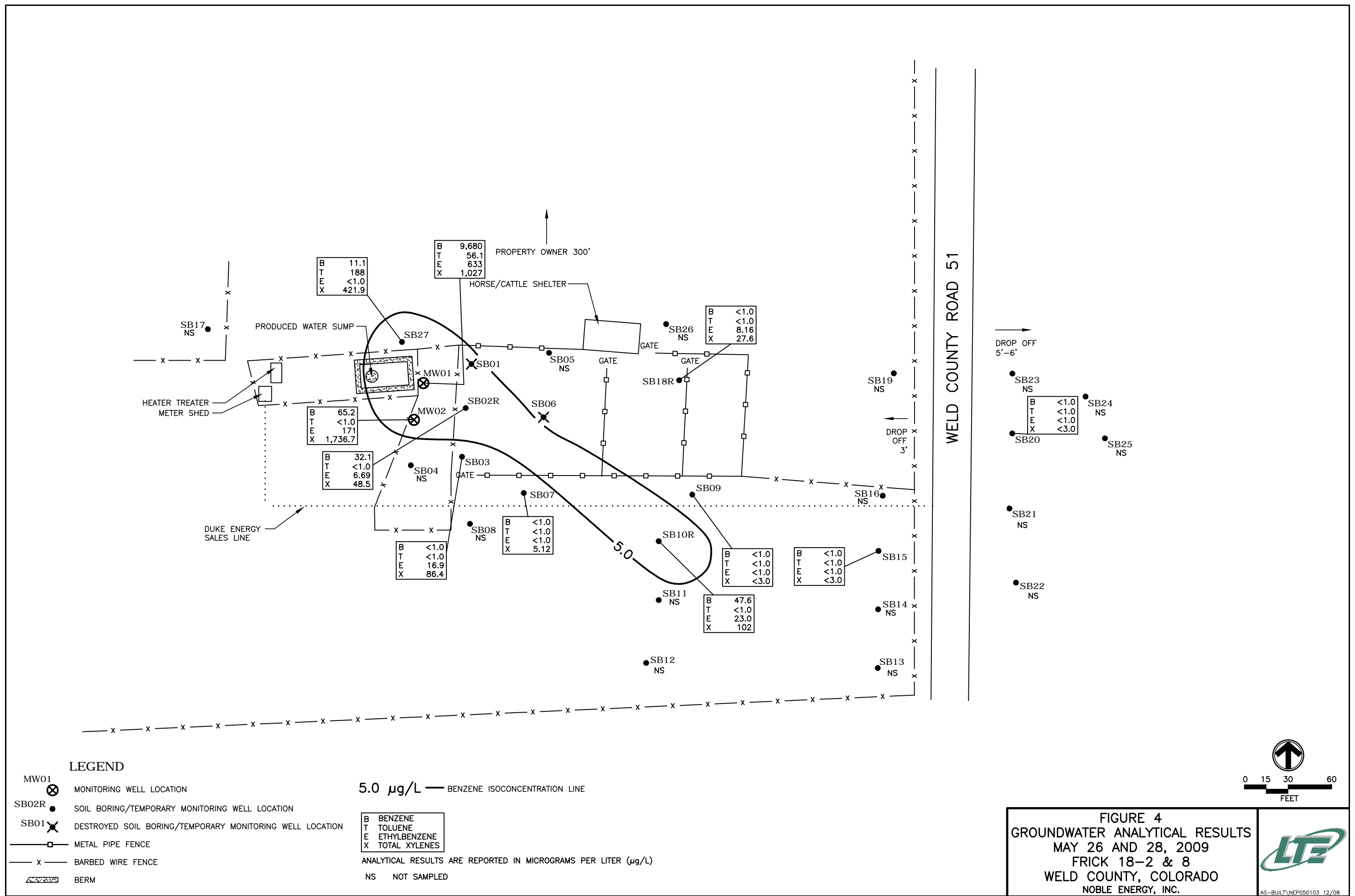
FIGURE 1  
SITE MAP  
FRICK 18-2 & 8  
WELD COUNTY, COLORADO  
NOBLE ENERGY, INC.











