



April 3, 2009

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

RE: First Quarter 2009 Remediation, Monitoring, Air Sparging Well Installation, and Monitoring Well Installation
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 migrating groundwater impact. This correspondence is provided as the first quarter 2009 remediation and monitoring report, and summarizes activities conducted at the Site from January 1, 2009 through March 31, 2009. Activities conducted during the reporting period included operations and maintenance of the remediation system, a groundwater monitoring event, installation of additional air sparging wells, installation of replacement/new groundwater monitoring wells, and upgrades related to the remediation system infrastructure.

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 systems. The remediation system installation is 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.



Air Sparging Well Installation

Drilling activities for installation of the two new AS wells (AS25 and AS26) were conducted on February 20, 2009. The new AS wells were installed to remediate impacted soils located north of the tank battery. Drilling was conducted by High Plains Drilling with oversight by LTE. The AS wells were drilled to total depths of 14 feet below ground surface (bgs). The wells were piped into the existing system by LTE on February 26, 2009. Well completion information for the AS wells is included as Attachment 1. 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 and piping of two additional AS wells (AS25 and AS26);
- Installation of flow control valves on all 26 AS wells;
- Installation of vent covers on the remediation trailer to reduce system generated noise;
- Generator maintenance, which included changing the oil and oil filters; and
- System transport from another Noble facility (Becky 2-6 wellhead and tank battery) on February 25, 2009.

The remediation program for this Site includes continued intermittent operation of the AS/SVE system. The system runs intermittently because it is cycled between two sites. Operation of the remediation system will be conducted continuously for an approximate three month period, followed by a three month static evaluation, with the remediation system in active operation occurring. 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.

Monitoring Well Installation and Replacement

Due to the destruction of monitoring wells in the central plume area during the system installation, LTE replaced three monitoring wells (SB02R, SB10R, and SB18R) on January 29, 2009 and installed a new monitoring well (SB27). The new monitoring well was installed north of the tank battery to allow future evaluation of the performance of the newly installed as wells. Drilling was conducted by High Plains Drilling with oversight by LTE. The four monitoring wells were drilled to a total depth of 15 feet bgs. Well completion information for the new/replacement monitoring wells is included as Attachment 2.



Groundwater Sampling Procedures

On February 24, 2009, 12 groundwater monitoring wells were sampled to determine the current plume extent following three months of static site evaluation. 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 Method 8260B.

Hydrogeology

During the February 24, 2009 sampling event, the depth to static groundwater ranged from 1.76 feet below top of casing (btoc) in SB10R to 6.26 feet btoc in SB20 (Table 1). The groundwater flow direction was to the east with an average hydraulic gradient of approximately 0.015 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 3.

Twelve groundwater samples were collected and submitted to Origins Laboratory for BTEX analysis during the February 24, 2009 sampling event (MW01, MW02, SB02R, SB03, SB07, SB09, SB10R, SB15, SB16, 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, SB09, SB10R, SB16, and SB27 at concentrations ranging from 24.7 ug/L at SB27 to 6,130 ug/L at MW01. Total xylenes concentrations were detected above the Regulation 41 standard in monitoring well SB16 at a concentration of 5,093 ug/L. BTEX compounds were not detected above the Regulation 41 standards in the remaining samples. Groundwater analytical results for the February 2009 sampling event are summarized in Table 2 and illustrated on Figure 4.

Summary and Conclusions

Current data suggest the remediation system has successfully decreased benzene concentrations in monitoring well SB07 and SB20 into compliance with the Regulation 41 standard. BTEX



concentrations are exhibiting a stable and decreasing trend site wide. Flow controls installed in March 2009 will allow for a more focused and efficient remedial effort onsite. In order to achieve cleanup goals, continued remediation system operation is recommended with concentrated efforts in areas of the Site in which high concentrations of benzene are still present (Table 2).

The next groundwater sampling event will be conducted in May 2009. The remediation system will be mobilized to another Noble site and a static evaluation will be reinitiated at the Site from May to July 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 – February 24, 2009

