

September 30, 2018

Mr. Jacob Evans  
Noble Energy Inc.  
2115 117th Avenue  
Greeley, CO 80631

Subject:       **Third Quarter 2018 Site Monitoring and Remediation Report**  
                  Plugged and Abandoned FRI 2-18 Tank Battery and Wellhead Location  
                  API # 05-001-08259  
                  Remediation Project # 8440  
                  Adams County, Colorado

Dear Mr. Evans:

Please find the enclosed copy of the above-referenced Third Quarter 2018 Site Monitoring and Remediation Report for the Plugged and Abandoned FRI 2-18 Tank Battery and Wellhead Location in Adams County, Colorado. The enclosed report describes groundwater sampling and remediation system operation and maintenance (O&M) activities conducted during the third quarter 2018, in accordance with the previously submitted Form 27 (COGCC document # 2148980). Please contact me at (720) 431-1190 if you require additional information.

Tasman appreciates the opportunity to provide this service.

Sincerely,  
Tasman Geosciences, Inc.



Brandon Bruns  
Project Manager

Enclosure:    Third Quarter 2018 Site Monitoring & Remediation Report

# PLUGGED & ABANDONED FRI 2-18 TANK BATTERY & WELLHEAD LOCATION

## THIRD QUARTER 2018 SITE MONITORING AND REMEDIATION REPORT

September 30, 2018



### PREPARED ON BEHALF OF

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### PREPARED BY

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## **1.0 INTRODUCTION**

This Site Monitoring and Remediation Report (Report) presents the results of groundwater sampling and light non-aqueous phase liquid (LNAPL) recovery activities performed at the Plugged and Abandoned FRI 2-18 Tank Battery and Wellhead Location (Site). Field activities detailed in this report were performed on behalf of Noble Energy, Inc. (Noble), pursuant to Colorado Oil and Gas Conservation Commission (COGCC) guidance.

Field activities described in this Report were conducted by Tasman Geosciences, Inc. (Tasman) to further evaluate groundwater flow characteristics and groundwater quality at the Site. The data collected were used to maintain and optimize remediation system operations, develop the analytical summary tables, groundwater and LNAPL elevation maps, and chemical concentration maps presented herein.

### **1.1 Site Background**

The Site is located in Section 18, Township 1 South, Range 67 West, of the 6<sup>th</sup> Principal Meridian, on 144<sup>th</sup> Avenue, in the town of Thornton in Adams County, Colorado (see Figure 1). The Site surrounds the former FRI 2-18 wellhead and tank battery and is approximately 950 feet (ft.) north of 144<sup>th</sup> Avenue and 1,200 ft. west of Holly Street. The approximate coordinates of the Site are 39.960732°, -104.926776°.

On November 4, 2013 Noble was informed of the suspected release. Subsequently, Noble filed a Form 19 Spill/Release Report (Form 19) with the COGCC for the incident. On November 13, 2013 the Form 19 was received by the COGCC and the incident was designated Spill/Release Tracking Number 2147193 and Remediation Number 8440.

Based on procedures established via the Form 19 process, Noble conducted subsurface Site assessment activities from October 2013 through April 2014 in order to delineate the extent of petroleum hydrocarbon impacts at the Site. On May 9, 2014 Noble submitted a Form 27 Site Assessment Report (Document Number 2148980) for COGCC review. Subsequently, COGCC approved the Form 27, closed out Spill/Release Tracking Number 2147193, and issued Remediation Number 8440 for continued remediation, monitoring and reporting for the project.

A total of 49 monitoring wells were installed at the Site throughout the assessment phase. The locations of these monitoring wells are presented in Figure 2. Laboratory analytical data for soil samples collected during the monitoring well installation are reported in the Site Assessment Report and 4Q2017 Remediation Progress Report (Document Number 401524920) submitted on January 24, 2018. Table 1 and total petroleum hydrocarbon (TPH) concentrations are reported in Figure 5 of those documents. In addition to groundwater and soil assessment activities, Noble initiated interim corrective measures to reduce the presence of LNAPL in the central region of the Site.



## **1.2 Site Topography, Geology, and Hydrogeology**

The Site is positioned at approximately 5,246 ft. above mean sea level (AMSL). Surface topography slopes gradually to the north across the Site with minor depressions evident across the ground surface. Regional topography slopes to the north and northwest from a high point approximately 2,000 ft. south of 144<sup>th</sup> Avenue. Surface drainage features are evident to the north and east of the Site and follow a general northeast – southwest trend.

Site assessment borings indicate that the subsurface geology immediately beneath the Site is composed of unconsolidated alluvial sediments and evaporite deposits overlying consolidated sedimentary rock. The upper unconsolidated unit is observed from ground surface to approximately 35 ft. below ground surface (bgs) and consists of interbedded clays (CL), fine, medium, and coarse grain sands (SC, SP, SW), and zones of accreted caliche. The alluvial and precipitated sediments are underlain by interbedded sandstone and claystone encountered at approximately 35 ft. bgs. The depth of the competent bedrock surface observed in the majority of the borings varies from approximately 25 to 40 ft. bgs across the Site and is generally characterized by a poorly cemented fractured sandstone layer approximately 10 to 15 ft. thick underlain by claystone. Claystone dominates the consolidated interval in the southeastern and eastern portions of the Site, while sandstone is the predominant consolidated lithology noted across the central and western regions. Thickening of the sandstone layer appears to follow a north - south trend across the area of concern. Two wells, SB06 and SB17, did not encounter bedrock. Boring logs for monitoring wells SB01 through SB42 are included in Attachments A and B of the Form 27 Site Assessment Report (Document Number 2148980) submitted to the COGCC on May 9, 2014.

The groundwater table is generally encountered between 40 and 50 ft. bgs within the consolidated sedimentary rock units. Groundwater flow appears preferential to the poorly cemented sandstone layer and appears to be preferentially bound to the central and western portions of the Site. This preferential flow and accumulation is further evidenced by dry and slow re-charging wells in the southeast and eastern portions of the Site (predominated by the lower permeability claystone lithology). Well yields across the majority of the Site are relatively low, consistent with a consolidated bedrock aquifer; however, higher flow rates have been observed, suggesting secondary flow pathways and geologic structures may be contributing factors in groundwater transport.

## **2.0 GROUNDWATER SAMPLING ACTIVITIES**

This section summarizes the groundwater sampling activities that were performed, and the protocols followed during groundwater monitoring activities conducted by Tasman during the third quarter 2018. Sampling activities included measurement of groundwater and LNAPL depths, measurement of groundwater quality parameters, and collection of groundwater samples from Site monitoring wells.

## 2.1 Groundwater Sample Locations

Throughout the Site assessment, monitoring wells SB16, SB22, SB24, SB25, SB27, and SB28 have failed to produce sufficient water for well development or sampling activities. Review of the boring logs shows that construction of these wells was either too shallow or completed in an area of low permeability. These wells were abandoned in June 2015 following review of all previous Site field and laboratory analytical data.

Monitoring well SB20R was abandoned in June 2015, following review of all previous Site field and laboratory analytical data. In prior sampling events, SB20R was not sampled due to the immediate proximity of SB20. Monitoring wells SB01 and SB02 were consistently found to contain groundwater levels above the perforated interval of the well casing. These wells were abandoned in June 2015, following review of all previous Site field and laboratory analytical data.

Monitoring well SB16 has failed to produce sufficient water to sample since its installation. In January 2014 monitoring well SB16 was abandoned and monitoring well SB16R was drilled as a replacement. However, the casing of SB16R was damaged and the well could not be gauged or sampled. In April 2017 monitoring well SB16R was abandoned and monitoring well SB16R2 was installed. Monitoring well SB23 also failed to produce sufficient water for sampling and was abandoned in April 2017. Monitoring well SB23R was drilled as a replacement in April 2017. The COGCC approved removal of periphery wells (SB18, SB24R, SB26, SB29, SB33, SB34, SB35, SB40, SB41, and SB42) from the monitoring network on April 4, 2017.

## 2.2 Groundwater and LNAPL Gauging

Groundwater levels are measured (i.e. gauged) in order to evaluate hydraulic characteristics and to provide information regarding seasonal and annual fluctuations in groundwater elevations at the Site. Groundwater and LNAPL levels were measured on the north side of the well casing to the nearest 0.01-foot using a float driven oil-water interface probe (IP). Groundwater and LNAPL level data were subsequently converted to elevations (ft. AMSL) by subtracting the measured depth from the well's top-of-casing (TOC) elevation survey datum. Groundwater elevations for wells exhibiting detectable LNAPL levels were corrected for the effects of LNAPL depression of the potentiometric surface. These groundwater elevations were corrected using the following formula:

$$\begin{aligned} & (\text{Top of Casing Elevation} - \text{Measured Depth to Water}) \\ & + (\text{LNAPL Thickness in Well} \times \text{LNAPL Relative Density}) \\ & = \text{Corrected Groundwater Elevation} \end{aligned}$$

An LNAPL relative density of 0.75 was used, based on petrophysical quantitation conducted during the initial Site assessment.

Site-wide groundwater monitoring and associated events were conducted between August 24 and 27, 2018. The following sections discuss the field and laboratory analytical procedures followed during this event.

- On August 17, 2018, the Site remediation system (System) was shut off to allow Site subsurface conditions to equilibrate prior to conducting the groundwater sampling event.
- On August 17, 2018, all product recovery pumps were removed from recovery wells to allow for LNAPL gauging to be completed in the product recovery wells during the groundwater sampling event.
- On August 24, 2018, a Site-wide fluid level gauging event was conducted. Groundwater and LNAPL measurements were collected from all Site monitoring and product recovery wells.
- On August 24, 2018, HydraSleeve groundwater sampling devices were deployed in all Site monitoring wells exhibiting the required conditions described in Section 2.3. Wells receiving HydraSleeves included:
 

• SB03	• SB04	• SB06	• SB07
• SB08	• SB10	• SB11	• SB12
• SB13	• SB14	• SB15	• SB17
• SB19	• SB20	• SB22R	• SB25R
• SB27R	• SB28R	• SB36	• SB38
• SB39			
- On August 27, 2018, the HydraSleeves were retrieved from the monitoring wells listed above and groundwater samples were collected and submitted for laboratory analysis. At the same time, field groundwater quality parameters were gauged in-situ at the well locations listed above except SB19 and SB28R. Monitoring Wells SB19 and SB28R contained an obstruction that allowed a HydraSleeve past, however it blocked the deployment of the In-Situ Smart Troll probe.

Groundwater quality measurements were collected in the field following groundwater sample collection using a Smart Troll multi-parameter instrument with a 100 ft. tethered probe to allow for in-situ measurements. Field measurements for temperature, electrical conductivity (EC), pH, oxidation reduction potential (ORP), and dissolved oxygen (DO) were measured in-situ at monitoring wells with sufficient groundwater column. These measurements were not collected from monitoring locations exhibiting detectable levels of LNAPL.

## 2.3 Groundwater Sample Collection

Prior to collecting groundwater laboratory analytical samples, groundwater and LNAPL levels were measured at each of the Site monitoring wells, as previously described. The presence of LNAPL was evaluated and wells exhibiting detectable levels of LNAPL were removed from the laboratory analytical sample collection list.

Groundwater monitoring wells were sampled using individual, disposable, HydraSleeve sample collection devices. Evaluation of the water column height within the well was performed prior to sampler placement in order to maintain sample consistency from well to well and between subsequent sample collection events. HydraSleeves were deployed in a manner limiting sample collection to the top four feet of the water column by restricting the length of the HydraSleeve retrieval tether to no more than four feet longer than the measured depth to water. The procedural basis for how groundwater samples were collected using Hydrasleeve sample collection devices is provided below:

- Samples collected from monitoring wells with a water column height greater than or equal to seven ft. were sampled using a standard 2-inch HydraSleeve (2.5 inches [W] x 30 inches [L]) with five ounce (oz.) (2.5 inches [L]) bottom weights attached via a 2-inch stainless steel clip.
- Samples collected from monitoring wells with a water column height less than seven ft. and greater than two ft. were sampled using a standard 2-inch HydraSleeve (2.5 inches [W] x 30 inches [L]) with five oz. (2.5 inches [L]) bottom weights attached via a 2-inch stainless steel clip. Due to the reduced water column height, HydraSleeves were deployed with a 16 oz. top weight, intended to keep the valve inlet positioned within four ft. of the phreatic surface.
- Monitoring wells with a water column height less than 2 ft. were not sampled as per the Site standard operating procedures due to insufficient sample volume.

Retrieval of the HydraSleeves and collection of the laboratory samples was performed no earlier than 48 hours and no later than 96 hours subsequent to HydraSleeve deployment. Clean sample containers (40-milliliter [ml] volatile organic analysis [VOA] vials) supplied by the analytical laboratory were used to contain liquid for subsequent analyses. VOA vials were overfilled and capped to reduce the potential for any headspace and to prevent the loss of volatile analytes. Sample bottles were then labeled with corresponding date, time and well identification, and placed in an ice-filled cooler and maintained at approximately 4 degrees Celsius (°C) for transportation. The groundwater samples were packed and delivered for analysis under chain-of-custody procedures to the contract laboratory.

Groundwater samples were submitted to Summit Scientific Laboratory in Golden, Colorado for analysis of benzene, toluene, ethylbenzene, and total xylenes (collectively referred to as BTEX) using United States Environmental Protection Agency (USEPA) Method 8260B.

Groundwater sample quality assurance/quality control (QA/QC) procedures were performed via a two-step process. Laboratory QA/QC was performed in accordance with the laboratory's standard internal QA/QC program. Following receipt of laboratory analytical data reports, Tasman performed an internal QA/QC evaluation.

### **3.0 GROUNDWATER SAMPLING RESULTS**

This section presents the results of the third quarter 2018 groundwater sampling activities described above.

#### **3.1 Fluid Level Measurements**

Fluid elevation data generated from the Site-wide groundwater and LNAPL gauging event conducted on August 24, 2018 was processed and converted to piezometric elevation in ft. AMSL. The data collected from this event were then used for Site hydrogeologic evaluation purposes. This evaluation was particularly focused on delineation of the LNAPL plume present across the central region of the Site as well as the flow characteristics of groundwater and dissolved phase contaminant migration. Groundwater elevations and LNAPL thicknesses are presented in Table 1 and LNAPL thicknesses are illustrated in Figure 3. Figure 3 also illustrates LNAPL thickness across the Site for the previous two quarters.

LNAPL was detected on August 24, 2018 in eight Site monitoring wells (SB05, SB09, SB16R2, SB21, SB23R, SB30, SB31 and SB37). Product thickness in these wells ranged from 0.01 ft. at SB09 to 4.21 ft. at SB30. LNAPL was also detected in 18 product recovery wells (PR01-PR03, PR06, PR07, PR09, PR12 through PR19, and PR24), at thicknesses ranging from 0.02 feet in PR02 and PR13 to 2.78 feet in PR18. LNAPL thickness measured during the third quarter 2018 sampling event across the Site is illustrated in the bottom third of Figure 3.

During the August 24, 2018 gauging event, groundwater elevations ranged from a low of 5,199.30 ft. AMSL in PR20 to a high of 5,216.08 ft. AMSL in SB40. Hydraulic analysis of the groundwater elevation data generated for the Site was used to create a groundwater potentiometric surface contour map. These contours show hydraulic gradient components flowing to the southwest. The average hydraulic gradient across the Site was calculated at approximately 0.02 feet per foot between SB40 and SB34. Groundwater potentiometric surface contours are illustrated in Figure 4. Monitoring wells marked as abandoned on Figure 2 as well as those containing less than 0.5 ft. of groundwater column were not used for contouring purposes.

#### **3.2 Groundwater Quality Parameter Measurements**

Field groundwater quality parameters (temperature, EC, pH, ORP, and DO) were measured in-situ at the Site on August 27, 2018 following groundwater sample collection. A summary of field groundwater quality parameter measurements collected by Tasman is presented below and in Table 2:

- Groundwater temperature measurements at the Site ranged from 13.52 degrees Celsius (°C) at SB06 to 16.39°C at SB14, with an average temperature of 14.36 °C.
- Groundwater EC measurements at the Site ranged from 1.25 millisiemens per centimeter (mS/cm) at SB25R to 8.58 mS/cm at SB10, with an average EC of 3.99 mS/cm.

- Groundwater pH measurements at the Site ranged from 6.49 at SB15 to 7.20 at SB25R, with an average pH of 6.89.
- Groundwater ORP measurements at the Site ranged from -262.30 millivolts (mV) at SB10 to 58.60 mV at SB38, with an average ORP of -65.39 mV.
- Groundwater DO measurements at the Site ranged from 0.10 milligrams per liter (mg/L) at SB20 to 3.29 mg/L at SB03, with an average DO of 0.53 mg/L.

### **3.3 Laboratory Analytical Results**

Groundwater laboratory analytical data is presented in Table 3. The laboratory analytical report is provided in Attachment A. A summary of the groundwater laboratory analytical data collected by Tasman is presented below:

- Benzene was detected above the COGCC Table 910-1 standard of 5 micrograms per liter (µg/L) in five of the 21 Site monitoring wells sampled (SB04, SB07, SB08, SB10, and SB15) in addition to the DUP sample. Benzene concentrations associated with these five monitoring wells ranged from 21 µg/L in SB04 and SB15 to 4,400 µg/L in SB08. Benzene analytical results and isoconcentration contours indicating the area where benzene concentrations exceed the COGCC regulatory standard are illustrated in Figure 5.
- Toluene was detected above the COGCC Table 910-1 standard of 560 µg/L in one of the 21 Site monitoring wells sampled. The toluene concentration associated with SB08 was 1,200 µg/L.
- Ethylbenzene was not detected above the COGCC Table 910-1 standard of 700 µg/L in any of the 21 Site monitoring wells sampled.
- Total xylenes were detected above the COGCC Table 910-1 standard of 1,400 µg/L in one of the 21 Site monitoring wells sampled. The total xylenes concentration associated with SB08 was 8,500 µg/L.

## **4.0 INTERIM REMEDIAL ACTION**

This section summarizes remediation activities conducted at the Site from November 2013 to May 2015. Concurrently, a full-scale remediation system was designed and constructed. Interim remedial measures were suspended between June 2015 and February 2016 due to construction activities and final completion of the full-scale system. Construction of the full-scale system was completed on February 22, 2016.



## **4.1 Interim LNAPL Recovery**

Four Magnum Spill Buster automated LNAPL pumping systems were installed at the Site between November 2013 and May 2015. The pumps were specifically designed to remove LNAPL from the water table.

Due to the lack of electrical service at the Site, Spill Buster pumps were operated through the use of solar power. Recovered LNAPL was pumped into 250-gallon polyethylene tanks dedicated to each pumping unit. Once full, LNAPL holding tanks were emptied using a vacuum truck and the fluid was transported to a licensed E&P waste facility for disposal.

Spill Buster systems were removed from the Site in May of 2015. A total of approximately 1,960 gallons of LNAPL were recovered between November 2013 and May 2015.

## **5.0 REMEDIATION SYSTEM OPERATION**

The System is capable of automated LNAPL recovery using a pneumatic pumping system, soil vapor extraction (SVE), and total fluids recovery (TFE). The System was designed to operate in a phased remediation sequence starting with LNAPL recovery, transitioning to SVE, and finally TFE. The LNAPL recovery portion of the System is currently in operation and the SVE was brought on line during the first quarter of 2018. The TFE portion of the System will be brought on line in the fourth quarter of 2018.

### **5.1 LNAPL Recovery**

The LNAPL recovery component of the System was put into 24-hour operation on February 29, 2016. Two Clean Earth Technology Magnum Spill Busters were installed during the Second Quarter 2018. The Spill Busters were operated in conjunction with the full-scale remediation System to help augment LNAPL recovery outside the core product recovery (PR) well network. The Spill Buster units are periodically operated at wells SB05, SB09, SB21, SB30, and SB31 based on optimal LNAPL thicknesses and recovery rates exhibited at each well location.