## 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	97.33	94.02
	05/26/09	17.78	0.70	97.33	96.63
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	97.83	94.52
	05/26/09	18.34	1.00	97.83	96.83
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	96.06	95.31
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
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
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
SB08	01/20/06	12.18	7.79	NM	NM



**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>
SB09	05/28/09	15.04	0.10	NM	NM
SB10R	05/28/09	13.68	0.30	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	93.80	89.39
	05/26/09	12.01	0.90	93.80	92.90
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
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



**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>
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	92.36	87.23
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
SB25	10/11/05	13.77	7.90	88.48	80.58
	11/24/08	13.77	3.58	89.48	85.90
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

**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
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>65.2</b>	<1.0	171	1,736.7
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
SB02R	2/24/2009	<b>30.4</b>	1.91	48.9	266.54
	5/26/2009	<b>32.1</b>	<1.0	6.69	48.5
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
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
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



**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
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
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
SB10R	2/24/2009	<b>213</b>	<1.0	124	662
	5/28/2009	<b>47.6</b>	<1.0	23.0	102
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
SB16	6/17/2005	<b>7,630</b>	<b>8,210</b>	463	<b>6,770</b>
	10/11/2005	<b>5,400</b>	<b>4,600</b>	470	<b>5,280</b>
	1/20/2006	<b>4,300</b>	<b>4,300</b>	290	<b>3,530</b>
	3/28/2007	<b>2,600</b>	<b>4,400</b>	400	<b>5,860</b>
	8/5/2008	<b>933</b>	86.7	395	<b>3,831</b>
	11/14/2008	<1.0	<1.0	3.31	4.75
	11/24/2008	<b>727</b>	45.9	562	<b>6,906</b>
	2/24/2009	<b>196</b>	13.4	453	<b>5,093</b>



**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
SB17	6/27/2005	< 1.0	< 1.0	< 1.0	< 3.0
SB18	6/17/2005	<b>1,060</b>	190	6.2	870
	10/11/2005	<b>1,000</b>	18	290	<b>2,778</b>
	1/20/2006	<b>41</b>	50	35	700
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	<b>29.9</b>	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	<b>5,640</b>	< 10	321	<b>4,780</b>
	10/11/2005	<b>2,800</b>	2.0	260	<b>2,500</b>
	1/20/2006	<b>&lt;50</b>	<50	<1.0	2.8
	3/28/2007	<b>140</b>	<2.0	21	130
	8/5/2008	<b>25.3</b>	<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	<b>209</b>	< 1.0	1.9	22.3
	10/11/2005	<b>11</b>	< 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	<b>13.2</b>	< 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	<b>21.0</b>	< 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
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
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**





4640 Pecos Street | Unit C | Denver, Colorado 80211  
303.433.1322 Phone 303.265.9645 Fax

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May 29, 2009

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

Brian Dodek  
Project Number: NEP0505.01  
Project: Noble – Frick 18-2&8

---

Attached are the analytical results for Noble – Frick 18-2&8 received by Origins Laboratory, Inc. 5/26/2009 3:01:00PM. Please let us know if you have any questions, or if we can help with anything at all.

Noelle E Doyle  
Laboratory Manager

The analytical results in the following report were analyzed under the guidelines of EPA Methods specified in SW-846. The analytical results apply specifically to the samples and analyses specified per the attached Chain of Custody. This laboratory report is intended solely for the above addressee and it is only to be used and or reproduced in its entirety.

