



November 5, 2010

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

Mr. Cliff Cox  
Foundation Energy Management  
P.O. Box 17127  
Fort Worth, TX 76102

**RE: Third Quarter 2010 Remediation, Well Installation, and Monitoring Report  
Becky #2-6 Natural Gas Wellhead Site  
Weld County, Colorado**

Dear Mr. Cox:

LT Environmental, Inc. (LTE) was retained by Noble Energy, Inc. (Noble) and Foundation Energy Management (Foundation) to conduct corrective actions at the Becky #2-6 natural gas wellhead site (Site) located approximately 3.5 miles west of the intersection of Interstate 25 and Weld County Road (WCR) 52 in Weld County, Colorado. A Site Map is provided as Figure 1.

LTE, on behalf of Noble and Foundation, has completed system design, installation, and startup of the air sparging/soil vapor extraction (AS/SVE) remediation system. LTE is continuing to conduct groundwater monitoring at the Site to evaluate previously documented groundwater impact. This correspondence is provided as the third quarter 2010 remediation and monitoring report, and summarizes activities conducted at the Site from July 1, 2010 through September 30, 2010. Activities conducted during the reporting period and summarized in this report include operation and maintenance (O&M) of the remediation system, an air sparging well replacement, and quarterly groundwater sampling conducted September 22, 2010.

**Remediation System Description**

The AS system is designed to introduce ambient air into the subsurface water column to induce dissolved hydrocarbon volatilization and to promote aerobic microbial decomposition of petroleum constituents (Figure 2). 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 (Figure 3). AS and SVE wells are connected to a remediation equipment trailer housing the equipment for the AS/SVE systems. The distribution and spacing of these wells are based on site-specific soil analytical data, groundwater quality data, contamination profiles, geological characteristics, experience with similar systems, and the location and influence area of remediation



wells. Additional details of the remediation system design and installation were presented in the previously submitted report titled *Remediation System Installation, Startup, and Groundwater Sampling Results* dated January 9, 2009. The remediation system began operation at the Site on November 17, 2008.

### **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;
- Generator maintenance, which included changing the oil and oil filters; and
- Repair of generator radiator.

The AS/SVE remediation system operated at the Site during all of the current reporting period, with shutdowns for generator troubleshooting and repair. Remediation efforts onsite are focused on the limited remaining areas of the Site exhibiting groundwater impact.

### **Air Sparging Well Installation**

Despite extensive breakthrough efforts, air sparging well AS23 has been unable to maintain air flow. AS23 is located adjacent to the only remaining impacted monitoring well (MW-10) and is a critical well for the success of the remediation program. Since breakthrough efforts were unsuccessful, the well was replaced with AS23R.

Drilling activities for installation of AS23R were conducted on July 15, 2010. Drilling was conducted by Alpine Field Services, Inc. with oversight by LTE. AS23R was drilled to total depth of 14 feet below ground surface (bgs). The well was piped into the existing system by LTE on August 5, 2010. Well completion information for AS23R is included as Attachment 1. The system layout, including the new AS well location, is shown on Figure 2.

### **Groundwater Sampling Procedures**

Five groundwater monitoring wells were sampled at the Site on September 22, 2010 to determine the current plume extent. Prior to sampling each well, the depth to groundwater was measured and recorded for calculating purge volumes (Table 1).

Each well was purged of three casing volumes prior to collection of groundwater samples. Groundwater samples were collected from the well points by advancing disposable 3/16-inch diameter polyethylene tubing below the groundwater table inside the 1-inch diameter polyvinyl chloride (PVC) well casing. A peristaltic pump was utilized to collect the groundwater samples prior to placement into 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 / Field Measurements**

During the September 2010 sampling event, the depths to static groundwater level ranged from 9.65 feet below top of casing (BTOC) in MW-10 to 10.38 feet BTOC in MW-25 (Table 1). Monitoring Wells MW-13, MW-23 and MW-34 were dry. The groundwater flow direction was to the north with an average hydraulic gradient of approximately 0.0009 feet per foot, which is similar to historical values.

### **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 for BTEX of 5.0 micrograms per liter (ug/L) for benzene, 560 ug/L for toluene, 700 ug/L for ethylbenzene, and 1,400 ug/L for total xylenes, respectively. Table 1 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 included as Attachment 2.

Five groundwater samples were collected and submitted to Origins Laboratory for BTEX analysis during the September 22, 2010 sampling event. Free-phase petroleum hydrocarbons were not identified in any of the monitoring wells. Groundwater analytical results indicated that benzene was detected above the CDPHE-WQCC Regulation 41 standards in monitoring well MW-10 at a concentration of 11.2 ug/L. BTEX compounds were not detected above the laboratory method detection limits or in compliance with CDPHE-WQCC Reg. 41 in the remaining samples. Groundwater analytical results for the September 22, 2010 sampling event are summarized in Table 1 and illustrated on Figure 4.

### **Summary and Conclusions**

As seen in Figure 5 and Table 1, the effectiveness of the AS/SVE system is evident by the 95% reduction in the hydrocarbon impacted area from June 2008 (pre-remediation) to September 2010. Isocontours presented on Figure 5 indicate the reduction of plume size as the result of system operation. As seen on Table 1, benzene concentrations remained below groundwater standards in all wells sampled that previously contained concentrations below standards. This includes the two monitoring wells where remediation system operation decreased the benzene concentrations to below the groundwater standards (MW-9 and MW-13), indicating cleanup has been achieved in those areas. In addition to the dramatic reduction in plume extent, the remaining impact identified in monitoring well MW-10 has all degraded by orders of magnitude when compared to pre-remediation data.



Free product was not present in any of the monitoring wells as previously observed (MW-10 and MW-16), indicating remediation progress and free-phase product abatement. System operations will be focused in the area that indicates remaining benzene concentrations above groundwater standards (MW-10). Figure 5 provides benzene isocontours for the most recent sampling events (May, September, December 2009, March and September 2010) as well as for conditions encountered during the initial site investigation (June 2008). As shown in the attached Table 1, benzene is still present at the Site and continued remediation system operation is recommended in the limited remaining areas to achieve cleanup goals.

The next groundwater sampling event will be conducted in December 2010. Groundwater monitoring will continue to be conducted at the Site on a quarterly basis until site closure status is received from the Colorado Oil and Gas Conservation Commission. Active remediation has been re-initiated at the Site and will continue until approximately December 2010.

LTE appreciates the opportunity to provide environmental services to Noble and Foundation. 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 D. Kahn'.