Table 1: Groundwater Elevation Summary

Table 2: Groundwater Analytical Results – Volatile Organic Compounds

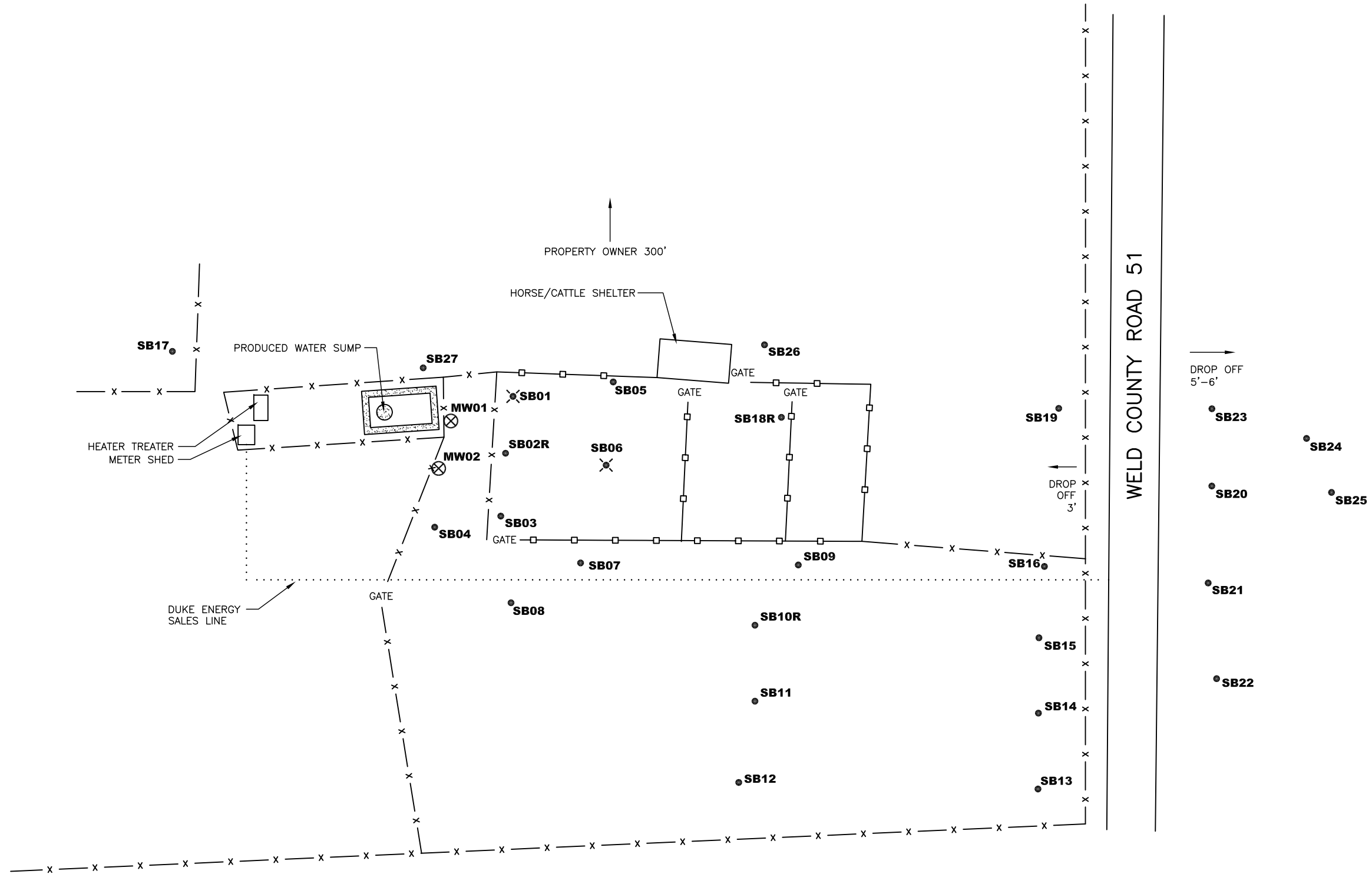
Attachment 1: Air Sparging Well Completion Diagrams