A significant amount of impacted groundwater and LNAPL have been recovered at the Site going back to November 2013. Spill Busters were used at the Site shortly after the release was detected in November 2013 and the volume of groundwater and LNAPL recovered increased significantly once the System was brought on line in February 2016. As illustrated in Figure 6, as of August 17, 2018, approximately 8,350 gallons of impacted groundwater and approximately 5,850 gallons of LNAPL have been recovered since 2013. Ongoing pump maintenance efforts coupled with a round of well development at select LNAPL recovery wells (PR2, PR7, PR9, PR10, PR12, PR19, PR 25 and PR26) significantly increased the volume of fluid recovered (LNAPL and groundwater) from the second quarter of 2018 to the third quarter of 2018. As summarized in the table below, the fluid recovery volume for 2018 is on track to be the largest volume recovered since recovery efforts were initiated.

Year	Total Fluids Recovered by Year (gallons)
2014	1,695
2015*	265
2016	5,952
2017	6,630
2018	8,684

\*Full-Scale Remediation System Constructed

LNAPL thickness across the Site have decreased significantly in 10 of the PR wells since 2013. As summarized below, LNAPL thickness increases have been minimal as measured in the PR wells. Operation of the Spill Busters and the System have been successful as diminished LNAPL thickness and controlled migration at the Site. LNAPL thickness trends for the PR wells associated with operating the System at the site include:

LNAPL Thickness Trend	No. of Wells	Average Change in LNAPL Thickness from 2014 (feet)
Decrease	10	-4.96
Increase	10	0.444
No change in LNAPL thickness	6	Non-Detect*

\*Non- Detect means no measurable LNAPL is present in the well.

The System has been successful at stabilizing the overall area where LNAPL has been encountered at the Site and LNAPL has not been detected in new wells where LNAPL was not been measured historically.

## 5.2 SVE Operations

The SVE system was made operational on March 21, 2018. Operational parameters, subsurface response, VOC concentrations, and emissions were monitored during three operational configurations. Operational configurations were pre-determined based on several factors including but not limited to proximity to the core source area, presence of LNAPL in the recovery wells, VOC recovery, and potential emission levels. Table 4 summarizes SVE operations since March 21, 2018 and Figure 7 illustrates the cumulative SVE vapor phase mass removal. The SVE system operated under an applied vacuum of 19.85 to 61.66 inches of water column (inWC) and at corresponding flow rates between 260.03 and 142.76 cubic feet per minute (cfm). The largest measured radius of influence (ROI) was approximately 20 feet when the SVE system was operating under the highest vacuum (61.66 inWC) and the largest air emission concentrations were also detected. The calculated SVE emission quantity from March 21 to September 24, 2018 was approximately 641.63 (lbs) of total VOCs.

### 5.2.1 Air Pollution Emission Notice

SVE system operational data were used to evaluate vapor phase petroleum hydrocarbon emission quantities and determine if an air permit would be required by the Colorado Department of Public Health and Environment, Air Pollution Control Division (APCD). Eleven laboratory analytical samples were collected from the SVE exhaust stack (sample ID V001) between April 2 and September 24, 2018 and submitted to Origins Laboratory and ESC Lab Sciences (now Pace National) for analysis of VOC concentrations using USEPA Methods TO-15 and Method M18. The analytical data were used to calculate SVE air emission quantities. The emission calculation for the APEN was completed using a flow rate and total VOC concentration that would allow for future SVE system expansion. The highest laboratory VOC concentration and highest system flowrate were used to develop system parameters that would maximize the allowable SVE emission quantity that would fall within the allowable APCD APEN emission threshold of 2 tons per year. It was determined that a flow rate of 580 cfm and a total VOC concentration of 2,000,000 micrograms per cubic meter (ug/m<sup>3</sup>) would produce a total emission quantity of 1.95 tons per year. Using this increased flowrate and estimated total VOC concentration would allow for future SVE system expansion while falling within the APEN emission threshold. An APEN application will be submitted in October 2018. Tasman will continue to operate the SVE portion of the System during the fourth quarter 2018 and collect additional air emission samples that will be used to prepare an APEN for the CDPHE APCD.

## 6.0 UPCOMING SITE ACTIVITIES

Anticipated upcoming Site activities for the fourth quarter 2018 include:

- The SVE system operational configuration will continue to be modified to address different portions of the release area. Operational data, subsurface response, and VOC concentrations will continue to be closely monitored to System operation is optimized;
- Prepare and submit a request for an air permit to the CDPHE APCD during the fourth quarter 2018;
- With LNAPL thickness and recovery rates stabilizing at the Site, the fluid recovery effort will be further enhanced by initiating operation of the total fluids extraction (TFE) portion of the System. TFE refers to simultaneous recovery of hydrocarbon mass in the vapor, dissolved, and liquid phases from a remediation well. TFE will provide several remediation benefits to the treatment system which includes:
  - Reduction in groundwater levels so that air and vacuum produced from SVE can be introduced into the former saturated interval where emplaced hydrocarbon mass is present. The application of vacuum and air flow through this portion of the subsurface will assist with volatilization and subsequent recovery of VOC mass which was formerly rendered immobile in the soil matrix.
  - TFE will also increase LNAPL and groundwater recovery rates as the groundwater table is dewatered and the hydraulic gradient increases toward the extraction point.

- TFE will be implemented using a phased approach starting with two wells in the fourth quarter of 2018 and then adding four wells over the subsequent two quarters of 2019.
- LNAPL recovery portion of the System will continue to operate in conjunction with TFE. Periodic well re-development and monthly maintenance will continue to be conducted to optimize LNAPL removal from the subsurface.
- Completing the fourth quarter 2018 groundwater sampling event in November.

## **TABLES**

**TABLE 1**  
**GROUNDWATER AND LNAPL ELEVATION DATA**  
**NOBLE ENERGY, INC. - PLUGGED AND ABANDONED FRI 2-18**  
**TANK BATTERY AND WELLHEAD LOCATION**



Monitoring Well ID	Date	DTW (ft. BTOC)	DTP (ft. BTOC)	LNAPL Thickness (ft.)	TD <sup>4</sup> (ft. BTOC)	Top of Casing Elevation (ft. AMSL)	Groundwater Elevation* (ft. AMSL)
PR01	04/21/14	45.55	42.20	3.35	50.34	5244.87	5201.83
PR01	05/16/14	43.07	42.74	0.33	50.34	5244.87	5202.04
PR01	08/27/14	42.92	42.20	0.72	50.34	5244.87	5202.49
PR01	11/18/14	42.50	42.32	0.18	50.34	5244.87	5202.50
PR01	02/11/15	43.57	42.54	1.03	50.34	5244.87	5202.07
PR01	05/18/15	43.20	42.39	0.81	50.34	5244.87	5202.27
PR01	08/25/15	39.15	37.57	1.58	49.20	5244.87	5206.91
PR01	11/09/15	NM	NM	NM	NM	5244.87	NM
PR01	02/19/16	NM	NM	NM	NM	5244.87	NM
PR01	05/20/16	NM	NM	NM	NM	5244.87	NM
PR01	08/12/16	36.28	36.19	0.09	49.40	5244.87	5208.66
PR01	11/18/16	36.68	36.40	0.28	NM	5244.87	5208.40
PR01	02/13/17	36.40	36.13	0.27	NM	5244.87	5208.67
PR01	05/09/17	36.61	36.31	0.30	NM	5241.55	5205.17
PR01	08/22/17	35.36	35.17	0.19	NM	5241.55	5206.33
PR01	11/17/17	36.00	35.80	0.20	NM	5241.55	5205.70
PR01	02/23/18	36.36	35.95	0.41	NM	5241.55	5205.50
PR01	05/18/18	36.14	35.75	0.39	NM	5241.55	5205.70
PR01	08/24/18	36.12	35.71	0.41	46.97	5241.55	5205.74
PR02	04/21/14	45.25	41.40	3.85	51.10	5244.36	5201.99
PR02	05/16/14	43.48	43.42	0.06	51.10	5244.36	5200.92
PR02	08/27/14	43.63	40.71	2.92	51.10	5244.36	5202.92
PR02	11/18/14	44.26	40.39	3.87	51.10	5244.36	5203.00
PR02	02/11/15	43.39	41.78	1.61	51.10	5244.36	5202.17
PR02	05/18/15	43.08	41.45	1.63	51.10	5245.36	5203.50
PR02	08/25/15	39.00	37.33	1.67	49.69	5245.36	5207.61
PR02	11/09/15	NM	NM	NM	NM	5245.36	NM
PR02	02/19/16	NM	NM	NM	NM	5245.36	NM
PR02	05/20/16	NM	NM	NM	NM	5245.36	NM
PR02	08/12/16	36.41	36.30	0.11	46.98	5245.36	5209.03
PR02	11/18/16	36.36	36.35	0.01	NM	5245.36	5209.01
PR02	02/13/17	36.65	36.00	0.65	NM	5245.36	5209.20
PR02	05/09/17	36.23	ND	0.00	NM	5241.46	5205.23
PR02	08/22/17	35.03	35.00	0.03	NM	5241.46	5206.45
PR02	11/17/17	36.21	35.47	0.74	NM	5241.46	5205.81
PR02	02/23/18	35.86	ND	0.00	NM	5241.46	5205.60
PR02	05/18/18	36.06	35.54	0.52	NM	5241.46	5205.79
PR02	08/24/18	35.66	35.64	0.02	47.48	5241.46	5205.82
PR03	11/18/14	47.86	ND	0.00	62.33	Not Surveyed	
PR03	02/11/15	48.30	ND	0.00	62.33	Not Surveyed	

Table 1-1



**TABLE 1**  
**GROUNDWATER AND LNAPL ELEVATION DATA**  
**NOBLE ENERGY, INC. - PLUGGED AND ABANDONED FRI 2-18**  
**TANK BATTERY AND WELLHEAD LOCATION**



Monitoring Well ID	Date	DTW (ft. BTOC)	DTP (ft. BTOC)	LNAPL Thickness (ft.)	TD <sup>4</sup> (ft. BTOC)	Top of Casing Elevation (ft. AMSL)	Groundwater Elevation* (ft. AMSL)
PR03	05/18/15	48.19	ND	0.00	62.33		Not Surveyed
PR03	08/25/15	44.38	ND	0.00	59.35		Not Surveyed
PR03	11/20/15	43.82	ND	0.00	59.35		Not Surveyed
PR03	02/19/16	NM	NM	NM	NM		Not Surveyed
PR03	05/20/16	NM	NM	NM	NM		Not Surveyed
PR03	08/12/16	44.18	43.82	0.36	59.38		Not Surveyed
PR03	11/18/16	42.02	41.52	0.50	NM		Not Surveyed
PR03	02/13/17	41.94	ND	0.00	NM		Not Surveyed
PR03	05/09/17	41.56	41.52	0.04	NM	5243.64	5202.11
PR03	08/22/17	41.33	41.11	0.22	NM	5243.64	5202.48
PR03	11/17/17	40.83	40.65	0.18	NM	5243.64	5202.95
PR03	02/23/18	41.05	40.76	0.29	NM	5243.64	5202.81
PR03	05/18/18	40.97	40.57	0.40	NM	5243.64	5202.97
PR03	08/24/18	40.80	40.45	0.35	57.16	5243.64	5203.10
PR04	11/18/14	47.86	ND	0.00	62.84		Not Surveyed
PR04	02/11/15	48.18	ND	0.00	62.84		Not Surveyed
PR04	05/18/15	48.08	ND	0.00	62.84		Not Surveyed
PR04	08/25/15	43.85	ND	0.00	59.28		Not Surveyed
PR04	11/09/15	NM	NM	NM	NM		Not Surveyed
PR04	02/19/16	NR	ND	0.00	NM		Not Surveyed
PR04	05/20/16	NR	ND	0.00	NM		Not Surveyed
PR04	08/12/16	43.81	43.33	0.48	59.37		Not Surveyed
PR04	11/18/16	40.98	40.95	0.03	NM		Not Surveyed
PR04	02/13/17	41.62	41.42	0.20	NM		Not Surveyed
PR04	05/09/17	40.99	40.97	0.02	NM	5243.34	5202.37
PR04	08/22/17	40.70	40.63	0.07	NM	5243.34	5202.69
PR04	11/17/17	40.81	ND	0.00	NM	5243.34	5202.53
PR04	02/23/18	40.33	ND	0.00	NM	5243.34	5203.01
PR04	05/18/18	40.21	ND	0.00	NM	5243.34	5203.13
PR04	08/24/18	40.03	ND	0.00	57.11	5243.34	5203.31
PR05	11/18/14	47.04	ND	0.00	62.64		Not Surveyed
PR05	02/11/15	47.54	ND	0.00	62.64		Not Surveyed
PR05	05/18/15	47.50	47.33	0.17	62.64		Not Surveyed
PR05	08/25/15	43.37	43.12	0.25	59.67		Not Surveyed
PR05	11/20/15	43.40	43.26	0.14	59.67		Not Surveyed
PR05	02/19/16	NM	NM	NM	NM		Not Surveyed
PR05	05/20/16	NM	NM	NM	NM		Not Surveyed
PR05	08/12/16	40.61	40.60	0.01	57.44		Not Surveyed
PR05	11/18/16	40.77	40.18	0.59	NM		Not Surveyed
PR05	02/13/17	40.98	40.79	0.19	NM		Not Surveyed

Table 1-2

**TABLE 1**  
**GROUNDWATER AND LNAPL ELEVATION DATA**  
**NOBLE ENERGY, INC. - PLUGGED AND ABANDONED FRI 2-18**  
**TANK BATTERY AND WELLHEAD LOCATION**



Monitoring Well ID	Date	DTW (ft. BTOC)	DTP (ft. BTOC)	LNAPL Thickness (ft.)	TD <sup>4</sup> (ft. BTOC)	Top of Casing Elevation (ft. AMSL)	Groundwater Elevation* (ft. AMSL)
PR05	05/09/17	40.81	40.25	0.56	NM	5243.20	5202.81
PR05	08/22/17	40.40	39.91	0.49	NM	5243.20	5203.17
PR05	11/17/17	39.71	39.65	0.06	NM	5243.20	5203.54
PR05	02/23/18	40.12	39.62	0.50	NM	5243.20	5203.46
PR05	05/18/18	39.68	39.61	0.07	NM	5243.20	5203.57
PR05	08/24/18	39.79	39.45	0.34	57.50	5243.20	5203.67
PR06	11/18/14	46.50	ND	0.00	62.91	Not Surveyed	
PR06	02/11/15	47.06	ND	0.00	62.91	Not Surveyed	
PR06	05/18/15	46.90	46.86	0.04	62.91	Not Surveyed	
PR06	08/25/15	42.37	42.32	0.05	59.73	Not Surveyed	
PR06	11/09/15	NM	NM	NM	NM	Not Surveyed	
PR06	02/19/16	NM	NM	NM	NM	Not Surveyed	
PR06	05/20/16	NM	NM	NM	NM	Not Surveyed	
PR06	08/12/16	40.06	39.81	0.25	59.49	Not Surveyed	
PR06	11/18/16	40.21	39.55	0.66	NM	Not Surveyed	
PR06	02/13/17	40.04	ND	0.00	NM	Not Surveyed	
PR06	05/09/17	39.95	39.59	0.36	NM	5242.92	5203.24
PR06	08/22/17	39.62	39.25	0.37	NM	5242.92	5203.58
PR06	11/17/17	39.34	38.82	0.52	NM	5242.92	5203.97
PR06	02/23/18	39.18	39.05	0.13	NM	5242.92	5203.84
PR06	05/18/18	39.15	38.84	0.31	NM	5242.92	5204.00
PR06	08/24/18	38.98	38.88	0.10	57.50	5242.92	5204.02
PR07	11/18/14	46.89	46.03	0.86	62.72	Not Surveyed	
PR07	02/11/15	47.40	46.61	0.79	62.72	Not Surveyed	
PR07	05/18/15	47.85	46.17	1.68	62.72	Not Surveyed	
PR07	08/25/15	43.27	40.98	2.29	59.45	Not Surveyed	
PR07	11/09/15	NM	NM	NM	NM	Not Surveyed	
PR07	02/19/16	NM	NM	NM	NM	Not Surveyed	
PR07	05/20/16	NM	NM	NM	NM	Not Surveyed	
PR07	08/12/16	39.63	39.10	0.53	57.19	Not Surveyed	
PR07	11/18/16	39.81	38.83	0.98	NM	Not Surveyed	
PR07	02/13/17	40.18	39.11	1.07	NM	Not Surveyed	
PR07	05/09/17	40.32	38.70	1.62	NM	5242.62	5203.52
PR07	08/22/17	41.08	38.15	2.93	NM	5242.62	5203.74
PR07	11/17/17	38.66	38.31	0.35	NM	5242.62	5204.22
PR07	02/23/18	39.26	38.30	0.96	NM	5242.62	5204.08
PR07	05/18/18	38.64	38.22	0.42	NM	5242.62	5204.30
PR07	08/24/18	39.73	38.01	1.72	57.20	5242.62	5204.18
PR08	11/18/14	48.95	45.75	3.20	62.90	Not Surveyed	
PR08	02/11/15	50.33	46.11	4.22	62.90	Not Surveyed	

Table 1-3

**TABLE 1**  
**GROUNDWATER AND LNAPL ELEVATION DATA**  
**NOBLE ENERGY, INC. - PLUGGED AND ABANDONED FRI 2-18**  
**TANK BATTERY AND WELLHEAD LOCATION**



Monitoring Well ID	Date	DTW (ft. BTOC)	DTP (ft. BTOC)	LNAPL Thickness (ft.)	TD <sup>4</sup> (ft. BTOC)	Top of Casing Elevation (ft. AMSL)	Groundwater Elevation* (ft. AMSL)
PR08	05/18/15	52.09	45.20	6.89	62.90		Not Surveyed
PR08	08/25/15	45.95	38.67	7.28	58.92		Not Surveyed
PR08	11/09/15	NM	NM	NM	NM		Not Surveyed
PR08	02/19/16	NM	NM	NM	NM		Not Surveyed
PR08	05/20/16	NM	NM	NM	NM		Not Surveyed
PR08	08/12/16	38.61	38.47	0.14	56.76		Not Surveyed
PR08	11/18/16	38.76	38.36	0.40	NM		Not Surveyed
PR08	02/13/17	38.96	38.47	0.49	NM		Not Surveyed
PR08	05/09/17	38.42	38.39	0.03	NM	5242.35	5203.95
PR08	08/22/17	38.30	38.15	0.15	NM	5242.35	5204.16
PR08	11/17/17	37.83	37.73	0.10	NM	5242.35	5204.60
PR08	02/23/18	38.22	37.88	0.34	NM	5242.35	5204.39
PR08	05/18/18	38.04	37.60	0.44	MN	5242.35	5204.64
PR08	08/24/18	37.85	ND	0.00	56.81	5242.35	5204.50
PR09	11/18/14	60.53	40.81	19.72	65.33		Not Surveyed
PR09	02/11/15	57.77	41.32	16.45	65.33		Not Surveyed
PR09	05/18/15	54.68	40.88	13.80	65.33		Not Surveyed
PR09	08/25/15	44.08	38.86	5.22	65.18		Not Surveyed
PR09	11/09/15	NM	NM	NM	NM		Not Surveyed
PR09	02/19/16	NM	NM	NM	NM		Not Surveyed
PR09	05/20/16	NM	NM	NM	NM		Not Surveyed
PR09	08/12/16	38.58	38.23	0.35	62.77		Not Surveyed
PR09	11/18/16	38.48	38.30	0.18	NM		Not Surveyed
PR09	02/13/17	39.36	37.93	1.43	NM		Not Surveyed
PR09	05/09/17	39.02	38.01	1.01	NM	5242.27	5204.01
PR09	08/22/17	39.05	37.63	1.42	NM	5242.27	5204.29
PR09	11/17/17	38.14	37.35	0.79	NM	5242.27	5204.72
PR09	02/23/18	37.90	37.72	0.18	NM	5242.27	5204.51
PR09	05/18/18	37.76	37.39	0.37	NM	5242.27	5204.79
PR09	08/24/18	37.95	37.50	0.45	62.88	5242.27	5204.66
PR10	11/18/14	52.29	43.72	8.57	68.38		Not Surveyed
PR10	02/11/15	52.40	42.22	10.18	68.38		Not Surveyed
PR10	05/18/15	54.06	43.55	10.51	68.38		Not Surveyed
PR10	08/25/15	41.19	39.08	2.11	65.07		Not Surveyed
PR10	11/09/15	NM	NM	NM	NM		Not Surveyed
PR10	02/19/16	NM	NM	NM	NM		Not Surveyed
PR10	05/20/16	NM	NM	NM	NM		Not Surveyed
PR10	08/12/16	37.76	ND	0.00	62.86		Not Surveyed
PR10	11/18/16	38.12	37.77	0.35	NM		Not Surveyed
PR10	02/13/17	37.87	37.75	0.12	NM		Not Surveyed