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

Brian Dodek  
Project Number: NEP0505.01  
Project: Noble – Frick 18–2&8

#### CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Sampled	Date Received
MW01	X905110-01	Water	5/26/2009 11:10:00AM	05/26/2009 15:01
MW02	X905110-02	Water	5/26/2009 11:20:00AM	05/26/2009 15:01
SB02R	X905110-03	Water	5/26/2009 12:00:00PM	05/26/2009 15:01
SB03	X905110-04	Water	5/26/2009 11:30:00AM	05/26/2009 15:01
SB07	X905110-05	Water	5/26/2009 11:40:00AM	05/26/2009 15:01
SB15	X905110-06	Water	5/26/2009 11:50:00AM	05/26/2009 15:01
SB20	X905110-07	Water	5/26/2009 12:10:00PM	05/26/2009 15:01
SB27	X905110-08	Water	5/26/2009 11:00:00AM	05/26/2009 15:01

Origins Laboratory, Inc.

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LT Environmental, Inc.  
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Arvada CO 80003

Brian Dodek  
Project Number: NEP0505.01  
Project: Noble - Frick 18-2&8

X905110

page 1 of 1



originslaboratory.com

Project Manager: Rob Rebel  
Project Name: Frick  
Project Number: NEP0505  
Samples Collected by: Mark Dodek

Client: LT Environmental  
Address: 4600 W 60th Ave  
Arvada, CO 80003  
Telephone Number: 303-433-9788  
E-Mail Address: rebel@ltenv.com

Sample ID - Description	Date Sampled	Time Sampled	Number of Containers	Preservative				Matrix			Analysis	Sample Instructions
				Unpreserved	HCl	HNO <sub>3</sub>	Other	Groundwater	Soil	Air - Summa Canister #		
ML001	5-26-09	1110	3	X				X				1
ML002		1120										2
SB02R		1200										3
SB03		1130										4
SB07		1140										5
SB15		1150										6
SB20		1210										7
SB27		1100										8
												9
												10

Relinquished by: Mark Dodek Date: 5-26-09 Time: 1501  
Relinquished by: Mark Dodek Date: 5-26-09 Time: 1501

Temperature Upon Receipt: 28  
Sum Around Time: 24-hr 48-hr 72-hr

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Origins Laboratory, Inc.

Noelle E Doyle

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Arvada CO 80003

Brian Dodek  
Project Number: NEP0505.01  
Project: Noble – Frick 18–2&8

**MW01**

**X905110–01 (Water)**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Notes
		Limit							

**Origins Laboratory, Inc.**

**BTEX by EPA 8260B**

Benzene	9.68	0.100	mg/L	100	9E28004	05/28/2009	05/28/2009
Toluene	0.0561	0.00100	"	1	"	"	05/29/2009
Ethylbenzene	0.633	0.100	"	100	"	"	05/28/2009
o-Xylene	0.156	0.00100	"	1	"	"	05/29/2009
m,p-Xylene	0.871	0.200	"	100	"	"	05/28/2009

Surrogate: 1,2-Dichloroethane-d4	111 %	70.3–128	"	"	"
Surrogate: Toluene-d8	83.2 %	78.8–125	"	"	"
Surrogate: 4-Bromofluorobenzene	109 %	75.5–131	"	"	"

Origins Laboratory, Inc.

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Brian Dodek  
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Project: Noble – Frick 18–2&8

**MW02**

**X905110–02 (Water)**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Notes
		Limit							

**Origins Laboratory, Inc.**

**BTEX by EPA 8260B**

Benzene	0.0652	0.00100	mg/L	1	9E28004	05/28/2009	05/28/2009
Toluene	ND	0.00100	"	"	"	"	05/29/2009
Ethylbenzene	0.171	0.00100	"	"	"	"	05/28/2009
o-Xylene	0.0167	0.00100	"	"	"	"	"
m,p-Xylene	1.72	0.100	"	50	"	"	05/29/2009

Surrogate: 1,2-Dichloroethane-d4	94.4 %	85.7–134	"	"	"
Surrogate: Toluene-d8	96.6 %	81.4–121	"	"	"
Surrogate: 4-Bromofluorobenzene	92.5 %	74.7–127	"	"	"

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Project: Noble – Frick 18–2&8