Steve D. Kahn, P.E.  
Client Manager/Senior Engineer

#### Attachments

Table 1: Groundwater Quality Data

Figure 1: Site Map

Figure 2: Air Sparging System Layout

Figure 3: Soil Vapor Extraction System Layout

Figure 4: Groundwater Analytical Results – September 22, 2010

Figure 5: Groundwater Analytical Summary

Attachment 1: AS23R Well Completion Diagram

Attachment 2: Laboratory Analytical Report

**TABLE**



TABLE 1

**GROUNDWATER QUALITY DATA**  
**BECKY #2-6**  
**WELD COUNTY, COLORADO**  
**NOBLE ENERGY, INC.**

Well ID	Date	Depth to Product (feet btoc)	Depth to Water (feet btoc)	Product Thickness (feet)	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Total Xylenes (ug/L)
MW-1	6/24/2008		7.92		3.52	<1.00	55.05	25.16
	11/10/2008		7.66		<1.00	<1.00	<1.00	<3.00
	2/23/2009		7.46		<1.00	<1.00	<1.00	<3.00
	5/27/2009		6.74		<1.00	<1.00	<1.00	<3.00
	9/1/2009		7.78		<1.00	<1.00	<1.00	<3.00
	12/28/2009		6.89		<1.00	<1.00	<1.00	<3.00
MW-2	6/24/2008		8.01		<1.00	<1.00	<1.00	<3.00
MW-3	6/24/2008		8.09		<b>6.43</b>	<1.00	<1.00	5.15
	11/10/2008		7.83		1.26	<1.00	<1.00	<3.00
	2/23/2009		7.68		<1.00	<1.00	<1.00	<3.00
	5/27/2009		6.98		2.31	<1.00	<1.00	<3.00
	9/1/2009		8.03		<1.00	<1.00	<1.00	<3.00
	12/28/2009		7.21		<1.00	<1.00	<1.00	<3.00
MW-4	6/24/2008		7.88		<1.00	<1.00	<1.00	<3.00
	11/10/2008		7.73		<1.00	<1.00	<1.00	<3.00
	2/23/2009		7.59		<1.00	<1.00	<1.00	<3.00
	5/27/2009		6.82		<1.00	<1.00	<1.00	<3.00
	9/1/2009		8.07		<1.00	<1.00	<1.00	<3.00
	12/28/2009		7.01		<1.00	<1.00	<1.00	<3.00
MW-5	6/24/2008		8.08		<1.00	<1.00	<1.00	<3.00
MW-6	6/24/2008		7.85		<1.00	<1.00	<1.00	<3.00
MW-7	6/24/2008		8.10		<b>358.40</b>	1.02	277.60	<b>3,120.29</b>
	11/10/2008		7.98		<b>725</b>	<1.00	493	<b>6,008.8</b>
	2/23/1009		7.36		<b>5.03</b>	<1.00	9.04	141
	5/27/2009		7.09		<b>10.4</b>	1.16	362	498.2
	9/1/2009		8.14		<1.00	<1.00	<1.00	438
	12/28/2009		7.39		<1.00	<1.00	<1.00	19.1
	3/11/2010		7.81		<1.00	<1.00	2.71	35.1
	6/17/2010		8.75		<1.00	<1.00	<1.00	57.7
	9/22/2010		9.70		<1.00	<1.00	10.1	40.4



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MW-8	6/24/2008		7.60		<1.00	<1.00	<1.00	<3.00
	11/10/2008		7.59		<1.00	<1.00	<1.00	<3.00
	2/23/2009		7.34		<1.00	<1.00	<1.00	<3.00
	5/27/2009		6.59		<1.00	<1.00	<1.00	<3.00
	9/1/2009		7.64		<1.00	<1.00	<1.00	<3.00
	12/28/2009		6.87		<1.00	<1.00	<1.00	<3.00
MW-9	6/24/2008		8.45		<b>430.20</b>	<1.00	35.57	396.80
	11/10/2008		8.32		<b>175</b>	<1.00	24.7	77.90
	2/23/2009		8.29		<b>12.8</b>	<1.00	1.56	3.70
	5/27/2009		7.46		<b>99.4</b>	<1.00	15.0	77.3
	9/1/2009		5.61		<b>243</b>	<1.00	15.8	38.0
	12/28/2009		7.85		<b>5.23</b>	<1.00	<1.00	6.95
	3/11/2010		8.35		<b>61.0</b>	<1.00	9.53	31.5
	6/17/2010		9.12		1.85	<1.00	<1.00	<1.00
MW-10	9/22/2010		10.00		<1.00	<1.00	<1.00	<1.00
	6/24/2008		8.26		<b>1,254.2</b>	1.84	223.60	<b>2,373.80</b>
	11/10/2008	8.13	8.63	0.50	NA	NA	NA	NA
	11/13/2008	8.21	8.44	0.23	NA	NA	NA	NA
	2/23/2009	8.09	8.01	0.08	NA	NA	NA	NA
	5/27/2009	ND	7.30	0.00	<b>145</b>	<1.00	86.6	1,145.8
	9/1/2009	ND	8.38	0.00	<b>176</b>	<1.00	<1.00	542
	12/28/2009	ND	7.71	0.00	<b>183</b>	<1.00	120	570.4
	3/11/2010	ND	8.12	0.00	<b>139</b>	<1.00	135	969.2
	6/17/2010	ND	8.92	0.00	<b>113</b>	<1.00	86.2	1,260
MW-11	9/22/2010	ND	9.65	0.00	<b>11.2</b>	<1.00	46.3	867.8
	6/24/2008		7.52		<1.00	<1.00	1.35	14.70
	11/10/2008		7.48		<1.00	<1.00	<1.00	5.00
	2/23/2009		7.25		<1.00	<1.00	<1.00	<3.00
	5/28/2009		6.60		<1.00	<1.00	<1.00	<3.00
	9/1/2009		8.62		<1.00	<1.00	<1.00	<3.00
MW-12	12/28/2009		6.90		<1.00	<1.00	<1.00	<3.00
	6/24/2008		7.70		<1.00	<1.00	<1.00	<3.00



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MW-13	6/24/2008		8.68		<b>1,616.2</b>	<1.00	249.20	<b>3,551.0</b>
	11/10/2008		8.85		<b>684</b>	<1.00	84.0	152.11
	2/23/2009		8.72		<b>390</b>	<1.00	26.7	86.5
	5/28/2009		8.75		<b>500</b>	<1.00	69.8	120
	9/1/2009		8.90		<b>329</b>	<1.00	21.8	1.05
	12/28/2009		8.43		<b>244</b>	<1.00	86.3	442.12
	3/11/2010		8.72		<b>34.2</b>	<1.00	14.4	44.2
	6/17/2010		9.30		3.14	<1.00	1.27	2.22
	9/22/2010				WELL DRY			
MW-14	6/24/2008		9.35		3.66	1.26	1.69	21.65
	11/10/2008		9.56		<1.00	<1.00	<1.00	<3.00
	2/23/2009		9.48		<1.00	<1.00	<1.00	<3.00
	5/27/2009		8.65		<1.00	<1.00	<1.00	<3.00
	9/1/2009		8.84		<1.00	<1.00	<1.00	<3.00
	12/28/2009		9.19		<1.00	<1.00	<1.00	<3.00
MW-15	6/24/2008		9.34		<1.00	<1.00	<1.00	4.31
	11/10/2008		9.89		<1.00	<1.00	<1.00	<3.00
	2/23/2009		9.66		<1.00	<1.00	<1.00	<3.00
	5/28/2009		8.89		<1.00	<1.00	<1.00	<3.00
	9/1/2009		9.83		<1.00	<1.00	<1.00	<3.00
	12/28/2009		9.45		<1.00	<1.00	<1.00	<3.00
MW-16	6/24/2008		9.19		<b>6.28</b>	<1.00	170.65	<b>1,998.36</b>
	11/10/2008	9.83	9.84	0.01	NA	NA	NA	NA
	11/13/2008	ND	9.88	0.00	<1.00	<1.00	<1.00	220.86
	2/23/2009	ND	9.62	0.00	<1.00	<1.00	9.12	89.0
	5/27/2009	ND	8.81	0.00	<1.00	<1.00	14.3	152
	9/1/2009	ND	9.78	0.00	<1.00	<1.00	<1.00	88.9
	12/28/2009	ND	9.49	0.00	<1.00	<1.00	12.9	73.6