Table 1-4

**TABLE 1**  
**GROUNDWATER AND LNAPL ELEVATION DATA**  
**NOBLE ENERGY, INC. - PLUGGED AND ABANDONED FRI 2-18**  
**TANK BATTERY AND WELLHEAD LOCATION**



Monitoring Well ID	Date	DTW (ft. BTOC)	DTP (ft. BTOC)	LNAPL Thickness (ft.)	TD <sup>4</sup> (ft. BTOC)	Top of Casing Elevation (ft. AMSL)	Groundwater Elevation* (ft. AMSL)
PR10	05/09/17	37.94	37.67	0.27	NM	5241.96	5204.22
PR10	08/22/17	37.69	37.33	0.36	NM	5241.96	5204.54
PR10	11/17/17	37.22	36.92	0.30	NM	5241.96	5204.97
PR10	02/23/18	37.71	37.19	0.52	NM	5241.96	5204.64
PR10	05/18/18	37.40	36.90	0.50	NM	5241.96	5204.94
PR10	08/24/18	37.11	ND	0.00	62.80	5241.96	5204.85
PR11	11/18/14	51.90	45.35	6.55	67.98	Not Surveyed	
PR11	02/11/15	52.40	45.54	6.86	67.98	Not Surveyed	
PR11	05/18/15	57.40	44.53	12.87	67.98	Not Surveyed	
PR11	08/25/15	42.62	38.61	4.01	64.31	Not Surveyed	
PR11	11/09/15	NM	NM	NM	NM	Not Surveyed	
PR11	02/19/16	NR	NR	5.45	NM	Not Surveyed	
PR11	05/20/16	NR	NR	2.35	NM	Not Surveyed	
PR11	08/12/16	38.95	37.20	1.75	62.14	Not Surveyed	
PR11	11/18/16	37.78	37.59	0.19	NM	Not Surveyed	
PR11	02/13/17	37.94	37.41	0.53	NM	Not Surveyed	
PR11	05/09/17	37.63	37.52	0.11	NM	5241.86	5204.31
PR11	08/22/17	37.40	37.16	0.24	NM	5241.86	5204.64
PR11	11/17/17	37.00	36.73	0.27	NM	5241.86	5205.06
PR11	02/23/18	37.53	36.97	0.56	NM	5241.86	5204.75
PR11	05/18/18	36.91	36.76	0.15	NM	5241.86	5205.06
PR11	08/24/18	36.89	ND	0.00	62.14	5241.86	5204.97
PR12	11/18/14	50.22	ND	0.00	68.30	Not Surveyed	
PR12	02/11/15	48.99	48.92	0.07	68.30	Not Surveyed	
PR12	05/18/15	48.44	48.20	0.24	68.30	Not Surveyed	
PR12	08/25/15	40.92	40.13	0.79	64.42	Not Surveyed	
PR12	11/20/15	40.56	39.75	1.31	64.42	Not Surveyed	
PR12	02/19/16	NM	NM	NM	NM	Not Surveyed	
PR12	05/20/16	NM	NM	NM	NM	Not Surveyed	
PR12	08/12/16	37.84	37.79	0.05	62.28	Not Surveyed	
PR12	11/18/16	38.07	37.59	0.48	NM	Not Surveyed	
PR12	02/13/17	38.29	37.45	0.84	NM	Not Surveyed	
PR12	05/09/17	37.64	ND	0.00	NM	5241.53	5203.89
PR12	08/22/17	37.62	37.20	0.42	NM	5241.53	5204.23
PR12	11/17/17	37.47	36.72	0.75	NM	5241.53	5204.62
PR12	02/23/18	37.18	37.16	0.02	NM	5241.53	5204.37
PR12	05/18/18	37.37	36.67	0.70	NM	5241.53	5204.69
PR12	08/24/18	37.16	36.91	0.25	62.16	5241.53	5204.56
PR13	11/18/14	48.77	ND	0.00	67.96	Not Surveyed	
PR13	02/11/15	49.08	ND	0.00	67.96	Not Surveyed	

**TABLE 1**  
**GROUNDWATER AND LNAPL ELEVATION DATA**  
**NOBLE ENERGY, INC. - PLUGGED AND ABANDONED FRI 2-18**  
**TANK BATTERY AND WELLHEAD LOCATION**



Monitoring Well ID	Date	DTW (ft. BTOC)	DTP (ft. BTOC)	LNAPL Thickness (ft.)	TD <sup>4</sup> (ft. BTOC)	Top of Casing Elevation (ft. AMSL)	Groundwater Elevation* (ft. AMSL)
PR13	05/18/15	48.84	ND	0.00	67.96		Not Surveyed
PR13	08/25/15	44.39	44.34	0.05	64.08		Not Surveyed
PR13	11/20/15	43.80	43.78	0.02	64.08		Not Surveyed
PR13	02/19/16	NM	NM	NM	NM		Not Surveyed
PR13	05/20/16	NM	NM	NM	NM		Not Surveyed
PR13	08/12/16	41.64	41.38	0.26	61.89		Not Surveyed
PR13	11/18/16	41.80	41.42	0.38	NM		Not Surveyed
PR13	02/13/17	41.76	ND	0.00	NM		Not Surveyed
PR13	05/09/17	41.24	ND	0.00	NM	5243.39	5202.15
PR13	08/22/17	48.51	48.50	0.01	NM	5243.39	5194.89
PR13	11/17/17	40.49	ND	0.00	NM	5243.39	5202.90
PR13	02/23/18	46.80	46.70	0.10	NM	5243.39	5196.67
PR13	05/18/18	40.55	40.53	0.02	NM	5243.39	5202.86
PR13	08/24/18	40.51	40.49	0.02	61.90	5243.39	5202.90
PR14	11/18/14	48.46	ND	0.00	67.60		Not Surveyed
PR14	02/11/15	48.58	ND	0.00	67.60		Not Surveyed
PR14	05/18/15	48.25	ND	0.00	67.60		Not Surveyed
PR14	08/25/15	43.88	ND	0.00	64.37		Not Surveyed
PR14	11/09/15	NM	NM	NM	NM		Not Surveyed
PR14	02/19/16	NM	NM	NM	NM		Not Surveyed
PR14	05/20/16	NM	NM	NM	NM		Not Surveyed
PR14	08/12/16	41.64	40.70	0.94	62.15		Not Surveyed
PR14	11/18/16	41.03	ND	0.00	NM		Not Surveyed
PR14	02/13/17	41.68	41.04	0.64	NM		Not Surveyed
PR14	05/09/17	41.01	40.69	0.32	NM	5243.15	5202.38
PR14	08/22/17	41.20	40.10	1.10	NM	5243.15	5202.78
PR14	11/17/17	40.02	40.01	0.01	NM	5243.15	5203.14
PR14	02/23/18	41.38	39.82	1.56	NM	5243.15	5202.94
PR14	05/18/18	40.18	40.01	0.17	NM	5243.15	5203.10
PR14	08/24/18	40.44	39.95	0.49	62.05	5243.15	5203.08
PR15	11/18/14	48.92	48.74	0.18	68.10		Not Surveyed
PR15	02/11/15	49.08	48.42	0.66	68.10		Not Surveyed
PR15	05/18/15	49.62	47.75	1.87	68.10		Not Surveyed
PR15	08/25/15	45.91	42.92	2.99	64.77		Not Surveyed
PR15	11/09/15	NM	NM	NM	NM		Not Surveyed
PR15	02/19/16	NM	NM	NM	NM		Not Surveyed
PR15	05/20/16	NM	NM	NM	NM		Not Surveyed
PR15	08/12/16	41.54	40.40	1.14	62.54		Not Surveyed
PR15	11/18/16	42.13	40.14	1.99	NM		Not Surveyed
PR15	02/13/17	41.16	40.79	0.37	NM		Not Surveyed

Table 1-6

**TABLE 1**  
**GROUNDWATER AND LNAPL ELEVATION DATA**  
**NOBLE ENERGY, INC. - PLUGGED AND ABANDONED FRI 2-18**  
**TANK BATTERY AND WELLHEAD LOCATION**



Monitoring Well ID	Date	DTW (ft. BTOC)	DTP (ft. BTOC)	LNAPL Thickness (ft.)	TD <sup>4</sup> (ft. BTOC)	Top of Casing Elevation (ft. AMSL)	Groundwater Elevation* (ft. AMSL)
PR15	05/09/17	41.13	40.20	0.93	NM	5243.05	5202.62
PR15	08/22/17	41.24	39.75	1.49	NM	5243.05	5202.93
PR15	11/17/17	39.84	39.77	0.07	NM	5243.05	5203.26
PR15	02/23/18	40.39	39.78	0.61	NM	5243.05	5203.12
PR15	05/18/18	39.84	39.75	0.09	NM	5243.05	5203.28
PR15	08/24/18	40.18	39.69	0.49	62.55	5243.05	5203.24
PR16	11/18/14	47.70	47.06	0.64	68.40	Not Surveyed	
PR16	02/11/15	48.84	46.79	2.05	68.40	Not Surveyed	
PR16	05/18/15	51.58	45.53	6.05	68.40	Not Surveyed	
PR16	08/25/15	50.02	40.81	9.21	65.26	Not Surveyed	
PR16	11/09/15	NM	NM	NM	NM	Not Surveyed	
PR16	02/19/16	NM	NM	NM	NM	Not Surveyed	
PR16	05/20/16	NM	NM	NM	NM	Not Surveyed	
PR16	08/12/16	40.83	39.85	0.98	63.11	Not Surveyed	
PR16	11/18/16	43.87	38.69	5.18	NM	Not Surveyed	
PR16	02/13/17	40.64	40.14	0.50	NM	Not Surveyed	
PR16	05/09/17	41.58	39.40	2.18	NM	5242.81	5202.87
PR16	08/22/17	41.80	38.60	3.20	NM	5242.81	5203.41
PR16	11/17/17	40.81	38.84	1.97	NM	5242.81	5203.48
PR16	02/23/18	39.69	39.35	0.34	NM	5242.81	5203.38
PR16	05/18/18	41.33	38.54	2.79	NM	5242.81	5203.57
PR16	08/24/18	41.13	38.80	2.33	63.10	5242.81	5203.43
PR17	11/18/14	47.62	47.51	0.11	68.13	Not Surveyed	
PR17	02/11/15	47.69	47.44	0.25	68.13	Not Surveyed	
PR17	05/18/15	47.68	47.06	0.62	68.13	Not Surveyed	
PR17	08/25/15	43.33	42.55	0.78	65.24	Not Surveyed	
PR17	11/09/15	NM	NM	NM	NM	Not Surveyed	
PR17	02/19/16	NM	NM	NM	NM	Not Surveyed	
PR17	05/20/16	NM	NM	NM	NM	Not Surveyed	
PR17	08/12/16	39.95	39.90	0.05	63.05	Not Surveyed	
PR17	11/18/16	39.74	39.63	0.11	NM	Not Surveyed	
PR17	02/13/17	40.01	39.85	0.16	NM	Not Surveyed	
PR17	05/09/17	39.80	39.61	0.19	NM	5242.70	5203.04
PR17	08/22/17	39.30	39.22	0.08	NM	5242.70	5203.46
PR17	11/17/17	38.94	38.90	0.04	NM	5242.70	5203.79
PR17	02/23/18	39.21	39.08	0.13	NM	5242.70	5203.59
PR17	05/18/18	38.86	38.79	0.07	NM	5242.70	5203.89
PR17	08/24/18	38.99	38.93	0.06	63.07	5242.70	5203.76
PR18	11/18/14	49.95	45.97	3.98	67.95	Not Surveyed	
PR18	02/11/15	54.62	45.95	8.67	67.95	Not Surveyed	

Table 1-7



**TABLE 1**  
**GROUNDWATER AND LNAPL ELEVATION DATA**  
**NOBLE ENERGY, INC. - PLUGGED AND ABANDONED FRI 2-18**  
**TANK BATTERY AND WELLHEAD LOCATION**



Monitoring Well ID	Date	DTW (ft. BTOC)	DTP (ft. BTOC)	LNAPL Thickness (ft.)	TD <sup>4</sup> (ft. BTOC)	Top of Casing Elevation (ft. AMSL)	Groundwater Elevation* (ft. AMSL)
PR18	05/18/15	58.44	44.91	13.53	67.95		Not Surveyed
PR18	08/25/15	50.27	40.50	9.77	65.05		Not Surveyed
PR18	11/09/15	NM	NM	NM	NM		Not Surveyed
PR18	02/19/16	NM	NM	NM	NM		Not Surveyed
PR18	05/20/16	NM	NM	NM	NM		Not Surveyed
PR18	08/12/16	49.20	37.31	11.89	62.88		Not Surveyed
PR18	11/18/16	44.79	37.70	7.09	NM		Not Surveyed
PR18	02/13/17	42.20	38.47	3.73	NM		Not Surveyed
PR18	05/09/17	42.84	38.08	4.76	NM	5242.35	5203.08
PR18	08/22/17	42.70	37.55	5.15	NM	5242.35	5203.51
PR18	11/17/17	38.99	38.11	0.88	NM	5242.35	5204.02
PR18	02/23/18	41.54	37.70	3.84	NM	5242.35	5203.69
PR18	05/18/18	40.59	37.68	2.91	NM	5242.35	5203.94
PR18	08/24/18	40.59	37.81	2.78	62.88	5242.35	5203.85
PR19	11/18/14	51.35	ND	0.00	67.98		Not Surveyed
PR19	02/11/15	49.41	ND	0.00	67.98		Not Surveyed
PR19	05/18/15	48.71	ND	0.00	67.98		Not Surveyed
PR19	08/25/15	43.27	ND	0.00	64.48		Not Surveyed
PR19	11/20/15	44.04	41.98	2.06	64.48		Not Surveyed
PR19	02/19/16	NM	ND	0.00	NM		Not Surveyed
PR19	05/20/16	NM	ND	0.00	NM		Not Surveyed
PR19	08/12/16	44.98	39.59	5.39	62.32		Not Surveyed
PR19	11/18/16	42.08	38.88	3.20	NM		Not Surveyed
PR19	02/13/17	40.07	39.67	0.40	NM		Not Surveyed
PR19	05/09/17	34.87	34.43	0.44	NM	5249.37	5214.83
PR19	08/22/17	40.30	38.75	1.55	NM	5249.37	5210.23
PR19	11/17/17	39.76	38.35	1.41	NM	5242.17	5203.47
PR19	02/23/18	39.54	38.53	1.01	NM	5242.17	5203.39
PR19	05/18/18	38.52	38.34	0.18	NM	5242.17	5203.79
PR19	08/24/18	38.80	38.47	0.33	62.32	5242.17	5203.62
PR20	11/18/14	52.50	ND	0.00	67.60		Not Surveyed
PR20	02/11/15	52.78	ND	0.00	67.60		Not Surveyed
PR20	05/18/15	52.71	ND	0.00	67.60		Not Surveyed
PR20	08/25/15	49.03	ND	0.00	64.46		Not Surveyed
PR20	11/20/15	48.99	ND	0.00	64.46		Not Surveyed
PR20	02/19/16	NM	ND	0.00	NM		Not Surveyed
PR20	05/20/16	NM	ND	0.00	NM		Not Surveyed
PR20	08/12/16	46.49	ND	0.00	62.28		Not Surveyed
PR20	11/18/16	42.64	ND	0.00	NM		Not Surveyed
PR20	02/13/17	46.25	ND	0.00	NM		Not Surveyed

Table 1-8

**TABLE 1**  
**GROUNDWATER AND LNAPL ELEVATION DATA**  
**NOBLE ENERGY, INC. - PLUGGED AND ABANDONED FRI 2-18**  
**TANK BATTERY AND WELLHEAD LOCATION**



Monitoring Well ID	Date	DTW (ft. BTOC)	DTP (ft. BTOC)	LNAPL Thickness (ft.)	TD <sup>4</sup> (ft. BTOC)	Top of Casing Elevation (ft. AMSL)	Groundwater Elevation* (ft. AMSL)
PR20	05/09/17	NM	NM	NM	NM	5244.86	NM
PR20	08/22/17	45.90	ND	0.00	NM	5244.86	5198.96
PR20	11/17/17	45.51	ND	0.00	NM	5244.86	5199.35
PR20	02/27/18	45.62	ND	0.00	NM	5244.86	5199.24
PR20	05/18/18	45.65	ND	0.00	NM	5244.86	5199.21
PR20	08/24/18	45.56	ND	0.00	62.26	5244.86	5199.30
PR21	11/18/14	52.39	ND	0.00	67.99	Not Surveyed	
PR21	02/11/15	52.59	ND	0.00	67.99	Not Surveyed	
PR21	05/18/15	52.52	ND	0.00	67.99	Not Surveyed	
PR21	08/25/15	48.70	ND	0.00	64.50	Not Surveyed	
PR21	11/20/15	48.56	ND	0.00	64.50	Not Surveyed	
PR21	02/19/16	NM	NM	NM	NM	Not Surveyed	
PR21	05/20/16	NM	NM	NM	NM	Not Surveyed	
PR21	08/12/16	46.10	ND	0.00	62.33	Not Surveyed	
PR21	11/18/16	46.55	46.54	0.01	NM	Not Surveyed	
PR21	02/13/17	45.88	ND	0.00	NM	Not Surveyed	
PR21	05/09/17	NM	NM	NM	NM	5244.58	NM
PR21	08/22/17	45.45	ND	0.00	NM	5244.58	5199.13
PR21	11/17/17	45.07	ND	0.00	NM	5244.58	5199.51
PR21	02/27/18	45.18	ND	0.00	NM	5244.58	5199.40
PR21	05/18/18	45.21	ND	0.00	NM	5244.58	5199.37
PR21	08/24/18	45.12	ND	0.00	62.33	5244.58	5199.46
PR22	11/18/14	52.20	ND	0.00	67.62	Not Surveyed	
PR22	02/11/15	52.15	ND	0.00	67.62	Not Surveyed	
PR22	05/18/15	52.10	ND	0.00	67.92	Not Surveyed	
PR22	08/25/15	48.44	ND	0.00	64.44	Not Surveyed	
PR22	11/20/15	48.26	ND	0.00	64.44	Not Surveyed	
PR22	02/19/16	NM	NM	NM	NM	Not Surveyed	
PR22	05/20/16	NM	NM	NM	NM	Not Surveyed	
PR22	08/12/16	45.71	ND	0.00	62.29	Not Surveyed	
PR22	11/18/16	45.69	ND	0.00	NM	Not Surveyed	
PR22	02/13/17	45.50	ND	0.00	NM	Not Surveyed	
PR22	05/09/17	NM	NM	NM	NM	5244.22	NM
PR22	08/22/17	44.98	ND	0.00	NM	5244.22	5199.24
PR22	11/17/17	44.61	ND	0.00	NM	5244.22	5199.61
PR22	02/27/18	44.70	ND	0.00	NM	5244.22	5199.52
PR22	05/18/18	44.72	ND	0.00	NM	5244.22	5199.50
PR22	08/24/18	44.73	ND	0.00	61.84	5244.22	5199.49
PR23	11/18/14	52.52	ND	0.00	68.20	Not Surveyed	
PR23	02/11/15	52.18	ND	0.00	68.20	Not Surveyed	