Attachment 2: Monitoring Well Completion Diagrams







Attachment 3: 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

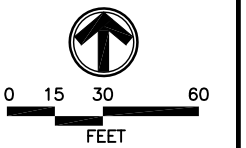
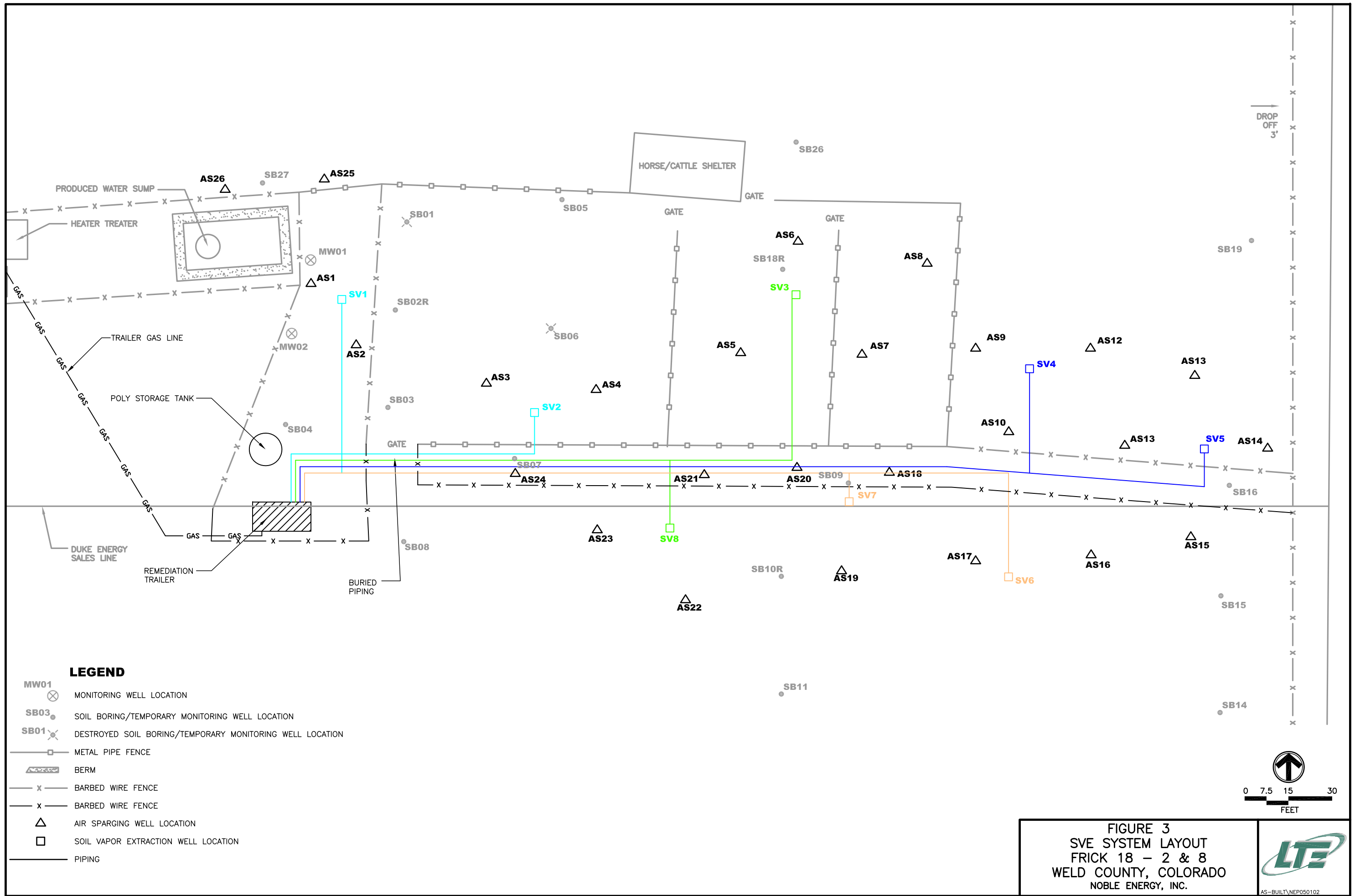
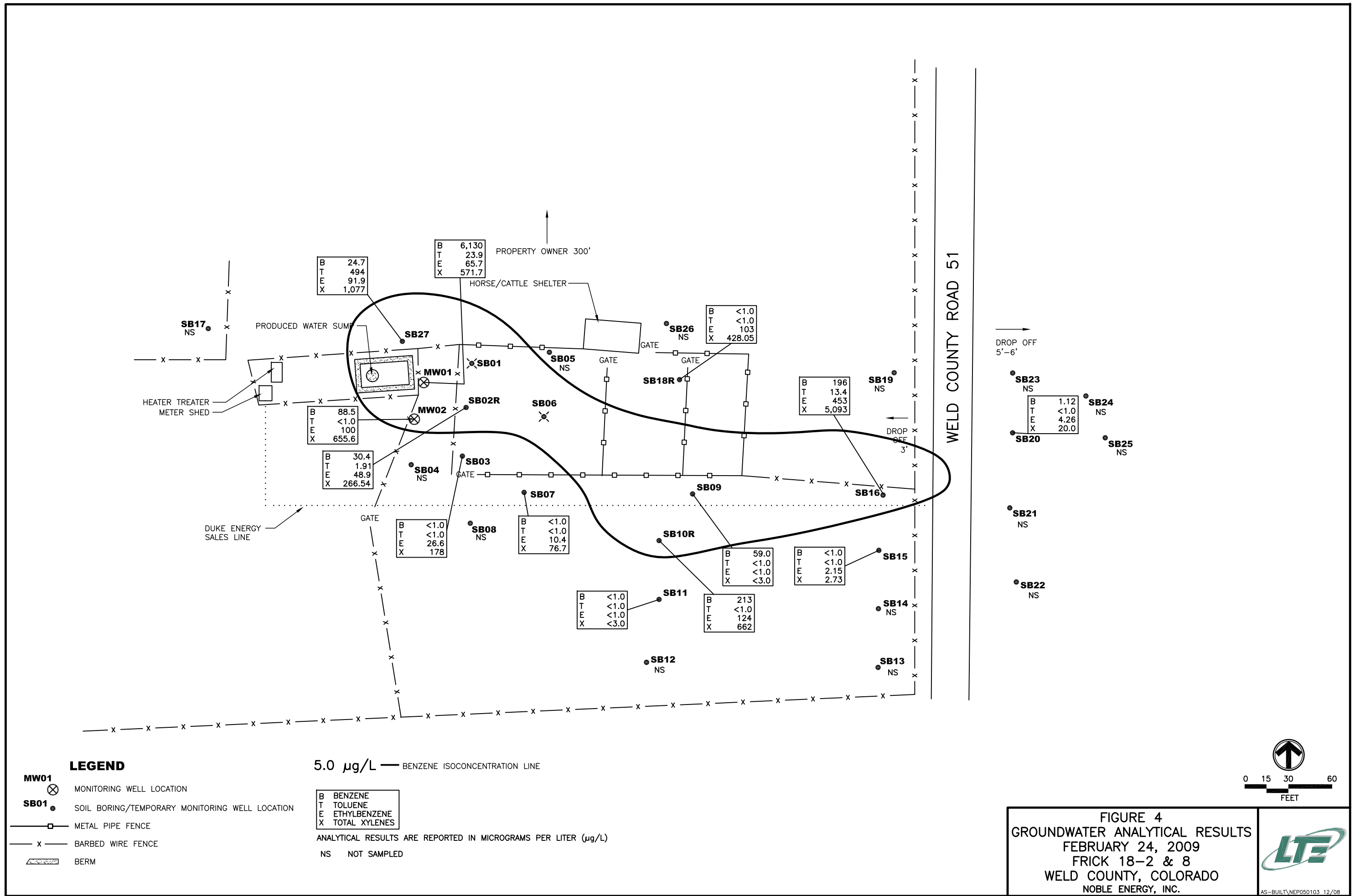


FIGURE 1
SITE MAP
FRICK 18-2 & 8
WELD COUNTY, COLORADO
NOBLE ENERGY, INC.