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MW-17	6/24/2008		9.16		<1.00	<1.00	<1.00	13.46
	11/10/2008		10.27		<1.00	<1.00	<1.00	<3.00
	2/23/2009		9.98		<1.00	<1.00	<1.00	<3.00
	5/27/2009		10.95		NA			
	9/1/2009		9.87		<1.00	<1.00	<1.00	<3.00
MW-18	6/24/2008		9.37		<1.00	<1.00	<1.00	3.24
	11/10/2008		10.13		<1.00	<1.00	<1.00	3.36
	2/23/2009		9.92		<1.00	<1.00	<1.00	<3.00
	5/28/2009		9.14		<1.00	<1.00	<1.00	<3.00
	9/1/2009		10.05		<1.00	<1.00	<1.00	<3.00
	12/28/2009		9.61		<1.00	<1.00	<1.00	<3.00
MW-19	6/24/2008		8.73		<1.00	<1.00	<1.00	3.53
MW-20	6/24/2008		8.52		<1.00	<1.00	<1.00	<3.00
MW-21	6/24/2008		8.20		<1.00	<1.00	<1.00	<3.00
MW-22	6/24/2008		8.66		<1.00	<1.00	<1.00	<3.00
MW-23	6/24/2008		9.14		<b>83.13</b>	1.43	164.46	1,283
	11/10/2008		8.95		1.46	<1.00	1.54	<3.00
	2/23/2009				WELL DRY			
	9/1/2009				WELL DRY			
	12/28/2009				WELL DRY			
	3/11/2010				WELL DRY			
	6/17/2010				WELL DRY			
	9/22/2010				WELL DRY			
MW-24	6/24/2008		9.00		<1.00	<1.00	<1.00	<3.00
	11/10/2008		8.85		<1.00	<1.00	<1.00	6.27
	2/23/2009		8.84		<1.00	<1.00	<1.00	<3.00
	5/27/2009		8.00		<1.00	<1.00	<1.00	<3.00
	9/1/2009		9.09		<1.00	<1.00	<1.00	<3.00
	12/28/2009		8.52		<1.00	<1.00	<1.00	<3.00



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Well ID	Date	Depth to Product (feet btoc)	Depth to Water (feet btoc)	Product Thickness (feet)	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Total Xylenes (ug/L)
MW-25	6/24/2008		8.86		<b>120.95</b>	<1.00	17.52	602.10
	11/10/2008		8.85		<b>47.5</b>	<1.00	7.73	28.8
	2/23/2009		8.71		<b>20.3</b>	<1.00	1.64	3.86
	5/27/2009		7.95		<b>29.9</b>	<1.00	7.40	7.13
	9/1/2009		9.05		<1.00	<1.00	<1.00	<3.00
	12/28/2009		8.49		<1.00	<1.00	<1.00	<3.00
	3/11/2010		8.95		1.23	<1.00	<1.00	<3.00
	6/17/2010		9.59		2.33	4.41	<1.00	2.16
	9/22/2010		10.38		<1.00	<1.00	<1.00	<1.00
MW-26	6/24/2008		8.35		<b>75.72</b>	<1.00	71.24	598.70
	11/10/2008		8.47		<b>57.4</b>	<1.00	36.4	47.60
	2/23/2009		8.26		<1.00	<1.00	<1.00	<3.00
	5/27/2009		7.50		2.02	<1.00	1.97	<3.00
	9/1/2009		8.54		<1.00	<1.00	<1.00	<3.00
	12/28/2009		8.07		<1.00	<1.00	<1.00	<3.00
	3/11/2010		8.63		<1.00	<1.00	<1.00	<3.00
	6/17/2010		9.10		<b>8.15</b>	1.98	<1.00	<1.00
	9/22/2010		9.90		<1.00	<1.00	<1.00	<1.00
MW-27	6/24/2008		8.73		<1.00	<1.00	<1.00	<3.00
	11/10/2008		9.07		1.72	<1.00	<1.00	18.4
	2/23/2009		8.87		<1.00	<1.00	<1.00	<3.00
	5/27/2009		8.03		<1.00	<1.00	<1.00	<3.00
	9/1/2009		9.07		<1.00	<1.00	<1.00	<3.00
	12/28/2009		8.71		<1.00	<1.00	<1.00	<3.00
MW-28	6/24/2008		8.85		<1.00	<1.00	<1.00	2.97
MW-29	6/24/2008		8.89		<1.00	<1.00	<1.00	<3.00
	11/10/2008		9.69		<1.00	<1.00	<1.00	<3.00
	2/23/2009		9.46		<1.00	<1.00	4.18	5.23
	5/27/2009		8.65		<1.00	<1.00	<1.00	<3.00
	9/1/2009		9.61		<1.00	<1.00	<1.00	<3.00
	12/28/2009		10.36		<1.00	<1.00	<1.00	<3.00



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MW-30	6/24/2008		8.57		<1.00	<1.00	<1.00	<3.00
	11/10/2008		8.56		<1.00	<1.00	<1.00	2.88
	2/23/2009		8.46		<1.00	<1.00	<1.00	<3.00
	5/27/2009		7.69		<1.00	<1.00	<1.00	<3.00
	9/1/2009		8.67		<1.00	<1.00	<1.00	<3.00
	12/28/2009		8.26		<1.00	<1.00	<1.00	<3.00
MW-31	6/24/2008		7.94		<1.00	<1.00	<1.00	<3.00
MW-32	7/7/2008				<1.0	<1.0	<1.0	<1.0
	11/10/2008		9.57		<1.00	<1.00	<1.00	<3.00
	2/23/2009		9.42		<1.00	<1.00	<1.00	<3.00
	5/27/2009		8.70		<1.00	<1.00	<1.00	<3.00
	9/1/2009		9.74		<1.00	<1.00	<1.00	<3.00
	12/28/2009		8.96		<1.00	<1.00	<1.00	<3.00
MW-33	7/7/2008				1.4	<1.0	10	5.9
	11/10/2008				WELL DESTROYED			
MW-34	7/7/2008				<b>160</b>	<1.00	370	<b>2,800</b>
	11/10/2008		8.13		<b>85.7</b>	<1.00	89.4	108
	2/23/2009		7.98		<1.00	<1.00	<1.00	<3.00
	5/27/2009		7.26		<1.00	<1.00	<1.00	<3.00
	9/1/2009		9.58		<1.00	<1.00	<1.00	<3.00
	12/28/2009		7.57		<1.00	<1.00	<1.00	<3.00
	3/11/2010		8.02		<1.00	<1.00	<1.00	<3.00
	6/17/2010		8.97		<b>5.19</b>	3.04	<1.00	<1.00
					WELL DRY			
<b>CDPHE-WQCC Regulation 41 Groundwater Standards</b>					<b>5.0</b>	<b>560</b>	<b>700</b>	<b>1,400</b>