Table 1-9

**TABLE 1**  
**GROUNDWATER AND LNAPL ELEVATION DATA**  
**NOBLE ENERGY, INC. - PLUGGED AND ABANDONED FRI 2-18**  
**TANK BATTERY AND WELLHEAD LOCATION**



Monitoring Well ID	Date	DTW (ft. BTOC)	DTP (ft. BTOC)	LNAPL Thickness (ft.)	TD <sup>4</sup> (ft. BTOC)	Top of Casing Elevation (ft. AMSL)	Groundwater Elevation* (ft. AMSL)
PR23	05/18/15	52.09	ND	0.00	68.20		Not Surveyed
PR23	08/25/15	48.16	ND	0.00	64.39		Not Surveyed
PR23	11/09/15	NM	NM	NM	NM		Not Surveyed
PR23	02/19/16	NM	NM	NM	NM		Not Surveyed
PR23	05/20/16	NM	NM	NM	NM		Not Surveyed
PR23	08/12/16	45.21	ND	0.00	62.17		Not Surveyed
PR23	11/18/16	45.29	ND	0.00	NM		Not Surveyed
PR23	02/13/17	45.00	ND	0.00	NM		Not Surveyed
PR23	05/09/17	NM	NM	NM	NM	5243.92	NM
PR23	08/22/17	44.40	ND	0.00	NM	5243.92	5199.52
PR23	11/17/17	44.00	ND	0.00	NM	5243.92	5199.92
PR23	02/27/18	44.14	ND	0.00	NM	5243.92	5199.78
PR23	05/18/18	44.19	ND	0.00	NM	5243.92	5199.73
PR23	08/24/18	44.28	ND	0.00	62.13	5243.92	5199.64
PR24	11/18/14	51.71	ND	0.00	68.12		Not Surveyed
PR24	02/11/15	51.82	51.65	0.17	68.12		Not Surveyed
PR24	05/18/15	52.04	51.44	0.60	68.12		Not Surveyed
PR24	08/25/15	48.29	47.56	0.73	64.30		Not Surveyed
PR24	11/09/15	NM	NM	NM	NM		Not Surveyed
PR24	02/19/16	NM	NM	NM	NM		Not Surveyed
PR24	05/20/16	NM	NM	NM	NM		Not Surveyed
PR24	08/12/16	44.80	44.66	0.14	62.09		Not Surveyed
PR24	11/18/16	44.83	ND	0.00	NM		Not Surveyed
PR24	02/13/17	44.55	44.50	0.05	NM		Not Surveyed
PR24	05/09/17	44.18	44.10	0.08	NM	5243.46	5199.34
PR24	08/22/17	43.90	43.85	0.05	NM	5243.46	5199.60
PR24	11/17/17	44.58	44.54	0.04	NM	5243.46	5198.91
PR24	02/23/18	43.97	43.78	0.19	NM	5243.46	5199.63
PR24	05/18/18	43.75	43.62	0.13	NM	5243.46	5199.81
PR24	08/24/18	43.77	43.69	0.08	62.08	5243.46	5199.75
PR25	11/18/14	66.20	ND	0.00	68.15		Not Surveyed
PR25	02/11/15	51.75	51.28	0.47	68.15		Not Surveyed
PR25	05/18/15	52.46	50.94	1.52	68.15		Not Surveyed
PR25	08/25/15	49.24	46.78	2.46	64.39		Not Surveyed
PR25	11/20/15	50.03	26.24	23.79	64.39		Not Surveyed
PR25	02/19/16	NM	NM	NM	NM		Not Surveyed
PR25	05/20/16	NM	NM	NM	NM		Not Surveyed
PR25	08/12/16	50.80	42.86	7.94	62.27		Not Surveyed
PR25	11/18/16	48.93	42.76	6.17	NM		Not Surveyed
PR25	02/13/17	44.53	44.09	0.44	NM		Not Surveyed

**TABLE 1**  
**GROUNDWATER AND LNAPL ELEVATION DATA**  
**NOBLE ENERGY, INC. - PLUGGED AND ABANDONED FRI 2-18**  
**TANK BATTERY AND WELLHEAD LOCATION**



Monitoring Well ID	Date	DTW (ft. BTOC)	DTP (ft. BTOC)	LNAPL Thickness (ft.)	TD <sup>4</sup> (ft. BTOC)	Top of Casing Elevation (ft. AMSL)	Groundwater Elevation* (ft. AMSL)
PR25	05/09/17	45.93	43.11	2.82	NM	5243.21	5199.40
PR25	08/22/17	45.90	42.80	3.10	NM	5243.21	5199.64
PR25	11/17/17	43.43	43.10	0.33	NM	5243.21	5200.03
PR25	02/23/18	43.61	43.27	0.34	NM	5243.21	5199.86
PR25	05/18/18	44.24	42.86	1.38	NM	5243.21	5200.01
PR25	08/24/18	43.97	43.02	0.95	61.89	5243.21	5199.95
PR26	11/18/14	51.21	51.19	0.02	67.90	Not Surveyed	
PR26	02/11/15	51.46	51.19	0.27	67.90	Not Surveyed	
PR26	05/18/15	51.64	50.95	0.69	67.90	Not Surveyed	
PR26	08/25/15	47.68	46.78	0.90	63.98	Not Surveyed	
PR26	11/20/15	47.60	46.50	1.10	63.98	Not Surveyed	
PR26	02/19/16	NM	NM	NM	NM	Not Surveyed	
PR26	05/20/16	NM	NM	NM	NM	Not Surveyed	
PR26	08/12/16	46.27	43.13	3.14	61.89	Not Surveyed	
PR26	11/18/16	43.96	43.62	0.34	NM	Not Surveyed	
PR26	02/13/17	43.65	43.24	0.41	NM	Not Surveyed	
PR26	05/09/17	44.32	42.59	1.73	NM	5242.84	5199.82
PR26	08/22/17	44.50	42.19	2.31	NM	5242.84	5200.07
PR26	11/17/17	42.67	42.39	0.28	NM	5242.84	5200.38
PR26	02/23/18	43.54	42.40	1.14	NM	5242.84	5200.16
PR26	05/18/18	42.74	42.41	0.33	NM	5242.84	5200.35
PR26	08/24/18	42.90	42.41	0.49	61.85	5242.84	5200.31
SB01	02/21/14	41.68	ND	0.00	60.35	5245.29	5203.61
SB01	05/16/14	41.13	ND	0.00	60.35	5245.29	5204.16
SB01	05/19/14	Removed From Groundwater Monitoring Program - Submerged Well Screen					
SB02	02/21/14	39.80	ND	0.00	59.95	5243.53	5203.73
SB02	05/16/14	38.97	ND	0.00	59.95	5243.53	5204.56
SB02	05/19/14	Removed From Groundwater Monitoring Program - Submerged Well Screen					
SB03	02/21/14	42.01	ND	0.00	51.38	5245.57	5203.56
SB03	05/16/14	41.41	ND	0.00	51.38	5245.57	5204.16
SB03	08/27/14	41.82	ND	0.00	51.38	5245.57	5203.75
SB03	11/18/14	41.56	ND	0.00	51.38	5245.57	5204.01
SB03	02/11/15	41.82	ND	0.00	51.38	5245.57	5203.75
SB03	05/18/15	41.72	ND	0.00	51.38	5245.57	5203.85
SB03	08/25/15	35.39	ND	0.00	45.81	5241.17	5205.78
SB03	11/20/15	34.49	ND	0.00	45.81	5242.17	5207.68
SB03	02/19/16	34.26	ND	0.00	45.79	5242.17	5207.91
SB03	05/20/16	33.57	ND	0.00	45.79	5242.17	5208.60
SB03	08/12/16	32.57	ND	0.00	45.80	5242.17	5209.60
SB03	11/18/16	31.76	ND	0.00	45.87	5242.17	5210.41

Table 1-11

**TABLE 1**  
**GROUNDWATER AND LNAPL ELEVATION DATA**  
**NOBLE ENERGY, INC. - PLUGGED AND ABANDONED FRI 2-18**  
**TANK BATTERY AND WELLHEAD LOCATION**



Monitoring Well ID	Date	DTW (ft. BTOC)	DTP (ft. BTOC)	LNAPL Thickness (ft.)	TD <sup>4</sup> (ft. BTOC)	Top of Casing Elevation (ft. AMSL)	Groundwater Elevation* (ft. AMSL)
SB03	02/13/17	31.23	ND	0.00	45.81	5242.17	5210.94
SB03	05/09/17	30.83	ND	0.00	45.83	5242.17	5211.34
SB03	08/22/17	30.61	ND	0.00	45.85	5242.17	5211.56
SB03	11/17/17	29.39	ND	0.00	45.83	5242.17	5212.78
SB03	02/23/18	28.96	ND	0.00	45.89	5242.17	5213.21
SB03	05/18/18	28.77	ND	0.00	46.00	5242.17	5213.40
SB03	08/24/18	28.27	ND	0.00	45.95	5242.17	5213.90
SB04	02/21/14	39.24	ND	0.00	50.35	5242.85	5203.61
SB04	05/16/14	38.37	ND	0.00	50.35	5242.85	5204.48
SB04	08/27/14	38.97	ND	0.00	50.35	5242.85	5203.88
SB04	11/18/14	38.72	ND	0.00	50.35	5242.85	5204.13
SB04	02/11/15	39.01	ND	0.00	50.35	5242.85	5203.84
SB04	05/18/15	38.87	ND	0.00	50.35	5242.85	5203.98
SB04	08/25/15	34.70	ND	0.00	48.67	5241.29	5206.59
SB04	11/20/15	33.97	ND	0.00	48.67	5242.29	5208.32
SB04	02/19/16	33.80	ND	0.00	48.69	5242.29	5208.49
SB04	05/20/16	36.50	ND	0.00	52.04	5244.63	5208.13
SB04	08/12/16	35.66	ND	0.00	52.02	5244.63	5208.97
SB04	11/18/16	35.01	ND	0.00	52.08	5244.63	5209.62
SB04	02/13/17	34.50	ND	0.00	52.02	5244.63	5210.13
SB04	05/09/17	34.17	ND	0.00	52.03	5244.63	5210.46
SB04	08/22/17	33.96	ND	0.00	52.01	5244.63	5210.67
SB04	11/17/17	32.54	ND	0.00	52.01	5244.63	5212.09
SB04	02/23/18	32.67	ND	0.00	52.08	5244.63	5211.96
SB04	05/18/18	32.42	ND	0.00	52.15	5244.63	5212.21
SB04	08/24/18	31.93	ND	0.00	52.15	5244.63	5212.70
SB05	02/21/14	45.35	41.10	4.25	49.10	5244.11	5201.94
SB05	05/16/14	42.19	41.92	0.27	49.10	5244.11	5202.12
SB05	08/27/14	42.45	41.10	1.35	49.10	5244.11	5202.67
SB05	11/18/14	41.61	41.27	0.34	49.10	5244.11	5202.75
SB05	02/11/15	42.92	41.58	1.34	49.10	5244.11	5202.19
SB05	05/18/15	42.36	41.38	0.98	49.10	5243.26	5201.64
SB05	08/25/15	38.02	36.99	1.03	47.39	5243.26	5206.01
SB05	11/20/15	38.12	36.78	1.34	47.39	5244.26	5207.15
SB05	02/19/16	36.70	ND	0.00 <sup>1</sup>	47.39	5244.26	5207.56
SB05	05/20/16	43.95	41.63	2.32	51.85	5247.71	5205.50
SB05	08/12/16	44.64	41.84	2.80	51.89	5247.71	5205.17
SB05	11/18/16	44.93	41.90	3.03	NM	5247.71	5205.05
SB05	02/13/17	44.70	41.66	3.04	NM	5247.71	5205.29
SB05	05/09/17	44.87	41.64	3.23	51.89	5247.71	5205.26

Table 1-12

**TABLE 1**  
**GROUNDWATER AND LNAPL ELEVATION DATA**  
**NOBLE ENERGY, INC. - PLUGGED AND ABANDONED FRI 2-18**  
**TANK BATTERY AND WELLHEAD LOCATION**



Monitoring Well ID	Date	DTW (ft. BTOC)	DTP (ft. BTOC)	LNAPL Thickness (ft.)	TD <sup>4</sup> (ft. BTOC)	Top of Casing Elevation (ft. AMSL)	Groundwater Elevation* (ft. AMSL)
SB05	08/22/17	45.07	41.66	3.41	NM	5247.71	5205.20
SB05	11/17/17	44.40	41.20	3.20	NM	5247.71	5205.71
SB05	02/23/18	43.45	43.16	0.29	NM	5247.71	5204.48
SB05	05/18/18	41.73	41.63	0.10	52.07	5247.71	5206.06
SB05	08/24/18	42.48	41.74	0.74	51.90	5247.71	5205.79
SB06	02/21/14	39.86	ND	0.00	49.52	5243.55	5203.69
SB06	05/16/14	38.91	ND	0.00	49.52	5243.55	5204.64
SB06	08/27/14	39.55	ND	0.00	49.52	5243.55	5204.00
SB06	11/18/14	39.32	ND	0.00	49.52	5243.55	5204.23
SB06	02/11/15	39.59	ND	0.00	49.52	5243.55	5203.96
SB06	05/18/15	39.49	ND	0.00	49.52	5243.55	5204.06
SB06	08/25/15	35.21	ND	0.00	47.61	5241.80	5206.59
SB06	11/20/15	34.44	ND	0.00	47.61	5242.80	5208.36
SB06	02/19/16	34.20	ND	0.00	47.60	5242.80	5208.60
SB06	05/20/16	37.08	ND	0.00	50.98	5245.23	5208.15
SB06	08/12/16	36.38	ND	0.00	50.98	5245.23	5208.85
SB06	11/18/16	35.73	ND	0.00	51.10	5245.23	5209.50
SB06	02/13/17	35.33	ND	0.00	50.96	5245.23	5209.90
SB06	05/09/17	34.95	ND	0.00	50.96	5245.23	5210.28
SB06	08/22/17	34.82	ND	0.00	50.97	5245.23	5210.41
SB06	11/17/17	33.75	ND	0.00	50.89	5245.23	5211.48
SB06	02/23/18	33.57	ND	0.00	51.09	5245.23	5211.66
SB06	05/18/18	33.27	ND	0.00	51.39	5245.23	5211.96
SB06	08/24/18	32.80	ND	0.00	51.00	5245.23	5212.43
SB07	02/21/14	42.73	ND	0.00	50.40	5245.62	5202.89
SB07	05/16/14	42.70	ND	0.00	50.40	5245.62	5202.92
SB07	08/27/14	42.55	ND	0.00	50.40	5245.62	5203.07
SB07	11/18/14	42.34	ND	0.00	50.40	5245.62	5203.28
SB07	02/11/15	42.45	ND	0.00	50.40	5245.62	5203.17
SB07	05/18/15	39.70	ND	0.00	47.82	5243.18	5203.48
SB07	08/25/15	38.25	ND	0.00	47.84	5243.18	5204.93
SB07	11/20/15	33.08	ND	0.00	47.84	5244.18	5211.10
SB07	02/19/16	34.78	ND	0.00	47.84	5244.18	5209.40
SB07	05/20/16	40.30	ND	0.00	51.56	5246.91	5206.61
SB07	08/12/16	40.37	ND	0.00	51.56	5246.91	5206.54
SB07	11/18/16	40.17	ND	0.00	51.63	5246.91	5206.74
SB07	02/13/17	39.84	ND	0.00	51.56	5246.91	5207.07
SB07	05/09/17	39.60	ND	0.00	51.56	5246.91	5207.31
SB07	08/22/17	39.40	ND	0.00	51.56	5246.91	5207.51
SB07	11/17/17	39.05	ND	0.00	51.56	5246.91	5207.86



**TABLE 1**  
**GROUNDWATER AND LNAPL ELEVATION DATA**  
**NOBLE ENERGY, INC. - PLUGGED AND ABANDONED FRI 2-18**  
**TANK BATTERY AND WELLHEAD LOCATION**



Monitoring Well ID	Date	DTW (ft. BTOC)	DTP (ft. BTOC)	LNAPL Thickness (ft.)	TD <sup>4</sup> (ft. BTOC)	Top of Casing Elevation (ft. AMSL)	Groundwater Elevation* (ft. AMSL)
SB07	02/23/18	38.59	ND	0.00	51.62	5246.91	5208.32
SB07	05/18/18	38.23	ND	0.00	51.74	5246.91	5208.68
SB07	08/24/18	38.08	ND	0.00	51.67	5246.91	5208.83
SB08	02/21/14	44.46	ND	0.00	50.41	5246.57	5202.11
SB08	05/16/14	44.54	ND	0.00	50.41	5246.57	5202.03
SB08	08/27/14	44.30	ND	0.00	50.41	5246.57	5202.27
SB08	11/18/14	45.16	44.88	0.28	50.41	5246.57	5201.62
SB08	02/11/15	45.64	45.51	0.13	50.41	5246.57	5201.03
SB08	05/18/15	45.09	ND	0.00	50.41	5246.57	5201.48
SB08	08/25/15	40.63	ND	0.00	48.32	5244.80	5204.17
SB08	11/20/15	39.04	39.01	0.03	48.32	5245.80	5206.78
SB08	02/19/16	35.17	ND	0.00 <sup>1</sup>	48.32	5245.80	5210.63
SB08	05/20/16	42.88	ND	0.00	51.08	5247.67	5204.79
SB08	08/12/16	43.20	ND	0.00	51.00	5247.67	5204.47
SB08	11/18/16	42.91	ND	0.00	51.26	5247.67	5204.76
SB08	02/13/17	42.75	ND	0.00	51.08	5247.67	5204.92
SB08	05/09/17	42.72	ND	0.00	51.10	5247.67	5204.95
SB08	08/22/17	42.44	ND	0.00	51.09	5247.67	5205.23
SB08	11/17/17	42.10	ND	0.00	51.09	5247.67	5205.57
SB08	02/23/18	42.08	ND	0.00	51.26	5247.67	5205.59
SB08	05/18/18	41.72	ND	0.00	51.35	5247.67	5205.95
SB08	08/24/18	41.97	ND	0.00	51.09	5247.67	5205.70
SB09	02/21/14	45.80	43.00	2.80	50.55	5245.53	5201.83
SB09	05/16/14	45.37	43.81	1.56	50.55	5245.53	5201.33
SB09	08/27/14	42.67	42.12	0.55	49.79	5244.86	5202.60
SB09	11/18/14	42.19	41.37	0.82	50.55	5244.86	5203.29
SB09	02/11/15	43.07	41.97	1.10	50.55	5244.86	5202.62
SB09	05/18/15	42.30	41.23	1.07	50.55	5244.86	5203.36
SB09	08/25/15	39.98	38.35	1.63	47.44	5243.49	5204.73
SB09	11/20/15	40.11	38.36	1.75	47.44	5244.49	5205.69
SB09	02/19/16	38.17	NM	NM <sup>1</sup>	47.44	5244.49	5206.32
SB09	05/20/16	43.94	42.99	0.95	52.15	5248.20	5204.98
SB09	08/12/16	44.39	43.30	1.09	52.19	5248.20	5204.63
SB09	11/18/16	44.49	43.35	1.14	NM	5248.20	5204.57
SB09	02/13/17	44.32	43.29	1.03	NM	5248.20	5204.66
SB09	05/09/17	44.23	43.19	1.04	52.15	5248.20	5204.75
SB09	08/22/17	44.32	43.19	1.13	NM	5248.20	5204.73
SB09	11/17/17	43.51	42.65	0.86	NM	5248.20	5205.34
SB09	02/23/18	43.89	42.90	0.99	NM	5248.20	5205.05
SB09	05/18/18	43.88	43.86	0.02	NM	5248.20	5204.34