TABLES

TABLE 1
GROUNDWATER ELEVATION SUMMARY

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

Well ID	Date	Total Depth (ft)	Depth to Water (ft)	TOC Elevation (ft)	Groundwater Elevation (relative ft)
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
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
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
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
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
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.

Well ID	Date	Total Depth (ft)	Depth to Water (ft)	TOC Elevation (ft)	Groundwater Elevation (relative ft)
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
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	93.21	89.29
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
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.

Well ID	Date	Total Depth (ft)	Depth to Water (ft)	TOC Elevation (ft)	Groundwater Elevation (relative ft)
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
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

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
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
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
SB02R	2/24/2009	30.4	1.91	48.9	266.54
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
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
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



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	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
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
	2/24/2009	213	<1.0	124	662
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
	2/24/2009	213	<1.0	124	662
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
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



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	1,060	190	6.2	870
	10/11/2005	1,000	18	290	2,778
	1/20/2006	41	50	35	700
SB18R	2/24/2009	<1.0	<1.0	103	428.05
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
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
SB27	2/24/2009	24.7	494	91.9	1,077
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
CDPHE-WQCC Regulation 41 Groundwater Standards		5.0	560	700	1,400

Notes:

ug/L - micrograms per liter

CDPHE-WQCC - Colorado Department of Public Health and Environmental 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

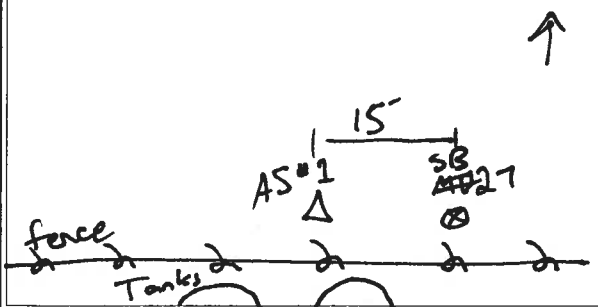


ATTACHMENT 1

AIR SPARGING WELL COMPLETION DIAGRAMS



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:

Air sparge #1 (AS26)

Project:

Frick Noble Mudfarm 18-268

Date:

2/20/09

Project Number:

NEP 0901 0505

Logged By:

TED

Drilled By:

High Plains

Elevation:

Detector:

MiniRAE 2000

Drilling Method:

Auger

Sampling Method:

Continuous

Gravel Pack:

CSSI 10x20

Seal:

Bentonite Chips

Grout:

Bentonite

Casing Type:

Sch 40 PVC

Diameter:

1"

Length:

Hole Diameter:

2"

Depth to Liquid:

Screen Type:

Sch 40 PVC

Slot:

0.01

Diameter:

1"

Length:

Total Depth:

14'

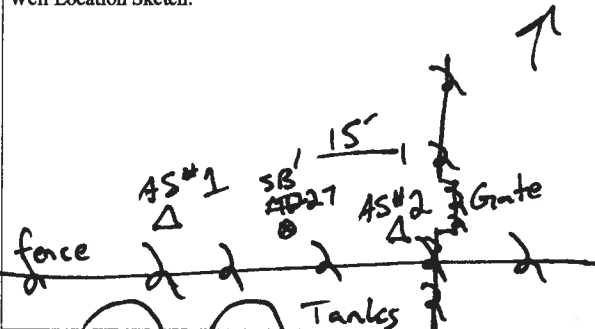
Depth to Water:

~4'

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion Diagram
					0					
	Moist		No		2				SC sand, clayey v.fine - v. coarse clay and fines increase w/ depth staining and odor 12' - 14'	
					4					
	Wet				6					
					8					
					10					
			No	5.8	9.30					
					12					
	Wet		Yes	499	9.35					
					14					
					16					
					18					
					20					
					22					
					24					
					26					
					28					
					30					
					32					
					34					
					36					
					38					
					40					

cut
off
2"
bgs

Well Location Sketch:



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BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number:

Air sparge well #2

Project:

Frick 18-2+8

Date:

2/20/09 AS2S

Project Number:

NEP-0901-0505

Logged By:

TED

Drilled By:

High Plains

Elevation:

Detector:

MiniRAE 2000

Drilling Method:

Auger

Sampling Method:

Continuous

Gravel Pack:

CSSI 10x20

Seal:

Bentonite Chips

Grout:

Bentonite

Casing Type:

Sch 40 PVC

Diameter:

1"

Length:

Hole Diameter:

2"

Depth to Liquid:

Screen Type:

Sch 40 PVC

Slot:

0.01

Diameter:

1"

Length:

Total Depth:

14'

Depth to Water:

~4'

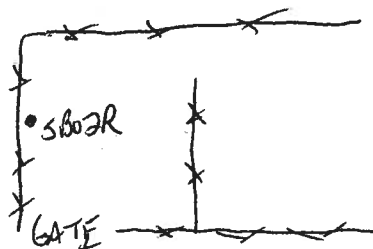
Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion Diagram
					0					
	Moist		No		2			SC	Sand, clayey, f-v. coarse	
					4				lt. brown, no odor	
	Wet				6			CL	clay, v. sandy	
					8	1110			v. fine - med, lt. brown	
			No	10.3	1115			SC	Sand, clayey	
			Yes	191	1115				v. - v. coarse	
					12				lt. brown	
	W		Y		14				staining + odor	
			No		16				9'-13 1/2'	
					18				clean bottom	
					20					
					22					
					24					
					26					
					28					
					30					
					32					
					34					
					36					
					38					
					40					

 cut
 2'-
 bgs

ATTACHMENT 2
MONITORING WELL COMPLETION DIAGRAMS



Well Location Sketch:



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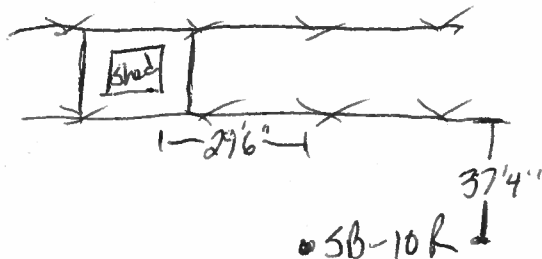
Arvada, Colorado 80003

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: 51302R	Project: Frick 18-2 & 8
Date: 1/29/2009	Project Number: NEP0505.03
Logged By: BDD	Drilled By: Alpine Field Services
Drilling Method: Direct Push	Sampling Method: Continuous
Gravel Pack: CSSI 10x20 (15'-3')	Seal: Bentonite Chips (3'-1')
Casing Type: Sch 40 PVC	Grout: NA
Screen Type: Sch 40 PVC	Hole Diameter: 2"
Slot: 0.01	Depth to Liquid: 15'
Diameter: 1"	Depth to Water: ~4
Length: 3'	
Length: 10'	
Total Depth: 15'	

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion Diagram
					0					
	Dry	0.3	N		2			SM	Sand, silty, fine grained, brown, no odor	
	Moist	0.3	N		4			SM		
	Wet	0.5	N		6			SM	Sand, silty, fine to medium grained, lt brown, no odor	
		0.5	N		8			SM		
		486	Y		10			SW	Sand, fine grained, gray, slight odor	
		257	Y		12			SW		
		5.5	N		14			SW	Sand, fine grained, lt brown, no odor	
					16				TD-15'	
					18					
					20					
					22					
					24					
					26					
					28					
					30					
					32					
					34					
					36					
					38					
					40					

Well Location Sketch:



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BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: SB-10R	Project: Frick 18-2 & 8
Date: 1/29/2009	Project Number: NEP0505.03
Logged By: BDD	Drilled By: Alpine Field Services
Drilling Method: Direct Push	Sampling Method: Continuous

Elevation:	Detector: MiniRAE 2000	Drilling Method: Direct Push	Sampling Method: Continuous
------------	----------------------------------	--	---------------------------------------

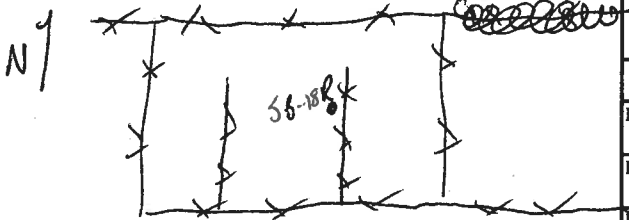
Gravel Pack: CSSI 10x20	Seal: Bentonite Chips	Grout: NA
-----------------------------------	---------------------------------	---------------------

Casing Type: Sch 40 PVC	Diameter: 1"	Length: 3'	Hole Diameter: 2"	Depth to Liquid:
-----------------------------------	------------------------	----------------------	-----------------------------	------------------

Screen Type: Sch 40 PVC	Slot: 0.01	Diameter: 1"	Length: 10'	Total Depth: 15'	Depth to Water: ~4'
-----------------------------------	----------------------	------------------------	-----------------------	----------------------------	-------------------------------

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion Diagram
					0					
	Dry	0.9	N		2			SM	Sand, silty, fine to medium grained, brown, no odor	
	Moist	10	N		4					
	Wet	1707	N		6			SM	Sand, silty, fine to medium grained, gray to black, slight odor	
		1307	N		8			SC	Sand, clayey, fine grained, gray, slight odor	
		134	N		10					
		3.8	N		12					
					14			SC	Sand, clayey, fine grained, brown, no odor	
					16					
					18					
					20					
					22					
					24					
					26					
					28					
					30					
					32					
					34					
					36					
					38					
					40					

Well Location Sketch:



Compliance - Engineering - Remediation

LT Environmental, Inc.

4600 W. 60th Avenue

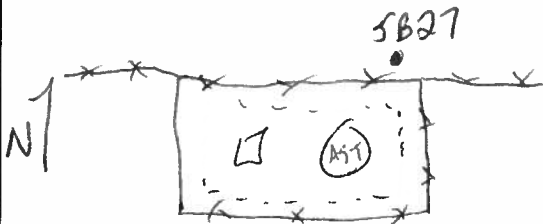
Arvada, Colorado 80003

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: SB-18R	Project: Frick 18-2 & 8
Date: 1/29/2009	Project Number: NEP0505.03
Logged By: BDD	Drilled By: Alpine Field Services
Drilling Method: Direct Push	Sampling Method: Continuous
Gravel Pack: CSSI 10x20 (15-2.5')	Seal: Bentonite Chips (2.5'-1')
Casing Type: Sch 40 PVC	Hole Diameter: 2"
Screen Type: Sch 40 PVC	Depth to Liquid: 24'
Slot: 0.01	Total Depth: 15'
Diameter: 1"	Depth to Water: 24'
Length: 3'	
Length: 10'	

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion Diagram
					0					
	Dry	0.7	N		2			SW	Sand, fine to medium grained, brown, no odor	
	Moist	6.7	N		4					
	Wet	1.2	N		6					
		295	N		8					
		1760	N		10			SW	Sand, fine to medium grained, black, slight odor	
		13.4	N		12			SW	Sand, fine to coarse grained, lt brown, no odor	
					14					
					16					
					18					
					20					
					22					
					24					
					26					
					28					
					30					
					32					
					34					
					36					
					38					
					40					