**NOTES:**

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

Benzene, toluene, ethylbenzene, total xylenes analyzed by EPA Method 8260B

btoc - below top of casing

ug/L - micrograms per liter

&lt; indicates result is less than the stated laboratory method detection limit

NA - not analyzed

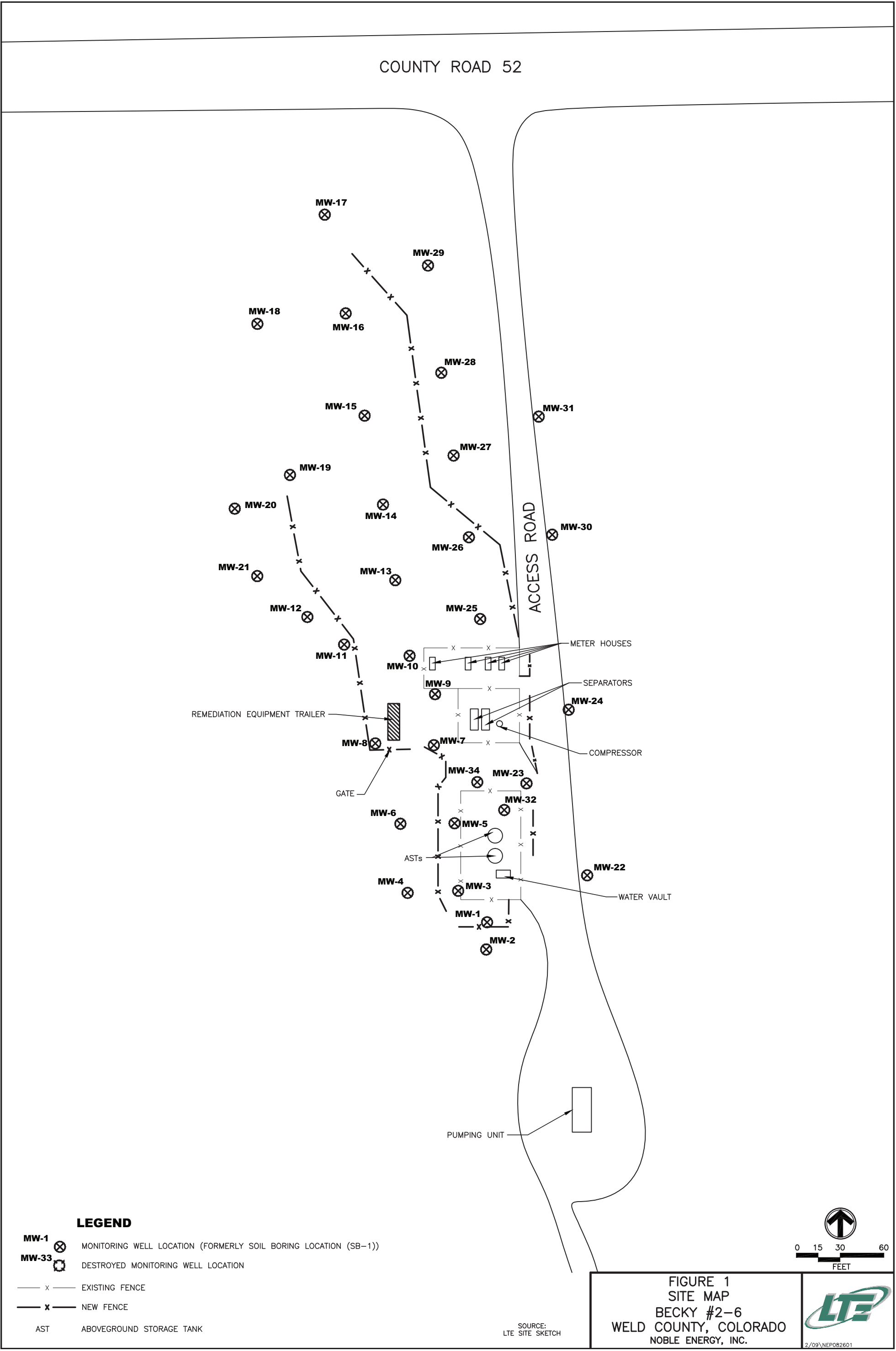
NM - not measured

ND - not detected

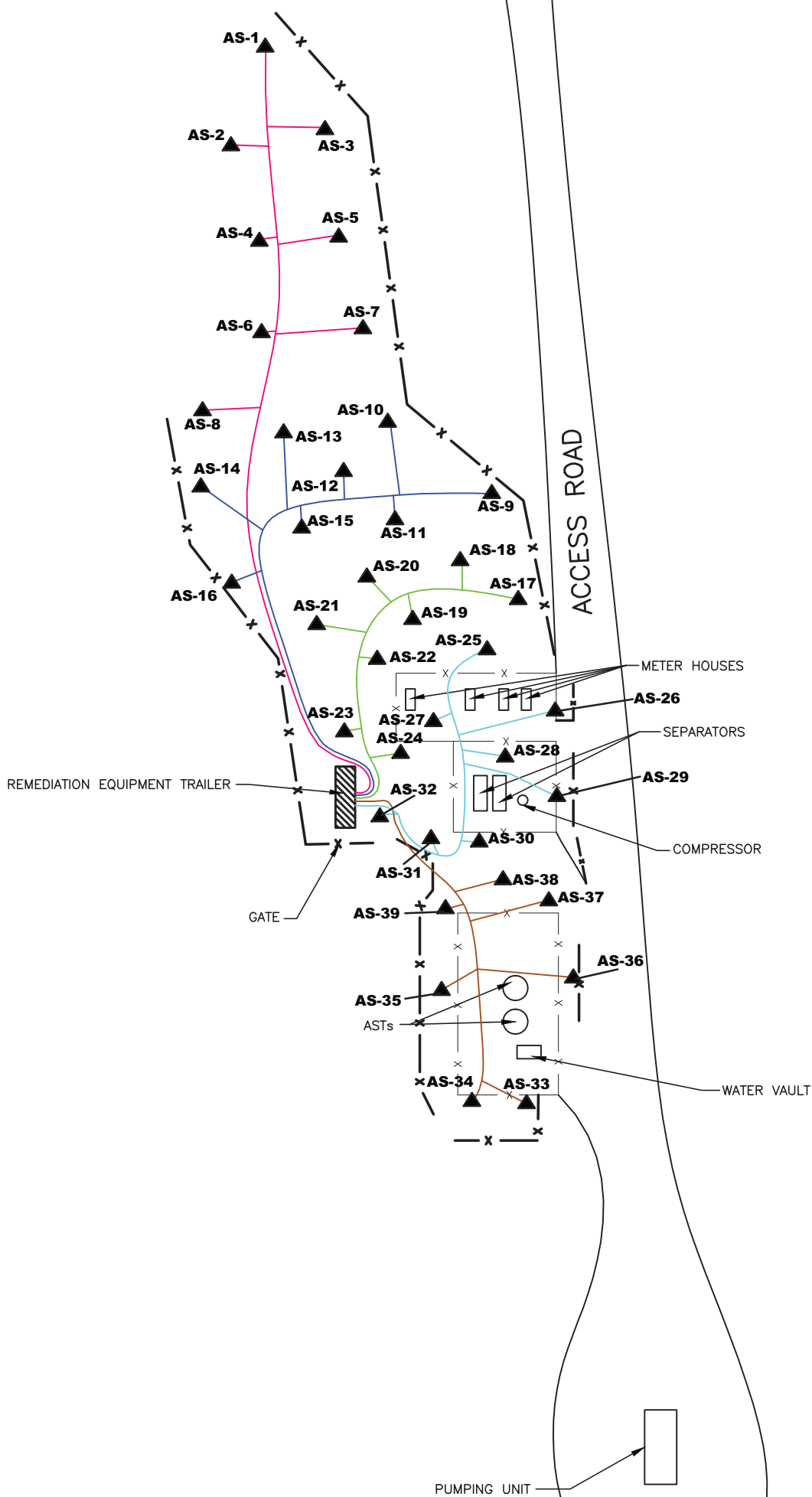


## FIGURES





COUNTY ROAD 52