Table 1-14

**TABLE 1**  
**GROUNDWATER AND LNAPL ELEVATION DATA**  
**NOBLE ENERGY, INC. - PLUGGED AND ABANDONED FRI 2-18**  
**TANK BATTERY AND WELLHEAD LOCATION**



Monitoring Well ID	Date	DTW (ft. BTOC)	DTP (ft. BTOC)	LNAPL Thickness (ft.)	TD <sup>4</sup> (ft. BTOC)	Top of Casing Elevation (ft. AMSL)	Groundwater Elevation* (ft. AMSL)
SB09	08/24/18	42.84	42.83	0.01	52.07	5248.20	5205.37
SB10	02/21/14	41.71	ND	0.00	50.49	5245.24	5203.53
SB10	05/16/14	41.17	ND	0.00	50.49	5245.24	5204.07
SB10	08/27/14	41.23	41.22	0.01	50.49	5245.24	5204.02
SB10	11/18/14	40.92	ND	0.00	50.49	5245.24	5204.32
SB10	02/11/15	41.18	ND	0.00	50.49	5245.24	5204.06
SB10	05/18/15	39.03	ND	0.00	48.35	5243.28	5204.25
SB10	08/25/15	37.39	ND	0.00	48.35	5243.28	5205.89
SB10	11/20/15	36.25	ND	0.00	48.35	5244.28	5208.03
SB10	02/19/16	35.65	ND	0.00 <sup>1</sup>	48.35	5244.28	5208.63
SB10	05/20/16	40.29	ND	0.00	51.89	5247.80	5207.51
SB10	08/12/16	40.19	ND	0.00	52.90	5247.80	5207.61
SB10	11/18/16	39.82	ND	0.00	52.96	5247.80	5207.98
SB10	02/13/17	39.56	ND	0.00	52.90	5247.80	5208.24
SB10	05/09/17	39.09	ND	0.00	52.92	5247.81	5208.72
SB10	08/22/17	38.94	ND	0.00	52.91	5247.81	5208.87
SB10	11/17/17	38.05	ND	0.00	52.90	5247.81	5209.76
SB10	02/23/18	37.89	ND	0.00	52.96	5247.81	5209.92
SB10	05/18/18	37.46	ND	0.00	53.04	5247.81	5210.35
SB10	08/24/18	36.90	ND	0.00	53.00	5247.81	5210.91
SB11	02/21/14	40.03	ND	0.00	50.35	5244.09	5204.06
SB11	05/16/14	38.96	ND	0.00	50.35	5244.09	5205.13
SB11	08/27/14	39.70	ND	0.00	50.35	5244.09	5204.39
SB11	11/18/14	39.41	ND	0.00	50.35	5244.09	5204.68
SB11	02/11/15	39.65	ND	0.00	50.35	5244.09	5204.44
SB11	05/18/15	39.29	ND	0.00	50.35	5244.09	5204.80
SB11	08/25/15	35.30	ND	0.00	48.11	5241.88	5206.58
SB11	11/20/15	34.59	ND	0.00	48.11	5242.88	5208.29
SB11	02/19/16	34.32	ND	0.00	48.11	5242.88	5208.56
SB11	05/20/16	37.15	ND	0.00	51.54	5245.20	5208.05
SB11	08/12/16	36.65	ND	0.00	51.44	5245.20	5208.55
SB11	11/18/16	36.05	ND	0.00	51.51	5245.20	5209.15
SB11	02/13/17	35.69	ND	0.00	51.44	5245.20	5209.51
SB11	05/09/17	35.29	ND	0.00	51.46	5245.21	5209.92
SB11	08/22/17	35.19	ND	0.00	51.44	5245.21	5210.02
SB11	11/17/17	34.16	ND	0.00	51.45	5245.21	5211.05
SB11	02/23/18	33.98	ND	0.00	51.50	5245.21	5211.23
SB11	05/18/18	33.62	ND	0.00	51.66	5245.21	5211.59
SB11	08/24/18	33.21	ND	0.00	51.56	5245.21	5212.00
SB12	02/21/14	39.44	ND	0.00	50.50	5243.18	5203.74

Table 1-15

**TABLE 1**  
**GROUNDWATER AND LNAPL ELEVATION DATA**  
**NOBLE ENERGY, INC. - PLUGGED AND ABANDONED FRI 2-18**  
**TANK BATTERY AND WELLHEAD LOCATION**



Monitoring Well ID	Date	DTW (ft. BTOC)	DTP (ft. BTOC)	LNAPL Thickness (ft.)	TD <sup>4</sup> (ft. BTOC)	Top of Casing Elevation (ft. AMSL)	Groundwater Elevation* (ft. AMSL)
SB12	05/16/14	39.31	ND	0.00	50.50	5243.18	5203.87
SB12	08/27/14	39.30	ND	0.00	50.50	5243.18	5203.88
SB12	11/18/14	39.29	ND	0.00	50.50	5243.18	5203.89
SB12	02/11/15	39.14	ND	0.00	50.50	5243.18	5204.04
SB12	05/18/15	38.93	ND	0.00	50.50	5243.18	5204.25
SB12	08/25/15	36.31	ND	0.00	48.60	5241.41	5205.10
SB12	11/20/15	35.10	ND	0.00	48.60	5242.41	5207.31
SB12	02/19/16	34.22	ND	0.00	48.61	5242.41	5208.19
SB12	05/20/16	33.74	ND	0.00	48.61	5242.41	5208.67
SB12	08/12/16	32.90	ND	0.00	48.62	5242.41	5209.51
SB12	11/18/16	31.68	ND	0.00	48.70	5242.41	5210.73
SB12	02/13/17	30.93	ND	0.00	48.63	5242.41	5211.48
SB12	05/09/17	30.51	ND	0.00	48.62	5242.41	5211.90
SB12	08/22/17	34.40	ND	0.00	48.63	5242.41	5208.01
SB12	11/17/17	29.54	ND	0.00	48.64	5242.41	5212.87
SB12	02/23/18	29.00	ND	0.00	48.36	5242.41	5213.41
SB12	05/18/18	28.82	ND	0.00	48.79	5242.41	5213.59
SB12	08/24/18	28.47	ND	0.00	48.75	5242.41	5213.94
SB13	02/21/14	42.93	ND	0.00	50.48	5244.13	5201.20
SB13	05/16/14	42.43	ND	0.00	50.48	5244.13	5201.70
SB13	08/27/14	41.30	ND	0.00	50.48	5244.13	5202.83
SB13	11/18/14	40.79	ND	0.00	50.48	5244.13	5203.34
SB13	02/11/15	40.65	ND	0.00	50.48	5244.13	5203.48
SB13	05/18/15	40.26	ND	0.00	50.48	5244.13	5203.87
SB13	08/25/15	36.95	ND	0.00	48.39	5242.18	5205.23
SB13	11/20/15	34.54	ND	0.00	48.39	5243.18	5208.64
SB13	02/19/16	33.83	ND	0.00	48.07	5243.18	5209.35
SB13	05/20/16	37.35	ND	0.00	51.69	5245.47	5208.12
SB13	08/12/16	36.46	ND	0.00	51.69	5245.47	5209.01
SB13	11/18/16	35.98	ND	0.00	51.74	5245.47	5209.49
SB13	02/13/17	35.74	ND	0.00	51.68	5245.47	5209.73
SB13	05/09/17	35.45	ND	0.00	51.69	5245.47	5210.02
SB13	08/22/17	35.29	ND	0.00	51.68	5245.47	5210.18
SB13	11/17/17	34.64	ND	0.00	49.99	5245.47	5210.83
SB13	02/23/18	34.28	ND	0.00	50.18	5245.47	5211.19
SB13	05/18/18	34.00	ND	0.00	50.57	5245.47	5211.47
SB13	08/24/18	33.65	ND	0.00	50.14	5245.47	5211.82
SB14	02/21/14	41.04	ND	0.00	50.39	5244.82	5203.78
SB14	05/16/14	40.36	ND	0.00	50.39	5244.82	5204.46
SB14	08/27/14	40.67	ND	0.00	50.39	5244.82	5204.15

**TABLE 1**  
**GROUNDWATER AND LNAPL ELEVATION DATA**  
**NOBLE ENERGY, INC. - PLUGGED AND ABANDONED FRI 2-18**  
**TANK BATTERY AND WELLHEAD LOCATION**



Monitoring Well ID	Date	DTW (ft. BTOC)	DTP (ft. BTOC)	LNAPL Thickness (ft.)	TD <sup>4</sup> (ft. BTOC)	Top of Casing Elevation (ft. AMSL)	Groundwater Elevation* (ft. AMSL)
SB14	11/18/14	40.36	ND	0.00	50.39	5244.82	5204.46
SB14	02/11/15	40.64	ND	0.00	50.39	5244.82	5204.18
SB14	05/18/15	40.52	ND	0.00	50.39	5244.82	5204.30
SB14	08/25/15	36.86	ND	0.00	48.45	5243.02	5206.16
SB14	11/20/15	35.82	ND	0.00	48.45	5244.02	5208.20
SB14	02/19/16	35.34	ND	0.00	48.45	5244.02	5208.68
SB14	05/20/16	38.42	ND	0.00	51.94	5246.22	5207.80
SB14	08/12/16	38.23	ND	0.00	51.64	5246.22	5207.99
SB14	11/18/16	37.77	ND	0.00	51.69	5246.22	5208.45
SB14	02/13/17	37.41	ND	0.00	51.63	5246.22	5208.81
SB14	05/09/17	37.02	ND	0.00	51.65	5246.22	5209.20
SB14	08/22/17	36.93	ND	0.00	51.65	5246.22	5209.29
SB14	11/17/17	35.99	ND	0.00	51.65	5246.22	5210.23
SB14	02/23/18	35.80	ND	0.00	51.70	5246.22	5210.42
SB14	05/18/18	35.40	ND	0.00	51.80	5246.22	5210.82
SB14	08/24/18	35.03	ND	0.00	51.76	5246.22	5211.19
SB15	02/21/14	40.67	ND	0.00	45.40	5244.25	5203.58
SB15	05/16/14	40.39	ND	0.00	45.40	5244.25	5203.86
SB15	08/27/14	40.38	ND	0.00	45.40	5244.25	5203.87
SB15	11/18/14	40.10	ND	0.00	45.40	5244.25	5204.15
SB15	02/11/15	40.23	ND	0.00	45.40	5244.25	5204.02
SB15	05/18/15	40.10	ND	0.00	45.10	5244.37	5204.27
SB15	08/25/15	38.88	ND	0.00	45.13	5244.37	5205.49
SB15	11/20/15	37.37	ND	0.00	45.13	5245.37	5208.00
SB15	02/19/16	37.15	ND	0.00	45.13	5245.37	5208.22
SB15	05/20/16	40.91	ND	0.00	48.72	5247.97	5207.06
SB15	08/12/16	40.86	ND	0.00	48.37	5247.97	5207.11
SB15	11/18/16	40.38	ND	0.00	48.77	5247.97	5207.59
SB15	02/13/17	40.04	ND	0.00	48.45	5247.97	5207.93
SB15	05/09/17	39.56	ND	0.00	48.41	5247.97	5208.41
SB15	08/22/17	39.28	ND	0.00	48.37	5247.97	5208.69
SB15	11/17/17	38.32	ND	0.00	48.38	5247.97	5209.65
SB15	02/23/18	37.73	ND	0.00	48.55	5247.97	5210.24
SB15	05/18/18	37.35	ND	0.00	48.95	5247.97	5210.62
SB15	08/24/18	37.13	ND	0.00	48.38	5247.97	5210.84
SB16	02/21/14	42.53	ND	0.00	42.78	5247.56	DRY
SB16	05/16/14	42.53	ND	0.00	42.78	5247.56	DRY
SB16	08/27/14	42.54	ND	0.00	42.78	5247.56	DRY
SB16	11/18/14	42.56	ND	0.00	42.78	5247.56	DRY
SB16	02/11/15	42.55	ND	0.00	42.78	5247.56	DRY

Table 1-17

**TABLE 1**  
**GROUNDWATER AND LNAPL ELEVATION DATA**  
**NOBLE ENERGY, INC. - PLUGGED AND ABANDONED FRI 2-18**  
**TANK BATTERY AND WELLHEAD LOCATION**



Monitoring Well ID	Date	DTW (ft. BTOC)	DTP (ft. BTOC)	LNAPL Thickness (ft.)	TD <sup>4</sup> (ft. BTOC)	Top of Casing Elevation (ft. AMSL)	Groundwater Elevation* (ft. AMSL)
SB16	05/18/15	42.50	ND	0.00	42.78	5247.56	DRY
SB16	08/25/15	Removed From Groundwater Monitoring Program - Plugged and Abandoned					
SB16R	02/21/14	46.69	46.16	0.53	63.30	5247.81	5201.51
SB16R	05/16/14	46.59	ND	0.00	63.30	5247.81	5201.22
SB16R	08/27/14	45.94	45.85	0.09	63.30	5247.81	5201.93
SB16R	11/18/14	46.61	46.58	0.03	63.30	5247.81	5201.22
SB16R	02/11/15	46.85	46.48	0.37	63.30	5247.81	5201.23
SB16R	05/18/15	44.09	43.95	0.14	63.30	5245.56	5201.57
SB16R	08/25/15	42.65	41.29	1.36	60.35	5245.56	5203.93
SB16R	11/20/15	42.82	42.04	0.78	60.35	5246.56	5204.32
SB16R	02/19/16	42.81	41.57	1.24	60.35	5246.56	5204.68
SB16R	05/20/16	ND <sup>2</sup>	45.19	> 0.51	45.70	5249.19	DRY <sup>2</sup>
SB16R	08/12/16	ND <sup>2</sup>	45.29	> 0.66	45.95	5249.19	DRY <sup>2</sup>
SB16R	11/18/16	ND <sup>2</sup>	45.14	>1.28	46.42	5249.19	DRY <sup>2</sup>
SB16R	02/13/17	ND <sup>2</sup>	45.34	> 1.42	46.76	5249.19	DRY <sup>2</sup>
SB16R	05/09/17	Removed From Groundwater Monitoring Program - Well Casing Damaged					
SB16R2	08/22/17	45.23	ND	0.00	62.42	Not Surveyed	
SB16R2	11/17/17	44.69	44.65	0.04	NM	5248.93	5204.27
SB16R2	02/27/18	44.77	44.57	0.20	NM	5248.93	5204.31
SB16R2	05/18/18	44.80	44.50	0.30	NM	5248.93	5204.36
SB16R2	08/24/18	44.95	44.65	0.30	62.42	5248.93	5204.21
SB17	02/21/14	43.97	ND	0.00	50.40	5244.55	5200.58
SB17	05/16/14	42.99	ND	0.00	50.40	5244.55	5201.56
SB17	08/27/14	41.19	ND	0.00	50.40	5244.55	5203.36
SB17	11/18/14	40.81	ND	0.00	50.40	5244.55	5203.74
SB17	02/11/15	40.65	ND	0.00	50.40	5244.55	5203.90
SB17	05/18/15	40.40	ND	0.00	50.40	5244.55	5204.15
SB17	08/25/15	38.37	ND	0.00	48.44	5242.72	5204.35
SB17	11/20/15	38.22	ND	0.00	48.44	5243.72	5205.50
SB17	02/19/16	37.59	ND	0.00	48.44	5243.72	5206.13
SB17	05/20/16	36.77	ND	0.00	48.44	5243.72	5206.95
SB17	08/12/16	36.33	ND	0.00	48.43	5243.72	5207.39
SB17	11/18/16	35.52	ND	0.00	48.50	5243.72	5208.20
SB17	02/13/17	34.42	ND	0.00	48.43	5243.72	5209.30
SB17	05/09/17	33.59	ND	0.00	48.42	5243.72	5210.13
SB17	08/22/17	32.97	ND	0.00	48.44	5243.72	5210.75
SB17	11/17/17	32.15	ND	0.00	48.44	5243.72	5211.57
SB17	02/23/18	31.33	ND	0.00	48.50	5243.72	5212.39
SB17	05/18/18	30.76	ND	0.00	49.20	5243.72	5212.96
SB17	08/24/18	30.49	ND	0.00	48.56	5243.72	5213.23

Table 1-18

**TABLE 1**  
**GROUNDWATER AND LNAPL ELEVATION DATA**  
**NOBLE ENERGY, INC. - PLUGGED AND ABANDONED FRI 2-18**  
**TANK BATTERY AND WELLHEAD LOCATION**



Monitoring Well ID	Date	DTW (ft. BTOC)	DTP (ft. BTOC)	LNAPL Thickness (ft.)	TD <sup>4</sup> (ft. BTOC)	Top of Casing Elevation (ft. AMSL)	Groundwater Elevation* (ft. AMSL)
SB18	02/21/14	40.95	ND	0.00	50.38	5245.80	5204.85
SB18	05/16/14	40.98	ND	0.00	50.38	5245.80	5204.82
SB18	08/27/14	41.22	ND	0.00	50.38	5245.80	5204.58
SB18	11/18/14	41.22	ND	0.00	50.38	5245.80	5204.58
SB18	02/11/15	41.12	ND	0.00	50.38	5245.80	5204.68
SB18	05/18/15	37.38	ND	0.00	48.18	5243.72	5206.34
SB18	08/25/15	38.55	ND	0.00	48.19	5243.72	5205.17
SB18	11/20/15	38.14	ND	0.00	48.19	5244.72	5206.58
SB18	02/19/16	37.44	ND	0.00	48.09	5244.72	5207.28
SB18	05/20/16	36.69	ND	0.00	48.09	5244.72	5208.03
SB18	08/12/16	36.51	ND	0.00	48.22	5244.72	5208.21
SB18	11/18/16	35.87	ND	0.00	48.23	5244.72	5208.85
SB18	02/13/17	34.94	ND	0.00	48.18	5244.72	5209.78
SB18	05/09/17	34.12	ND	0.00	48.20	5244.72	5210.60
SB18	08/22/17	33.60	ND	0.00	48.20	5244.72	5211.12
SB18	11/17/17	32.77	ND	0.00	NM	5244.72	5211.95
SB18	02/23/18	32.01	ND	0.00	NM	5244.72	5212.71
SB18	05/18/18	31.52	ND	0.00	NM	5244.72	5213.20
SB18	08/24/18	31.43	ND	0.00	48.32	5244.72	5213.29
SB19	02/21/14	43.53	ND	0.00	50.41	5246.58	5203.05
SB19	05/16/14	42.65	ND	0.00	50.41	5246.58	5203.93
SB19	08/27/14	41.44	ND	0.00	50.41	5246.58	5205.14
SB19	11/18/14	41.08	ND	0.00	50.41	5246.58	5205.50
SB19	02/11/15	40.81	ND	0.00	50.41	5246.58	5205.77
SB19	05/18/15	38.40	ND	0.00	48.37	5244.65	5206.25
SB19	08/25/15	38.30	ND	0.00	48.11	5244.65	5206.35
SB19	11/20/15	38.06	ND	0.00	48.11	5245.65	5207.59
SB19	02/19/16	37.23	ND	0.00	48.11	5245.65	5208.42
SB19	05/20/16	36.50	ND	0.00	48.11	5245.65	5209.15
SB19	08/12/16	36.24	ND	0.00	48.13	5245.65	5209.41
SB19	11/18/16	35.47	ND	0.00	48.25	5245.65	5210.18
SB19	02/13/17	34.29	ND	0.00	48.13	5245.65	5211.36
SB19	05/09/17	33.50	ND	0.00	48.12	5245.65	5212.15
SB19	08/22/17	32.79	ND	0.00	48.14	5245.65	5212.86
SB19	11/17/17	32.16	ND	0.00	48.13	5245.65	5213.49
SB19	02/23/18	31.43	ND	0.00	48.21	5245.65	5214.22
SB19	05/18/18	31.11	ND	0.00	48.32	5245.65	5214.54
SB19	08/24/18	31.13	ND	0.00	48.17	5245.65	5214.52
SB20	02/21/14	47.62	ND	0.00	50.33	5247.52	5199.90
SB20	05/16/14	47.13	ND	0.00	50.33	5247.52	5200.39