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:

SB-27

Project:

Frick 18-2 & 8

Date:

1/29/2009

Project Number:

NEP0505.03

Logged By:

BDD

Drilled By:

Alpine Field Services

Drilling Method:

Direct Push

Sampling Method:

Continuous

Elevation:

Detector:

MiniRAE 2000

Gravel Pack:

CSSI 10x20

(15'-3')

Seal:

Bentonite Chips

(3'-1')

Grout:

N/A

Casing Type:

Sch 40 PVC

Diameter:

1"

Length:

4'

Hole Diameter:

2"

Depth to Liquid:

Screen Type:

Sch 40 PVC

Slot:

0.01

Diameter:

1"

Length:

10'

Total Depth:

15'

Depth to Water:

~4'

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion Diagram
					0					
	Dry	N	0.0		2			SM	Sand, silty, fine to medium grained, trace gravel, no odor	
	Moist	N	1.2		4					
	Wet	N	0.7		6					
		N	1.402		8					
		N	2.805		10			SW	Sand, fine to medium grained, black, strong odor, sheen	
		N	5.3		12					
		N			14			SW	Sand, fine to medium grained, tan, no odor	
					16				TD-15'	
					18					
					20					
					22					
					24					
					26					
					28					
					30					
					32					
					34					
					36					
					38					
					40					

ATTACHMENT 3
LABORATORY ANALYTICAL REPORT





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

February 27, 2009

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

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

Attached are the analytical results for Noble – Frick 18-2&8 received by Origins Laboratory, Inc. 2/24/2009 4:00:00PM. Please let us know if you have any questions, or if we can help with anything at all.

Laboratory Manager
Noelle E Doyle

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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Denver, Colorado 80211
303.433.1322 | Laboratory
303.265.9645 | Fax



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

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

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Sampled	Date Received
MW01	X902083–01	Water	2/24/2009 12:00:00PM	02/24/2009 16:00
MW02	X902083–02	Water	2/24/2009 12:05:00PM	02/24/2009 16:00
SB02R	X902083–03	Water	2/24/2009 12:10:00PM	02/24/2009 16:00
SB03	X902083–04	Water	2/24/2009 12:15:00PM	02/24/2009 16:00
SB07	X902083–05	Water	2/24/2009 12:25:00PM	02/24/2009 16:00
SB09	X902083–06	Water	2/24/2009 12:20:00PM	02/24/2009 16:00
SB10R	X902083–07	Water	2/24/2009 12:30:00PM	02/24/2009 16:00
SB15	X902083–08	Water	2/24/2009 12:35:00PM	02/24/2009 16:00
SB16	X902083–09	Water	2/24/2009 12:40:00PM	02/24/2009 16:00
SB18R	X902083–10	Water	2/24/2009 12:45:00PM	02/24/2009 16:00
SB20	X902083–11	Water	2/24/2009 12:50:00PM	02/24/2009 16:00
SB27	X902083–12	Water	2/24/2009 12:55:00PM	02/24/2009 16:00

Origins Laboratory, Inc.

Noelle E Doyle, Laboratory Manager

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.

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

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

originslaboratory.com

Project Manager: BDD
Project Name: Frick 18-2&8
Project Number: NEP0505
Samples Collected by: TEB/JV

Client: LTE
Address: 4600 W 60th
Arvada CO 80003
Telephone Number: ON FILE
E-Mail Address: ON FILE

page 1 of 2

1902083

Sample ID - Description	Date Sampled	Time Sampled	Number of Containers	Preservative				Matrix			Analysis	Sample Instructions
				Unpreserved	HCl	HNO ₃	Other - ITC	Groundwater	Soil	Air - Summa Canister #		
MW01	2/24/09	1200	3	X							X	
MW02		1205										
SB02R		1210										
SB03		1215										
SB07		1235										
SB09		1220										
SB10R		1230										
SB15		1235										
SB16		1240										
SB18R		1245										
Relinquished by: <u>John Voth</u>	Date: <u>2/24/09</u>	Time: <u>1600</u>		Received by: <u>[Signature]</u>	Date: <u>2/24/09</u>	Time: <u>16:00</u>		Turn Around Time: <u>24-hr</u>				
Relinquished by: <u>[Signature]</u>	Date: <u>2/24/09</u>	Time: <u>16:00</u>		Received by: <u>[Signature]</u>	Date: <u>2/24/09</u>	Time: <u>16:00</u>		Turn Around Time: <u>48-hr</u>				
								Standard				

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Origins Laboratory, Inc.

Noelle E Doyle, Laboratory Manager

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

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

X902083
page 2 of 2



originslaboratory.com

Project Manager: Robert BDD
Project Name: Frick 18-2+8
Project Number: NEP0505
Samples Collected by: TD/JV

Client: LT Environmental
Address: 4600 W 60th Ave
Arvada, CO 80003
Telephone Number: 303.433.9788
E-Mail Address: robert@ltenv.com

Sample ID - Description	Date Sampled	Time Sampled	Number of Containers	Preservative				Matrix			Analysis		Sample Instructions
				Unpreserved	HCl	HNO ₃	Other - FCE	Groundwater	Soil	Air - Summa Canister #	Other -		
SB 20	2/24/09	1250	3										1
SB 27	2/24/09	1255	1										2
													3
													4
													5
													6
													7
													8
													9
													10
Relinquished by:	Date	Time	Received by:	Date	Time	Temperature Upon Receipt:							
Julia Winters	2/24/09	1600	TD/JV	2/24/09	1600								
Requested by:	Date	Time	Received by:	Date	Time	Turn Around Time:							
			TD/JV	2/24/09	1600	24-hr							
						48-hr							
						72-hr							
						Standard							

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Origins Laboratory, Inc.