**SB02R**

**X905110–03 (Water)**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Notes
		Limit							

**Origins Laboratory, Inc.**

**BTEX by EPA 8260B**

Benzene	0.0321	0.00100	mg/L	1	9E28004	05/28/2009	05/29/2009
Toluene	ND	0.00100	"	"	"	"	"
Ethylbenzene	0.00669	0.00100	"	"	"	"	"
o-Xylene	ND	0.00100	"	"	"	"	"
m,p-Xylene	0.0485	0.00200	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	96.2 %	85.7–134	"	"	"
Surrogate: Toluene-d8	111 %	81.4–121	"	"	"
Surrogate: 4-Bromofluorobenzene	68.7 %	74.7–127	"	"	" S-GC

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Project: Noble – Frick 18–2&8

**SB03**

**X905110–04 (Water)**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Notes
		Limit							

**Origins Laboratory, Inc.**

**BTEX by EPA 8260B**

Benzene	ND	0.00100	mg/L	1	9E28004	05/28/2009	05/29/2009
Toluene	ND	0.00100	"	"	"	"	"
Ethylbenzene	<b>0.0169</b>	0.00100	"	"	"	"	"
o-Xylene	ND	0.00100	"	"	"	"	"
m,p-Xylene	<b>0.0864</b>	0.00200	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	95.6 %	85.7–134	"	"	"
Surrogate: Toluene-d8	108 %	81.4–121	"	"	"
Surrogate: 4-Bromofluorobenzene	67.0 %	74.7–127	"	"	" S-GC

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**SB07**

**X905110-05 (Water)**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Notes
		Limit							

**Origins Laboratory, Inc.**

**BTEX by EPA 8260B**

Benzene	ND	0.00100	mg/L	1	9E28004	05/28/2009	05/29/2009
Toluene	ND	0.00100	"	"	"	"	"
Ethylbenzene	ND	0.00100	"	"	"	"	"
o-Xylene	ND	0.00100	"	"	"	"	"
m,p-Xylene	0.00512	0.00200	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	105 %	85.7-134	"	"	"
Surrogate: Toluene-d8	109 %	81.4-121	"	"	"
Surrogate: 4-Bromofluorobenzene	58.6 %	74.7-127	"	"	" S-GC

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Project: Noble – Frick 18–2&8

SB15

X905110–06 (Water)

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Notes
		Limit							

Origins Laboratory, Inc.

BTEX by EPA 8260B

Benzene	ND	0.00100	mg/L	1	9E28004	05/28/2009	05/29/2009
Toluene	ND	0.00100	"	"	"	"	"
Ethylbenzene	ND	0.00100	"	"	"	"	"
o-Xylene	ND	0.00100	"	"	"	"	"
m,p-Xylene	ND	0.00200	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	112 %	85.7–134	"	"	"
Surrogate: Toluene-d8	95.0 %	81.4–121	"	"	"
Surrogate: 4-Bromofluorobenzene	99.7 %	74.7–127	"	"	"

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Project: Noble – Frick 18–2&8

**SB20**

**X905110–07 (Water)**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Notes
		Limit							

**Origins Laboratory, Inc.**

**BTEX by EPA 8260B**

Benzene	ND	0.00100	mg/L	1	9E28004	05/28/2009	05/29/2009
Toluene	ND	0.00100	"	"	"	"	"
Ethylbenzene	ND	0.00100	"	"	"	"	"
o-Xylene	ND	0.00100	"	"	"	"	"
m,p-Xylene	ND	0.00200	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	119 %	85.7–134	"	"	"
Surrogate: Toluene-d8	87.7 %	81.4–121	"	"	"
Surrogate: 4-Bromofluorobenzene	98.4 %	74.7–127	"	"	"

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Brian Dodek  
Project Number: NEP0505.01  
Project: Noble – Frick 18–2&8

**SB27**

**X905110–08 (Water)**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Notes
		Limit							

**Origins Laboratory, Inc.**

**BTEX by EPA 8260B**

Benzene	0.0111	0.00100	mg/L	1	9E28004	05/28/2009	05/29/2009
Toluene	0.188	0.00100	"	"	"	"	"
Ethylbenzene	ND	0.00100	"	"	"	"	"
o-Xylene	0.0669	0.00100	"	"	"	"	"
m,p-Xylene	0.355	0.00200	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	94.8 %	85.7–134	"	"	"
Surrogate: Toluene-d8	105 %	81.4–121	"	"	"
Surrogate: 4-Bromofluorobenzene	98.9 %	74.7–127	"	"	"