**TABLE 1**  
**GROUNDWATER AND LNAPL ELEVATION DATA**  
**NOBLE ENERGY, INC. - PLUGGED AND ABANDONED FRI 2-18**  
**TANK BATTERY AND WELLHEAD LOCATION**



Monitoring Well ID	Date	DTW (ft. BTOC)	DTP (ft. BTOC)	LNAPL Thickness (ft.)	TD <sup>4</sup> (ft. BTOC)	Top of Casing Elevation (ft. AMSL)	Groundwater Elevation* (ft. AMSL)
SB20	08/27/14	46.44	ND	0.00	50.33	5247.52	5201.08
SB20	11/18/14	46.07	ND	0.00	50.33	5247.52	5201.45
SB20	02/11/15	45.94	ND	0.00	50.33	5247.52	5201.58
SB20	05/18/15	43.50	ND	0.00	48.10	5245.40	5201.90
SB20	08/25/15	43.44	ND	0.00	48.10	5245.40	5201.96
SB20	11/20/15	40.08	ND	0.00	48.10	5246.40	5206.32
SB20	02/19/16	34.31	ND	0.00	48.10	5246.40	5212.09
SB20	05/20/16	42.79	ND	0.00	51.31	5248.62	5205.83
SB20	08/12/16	44.06	ND	0.00	51.30	5248.62	5204.56
SB20	11/18/16	44.46	ND	0.00	51.34	5248.62	5204.16
SB20	02/13/17	44.19	ND	0.00	51.29	5248.62	5204.43
SB20	05/09/17	43.67	ND	0.00	51.30	5248.62	5204.95
SB20	08/22/17	43.10	ND	0.00	51.29	5248.62	5205.52
SB20	11/17/17	42.63	ND	0.00	51.29	5248.62	5205.99
SB20	02/23/18	41.99	ND	0.00	51.33	5248.62	5206.63
SB20	05/18/18	41.58	ND	0.00	51.65	5248.62	5207.04
SB20	08/24/18	41.41	ND	0.00	51.38	5248.62	5207.21
SB20R	02/21/14	ND	ND	0.00	61.05	5247.80	DRY
SB20R	05/16/14	ND	ND	0.00	61.05	5247.80	DRY
SB20R	08/27/14	ND	ND	0.00	61.05	5247.80	DRY
SB20R	11/18/14	60.50	ND	0.00	61.05	5247.80	5187.30
SB20R	02/11/15	59.78	ND	0.00	61.05	5247.80	5188.02
SB20R	05/18/15	58.91	ND	0.00	61.05	5247.80	5188.89
SB20R	08/25/15	Removed From Groundwater Monitoring Program - Plugged and Abandoned					
SB21	02/21/14	47.54	46.21	1.33	49.30	5248.31	5201.77
SB21	05/16/14	47.68	45.76	1.92	49.30	5248.31	5202.07
SB21	08/27/14	ND	46.10	> 1.72	47.82	5248.31	DRY
SB21	11/18/14	ND	46.22	> 1.60	47.82	5248.31	DRY
SB21	02/11/15	ND	46.52	> 1.38	47.90	5248.31	DRY
SB21	05/18/15	45.25	44.76	0.49	45.70	5246.33	DRY
SB21	08/25/15	45.39	43.65	1.74	45.70	5246.33	DRY
SB21	11/20/15	44.63	42.25	2.38	45.70	5246.33	5203.48
SB21	02/19/16	42.85	ND	TRACE	45.70	5246.33	5203.48
SB21	05/20/16	47.44	47.01	0.43	49.15	5249.71	5202.59
SB21	08/12/16	47.26	46.26 <sup>3</sup>	1.00 <sup>3</sup>	49.14	5249.71	5203.20
SB21	11/18/16	48.13	46.96	1.17	NM	5249.71	5203.20
SB21	02/13/17	48.59	46.93	1.66	NM	5249.71	5202.36
SB21	05/09/17	49.23	47.18	2.05	49.59	5250.32	5202.63
SB21	08/22/17	49.39	46.64	2.75	NM	5250.32	5202.99
SB21	11/17/17	47.56	47.45	0.11	NM	5250.32	5202.84



**TABLE 1**  
**GROUNDWATER AND LNAPL ELEVATION DATA**  
**NOBLE ENERGY, INC. - PLUGGED AND ABANDONED FRI 2-18**  
**TANK BATTERY AND WELLHEAD LOCATION**



Monitoring Well ID	Date	DTW (ft. BTOC)	DTP (ft. BTOC)	LNAPL Thickness (ft.)	TD <sup>4</sup> (ft. BTOC)	Top of Casing Elevation (ft. AMSL)	Groundwater Elevation* (ft. AMSL)
SB21	02/23/18	47.95	47.14	0.81	NM	5250.32	5202.98
SB21	05/18/18	48.19	46.91	1.28	NM	5250.32	5203.09
SB21	08/24/18	48.66	47.01	1.65	49.65	5250.32	5202.90
SB22	02/21/14	50.07	ND	0.00	50.30	5250.64	DRY
SB22	05/16/14	50.09	ND	0.00	50.30	5250.64	DRY
SB22	08/27/14	50.05	ND	0.00	50.30	5250.64	DRY
SB22	11/18/14	49.94	ND	0.00	50.30	5250.64	DRY
SB22	02/11/15	50.10	ND	0.00	50.30	5250.64	DRY
SB22	05/18/15	50.03	ND	0.00	50.30	5250.64	DRY
SB22	08/25/15	Removed From Groundwater Monitoring Program - Plugged and Abandoned					
SB22R	02/21/14	50.03	ND	0.00	63.07	5250.65	5200.62
SB22R	05/16/14	50.07	ND	0.00	63.07	5250.65	5200.58
SB22R	08/27/14	49.94	ND	0.00	63.07	5250.65	5200.71
SB22R	11/18/14	49.92	ND	0.00	63.07	5250.65	5200.73
SB22R	02/11/15	50.32	ND	0.00	63.07	5250.65	5200.33
SB22R	05/18/15	47.15	ND	0.00	59.89	5247.58	5200.43
SB22R	08/25/15	48.92	ND	0.00	59.90	5247.58	5198.66
SB22R	11/20/15	46.44	ND	0.00	59.90	5248.58	5202.14
SB22R	02/19/16	45.63	ND	0.00	59.90	5248.58	5202.95
SB22R	05/20/16	49.55	ND	0.00	63.39	5251.08	5201.53
SB22R	08/12/16	49.76	ND	0.00	63.39	5251.08	5201.32
SB22R	11/18/16	49.58	ND	0.00	63.44	5251.08	5201.50
SB22R	02/13/17	49.86	ND	0.00	63.39	5251.08	5201.22
SB22R	05/09/17	49.55	ND	0.00	63.40	5251.08	5201.53
SB22R	08/22/17	49.47	ND	0.00	63.40	5251.08	5201.61
SB22R	11/17/17	48.96	ND	0.00	63.39	5251.08	5202.12
SB22R	02/23/18	49.07	ND	0.00	63.46	5251.08	5202.01
SB22R	05/18/18	48.87	ND	0.00	63.49	5251.08	5202.21
SB22R	08/24/18	48.90	ND	0.00	63.44	5251.08	5202.18
SB23	02/21/14	48.75	48.70	0.05	50.61	5249.95	5201.24
SB23	05/16/14	48.83	48.75	0.08	50.61	5249.95	5201.18
SB23	08/27/14	49.06	48.64	0.42	50.61	5249.95	5201.21
SB23	11/18/14	49.16	48.62	0.54	50.61	5249.95	5201.20
SB23	02/11/15	49.65	48.81	0.84	50.61	5249.95	5200.93
SB23	05/18/15	45.92	45.35	0.57	47.09	5246.61	5201.12
SB23	08/25/15	ND	ND	0.00	43.30	5246.61	DRY
SB23	11/20/15	ND	ND	0.00	43.30	5247.61	DRY
SB23	02/19/16	ND	ND	0.00	43.30	5247.61	DRY
SB23	05/20/16	ND	ND	0.00	41.38	5249.88	DRY
SB23	08/12/16	ND	ND	0.00	41.37	5249.88	DRY



**TABLE 1**  
**GROUNDWATER AND LNAPL ELEVATION DATA**  
**NOBLE ENERGY, INC. - PLUGGED AND ABANDONED FRI 2-18**  
**TANK BATTERY AND WELLHEAD LOCATION**



Monitoring Well ID	Date	DTW (ft. BTOC)	DTP (ft. BTOC)	LNAPL Thickness (ft.)	TD <sup>4</sup> (ft. BTOC)	Top of Casing Elevation (ft. AMSL)	Groundwater Elevation* (ft. AMSL)
SB23	11/18/16	ND	ND	0.00	41.41	5249.88	DRY
SB23	02/13/17	ND	ND	0.00	41.38	5249.88	DRY
SB23	05/09/17	Removed From Groundwater Monitoring Program - Plugged and Abandoned					
SB23R	05/09/17	48.23	ND	0.00	60.65	5250.34	5202.11
SB23R	08/22/17	48.42	47.98	0.44	60.66	5250.34	5202.25
SB23R	11/17/17	47.39	ND	0.00	60.65	5250.34	5202.95
SB23R	02/23/18	47.81	47.50	0.31	NM	5250.34	5202.76
SB23R	05/18/18	47.78	47.35	0.43	NM	5250.34	5202.88
SB23R	08/24/18	47.63	47.16	0.47	60.65	5250.34	5203.06
SB24	02/21/14	48.47	ND	0.00	49.82	5249.46	5200.99
SB24	05/16/14	48.35	ND	0.00	49.82	5249.46	5201.11
SB24	08/27/14	48.43	ND	0.00	49.82	5249.46	5201.03
SB24	11/18/14	48.33	ND	0.00	49.82	5249.46	5201.13
SB24	02/11/15	48.61	ND	0.00	49.82	5249.46	5200.85
SB24	05/18/15	48.66	ND	0.00	49.82	5249.46	5200.80
SB24	08/25/15	Removed From Groundwater Monitoring Program - Plugged and Abandoned					
SB24R	02/21/14	49.08	ND	0.00	62.22	5250.04	5200.96
SB24R	05/16/14	48.86	ND	0.00	62.22	5250.04	5201.18
SB24R	08/27/14	48.96	ND	0.00	62.22	5250.04	5201.08
SB24R	11/18/14	48.85	ND	0.00	62.22	5250.04	5201.19
SB24R	02/11/15	49.20	ND	0.00	62.22	5250.04	5200.84
SB24R	05/18/15	46.90	ND	0.00	59.83	5247.80	5200.90
SB24R	08/25/15	46.78	ND	0.00	59.84	5247.80	5201.02
SB24R	11/20/15	46.52	ND	0.00	59.84	5248.80	5202.28
SB24R	02/19/16	46.38	ND	0.00	59.84	5248.80	5202.42
SB24R	05/20/16	46.19	ND	0.00	59.84	5248.80	5202.61
SB24R	08/12/16	46.52	ND	0.00	59.85	5248.80	5202.28
SB24R	11/18/16	46.51	ND	0.00	59.97	5248.80	5202.29
SB24R	02/13/17	46.39	ND	0.00	59.83	5248.80	5202.41
SB24R	05/09/17	46.13	ND	0.00	59.85	5248.80	5202.67
SB24R	08/22/17	46.17	ND	0.00	59.87	5248.80	5202.63
SB24R	11/17/17	45.51	ND	0.00	NM	5248.80	5203.29
SB24R	02/23/18	45.74	ND	0.00	NM	5248.80	5203.06
SB24R	05/18/18	45.55	ND	0.00	60.25	5248.80	5203.25
SB24R	08/24/18	45.40	ND	0.00	59.97	5248.80	5203.40
SB25	02/21/14	50.19	ND	0.00	50.41	5249.20	DRY
SB25	05/16/14	50.15	ND	0.00	50.41	5249.20	DRY
SB25	08/27/14	50.20	ND	0.00	50.41	5249.20	DRY
SB25	11/18/14	50.22	ND	0.00	50.41	5249.20	DRY
SB25	02/11/15	50.22	ND	0.00	50.41	5249.20	DRY

**TABLE 1**  
**GROUNDWATER AND LNAPL ELEVATION DATA**  
**NOBLE ENERGY, INC. - PLUGGED AND ABANDONED FRI 2-18**  
**TANK BATTERY AND WELLHEAD LOCATION**



Monitoring Well ID	Date	DTW (ft. BTOC)	DTP (ft. BTOC)	LNAPL Thickness (ft.)	TD <sup>4</sup> (ft. BTOC)	Top of Casing Elevation (ft. AMSL)	Groundwater Elevation* (ft. AMSL)
SB25	05/18/15	50.20	ND	0.00	50.41	5249.20	DRY
SB25	08/25/15	Removed From Groundwater Monitoring Program - Plugged and Abandoned					
SB25R	02/21/14	51.75	ND	0.00	67.30	5249.39	5197.64
SB25R	05/16/14	51.55	ND	0.00	67.30	5249.39	5197.84
SB25R	08/27/14	51.65	ND	0.00	67.30	5249.39	5197.74
SB25R	11/18/14	51.58	ND	0.00	67.30	5249.39	5197.81
SB25R	02/11/15	51.96	ND	0.00	67.30	5249.39	5197.43
SB25R	05/18/15	49.60	ND	0.00	64.97	5247.15	5197.55
SB25R	08/25/15	49.31	ND	0.00	65.00	5247.15	5197.84
SB25R	11/20/15	48.98	ND	0.00	65.00	5248.15	5199.17
SB25R	02/19/16	48.56	ND	0.00	65.00	5248.15	5199.59
SB25R	05/20/16	48.54	ND	0.00	65.00	5248.15	5199.61
SB25R	08/12/16	48.35	ND	0.00	65.00	5248.15	5199.80
SB25R	11/18/16	47.96	ND	0.00	65.05	5248.15	5200.19
SB25R	02/13/17	48.02	ND	0.00	64.99	5248.15	5200.13
SB25R	05/09/17	47.71	ND	0.00	65.00	5248.15	5200.44
SB25R	08/22/17	47.74	ND	0.00	65.00	5248.15	5200.41
SB25R	11/17/17	47.43	ND	0.00	65.00	5248.15	5200.72
SB25R	02/23/18	47.60	ND	0.00	65.06	5248.15	5200.55
SB25R	05/18/18	47.50	ND	0.00	65.14	5248.15	5200.65
SB25R	08/24/18	47.74	ND	0.00	65.13	5248.15	5200.41
SB26	02/21/14	43.87	ND	0.00	50.35	5246.92	5203.05
SB26	05/16/14	43.65	ND	0.00	50.35	5246.92	5203.27
SB26	08/27/14	43.63	ND	0.00	50.35	5246.92	5203.29
SB26	11/18/14	43.45	ND	0.00	50.35	5246.92	5203.47
SB26	02/11/15	43.68	ND	0.00	50.35	5246.92	5203.24
SB26	05/18/15	43.59	ND	0.00	50.35	5246.92	5203.33
SB26	08/25/15	41.24	ND	0.00	48.38	5245.12	5203.88
SB26	11/20/15	40.29	ND	0.00	48.38	5246.12	5205.83
SB26	02/19/16	39.89	ND	0.00	48.38	5246.12	5206.23
SB26	05/20/16	39.62	ND	0.00	48.38	5246.12	5206.50
SB26	08/12/16	39.43	ND	0.00	48.36	5246.12	5206.69
SB26	11/18/16	38.80	ND	0.00	48.45	5246.12	5207.32
SB26	02/13/17	38.39	ND	0.00	48.28	5246.12	5207.73
SB26	05/09/17	37.94	ND	0.00	48.34	5246.12	5208.18
SB26	08/22/17	37.75	ND	0.00	48.32	5246.12	5208.37
SB26	11/17/17	36.85	ND	0.00	NM	5246.12	5209.27
SB26	02/23/18	36.57	ND	0.00	NM	5246.12	5209.55
SB26	05/18/18	36.15	ND	0.00	48.69	5246.12	5209.97
SB26	08/24/18	35.75	ND	0.00	48.48	5246.12	5210.37

**TABLE 1**  
**GROUNDWATER AND LNAPL ELEVATION DATA**  
**NOBLE ENERGY, INC. - PLUGGED AND ABANDONED FRI 2-18**  
**TANK BATTERY AND WELLHEAD LOCATION**



Monitoring Well ID	Date	DTW (ft. BTOC)	DTP (ft. BTOC)	LNAPL Thickness (ft.)	TD <sup>4</sup> (ft. BTOC)	Top of Casing Elevation (ft. AMSL)	Groundwater Elevation* (ft. AMSL)
SB27	02/21/14	50.27	ND	0.00	50.52	5250.91	DRY
SB27	05/16/14	50.29	ND	0.00	50.52	5250.91	DRY
SB27	08/27/14	50.30	ND	0.00	50.52	5250.91	DRY
SB27	11/18/14	50.30	ND	0.00	50.52	5250.91	DRY
SB27	02/11/15	50.31	ND	0.00	50.52	5250.91	DRY
SB27	05/18/15	50.29	ND	0.00	50.52	5250.91	DRY
SB27	08/25/15	Removed From Groundwater Monitoring Program - Plugged and Abandoned					
SB27R	02/21/14	53.59	ND	0.00	67.51	5251.23	5197.64
SB27R	05/16/14	53.36	ND	0.00	67.51	5251.23	5197.87
SB27R	08/27/14	53.48	ND	0.00	67.51	5251.23	5197.75
SB27R	11/18/14	53.39	ND	0.00	67.51	5251.23	5197.84
SB27R	02/11/15	53.79	ND	0.00	67.51	5251.23	5197.44
SB27R	05/18/15	51.35	ND	0.00	65.11	5248.92	5197.57
SB27R	08/25/15	51.22	ND	0.00	65.13	5248.92	5197.70
SB27R	11/20/15	50.98	ND	0.00	65.13	5249.92	5198.94
SB27R	02/19/16	50.83	ND	0.00	65.13	5249.92	5199.09
SB27R	05/20/16	50.62	ND	0.00	65.13	5249.92	5199.30
SB27R	08/12/16	50.84	ND	0.00	65.00	5249.92	5199.08
SB27R	11/18/16	50.82	ND	0.00	65.14	5249.92	5199.10
SB27R	02/13/17	50.52	ND	0.00	64.99	5249.92	5199.40
SB27R	05/09/17	50.27	ND	0.00	64.96	5249.92	5199.65
SB27R	08/22/17	54.10	ND	0.00	64.93	5249.92	5195.82
SB27R	11/17/17	49.72	ND	0.00	64.92	5249.92	5200.20
SB27R	02/23/18	50.05	ND	0.00	65.17	5249.92	5199.87
SB27R	05/18/18	49.96	ND	0.00	65.20	5249.92	5199.96
SB27R	08/24/18	50.03	ND	0.00	64.84	5249.92	5199.89
SB28	02/21/14	50.34	ND	0.00	50.56	5251.71	DRY
SB28	05/16/14	50.35	ND	0.00	50.56	5251.71	DRY
SB28	08/27/14	50.36	ND	0.00	50.56	5251.71	DRY
SB28	11/18/14	50.36	ND	0.00	50.56	5251.71	DRY
SB28	02/11/15	50.36	ND	0.00	50.56	5251.71	DRY
SB28	05/18/15	50.34	ND	0.00	50.56	5251.71	DRY
SB28	08/25/15	Removed From Groundwater Monitoring Program - Plugged and Abandoned					
SB28R	02/21/14	50.98	ND	0.00	63.10	5251.40	5200.42
SB28R	05/16/14	50.84	ND	0.00	63.10	5251.40	5200.56
SB28R	08/27/14	50.95	ND	0.00	63.10	5251.40	5200.45
SB28R	11/18/14	50.88	ND	0.00	63.10	5251.40	5200.52
SB28R	02/11/15	51.14	ND	0.00	63.10	5251.40	5200.26
SB28R	05/18/15	48.72	ND	0.00	60.67	5249.05	5200.33
SB28R	08/25/15	48.74	ND	0.00	60.68	5249.05	5200.31