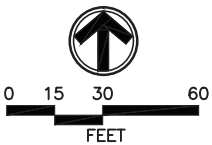


LEGEND

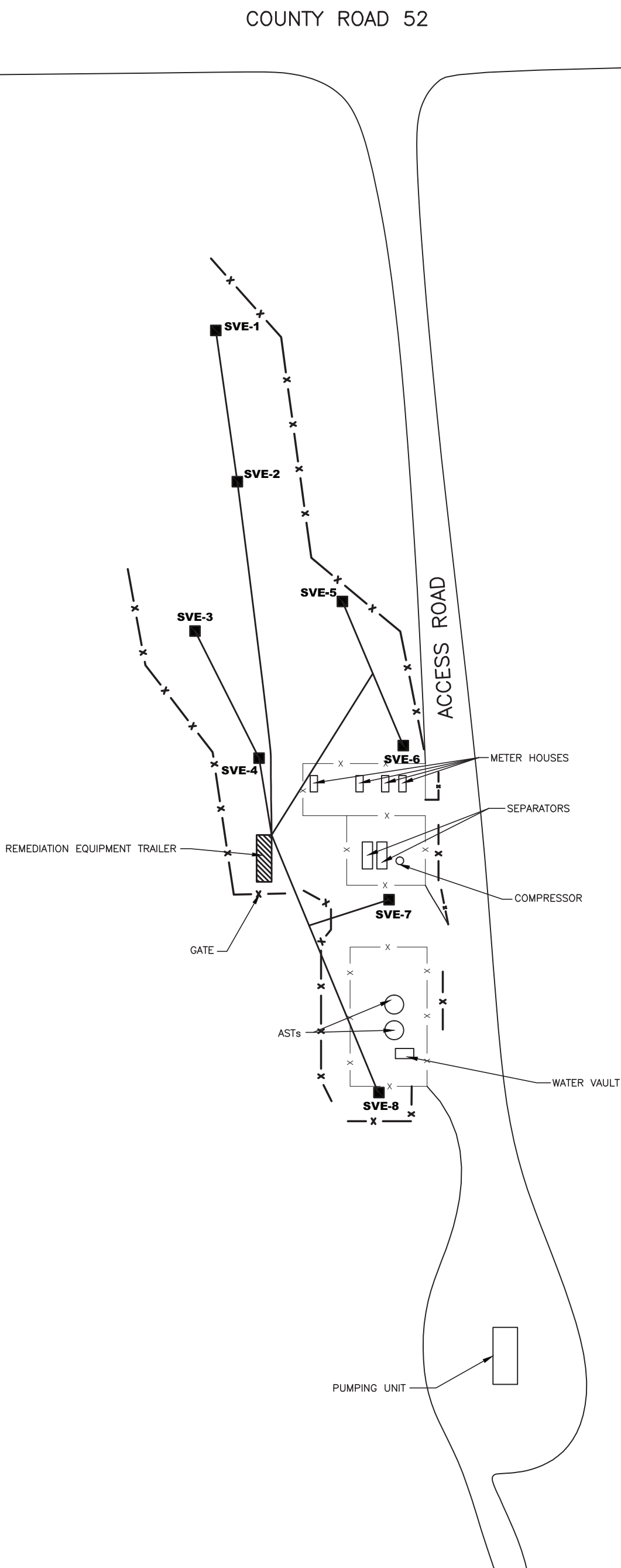
- x — EXISTING FENCE
- x — NEW FENCE
- AS-1 ▲ AIR SPARGING WELL LOCATION
- SYSTEM PIPING (ZONE 1)
- SYSTEM PIPING (ZONE 2)
- SYSTEM PIPING (ZONE 3)
- SYSTEM PIPING (ZONE 4)
- SYSTEM PIPING (ZONE 5)
- AST ABOVEGROUND STORAGE TANK

SOURCE:  
LTE SITE SKETCH

FIGURE 2  
AIR SPARGING SYSTEM LAYOUT  
BECKY #2-6  
WELD COUNTY, COLORADO  
NOBLE ENERGY, INC.