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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 9E28004 – EPA 5030B**

**Blank (9E28004–BLK1)**

Prepared: 05/28/2009 Analyzed: 05/28/2009

Benzene	ND	0.001	mg/L							
Toluene	ND	0.001	"							
Ethylbenzene	ND	0.001	"							
o-Xylene	ND	0.001	"							
m,p-Xylene	ND	0.002	"							
Surrogate: 1,2-Dichloroethane-d4	70.6		ug/L	62.5		113	70.3–128			
Surrogate: Toluene-d8	49.0		"	62.5		78.3	78.8–125			S–GC
Surrogate: 4-Bromofluorobenzene	70.4		"	62.5		113	75.5–131			

**Blank (9E28004–BLK2)**

Prepared: 05/28/2009 Analyzed: 05/28/2009

Benzene	ND	0.001	mg/L							
Toluene	ND	0.001	"							
Ethylbenzene	ND	0.001	"							
o-Xylene	ND	0.001	"							
m,p-Xylene	ND	0.002	"							
Surrogate: 1,2-Dichloroethane-d4	69.0		ug/L	62.5		110	70.3–128			
Surrogate: Toluene-d8	49.3		"	62.5		78.9	78.8–125			
Surrogate: 4-Bromofluorobenzene	68.4		"	62.5		109	75.5–131			

**LCS (9E28004–BS1)**

Prepared: 05/28/2009 Analyzed: 05/28/2009

Benzene	0.05	0.001	mg/L	0.0500		106	74.9–126			
Toluene	0.04	0.001	"	0.0500		73.7	73.3–128			
Surrogate: 1,2-Dichloroethane-d4	68.5		ug/L	62.5		110	70.3–128			
Surrogate: Toluene-d8	47.3		"	62.5		75.7	78.8–125			S–GC
Surrogate: 4-Bromofluorobenzene	69.5		"	62.5		111	75.5–131			

**LCS (9E28004–BS2)**

Prepared: 05/28/2009 Analyzed: 05/28/2009

Benzene	0.06	0.001	mg/L	0.0500		114	74.9–126			
Toluene	0.04	0.001	"	0.0500		85.0	73.3–128			

Origins Laboratory, Inc.