**TABLE 1**  
**GROUNDWATER AND LNAPL ELEVATION DATA**  
**NOBLE ENERGY, INC. - PLUGGED AND ABANDONED FRI 2-18**  
**TANK BATTERY AND WELLHEAD LOCATION**



Monitoring Well ID	Date	DTW (ft. BTOC)	DTP (ft. BTOC)	LNAPL Thickness (ft.)	TD <sup>4</sup> (ft. BTOC)	Top of Casing Elevation (ft. AMSL)	Groundwater Elevation* (ft. AMSL)
SB28R	11/20/15	48.45	ND	0.00	60.68	5250.05	5201.60
SB28R	02/19/16	48.31	ND	0.00	60.68	5250.05	5201.74
SB28R	05/20/16	48.15	ND	0.00	60.68	5250.05	5201.90
SB28R	08/12/16	48.44	ND	0.00	60.68	5250.05	5201.61
SB28R	11/18/16	ND	ND	0.00	25.22	5250.05	DRY
SB28R	02/13/17	48.36	ND	0.00	60.66	5250.05	5201.69
SB28R	05/09/17	48.12	ND	0.00	60.68	5250.05	5201.93
SB28R	08/22/17	48.18	ND	0.00	60.69	5250.05	5201.87
SB28R	11/17/17	47.59	ND	0.00	60.69	5250.05	5202.46
SB28R	02/23/18	47.79	ND	0.00	60.80	5250.05	5202.26
SB28R	05/18/18	47.56	ND	0.00	60.97	5250.05	5202.49
SB28R	08/24/18	47.47	ND	0.00	60.46	5250.05	5202.58
SB29	02/21/14	45.24	ND	0.00	60.46	5248.09	5202.85
SB29	05/16/14	45.10	ND	0.00	60.46	5248.09	5202.99
SB29	08/27/14	45.02	ND	0.00	60.46	5248.09	5203.07
SB29	11/18/14	44.89	ND	0.00	60.46	5248.09	5203.20
SB29	02/11/15	45.09	ND	0.00	60.46	5248.09	5203.00
SB29	05/18/15	42.69	ND	0.00	58.05	5245.86	5203.17
SB29	08/25/15	42.40	ND	0.00	57.79	5245.86	5203.46
SB29	11/20/15	41.67	ND	0.00	57.79	5246.86	5205.19
SB29	02/19/16	41.16	ND	0.00	57.79	5246.86	5205.70
SB29	05/20/16	40.92	ND	0.00	57.79	5246.86	5205.94
SB29	08/12/16	41.00	ND	0.00	57.54	5246.86	5205.86
SB29	11/18/16	40.59	ND	0.00	57.69	5246.86	5206.27
SB29	02/13/17	40.28	ND	0.00	57.63	5246.86	5206.58
SB29	05/09/17	39.81	ND	0.00	57.63	5246.86	5207.05
SB29	08/22/17	39.72	ND	0.00	57.65	5246.86	5207.14
SB29	11/17/17	38.90	ND	0.00	NM	5246.86	5207.96
SB29	02/23/18	38.76	ND	0.00	NM	5246.86	5208.10
SB29	05/18/18	38.37	ND	0.00	57.94	5246.86	5208.49
SB29	08/24/18	38.03	ND	0.00	57.83	5246.86	5208.83
SB30	02/21/14	47.77	44.80	2.97	61.00	5246.27	5200.73
SB30	05/16/14	47.19	44.70	2.49	61.00	5246.27	5200.95
SB30	08/27/14	46.24	44.82	1.42	61.00	5246.27	5201.10
SB30	11/18/14	46.02	45.79	0.23	61.00	5246.27	5200.43
SB30	02/11/15	47.22	45.82	1.40	61.00	5246.27	5200.10
SB30	05/18/15	47.58	45.28	2.30	61.00	5246.27	5200.42
SB30	08/25/15	48.56	40.95	7.61	59.65	5245.33	5202.48
SB30	11/20/15	48.14	40.07	8.07	59.65	5246.33	5204.24
SB30	02/19/16	39.60	39.59	0.01	59.65	5246.33	5206.74

**TABLE 1**  
**GROUNDWATER AND LNAPL ELEVATION DATA**  
**NOBLE ENERGY, INC. - PLUGGED AND ABANDONED FRI 2-18**  
**TANK BATTERY AND WELLHEAD LOCATION**



Monitoring Well ID	Date	DTW (ft. BTOC)	DTP (ft. BTOC)	LNAPL Thickness (ft.)	TD <sup>4</sup> (ft. BTOC)	Top of Casing Elevation (ft. AMSL)	Groundwater Elevation* (ft. AMSL)
SB30	05/20/16	52.25	44.05	8.20	63.68	5249.32	5203.22
SB30	08/12/16	52.21	44.35	7.86	63.66	5249.32	5203.01
SB30	11/18/16	51.74	44.42	7.32	NM	5249.32	5203.07
SB30	02/13/17	51.19	44.70	6.49	NM	5249.32	5203.00
SB30	05/09/17	NM	NM	NM	NM	5249.32	NM
SB30	08/22/17	48.59	46.15	2.44	NM	5249.32	5202.56
SB30	11/17/17	45.35	45.22	0.13	NM	5249.32	5204.07
SB30	02/23/18	48.80	44.47	4.33	NM	5249.32	5203.77
SB30	05/18/18	49.64	45.16	4.48	NM	5249.32	5203.04
SB30	08/24/18	48.59	44.38	4.21	63.67	5249.32	5203.89
SB31	02/21/14	50.11	48.01	2.10	64.30	5249.60	5201.06
SB31	05/16/14	51.47	48.07	3.40	64.30	5249.60	5200.68
SB31	08/27/14	49.65	47.72	1.93	64.30	5249.60	5201.40
SB31	11/18/14	50.76	50.36	0.40	64.30	5249.60	5199.14
SB31	02/11/15	49.88	48.94	0.94	64.30	5249.60	5200.42
SB31	05/18/15	50.22	48.44	1.78	64.30	5249.60	5200.71
SB31	08/25/15	49.39	42.84	6.55	59.26	5245.93	5201.45
SB31	11/20/15	49.95	41.61	8.34	59.26	5246.93	5203.24
SB31	02/19/16	41.09	40.96	0.13	59.26	5246.93	5205.94
SB31	05/20/16	54.20	45.00	9.20	63.13	5249.81	5202.51
SB31	08/12/16	53.61	45.16	8.45	63.10	5249.81	5202.54
SB31	11/18/16	53.22	45.13	8.09	NM	5249.81	5202.66
SB31	02/13/17	53.89	45.36	8.53	NM	5249.81	5202.32
SB31	05/09/17	NM	NM	NM	NM	5249.81	NM
SB31	08/22/17	48.38	47.62	0.76	NM	5249.81	5202.00
SB31	11/17/17	47.87	45.86	2.01	NM	5249.81	5203.45
SB31	02/23/18	47.77	47.24	0.53	NM	5249.81	5202.44
SB31	05/18/18	48.72	45.50	3.22	NM	5249.81	5203.51
SB31	08/24/18	46.50	46.33	0.17	63.14	5249.81	5203.44
SB32	02/21/14	48.27	ND	0.00	62.39	5249.31	5201.04
SB32	05/16/14	48.18	ND	0.00	62.39	5249.31	5201.13
SB32	08/27/14	48.19	ND	0.00	62.39	5249.31	5201.12
SB32	11/18/14	48.38	ND	0.00	62.39	5249.31	5200.93
SB32	02/11/15	48.83	ND	0.00	62.39	5249.31	5200.48
SB32	05/18/15	45.90	ND	0.00	59.62	5246.64	5200.74
SB32	08/25/15	ND	ND	0.00	41.08	5246.64	DRY
SB32	11/20/15	ND	ND	0.00	41.08	5247.64	DRY
SB32	02/19/16	ND	ND	0.00	41.08	5247.64	DRY
SB32	05/20/16	ND	ND	0.00	42.05	5250.72	DRY
SB32	08/12/16	ND	ND	0.00	42.06	5250.72	DRY

**TABLE 1**  
**GROUNDWATER AND LNAPL ELEVATION DATA**  
**NOBLE ENERGY, INC. - PLUGGED AND ABANDONED FRI 2-18**  
**TANK BATTERY AND WELLHEAD LOCATION**



Monitoring Well ID	Date	DTW (ft. BTOC)	DTP (ft. BTOC)	LNAPL Thickness (ft.)	TD <sup>4</sup> (ft. BTOC)	Top of Casing Elevation (ft. AMSL)	Groundwater Elevation* (ft. AMSL)
SB32	11/18/16	ND	ND	0.00	42.14	5250.72	DRY
SB32	02/13/17	ND	ND	0.00	42.06	5250.72	DRY
SB32	05/09/17	ND	ND	0.00	42.07	5250.72	DRY
SB32	08/22/17	ND	ND	0.00	42.09	5250.72	DRY
SB32	11/17/17	ND	ND	0.00	42.07	5250.72	DRY
SB32	02/23/18	ND	ND	0.00	42.15	5250.72	DRY
SB32	05/18/18	ND	ND	0.00	42.10	5250.72	DRY
SB32	08/24/18	ND	ND	0.00	NM	5250.72	DRY
SB33	02/21/14	62.26	ND	0.00	62.55	5246.16	DRY
SB33	05/16/14	62.02	ND	0.00	62.55	5246.16	5184.14
SB33	08/27/14	59.51	ND	0.00	62.55	5246.16	5186.65
SB33	11/18/14	57.49	ND	0.00	62.55	5246.16	5188.67
SB33	02/11/15	55.64	ND	0.00	62.55	5246.16	5190.52
SB33	05/18/15	53.86	ND	0.00	60.39	5246.16	5192.30
SB33	08/25/15	50.35	ND	0.00	60.69	5244.21	5193.86
SB33	11/20/15	49.16	ND	0.00	60.69	5245.21	5196.05
SB33	02/19/16	47.69	ND	0.00	60.69	5245.21	5197.52
SB33	05/20/16	46.33	ND	0.00	60.69	5245.21	5198.88
SB33	08/12/16	44.47	ND	0.00	60.60	5245.21	5200.74
SB33	11/18/16	41.65	ND	0.00	60.67	5245.21	5203.56
SB33	02/13/17	39.69	ND	0.00	60.60	5245.21	5205.52
SB33	05/09/17	38.56	ND	0.00	60.60	5245.21	5206.65
SB33	08/22/17	37.57	ND	0.00	60.60	5245.21	5207.64
SB33	11/17/17	37.32	ND	0.00	NM	5245.21	5207.89
SB33	02/23/18	37.38	ND	0.00	NM	5245.21	5207.83
SB33	05/18/18	37.22	ND	0.00	60.62	5245.21	5207.99
SB33	08/24/18	37.34	ND	0.00	60.70	5245.21	5207.87
SB34	02/21/14	54.88	ND	0.00	62.80	5252.59	5197.71
SB34	05/16/14	54.72	ND	0.00	62.80	5252.59	5197.87
SB34	08/27/14	54.78	ND	0.00	62.80	5252.59	5197.81
SB34	11/18/14	54.65	ND	0.00	62.80	5252.59	5197.94
SB34	02/11/15	55.04	ND	0.00	62.80	5252.59	5197.55
SB34	05/18/15	52.58	ND	0.00	60.36	5250.19	5197.61
SB34	08/25/15	52.47	ND	0.00	60.40	5250.19	5197.72
SB34	11/20/15	52.19	ND	0.00	60.40	5251.19	5199.00
SB34	02/19/16	52.13	ND	0.00	60.40	5251.19	5199.06
SB34	05/20/16	51.95	ND	0.00	60.40	5251.19	5199.24
SB34	08/12/16	52.22	ND	0.00	60.38	5251.19	5198.97
SB34	11/18/16	52.17	ND	0.00	60.45	5251.19	5199.02
SB34	02/13/17	52.02	ND	0.00	60.38	5251.19	5199.17

**TABLE 1**  
**GROUNDWATER AND LNAPL ELEVATION DATA**  
**NOBLE ENERGY, INC. - PLUGGED AND ABANDONED FRI 2-18**  
**TANK BATTERY AND WELLHEAD LOCATION**



Monitoring Well ID	Date	DTW (ft. BTOC)	DTP (ft. BTOC)	LNAPL Thickness (ft.)	TD <sup>4</sup> (ft. BTOC)	Top of Casing Elevation (ft. AMSL)	Groundwater Elevation* (ft. AMSL)
SB34	05/09/17	51.71	ND	0.00	60.39	5251.19	5199.48
SB34	08/22/17	51.86	ND	0.00	63.80	5251.19	5199.33
SB34	11/17/17	51.17	ND	0.00	NM	5251.19	5200.02
SB34	02/23/18	51.53	ND	0.00	NM	5251.19	5199.66
SB34	05/18/18	51.40	ND	0.00	60.15	5251.19	5199.79
SB34	08/24/18	51.44	ND	0.00	60.48	5251.19	5199.75
SB35	02/21/14	53.18	ND	0.00	63.40	5250.71	5197.53
SB35	05/16/14	52.97	ND	0.00	63.40	5250.71	5197.74
SB35	08/27/14	53.02	ND	0.00	63.40	5250.71	5197.69
SB35	11/18/14	52.93	ND	0.00	63.40	5250.71	5197.78
SB35	02/11/15	53.35	ND	0.00	63.40	5250.71	5197.36
SB35	05/18/15	50.25	ND	0.00	60.34	5247.79	5197.54
SB35	08/25/15	49.92	ND	0.00	63.40	5247.79	5197.87
SB35	11/20/15	49.67	ND	0.00	63.40	5248.79	5199.12
SB35	02/19/16	49.45	ND	0.00	63.40	5248.79	5199.34
SB35	05/20/16	49.22	ND	0.00	63.40	5248.79	5199.57
SB35	08/12/16	49.22	ND	0.00	60.32	5248.79	5199.57
SB35	11/18/16	49.10	ND	0.00	60.35	5248.79	5199.69
SB35	02/13/17	48.87	ND	0.00	60.34	5248.79	5199.92
SB35	05/09/17	48.51	ND	0.00	60.35	5248.79	5200.28
SB35	08/22/17	48.64	ND	0.00	63.50	5248.79	5200.15
SB35	11/17/17	48.04	ND	0.00	NM	5248.79	5200.75
SB35	02/23/18	48.40	ND	0.00	NM	5248.79	5200.39
SB35	05/18/18	48.31	ND	0.00	60.49	5248.79	5200.48
SB35	08/24/18	48.50	ND	0.00	60.47	5248.79	5200.29
SB36	02/21/14	42.65	ND	0.00	63.05	5243.07	5200.42
SB36	05/16/14	42.40	ND	0.00	63.05	5243.07	5200.67
SB36	08/27/14	41.97	ND	0.00	63.05	5243.07	5201.10
SB36	11/18/14	41.76	ND	0.00	63.05	5243.07	5201.31
SB36	02/11/15	41.71	ND	0.00	63.05	5243.07	5201.36
SB36	05/18/15	41.45	ND	0.00	63.05	5243.07	5201.62
SB36	08/25/15	34.09	ND	0.00	59.72	5239.97	5205.88
SB36	11/20/15	32.82	ND	0.00	59.72	5240.97	5208.15
SB36	02/19/16	32.76	ND	0.00	59.75	5240.97	5208.21
SB36	05/20/16	31.31	ND	0.00	59.75	5240.97	5209.66
SB36	08/12/16	30.21	ND	0.00	59.78	5240.97	5210.76
SB36	11/18/16	29.05	ND	0.00	59.89	5240.97	5211.92
SB36	02/13/17	28.62	ND	0.00	59.68	5240.97	5212.35
SB36	05/09/17	32.32	ND	0.00	63.69	5243.94	5211.62
SB36	08/22/17	31.82	ND	0.00	63.66	5243.94	5212.12



**TABLE 1**  
**GROUNDWATER AND LNAPL ELEVATION DATA**  
**NOBLE ENERGY, INC. - PLUGGED AND ABANDONED FRI 2-18**  
**TANK BATTERY AND WELLHEAD LOCATION**



Monitoring Well ID	Date	DTW (ft. BTOC)	DTP (ft. BTOC)	LNAPL Thickness (ft.)	TD <sup>4</sup> (ft. BTOC)	Top of Casing Elevation (ft. AMSL)	Groundwater Elevation* (ft. AMSL)
SB36	11/17/17	30.84	ND	0.00	63.65	5243.94	5213.10
SB36	02/23/18	30.59	ND	0.00	63.73	5243.94	5213.35
SB36	05/18/18	30.52	ND	0.00	64.26	5243.94	5213.42
SB36	08/24/18	29.58	ND	0.00	63.72	5243.94	5214.36
SB37	02/21/14	63.00	ND	0.00	66.40	5249.25	5186.25
SB37	05/16/14	51.38	ND	0.00	66.40	5249.25	5197.87
SB37	08/27/14	48.05	ND	0.00	66.40	5249.25	5201.20
SB37	11/18/14	48.09	ND	0.00	66.40	5249.25	5201.16
SB37	02/11/15	48.36	ND	0.00	66.40	5249.25	5200.89
SB37	05/18/15	48.20	ND	0.00	66.40	5249.25	5201.05
SB37	08/25/15	46.33	ND	0.00	64.81	5246.31	5199.98
SB37	11/20/15	45.58	ND	0.00	64.81	5247.31	5201.73
SB37	02/19/16	45.44	ND	0.00	64.81	5247.31	5201.87
SB37	05/20/16	47.92	47.85	0.07	66.81	5249.79	5201.93
SB37	08/12/16	47.81	47.72	0.09	66.84	5249.79	5202.05
SB37	11/18/16	47.65	47.43	0.22	NM	5249.79	5202.31
SB37	02/13/17	48.35	47.90	0.45	NM	5249.79	5201.78
SB37	05/09/17	47.70	47.38	0.32	66.85	5249.79	5202.33
SB37	08/22/17	47.47	47.15	0.32	NM	5249.79	5202.56
SB37	11/17/17	47.06	46.87	0.19	NM	5249.79	5202.88
SB37	02/23/18	47.20	46.72	0.48	NM	5249.79	5202.95
SB37	05/18/18	47.08	46.65	0.43	NM	5249.79	5203.04
SB37	08/24/18	47.00	46.48	0.52	66.83	5249.79	5203.18
SB38	02/21/14	40.48	ND	0.00	63.58	5243.61	5203.13
SB38	05/16/14	40.16	ND	0.00	63.58	5243.61	5203.45
SB38	08/27/14	40.32	ND	0.00	63.58	5243.61	5203.29
SB38	11/18/14	40.08	ND	0.00	63.58	5243.61	5203.53
SB38	02/11/15	40.35	ND	0.00	63.58	5243.61	5203.26
SB38	05/18/15	40.31	ND	0.00	63.58	5243.61	5203.30
SB38	08/25/15	35.63	ND	0.00	60.51	5240.73	5205.10
SB38	11/20/15	34.68	ND	0.00	60.51	5241.73	5207.05
SB38	02/19/16	34.39	ND	0.00	60.42	5241.73	5207.34
SB38	05/20/16	33.19	ND	0.00	60.42	5241.73	5208.54
SB38	08/12/16	31.54	ND	0.00	60.34	5241.73	5210.19
SB38	11/18/16	30.69	ND	0.00	60.61	5241.73	5211.04
SB38	02/13/17	29.97	ND	0.00	60.28	5241.73	5211.76
SB38	05/09/17	33.85	ND	0.00	64.49	5244.87	5211.02
SB38	08/22/17	33.49	ND	0.00	64.45	5244.87	5211.38
SB38	11/17/17	32.34	ND	0.00	64.46	5244.87	5212.53
SB38	02/23/18	32.12	ND	0.00	64.75	5244.87	5212.75