2/09\NEP082601

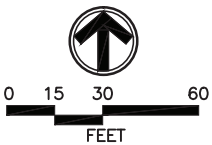


**LEGEND**

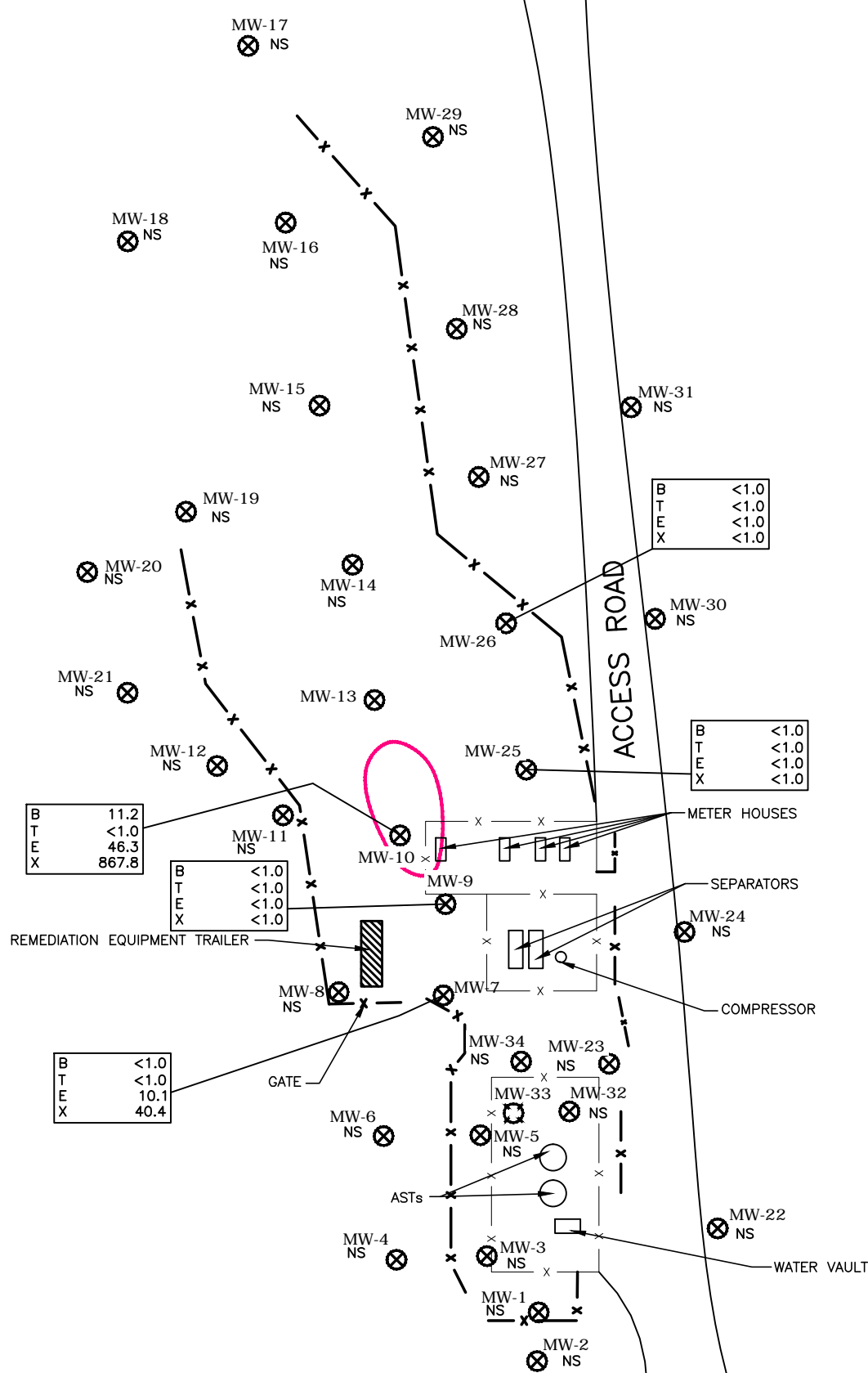
- x — EXISTING FENCE
- x — NEW FENCE
- SVE-1** ■ SOIL VAPOR EXTRACTION WELL LOCATION
- SYSTEM PIPING
- AST ABOVEGROUND STORAGE TANK

SOURCE:  
LTE SITE SKETCH

FIGURE 3  
SOIL VAPOR EXTRACTION SYSTEM LAYOUT  
BECKY #2-6  
WELD COUNTY, COLORADO  
NOBLE ENERGY, INC.



COUNTY ROAD 52



LEGEND

- MW-1 ⊗ MONITORING WELL LOCATION (FORMERLY SOIL BORING LOCATION (SB-1))
- MW-33 ⊗ DESTROYED MONITORING WELL LOCATION
- x — EXISTING FENCE
- x — NEW FENCE
- AST ABOVEGROUND STORAGE TANK
- 5.0 MICROGRAMS PER LITER (µg/L) BENZENE ISOCONCENTRATION LINE

B	BENZENE
T	TOLUENE
E	ETHYLBENZENE
X	TOTAL XYLENES

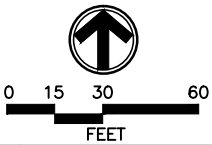
ANALYTICAL RESULTS ARE REPORTED IN µg/L

NS NOT SAMPLED

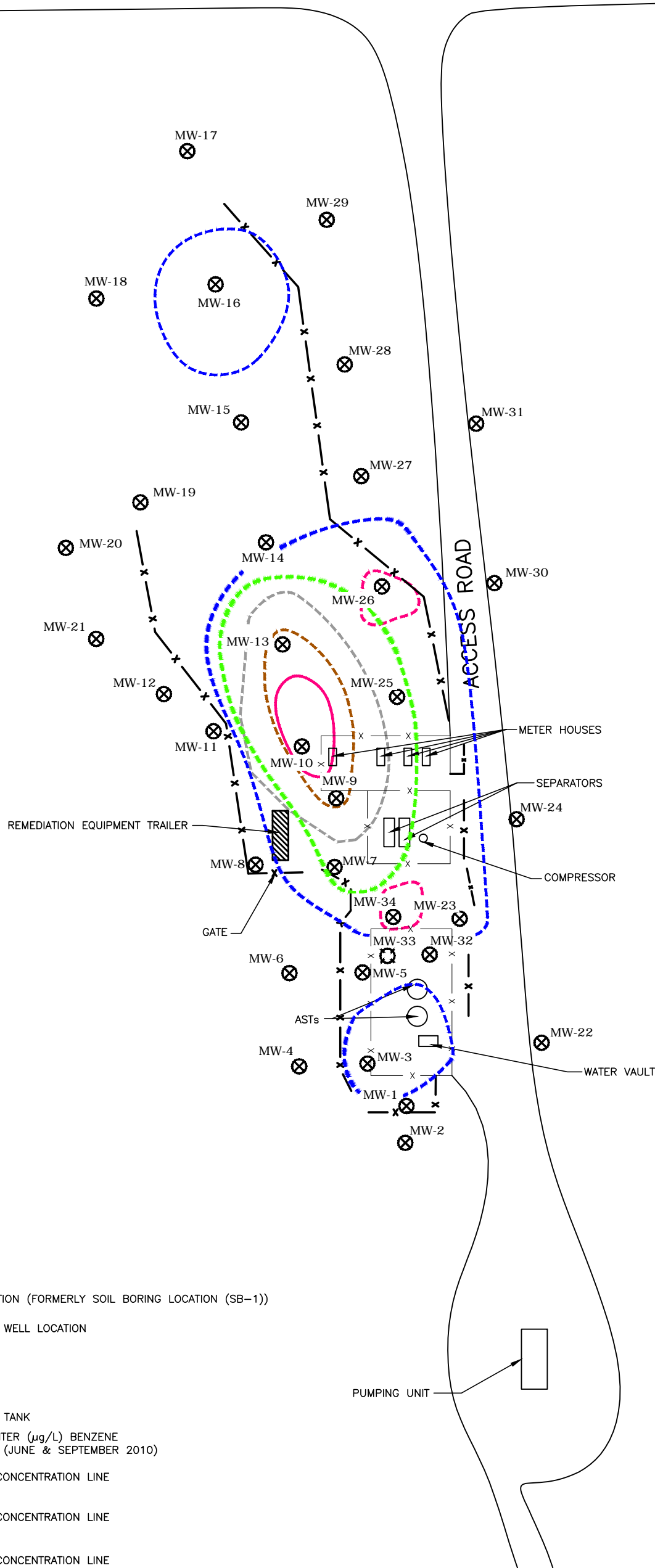
BOLD INDICATES EXCEEDANCE OF STANDARD

SOURCE:  
LTE SITE SKETCH

FIGURE 4  
GROUNDWATER ANALYTICAL RESULTS  
SEPTEMBER 22, 2010  
BECKY #2-6  
WELD COUNTY, COLORADO  
NOBLE ENERGY, INC.