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Brian Dodek  
 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 9E28004 – EPA 5030B</b>										
<b>LCS (9E28004-BS2)</b>					Prepared: 05/28/2009 Analyzed: 05/28/2009					
Surrogate: 1,2-Dichloroethane-d4	67.0		ug/L	62.5		107	70.3-128			
Surrogate: Toluene-d8	47.6		"	62.5		76.1	78.8-125			S-GC
Surrogate: 4-Bromofluorobenzene	67.9		"	62.5		109	75.5-131			
<b>Matrix Spike (9E28004-MS1)</b>					Source: X905098-10 Prepared: 05/28/2009 Analyzed: 05/28/2009					
Benzene	0.06	0.001	mg/L	0.0500	ND	113	78.1-132			
Toluene	0.04	0.001	"	0.0500	ND	82.4	71.7-124			
Surrogate: 1,2-Dichloroethane-d4	67.9		ug/L	62.5		109	70.3-128			
Surrogate: Toluene-d8	48.6		"	62.5		77.7	78.8-125			S-GC
Surrogate: 4-Bromofluorobenzene	68.6		"	62.5		110	75.5-131			
<b>Matrix Spike (9E28004-MS2)</b>					Source: X905098-12 Prepared: 05/28/2009 Analyzed: 05/28/2009					
Benzene	0.05	0.001	mg/L	0.0500	ND	108	78.1-132			
Toluene	0.04	0.001	"	0.0500	ND	76.2	71.7-124			
Surrogate: 1,2-Dichloroethane-d4	64.8		ug/L	62.5		104	70.3-128			
Surrogate: Toluene-d8	48.3		"	62.5		77.3	78.8-125			S-GC
Surrogate: 4-Bromofluorobenzene	68.0		"	62.5		109	75.5-131			
<b>Matrix Spike Dup (9E28004-MSD1)</b>					Source: X905098-10 Prepared: 05/28/2009 Analyzed: 05/28/2009					
Benzene	0.06	0.001	mg/L	0.0500	ND	111	78.1-132	1.69	24.8	
Toluene	0.04	0.001	"	0.0500	ND	77.9	71.7-124	5.59	25	
Surrogate: 1,2-Dichloroethane-d4	67.1		ug/L	62.5		107	70.3-128			
Surrogate: Toluene-d8	46.9		"	62.5		75.1	78.8-125			S-GC
Surrogate: 4-Bromofluorobenzene	67.5		"	62.5		108	75.5-131			
<b>Matrix Spike Dup (9E28004-MSD2)</b>					Source: X905098-12 Prepared: 05/28/2009 Analyzed: 05/28/2009					
Benzene	0.05	0.001	mg/L	0.0500	ND	108	78.1-132	0.482	24.8	
Toluene	0.04	0.001	"	0.0500	ND	74.6	71.7-124	2.15	25	
Surrogate: 1,2-Dichloroethane-d4	66.5		ug/L	62.5		106	70.3-128			

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

Brian Dodek  
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 9E28004 – EPA 5030B**

**Matrix Spike Dup (9E28004–MSD2)**

**Source: X905098–12**

Prepared: 05/28/2009 Analyzed: 05/28/2009

Surrogate: Toluene-d8	48.4		ug/L	62.5		77.5	78.8–125			S–GC
Surrogate: 4–Bromofluorobenzene	68.7		"	62.5		110	75.5–131			

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Brian Dodek  
Project Number: NEP0505.01  
Project: Noble – Frick 18–2&8

### Notes and Definitions

S–GC	Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the remaining surrogate.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference

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June 01, 2009

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Arvada CO 80003

Brian Dodek  
Project Number: NEP0505.01  
Project: Noble – Frick 18-2&8

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Attached are the analytical results for Noble – Frick 18-2&8 received by Origins Laboratory, Inc. 5/28/2009 4:38:00PM. Please let us know if you have any questions, or if we can help with anything at all.

Noelle E Doyle  
Laboratory Manager

The analytical results in the following report were analyzed under the guidelines of EPA Methods specified in SW-846. The analytical results apply specifically to the samples and analyses specified per the attached Chain of Custody. This laboratory report is intended solely for the above addressee and it is only to be used and or reproduced in its entirety.

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Brian Dodek  
Project Number: NEP0505.01  
Project: Noble – Frick 18–2&8

#### CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Sampled	Date Received
SB09	X905121-01	Water	5/28/2009 1:00:00PM	05/28/2009 16:38
SB10R	X905121-02	Water	5/28/2009 1:15:00PM	05/28/2009 16:38
SB18R	X905121-03	Water	5/28/2009 1:30:00PM	05/28/2009 16:38

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Arvada CO 80003

Brian Dodek  
Project Number: NEP0505.01  
Project: Noble - Frick 18-2&8

X905121  
page 1 of 1



originslaboratory.com

Client: LT Environmental  
Address: 4600 W 60th Ave  
Arvada CO 80003  
Telephone Number: 303-433-9788  
E-Mail Address: rebel@ltenv.com

Project Manager: Rob Rebel  
Project Name: Frick 18-2  
Project Number: NEP0505  
Samples Collected by: Lindsay Voss

Sample ID - Description	Date Sampled	Time Sampled	Number of Containers	Preservative				Matrix			Analysis	Sample Instructions
				Unpreserved	HCl	HNO <sub>3</sub>	Other -	Groundwater	Soil	Air - Summa Canister #		
5B09	5-28-09	1300	3		3			X				1
5B10R	5-28-09	1315	3		3			X				2
5B18R	5-28-09	1330	3		3			X				3
												4
												5
												6
												7
												8
												9
												10