Noelle E Doyle, Laboratory Manager

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

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

MW01

X902083–01 (Water)

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Notes
		Limit							

Origins Laboratory, Inc.

BTEX by EPA 8260B

Benzene	6.13	0.0500	mg/L	50	9B26006	02/26/2009	02/27/2009
Toluene	0.0239	0.0100	"	10	"	"	02/27/2009
Ethylbenzene	0.0657	0.0100	"	"	"	"	"
o-Xylene	0.0807	0.0100	"	"	"	"	"
m,p-Xylene	0.491	0.0200	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	94.4 %	70.3–123	"	"	02/27/2009
Surrogate: Toluene-d8	104 %	75.9–123	"	"	"
Surrogate: 4-Bromofluorobenzene	108 %	83–123	"	"	"

Origins Laboratory, Inc.

Noelle E Doyle, Laboratory Manager

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.

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

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

MW02

X902083–02 (Water)

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Notes
		Limit							

Origins Laboratory, Inc.

BTEX by EPA 8260B

Benzene	0.0885	0.00100	mg/L	1	9B26006	02/26/2009	02/27/2009
Toluene	ND	0.00100	"	"	"	"	"
Ethylbenzene	0.100	0.00100	"	"	"	"	"
o-Xylene	0.0136	0.00100	"	"	"	"	"
m,p-Xylene	0.642	0.00200	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	93.1 %	70.3–123	"	"	"
Surrogate: Toluene-d8	103 %	75.9–123	"	"	"
Surrogate: 4-Bromofluorobenzene	102 %	83–123	"	"	"

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

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

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

SB02R

X902083–03 (Water)

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Notes
		Limit							

Origins Laboratory, Inc.

BTEX by EPA 8260B

Benzene	0.0304	0.00100	mg/L	1	9B26006	02/26/2009	02/27/2009
Toluene	0.00191	0.00100	"	"	"	"	"
Ethylbenzene	0.0489	0.00100	"	"	"	"	"
o-Xylene	0.00154	0.00100	"	"	"	"	"
m,p-Xylene	0.265	0.00200	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	93.5 %	70.3–123	"	"	"
Surrogate: Toluene-d8	104 %	75.9–123	"	"	"
Surrogate: 4-Bromofluorobenzene	105 %	83–123	"	"	"

Origins Laboratory, Inc.

Noelle E Doyle, Laboratory Manager

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

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

SB03

X902083–04 (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	9B26006	02/26/2009	02/27/2009
Toluene	ND	0.00100	"	"	"	"	"
Ethylbenzene	0.0266	0.00100	"	"	"	"	"
o-Xylene	ND	0.00100	"	"	"	"	"
m,p-Xylene	0.178	0.00200	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	94.6 %	70.3–123	"	"	"
Surrogate: Toluene-d8	103 %	75.9–123	"	"	"
Surrogate: 4-Bromofluorobenzene	104 %	83–123	"	"	"

Origins Laboratory, Inc.

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

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

SB07

X902083–05 (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	9B26006	02/26/2009	02/27/2009
Toluene	ND	0.00100	"	"	"	"	"
Ethylbenzene	0.0104	0.00100	"	"	"	"	"
o-Xylene	ND	0.00100	"	"	"	"	"
m,p-Xylene	0.0767	0.00200	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	93.8 %	70.3–123	"	"	"
Surrogate: Toluene-d8	104 %	75.9–123	"	"	"
Surrogate: 4-Bromofluorobenzene	106 %	83–123	"	"	"

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

SB09

X902083–06 (Water)

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Notes
		Limit							

Origins Laboratory, Inc.

BTEX by EPA 8260B

Benzene	0.0590	0.00100	mg/L	1	9B26006	02/26/2009	02/27/2009
Toluene	ND	0.00100	"	"	"	"	"
Ethylbenzene	ND	0.00100	"	"	"	"	"
o-Xylene	ND	0.00100	"	"	"	"	"
m,p-Xylene	ND	0.00200	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	92.8 %	70.3–123	"	"	"
Surrogate: Toluene-d8	104 %	75.9–123	"	"	"
Surrogate: 4-Bromofluorobenzene	112 %	83–123	"	"	"

Origins Laboratory, Inc.

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

SB10R

X902083–07 (Water)

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Notes
		Limit							

Origins Laboratory, Inc.

BTEX by EPA 8260B

Benzene	0.213	0.00100	mg/L	1	9B26006	02/26/2009	02/27/2009
Toluene	ND	0.00100	"	"	"	"	"
Ethylbenzene	0.124	0.00100	"	"	"	"	"
o-Xylene	ND	0.00100	"	"	"	"	"
m,p-Xylene	0.662	0.00200	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	92.4 %	70.3–123	"	"	"
Surrogate: Toluene-d8	103 %	75.9–123	"	"	"
Surrogate: 4-Bromofluorobenzene	102 %	83–123	"	"	"

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

SB15

X902083–08 (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	9B26006	02/26/2009	02/27/2009
Toluene	ND	0.00100	"	"	"	"	"
Ethylbenzene	0.00215	0.00100	"	"	"	"	"
o-Xylene	ND	0.00100	"	"	"	"	"
m,p-Xylene	0.00273	0.00200	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	91.7 %	70.3–123	"	"	"
Surrogate: Toluene-d8	104 %	75.9–123	"	"	"
Surrogate: 4-Bromofluorobenzene	108 %	83–123	"	"	"

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SB16
X902083–09 (Water)

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Notes
		Limit							

Origins Laboratory, Inc.