COUNTY ROAD 52

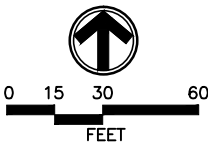


LEGEND

- MW-1 MONITORING WELL LOCATION (FORMERLY SOIL BORING LOCATION (SB-1))
- MW-33 DESTROYED MONITORING WELL LOCATION
- x — EXISTING FENCE
- x — NEW FENCE
- AST ABOVEGROUND STORAGE TANK
- 5.0 MICROGRAMS PER LITER (µg/L) BENZENE ISOCONCENTRATION LINE (JUNE & SEPTEMBER 2010)
- 5.0 µg/L BENZENE ISOCONCENTRATION LINE (JUNE 2010)
- 5.0 µg/L BENZENE ISOCONCENTRATION LINE (MARCH 2010)
- 5.0 µg/L BENZENE ISOCONCENTRATION LINE (SEPTEMBER 2009)
- 5.0 µg/L BENZENE ISOCONCENTRATION LINE (MAY 2009)
- 5.0 µg/L BENZENE ISOCONCENTRATION LINE (JUNE 2008)

SOURCE:  
LTE SITE SKETCH

FIGURE 5  
GROUNDWATER ANALYTICAL SUMMARY  
BECKY #2-6  
WELD COUNTY, COLORADO  
NOBLE ENERGY, INC.



2/09\NEP082602

**ATTACHMENT 1**  
**AS23R WELL COMPLETION DIAGRAM**



Well Location Sketch:



Compliance - Engineering - Remediation

LT Environmental, Inc.

4600 W. 60th Avenue

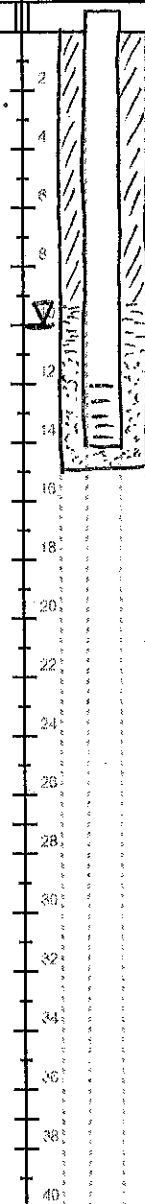
Arvada, Colorado 80003

## BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number:	AS23K	Project:	Becky 2-6
Date:	7-15-10	Project Number:	NEP0826
Logged By:	D. Girtin	Drilled By:	Alpine
Elevation:		Drilling Method:	Direct Push
Detector:		Sampling Method:	Cont.
Gravel Pack:	CSSI 10x20	Seal:	Bentonite
Casing Type:	Sch 40 PVC	Grout:	Cement
Screen Type:	Sch 40 PVC	Diameter:	1"
Slot:	0.01	Length:	13'
		Hole Diameter:	2"
		Depth to Liquid:	
		Total Depth:	14'
		Depth to Water:	

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion Diagram
					0					
					2					
					4					
					6					
					8					
					10					
					12					
					14					
					16					
					18					
					20					
					22					
					24					
					26					
					28					
					30					
					32					
					34					
					36					
					38					
					40					

Silty sand &amp; clay, unconsolidated alluvium.



**ATTACHMENT 2**  
**LABORATORY ANALYTICAL REPORT**



09/28/2010

LT Environmental, Inc.

Rob Rebel

4600 West 60th Avenue

Arvada

CO

80003

Project Name- Noble - Becky #2-6

Project Number- NEP0826.01

Attached are your analytical results for Noble - Becky #2-6 received by Origins Laboratory, Inc. September 22, 2010 4:15 pm. This project is associated with Origins project number X009140-01 .

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: NEP0826.01  
Project: Noble - Becky #2-6

## CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Sampled	Date Received
MW-26	X009140-01	Water	9/22/2010 11:15:00AM	09/22/2010 16:15
MW-25	X009140-02	Water	9/22/2010 10:55:00AM	09/22/2010 16:15
MW-10	X009140-03	Water	9/22/2010 10:30:00AM	09/22/2010 16:15
MW-9	X009140-04	Water	9/22/2010 11:40:00AM	09/22/2010 16:15
MW-7	X009140-05	Water	9/22/2010 12:00:00PM	09/22/2010 16:15

Origins Laboratory, Inc.



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

Noelle E Doyle,

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

Rob Rebel  
Project Number: NEP0826.01  
Project: Noble - Becky #2-6

www.originslaboratory.com

X009140 page 1 of 1

Client: LT Environmental  
Address: 4600 W 60th Avenue  
Telephone Number: 303.433.9788  
Email Address: rebel@ltew.com

Project Manager: Rob Rebel  
Project Name: Becky #2-6  
Project Number: NEP0826  
Samples Collected By: GC/PS

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix			Analysis	Sample Instructions
				Unpreserved	HCl	HNO <sub>3</sub>	Groundwater	Soil	Air Summa Canister #	Other		
MW26	09/22/10	1115	2	X			X					1
MW25	09/22/10	1055	2	X			X					2
MW23	09/22/10	1030	2	X			X					3
MW10	09/22/10	1030	2	X			X					4
MW9	09/22/10	1140	2	X			X					5
MW7	09/22/10	1200	2	X			X					6
												7
												8
												9
												10

Relinquished By: [Signature] Date: 9/22/10 Time: 1615  
Relinquished By: [Signature] Date: 9/22/10 Time: 1615

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.

*Noelle E Doyle*

Noelle E Doyle,

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.

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

Rob Rebel  
Project Number: NEP0826.01  
Project: Noble - Becky #2-6

## MW-26

9/22/2010 11:15:00AM

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

Origins Laboratory, Inc.  
X009140-01 (Water)

### BTEX by EPA 8260B

Benzene	ND	1.00	ug/L	1	0123002	09/23/2010	09/26/2010	
Toluene	ND	1.00	"	"	"	"	"	
Ethylbenzene	ND	1.00	"	"	"	"	"	
m,p-Xylene	ND	2.00	"	"	"	"	"	
o-Xylene	ND	1.00	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	103 %	73.5-130			"	"	"	
Surrogate: Toluene-d8	97.5 %	79.3-113			"	"	"	
Surrogate: 4-Bromofluorobenzene	96.7 %	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,

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

Rob Rebel  
Project Number: NEP0826.01  
Project: Noble - Becky #2-6

**MW-25****9/22/2010 10:55:00AM**

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

Origins Laboratory, Inc.  
X009140-02 (Water)

**BTEX by EPA 8260B**

Benzene	ND	1.00	ug/L	1	0123002	09/23/2010	09/27/2010	
Toluene	ND	1.00	"	"	"	"	"	
Ethylbenzene	ND	1.00	"	"	"	"	"	
m,p-Xylene	ND	2.00	"	"	"	"	"	
o-Xylene	ND	1.00	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	104 %	73.5-130			"	"	"	
Surrogate: Toluene-d8	100 %	79.3-113			"	"	"	
Surrogate: 4-Bromofluorobenzene	96.8 %	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,

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

Rob Rebel  
Project Number: NEP0826.01  
Project: Noble - Becky #2-6

**MW-10****9/22/2010 10:30:00AM**

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

Origins Laboratory, Inc.  
X009140-03 (Water)

**BTEX by EPA 8260B**

Benzene	11.2	10.0	ug/L	10	0123002	09/23/2010	09/27/2010	
Toluene	ND	10.0	"	"	"	"	"	
Ethylbenzene	46.3	10.0	"	"	"	"	"	
m,p-Xylene	835	20.0	"	"	"	"	"	
o-Xylene	32.8	10.0	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	103 %	73.5-130			"	"	"	
Surrogate: Toluene-d8	96.1 %	79.3-113			"	"	"	
Surrogate: 4-Bromofluorobenzene	93.4 %	81.5-117			"	"	"	

Origins Laboratory, Inc.