Relinquished by: Lindsay Voss Date: 5/28/09 Time: 16:38  
Received by: Brian Dodek Date: 5/28/09 Time: 16:38

Relinquished by: Lindsay Voss Date: 5/28/09 Time: 16:38  
Received by: Brian Dodek Date: 5/28/09 Time: 16:38

Turn Around Time: 24-hr 48-hr 72-hr Standard

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Arvada CO 80003

Brian Dodek  
Project Number: NEP0505.01  
Project: Noble – Frick 18–2&8

**SB09**

**X905121–01 (Water)**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Notes
		Limit							

**Origins Laboratory, Inc.**

**BTEX by EPA 8260B**

Benzene	ND	0.00100	mg/L	1	9E29003	05/29/2009	05/31/2009
Toluene	ND	0.00100	"	"	"	"	"
Ethylbenzene	ND	0.00100	"	"	"	"	"
o-Xylene	ND	0.00100	"	"	"	"	"
m,p-Xylene	ND	0.00200	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	102 %	85.7–134	"	"	"
Surrogate: Toluene-d8	99.1 %	81.4–121	"	"	"
Surrogate: 4-Bromofluorobenzene	107 %	74.7–127	"	"	"

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Project: Noble – Frick 18–2&8

**SB10R**

**X905121–02 (Water)**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Notes
		Limit							

**Origins Laboratory, Inc.**

**BTEX by EPA 8260B**

Benzene	0.0476	0.00100	mg/L	1	9E29003	05/29/2009	05/31/2009
Toluene	ND	0.00100	"	"	"	"	"
Ethylbenzene	0.0230	0.00100	"	"	"	"	"
o-Xylene	ND	0.00100	"	"	"	"	"
m,p-Xylene	0.102	0.00200	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	100 %	85.7–134	"	"	"
Surrogate: Toluene-d8	99.6 %	81.4–121	"	"	"
Surrogate: 4-Bromofluorobenzene	99.7 %	74.7–127	"	"	"

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Project: Noble – Frick 18–2&8

**SB18R**

**X905121–03 (Water)**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Notes
		Limit							

**Origins Laboratory, Inc.**

**BTEX by EPA 8260B**

Benzene	ND	0.00100	mg/L	1	9E29003	05/29/2009	05/31/2009
Toluene	ND	0.00100	"	"	"	"	"
Ethylbenzene	<b>0.00816</b>	0.00100	"	"	"	"	"
o-Xylene	ND	0.00100	"	"	"	"	"
m,p-Xylene	<b>0.0276</b>	0.00200	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	99.1 %	85.7–134	"	"	"
Surrogate: Toluene-d8	101 %	81.4–121	"	"	"
Surrogate: 4-Bromofluorobenzene	102 %	74.7–127	"	"	"

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Brian Dodek  
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 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 9E29003 – EPA 5030B**

**Blank (9E29003–BLK1)**

Prepared: 05/29/2009 Analyzed: 05/30/2009

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

Surrogate: 1,2-Dichloroethane-d4	60.7	ug/L	62.5	97.1	85.7–134
Surrogate: Toluene-d8	63.2	"	62.5	101	81.4–121
Surrogate: 4-Bromofluorobenzene	65.8	"	62.5	105	74.7–127

**Blank (9E29003–BLK2)**

Prepared: 05/29/2009 Analyzed: 05/30/2009

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

Surrogate: 1,2-Dichloroethane-d4	61.4	ug/L	62.5	98.3	85.7–134
Surrogate: Toluene-d8	63.2	"	62.5	101	81.4–121
Surrogate: 4-Bromofluorobenzene	64.6	"	62.5	103	74.7–127