BTEX by EPA 8260B

Benzene	0.196	0.00100	mg/L	1	9B26006	02/26/2009	02/27/2009
Toluene	0.0134	0.00100	"	"	"	"	"
Ethylbenzene	0.453	0.0100	"	10	"	"	02/27/2009
o-Xylene	0.513	0.0100	"	"	"	"	"
m,p-Xylene	4.58	0.0200	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	90.4 %	70.3–123	"	"	02/27/2009
Surrogate: Toluene-d8	101 %	75.9–123	"	"	"
Surrogate: 4-Bromofluorobenzene	103 %	83–123	"	"	"

Origins Laboratory, Inc.

Noelle E Doyle, Laboratory Manager

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Project: Noble – Frick 18–2&8

SB18R

X902083–10 (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	9B26006	02/26/2009	02/27/2009
Toluene	ND	0.00100	"	"	"	"	"
Ethylbenzene	0.103	0.00100	"	"	"	"	"
o-Xylene	0.00205	0.00100	"	"	"	"	"
m,p-Xylene	0.426	0.00200	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	91.5 %	70.3–123	"	"	"
Surrogate: Toluene-d8	97.4 %	75.9–123	"	"	"
Surrogate: 4-Bromofluorobenzene	111 %	83–123	"	"	"

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

SB20

X902083–11 (Water)

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Notes
		Limit							

Origins Laboratory, Inc.

BTEX by EPA 8260B

Benzene	0.00112	0.00100	mg/L	1	9B26006	02/26/2009	02/27/2009
Toluene	ND	0.00100	"	"	"	"	"
Ethylbenzene	0.00426	0.00100	"	"	"	"	"
o-Xylene	ND	0.00100	"	"	"	"	"
m,p-Xylene	0.0200	0.00200	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	92.1 %	70.3–123	"	"	"
Surrogate: Toluene-d8	105 %	75.9–123	"	"	"
Surrogate: 4-Bromofluorobenzene	105 %	83–123	"	"	"

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Project: Noble – Frick 18–2&8

SB27

X902083–12 (Water)

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Notes
		Limit							

Origins Laboratory, Inc.

BTEX by EPA 8260B

Benzene	0.0247	0.00100	mg/L	1	9B26006	02/26/2009	02/27/2009
Toluene	0.494	0.0100	"	10	"	"	02/27/2009
Ethylbenzene	0.0919	0.00100	"	1	"	"	02/27/2009
o-Xylene	0.128	0.00100	"	"	"	"	"
m,p-Xylene	0.949	0.0200	"	10	"	"	02/27/2009

Surrogate: 1,2-Dichloroethane-d4	90.4 %	70.3–123	"	"	02/27/2009
Surrogate: Toluene-d8	94.5 %	75.9–123	"	"	"
Surrogate: 4-Bromofluorobenzene	93.2 %	83–123	"	"	"

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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 9B26006 – EPA 5030B

Blank (9B26006-BLK1)

Prepared: 02/26/2009 Analyzed: 02/27/2009

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	58.9		ug/L	62.5		94.2	70.3-123			
Surrogate: Toluene-d8	64.9		"	62.5		104	75.9-123			
Surrogate: 4-Bromofluorobenzene	68.5		"	62.5		110	83-123			

LCS (9B26006-BS1)

Prepared: 02/26/2009 Analyzed: 02/27/2009

Benzene	0.06	0.001	mg/L	0.0500		113	64.2-124			
Toluene	0.05	0.001	"	0.0500		107	63.9-119			
Surrogate: 1,2-Dichloroethane-d4	58.7		ug/L	62.5		93.9	70.3-123			
Surrogate: Toluene-d8	64.4		"	62.5		103	75.9-123			
Surrogate: 4-Bromofluorobenzene	67.6		"	62.5		108	83-123			

Matrix Spike (9B26006-MS1)

Source: X902083-08

Prepared: 02/26/2009 Analyzed: 02/27/2009

Benzene	0.05	0.001	mg/L	0.0500	0.0005	107	64.2-124			
Toluene	0.05	0.001	"	0.0500	ND	101	63.9-119			
Surrogate: 1,2-Dichloroethane-d4	59.1		ug/L	62.5		94.6	70.3-123			
Surrogate: Toluene-d8	65.8		"	62.5		105	75.9-123			
Surrogate: 4-Bromofluorobenzene	65.8		"	62.5		105	83-123			

Matrix Spike Dup (9B26006-MSD1)

Source: X902083-08

Prepared: 02/26/2009 Analyzed: 02/27/2009

Benzene	0.05	0.001	mg/L	0.0500	0.0005	103	64.2-124	3.86	25	
Toluene	0.05	0.001	"	0.0500	ND	97.1	63.9-119	3.76	25	
Surrogate: 1,2-Dichloroethane-d4	58.3		ug/L	62.5		93.3	70.3-123			
Surrogate: Toluene-d8	66.2		"	62.5		106	75.9-123			
Surrogate: 4-Bromofluorobenzene	66.4		"	62.5		106	83-123			

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Notes and Definitions

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

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