Noelle E Doyle,

*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.*

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

Rob Rebel  
Project Number: NEP0826.01  
Project: Noble - Becky #2-6

## MW-9

9/22/2010 11:40:00AM

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

Origins Laboratory, Inc.  
X009140-04 (Water)

### BTEX by EPA 8260B

Benzene	ND	1.00	ug/L	1	0123002	09/23/2010	09/27/2010	
Toluene	ND	1.00	"	"	"	"	"	
Ethylbenzene	ND	1.00	"	"	"	"	"	
m,p-Xylene	ND	2.00	"	"	"	"	"	
o-Xylene	ND	1.00	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	103 %	73.5-130			"	"	"	
Surrogate: Toluene-d8	96.5 %	79.3-113			"	"	"	
Surrogate: 4-Bromofluorobenzene	96.3 %	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,

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

Rob Rebel  
Project Number: NEP0826.01  
Project: Noble - Becky #2-6

## MW-7

9/22/2010 12:00:00PM

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

Origins Laboratory, Inc.  
X009140-05 (Water)

### BTEX by EPA 8260B

Benzene	ND	1.00	ug/L	1	0123002	09/23/2010	09/27/2010	
Toluene	ND	1.00	"	"	"	"	"	
Ethylbenzene	10.1	1.00	"	"	"	"	"	
m,p-Xylene	40.4	2.00	"	"	"	"	"	
o-Xylene	ND	1.00	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	103 %	73.5-130			"	"	"	
Surrogate: Toluene-d8	99.5 %	79.3-113			"	"	"	
Surrogate: 4-Bromofluorobenzene	95.0 %	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,

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

Rob Rebel  
Project Number: NEP0826.01  
Project: Noble - Becky #2-6

## 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 0123002 - EPA 5030B

#### Blank (0123002-BLK1)

Prepared: 09/23/2010 Analyzed: 09/24/2010

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

Surrogate: 1,2-Dichloroethane-d4	60.6	"	62.5	96.9	73.5-130
Surrogate: Toluene-d8	61.1	"	62.5	97.7	79.3-113
Surrogate: 4-Bromofluorobenzene	60.8	"	62.5	97.2	81.5-117

#### Blank (0123002-BLK2)

Prepared: 09/23/2010 Analyzed: 09/24/2010

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

Surrogate: 1,2-Dichloroethane-d4	60.2	"	62.5	96.3	73.5-130
Surrogate: Toluene-d8	62.4	"	62.5	99.9	79.3-113
Surrogate: 4-Bromofluorobenzene	60.4	"	62.5	96.6	81.5-117

#### LCS (0123002-BS1)

Prepared: 09/23/2010 Analyzed: 09/24/2010

Benzene	47.3	1.00	ug/L	50.0	94.6	77.3-128
Toluene	51.3	1.00	"	50.0	103	81.7-118

Surrogate: 1,2-Dichloroethane-d4	60.0	"	62.5	96.0	73.5-130
Surrogate: Toluene-d8	63.0	"	62.5	101	79.3-113
Surrogate: 4-Bromofluorobenzene	61.6	"	62.5	98.5	81.5-117

#### LCS (0123002-BS2)

Prepared: 09/23/2010 Analyzed: 09/24/2010

Benzene	48.4	1.00	ug/L	50.0	96.8	77.3-128
Toluene	50.9	1.00	"	50.0	102	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,

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

Rob Rebel  
Project Number: NEP0826.01  
Project: Noble - Becky #2-6

## 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 0123002 - EPA 5030B</b>										
<b>LCS (0123002-BS2)</b>					Prepared: 09/23/2010 Analyzed: 09/24/2010					
Surrogate: 1,2-Dichloroethane-d4	61.2		ug/L	62.5		97.9	73.5-130			
Surrogate: Toluene-d8	61.5		"	62.5		98.4	79.3-113			
Surrogate: 4-Bromofluorobenzene	60.7		"	62.5		97.1	81.5-117			
<b>Matrix Spike (0123002-MS1)</b>					Source: X009114-07		Prepared: 09/23/2010 Analyzed: 09/24/2010			
Benzene	50.2	1.00	ug/L	50.0	ND	100	74.5-132			
Toluene	52.6	1.00	"	50.0	0.61	104	74.2-116			
Surrogate: 1,2-Dichloroethane-d4	62.2		"	62.5		99.4	73.5-130			
Surrogate: Toluene-d8	62.0		"	62.5		99.2	79.3-113			
Surrogate: 4-Bromofluorobenzene	60.1		"	62.5		96.2	81.5-117			
<b>Matrix Spike (0123002-MS2)</b>					Source: X009114-08		Prepared: 09/23/2010 Analyzed: 09/24/2010			
Benzene	51.8	1.00	ug/L	50.0	ND	104	74.5-132			
Toluene	53.6	1.00	"	50.0	0.60	106	74.2-116			
Surrogate: 1,2-Dichloroethane-d4	61.4		"	62.5		98.2	73.5-130			
Surrogate: Toluene-d8	60.6		"	62.5		96.9	79.3-113			
Surrogate: 4-Bromofluorobenzene	62.1		"	62.5		99.3	81.5-117			
<b>Matrix Spike Dup (0123002-MSD1)</b>					Source: X009114-07		Prepared: 09/23/2010 Analyzed: 09/24/2010			
Benzene	51.8	1.00	ug/L	50.0	ND	104	74.5-132	2.94	13.1	
Toluene	52.8	1.00	"	50.0	0.61	104	74.2-116	0.531	21.2	
Surrogate: 1,2-Dichloroethane-d4	61.7		"	62.5		98.8	73.5-130			
Surrogate: Toluene-d8	61.1		"	62.5		97.7	79.3-113			
Surrogate: 4-Bromofluorobenzene	60.9		"	62.5		97.4	81.5-117			
<b>Matrix Spike Dup (0123002-MSD2)</b>					Source: X009114-08		Prepared: 09/23/2010 Analyzed: 09/24/2010			
Benzene	51.7	1.00	ug/L	50.0	ND	103	74.5-132	0.290	13.1	
Toluene	53.6	1.00	"	50.0	0.60	106	74.2-116	0.0559	21.2	
Surrogate: 1,2-Dichloroethane-d4	61.7		"	62.5		98.8	73.5-130			
Surrogate: Toluene-d8	60.6		"	62.5		96.9	79.3-113			
Surrogate: 4-Bromofluorobenzene	61.5		"	62.5		98.4	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,

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

Rob Rebel  
Project Number: NEP0826.01  
Project: Noble - Becky #2-6

**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 0123002 - EPA 5030B

Origins Laboratory, Inc.



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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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Noelle E Doyle,