**LCS (9E29003–BS1)**

Prepared: 05/29/2009 Analyzed: 05/30/2009

Benzene	0.04	0.001	mg/L	0.0500	78.4	74.9–126
Toluene	0.04	0.001	"	0.0500	86.6	73.3–128
Surrogate: 1,2-Dichloroethane-d4	60.6		ug/L	62.5	96.9	85.7–134
Surrogate: Toluene-d8	62.8		"	62.5	100	81.4–121
Surrogate: 4-Bromofluorobenzene	65.3		"	62.5	105	74.7–127

**LCS (9E29003–BS2)**

Prepared: 05/29/2009 Analyzed: 05/30/2009

Benzene	0.04	0.001	mg/L	0.0500	78.3	74.9–126
Toluene	0.04	0.001	"	0.0500	84.5	73.3–128

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 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 9E29003 – EPA 5030B**

**LCS (9E29003–BS2)**

Prepared: 05/29/2009 Analyzed: 05/30/2009

Surrogate: 1,2-Dichloroethane-d4	61.2		ug/L	62.5		98.0	85.7–134			
Surrogate: Toluene-d8	62.6		"	62.5		100	81.4–121			
Surrogate: 4-Bromofluorobenzene	64.5		"	62.5		103	74.7–127			

**Matrix Spike (9E29003–MS1)**

Source: X905114–01

Prepared: 05/29/2009 Analyzed: 05/30/2009

Benzene	0.04	0.001	mg/L	0.0500	0.0008	79.9	78.1–132			
Toluene	0.05	0.001	"	0.0500	ND	91.3	71.7–124			
Surrogate: 1,2-Dichloroethane-d4	61.2		ug/L	62.5		97.8	85.7–134			
Surrogate: Toluene-d8	63.2		"	62.5		101	81.4–121			
Surrogate: 4-Bromofluorobenzene	64.8		"	62.5		104	74.7–127			

**Matrix Spike (9E29003–MS2)**

Source: X905114–02

Prepared: 05/29/2009 Analyzed: 05/30/2009

Benzene	0.04	0.001	mg/L	0.0500	0.002	78.0	78.1–132			QM-07
Toluene	0.04	0.001	"	0.0500	ND	82.5	71.7–124			
Surrogate: 1,2-Dichloroethane-d4	61.4		ug/L	62.5		98.2	85.7–134			
Surrogate: Toluene-d8	63.1		"	62.5		101	81.4–121			
Surrogate: 4-Bromofluorobenzene	64.6		"	62.5		103	74.7–127			

**Matrix Spike Dup (9E29003–MSD1)**

Source: X905114–01

Prepared: 05/29/2009 Analyzed: 05/30/2009

Benzene	0.04	0.001	mg/L	0.0500	0.0008	80.5	78.1–132	0.685	24.8	
Toluene	0.04	0.001	"	0.0500	ND	87.6	71.7–124	4.09	25	
Surrogate: 1,2-Dichloroethane-d4	60.9		ug/L	62.5		97.4	85.7–134			
Surrogate: Toluene-d8	62.9		"	62.5		101	81.4–121			
Surrogate: 4-Bromofluorobenzene	64.6		"	62.5		103	74.7–127			

**Matrix Spike Dup (9E29003–MSD2)**

Source: X905114–02

Prepared: 05/29/2009 Analyzed: 05/30/2009

Benzene	0.04	0.001	mg/L	0.0500	0.002	83.6	78.1–132	6.63	24.8	
Toluene	0.04	0.001	"	0.0500	ND	86.0	71.7–124	4.13	25	
Surrogate: 1,2-Dichloroethane-d4	63.7		ug/L	62.5		102	85.7–134			

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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 9E29003 – EPA 5030B**

**Matrix Spike Dup (9E29003–MSD2)**

**Source: X905114–02**

Prepared: 05/29/2009 Analyzed: 05/30/2009

Surrogate: Toluene-d8	62.9	ug/L	62.5	101	81.4–121
Surrogate: 4–Bromofluorobenzene	65.4	"	62.5	105	74.7–127

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Project: Noble – Frick 18–2&8

### Notes and Definitions

QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

Origins Laboratory, Inc.

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