**TABLE 1**  
**GROUNDWATER AND LNAPL ELEVATION DATA**  
**NOBLE ENERGY, INC. - PLUGGED AND ABANDONED FRI 2-18**  
**TANK BATTERY AND WELLHEAD LOCATION**



Monitoring Well ID	Date	DTW (ft. BTOC)	DTP (ft. BTOC)	LNAPL Thickness (ft.)	TD <sup>4</sup> (ft. BTOC)	Top of Casing Elevation (ft. AMSL)	Groundwater Elevation* (ft. AMSL)
SB38	05/18/18	31.97	ND	0.00	64.55	5244.87	5212.90
SB38	08/24/18	31.23	ND	0.00	64.51	5244.87	5213.64
SB39	02/21/14	50.54	ND	0.00	61.57	5241.88	5191.34
SB39	05/16/14	45.38	ND	0.00	61.57	5241.88	5196.50
SB39	08/27/14	44.19	ND	0.00	61.57	5241.88	5197.69
SB39	11/18/14	43.98	ND	0.00	61.57	5241.88	5197.90
SB39	02/11/15	44.01	ND	0.00	61.57	5241.88	5197.87
SB39	05/18/15	43.74	ND	0.00	61.57	5241.88	5198.14
SB39	08/25/15	36.44	ND	0.00	59.14	5239.65	5203.21
SB39	11/20/15	36.68	ND	0.00	59.14	5240.65	5203.97
SB39	02/19/16	36.05	ND	0.00	59.11	5240.65	5204.60
SB39	05/20/16	31.67	ND	0.00	59.11	5240.65	5208.98
SB39	08/12/16	30.51	ND	0.00	59.12	5240.65	5210.14
SB39	11/18/16	29.46	ND	0.00	59.15	5240.65	5211.19
SB39	02/13/17	28.66	ND	0.00	59.04	5240.65	5211.99
SB39	05/09/17	32.64	ND	0.00	63.23	5243.84	5211.20
SB39	08/22/17	32.38	ND	0.00	63.13	5243.84	5211.46
SB39	11/17/17	31.64	ND	0.00	63.20	5243.84	5212.20
SB39	02/23/18	31.53	ND	0.00	63.39	5243.84	5212.31
SB39	05/18/18	31.53	ND	0.00	63.95	5243.84	5212.31
SB39	08/24/18	30.48	ND	0.00	63.27	5243.84	5213.36
SB40	02/21/14	54.94	ND	0.00	62.83	5240.63	5185.69
SB40	05/16/14	45.58	ND	0.00	62.83	5240.63	5195.05
SB40	08/27/14	40.55	ND	0.00	62.83	5240.63	5200.08
SB40	11/18/14	40.14	ND	0.00	62.83	5240.63	5200.49
SB40	02/11/15	39.79	ND	0.00	62.83	5240.63	5200.84
SB40	05/18/15	38.77	ND	0.00	62.83	5240.63	5201.86
SB40	08/25/15	32.11	ND	0.00	59.71	5237.59	5205.48
SB40	11/20/15	30.30	ND	0.00	59.71	5238.59	5208.29
SB40	02/19/16	28.98	ND	0.00	59.04	5238.59	5209.61
SB40	05/20/16	27.41	ND	0.00	59.04	5238.59	5211.18
SB40	08/12/16	25.87	ND	0.00	58.95	5238.59	5212.72
SB40	11/18/16	25.24	ND	0.00	58.98	5238.59	5213.35
SB40	02/13/17	24.98	ND	0.00	58.82	5238.59	5213.61
SB40	05/09/17	29.16	ND	0.00	62.89	5241.74	5212.58
SB40	08/22/17	28.02	ND	0.00	62.82	5241.74	5213.72
SB40	11/17/17	26.90	ND	0.00	NM	5241.74	5214.84
SB40	02/23/18	27.26	ND	0.00	NM	5241.74	5214.48
SB40	05/18/18	27.10	ND	0.00	63.25	5241.74	5214.64
SB40	08/24/18	25.66	ND	0.00	62.86	5241.74	5216.08

**TABLE 1**  
**GROUNDWATER AND LNAPL ELEVATION DATA**  
**NOBLE ENERGY, INC. - PLUGGED AND ABANDONED FRI 2-18**  
**TANK BATTERY AND WELLHEAD LOCATION**



Monitoring Well ID	Date	DTW (ft. BTOC)	DTP (ft. BTOC)	LNAPL Thickness (ft.)	TD <sup>4</sup> (ft. BTOC)	Top of Casing Elevation (ft. AMSL)	Groundwater Elevation* (ft. AMSL)
SB41	02/21/14	39.90	ND	0.00	62.96	5242.91	5203.01
SB41	05/16/14	39.66	ND	0.00	62.96	5242.91	5203.25
SB41	08/27/14	39.75	ND	0.00	62.96	5242.91	5203.16
SB41	11/18/14	39.59	ND	0.00	62.96	5242.91	5203.32
SB41	02/11/15	39.79	ND	0.00	62.96	5242.91	5203.12
SB41	05/18/15	39.77	ND	0.00	62.96	5242.91	5203.14
SB41	08/25/15	35.69	ND	0.00	59.89	5239.96	5204.27
SB41	11/20/15	34.89	ND	0.00	59.89	5240.96	5206.07
SB41	02/19/16	34.51	ND	0.00	59.84	5240.96	5206.45
SB41	05/20/16	33.31	ND	0.00	59.84	5240.96	5207.65
SB41	08/12/16	31.29	ND	0.00	59.60	5240.96	5209.67
SB41	11/18/16	30.45	ND	0.00	59.74	5240.96	5210.51
SB41	02/13/17	29.82	ND	0.00	59.60	5240.96	5211.14
SB41	05/09/17	33.68	ND	0.00	63.80	5244.16	5210.48
SB41	08/22/17	33.34	ND	0.00	63.80	5244.16	5210.82
SB41	11/17/17	32.09	ND	0.00	NM	5244.16	5212.07
SB41	02/23/18	31.85	ND	0.00	NM	5244.16	5212.31
SB41	05/18/18	31.67	ND	0.00	63.97	5244.16	5212.49
SB41	08/24/18	30.98	ND	0.00	64.00	5244.16	5213.18
SB42	02/21/14	41.20	ND	0.00	60.60	5244.36	5203.16
SB42	05/16/14	40.68	ND	0.00	60.60	5244.36	5203.68
SB42	08/27/14	40.80	ND	0.00	60.60	5244.36	5203.56
SB42	11/18/14	40.57	ND	0.00	60.60	5244.36	5203.79
SB42	02/11/15	40.78	ND	0.00	60.60	5244.36	5203.58
SB42	05/18/15	40.74	ND	0.00	60.60	5244.36	5203.62
SB42	08/25/15	38.61	ND	0.00	59.23	5243.19	5204.58
SB42	11/20/15	37.53	ND	0.00	59.23	5244.19	5206.66
SB42	02/19/16	37.18	ND	0.00	59.21	5244.19	5207.01
SB42	05/20/16	36.85	ND	0.00	59.21	5244.19	5207.34
SB42	08/12/16	36.35	ND	0.00	59.22	5244.19	5207.84
SB42	11/18/16	35.59	ND	0.00	59.30	5244.19	5208.60
SB42	02/13/17	35.15	ND	0.00	59.23	5244.19	5209.04
SB42	05/09/17	34.69	ND	0.00	59.22	5244.19	5209.50
SB42	08/22/17	34.40	ND	0.00	59.22	5244.19	5209.79
SB42	11/17/17	33.53	ND	0.00	NM	5244.19	5210.66
SB42	02/23/18	33.13	ND	0.00	NM	5244.19	5211.06
SB42	05/18/18	32.64	ND	0.00	59.43	5244.19	5211.55
SB42	08/24/18	32.21	ND	0.00	59.34	5244.19	5211.98

**TABLE 1**  
**GROUNDWATER AND LNAPL ELEVATION DATA**  
**NOBLE ENERGY, INC. - PLUGGED AND ABANDONED FRI 2-18**  
**TANK BATTERY AND WELLHEAD LOCATION**



Monitoring Well ID	Date	DTW (ft. BTOC)	DTP (ft. BTOC)	LNAPL Thickness (ft.)	TD <sup>4</sup> (ft. BTOC)	Top of Casing Elevation (ft. AMSL)	Groundwater Elevation* (ft. AMSL)
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**Notes:**

DTW = Depth to water

DTP = Depth to Product (LNAPL)

ft. BTOC = Feet below top of well casing

ft. AMSL = Feet above mean sea level

TD = Total depth of well below top of well casing (based on the most recent measurement)

LNAPL = Light non-aqueous phase liquid

ND = Not detected

NM = Not measured

DRY = Well contained less than 0.5 feet of water

\* Groundwater elevation was corrected for product thickness when present using the following calculation:

Groundwater elevation = (TOC Elevation - Measured Depth to Water) + (LNAPL Thickness x LNAPL Relative Density)

LNAPL relative density was measured to be approximately 0.75

<sup>1</sup> LNAPL detected in groundwater sample collected on 02/22/16

<sup>2</sup> Well SB16R obstructed above oil/water interface, groundwater not encountered above obstruction

<sup>3</sup> LNAPL thickness is approximate, checked with bailer

<sup>4</sup> Total Depth of Well is only measured for wells that are to be sampled.

This table presents data collected by Tasman Geosciences. Historical data is presented in Attachment A of the Form 27 Site Assessment Report (COGCC Document #2148980)

**TABLE 2**  
**GROUNDWATER GEOCHEMICAL DATA**  
**NOBLE ENERGY, INC. - PLUGGED AND ABANDONED FRI 2-18**  
**TANK BATTERY AND WELLHEAD LOCATION**

Monitoring Well ID	Date	Temp (°C)	EC (mS/cm)	pH	ORP (mV)	DO (mg/L)
PR01	03/07/14 <sup>1</sup>	10.98	6.960	6.63	-132.0	14.60
PR01	05/19/14	Removed From Groundwater Monitoring Program - LNAPL Recovery Well				
PR02	03/07/14 <sup>1</sup>	10.09	5.560	6.71	-72.9	11.56
PR02	05/19/14	Removed From Groundwater Monitoring Program - LNAPL Recovery Well				
PR03	11/21/14	Not in Groundwater Monitoring Program - LNAPL Recovery Well				
PR04	11/21/14	Not in Groundwater Monitoring Program - LNAPL Recovery Well				
PR05	11/21/14	Not in Groundwater Monitoring Program - LNAPL Recovery Well				
PR06	11/21/14	Not in Groundwater Monitoring Program - LNAPL Recovery Well				
PR07	11/21/14	Not in Groundwater Monitoring Program - LNAPL Recovery Well				
PR08	11/21/14	Not in Groundwater Monitoring Program - LNAPL Recovery Well				
PR09	11/21/14	Not in Groundwater Monitoring Program - LNAPL Recovery Well				
PR10	11/21/14	Not in Groundwater Monitoring Program - LNAPL Recovery Well				
PR11	11/21/14	Not in Groundwater Monitoring Program - LNAPL Recovery Well				
PR12	11/21/14	Not in Groundwater Monitoring Program - LNAPL Recovery Well				
PR13	11/21/14	Not in Groundwater Monitoring Program - LNAPL Recovery Well				
PR14	11/21/14	Not in Groundwater Monitoring Program - LNAPL Recovery Well				
PR15	11/21/14	Not in Groundwater Monitoring Program - LNAPL Recovery Well				
PR16	11/21/14	Not in Groundwater Monitoring Program - LNAPL Recovery Well				
PR17	11/21/14	Not in Groundwater Monitoring Program - LNAPL Recovery Well				
PR18	11/21/14	Not in Groundwater Monitoring Program - LNAPL Recovery Well				
PR19	11/21/14	Not in Groundwater Monitoring Program - LNAPL Recovery Well				
PR20	11/21/14	Not in Groundwater Monitoring Program - LNAPL Recovery Well				
PR21	11/21/14	Not in Groundwater Monitoring Program - LNAPL Recovery Well				
PR22	11/21/14	Not in Groundwater Monitoring Program - LNAPL Recovery Well				
PR23	11/21/14	Not in Groundwater Monitoring Program - LNAPL Recovery Well				
PR24	11/21/14	Not in Groundwater Monitoring Program - LNAPL Recovery Well				
PR25	11/21/14	Not in Groundwater Monitoring Program - LNAPL Recovery Well				
PR26	11/21/14	Not in Groundwater Monitoring Program - LNAPL Recovery Well				
SB01	02/24/14	12.41	5.240	7.16	92.2	0.56
SB01	05/19/14	Removed From Groundwater Monitoring Program - Submerged Well Screen				
SB01	08/27/15	Removed From Groundwater Monitoring Program - Plugged and Abandoned				
SB02	02/24/14	12.52	3.222	7.25	47.1	0.25
SB02	05/19/14	Removed From Groundwater Monitoring Program - Submerged Well Screen				
SB02	08/27/15	Removed From Groundwater Monitoring Program - Plugged and Abandoned				
SB03	02/24/14	12.55	1.941	7.44	70.0	0.21
SB03	05/19/14	12.57	2.135	7.00	207.5	1.61
SB03	08/29/14	12.41	2.004	7.39	126.0	0.03
SB03	11/21/14	12.53	2.188	8.08	-182.9	0.96
SB03	02/13/15	12.34	1.881	7.30	27.6	0.60

Table 2- 1

**TABLE 2**  
**GROUNDWATER GEOCHEMICAL DATA**  
**NOBLE ENERGY, INC. - PLUGGED AND ABANDONED FRI 2-18**  
**TANK BATTERY AND WELLHEAD LOCATION**

Monitoring Well ID	Date	Temp (°C)	EC (mS/cm)	pH	ORP (mV)	DO (mg/L)
SB03	05/21/15	12.20	1.814	7.09	158.8	0.55
SB03	08/27/15	12.61	2.068	7.28	12.0	0.20
SB03	11/24/15	12.01	2.139	6.65	-15.4	0.47
SB03	02/22/16	12.22	2.363	7.68	-49.4	0.23
SB03	05/23/16	12.46	2.380	7.06	-36.4	0.28
SB03	08/15/16	13.21	2.151	7.33	100.1	0.22
SB03	11/21/16	12.20	2.394	7.31	-1.8	0.93
SB03	02/16/17	12.40	3.026	7.34	112.6	0.50
SB03	05/09/17	16.55	3.030	6.68	96.6	2.13
SB03	08/24/17	13.52	2.980	7.72	97.6	0.03
SB03	11/20/17	13.40	3.100	6.96	125.6	4.72
SB03	02/26/18	11.67	3.290	7.28	39.0	4.90
SB03	05/21/18	15.41	2.870	7.21	68.4	3.56
SB03	08/27/18	13.98	2.620	6.97	47.2	3.29
SB04	02/24/14	12.00	3.138	7.29	71.3	0.16
SB04	05/19/14	12.81	3.097	7.08	224.5	0.45
SB04	08/29/14	12.37	3.083	7.65	155.6	0.16
SB04	11/21/14	12.29	3.076	7.60	-7.6	0.47
SB04	02/13/15	12.34	3.018	7.34	50.5	0.99
SB04	05/21/15	12.24	2.953	7.06	120.8	0.36
SB04	08/27/15	12.69	3.054	7.84	52.7	0.13
SB04	11/24/15	12.11	2.198	6.77	-64.4	0.27
SB04	02/22/16	12.15	2.317	7.31	-120.9	0.23
SB04	05/23/16	12.55	2.363	6.56	-166.8	1.07
SB04	08/15/16	12.45	2.597	7.33	-58.5	0.81
SB04	11/21/16	12.16	2.131	7.20	-112.0	0.25
SB04	02/16/17	12.30	3.003	7.40	-76.4	0.60
SB04	05/09/17	17.47	1.830	7.28	-90.4	0.56
SB04	08/24/17	13.40	2.070	7.69	-184.2	0.03
SB04	11/20/17	13.50	2.170	7.29	-160.9	0.25
SB04	02/26/18	11.22	2.350	7.41	55.0	0.14
SB04	05/21/18	17.43	2.120	7.50	-111.7	0.31
SB04	08/27/18	14.92	2.560	7.01	-131.1	0.17
SB05	03/07/14 <sup>1</sup>	11.20	6.192	6.43	-152.9	3.55
SB05	05/19/14		Not Measured - LNAPL Present			
SB05	08/29/14		Not Measured - LNAPL Present			
SB05	11/21/14		Not Measured - LNAPL Present			
SB05	02/13/15		Not Measured - LNAPL Present			
SB05	05/21/15		Not Measured - LNAPL Present			
SB05	08/27/15		Not Measured - LNAPL Present			
SB05	11/24/15		Not Measured - LNAPL Present			
SB05	02/22/16		Not Measured - LNAPL Present			
SB05	05/23/16		Not Measured - LNAPL Present			

**TABLE 2**  
**GROUNDWATER GEOCHEMICAL DATA**  
**NOBLE ENERGY, INC. - PLUGGED AND ABANDONED FRI 2-18**  
**TANK BATTERY AND WELLHEAD LOCATION**

Monitoring Well ID	Date	Temp (°C)	EC (mS/cm)	pH	ORP (mV)	DO (mg/L)
SB05	08/15/16					
SB05	11/21/16					
SB05	02/16/17					
SB05	05/09/17					
SB05	08/24/17					
SB05	11/20/17					
SB05	02/26/18					
SB05	05/21/18					
SB05	08/27/18					
SB06	02/24/14	12.57	3.446	7.20	144.4	0.34
SB06	05/19/14	12.74	3.933	6.99	268.9	0.19
SB06	08/29/14	12.54	3.952	7.22	156.0	0.04
SB06	11/21/14	12.46	3.767	7.60	153.6	2.25
SB06	02/13/15	12.48	3.879	6.99	54.2	0.22
SB06	05/21/15	12.52	3.765	6.91	3.4	0.08
SB06	08/27/15	12.51	5.039	7.17	101.4	0.12
SB06	11/24/15	12.19	5.367	6.62	1.2	0.38
SB06	02/22/16	12.31	5.379	7.03	-10.6	3.50
SB06	05/23/16	12.47	5.721	6.41	113.8	0.73
SB06	08/15/16	12.98	5.983	6.81	147.5	0.26
SB06	11/21/16	12.22	5.782	6.77	12.8	0.70
SB06	02/16/17	12.40	5.896	6.83	165.4	0.28
SB06	05/09/17	17.13	5.090	6.86	91.9	1.10
SB06	08/24/17	14.84	5.480	7.22	135.8	0.69
SB06	11/20/17	13.14	5.510	6.80	42.8	0.36
SB06	02/26/18	12.10	5.520	6.94	36.8	0.53
SB06	05/21/18	16.30	5.230	6.90	77.9	0.66
SB06	08/27/18	13.52	5.240	6.66	33.5	0.40
SB07	02/24/14	12.85	5.639	6.64	-101.3	0.57
SB07	05/19/14	13.19	5.564	6.68	-97.3	0.19
SB07	08/29/14	12.99	5.318	7.18	-68.5	0.05
SB07	11/21/14	12.88	5.280	7.10	-238.1	1.22
SB07	02/13/15	12.71	5.083	7.11	-76.8	1.69
SB07	05/21/15	12.85	5.033	7.01	-175.8	0.09
SB07	08/27/15	12.92	4.059	8.47	-216.8	0.16
SB07	11/24/15	12.70	2.305	12.49 <sup>2</sup>	-248.3	0.19
SB07	02/22/16	12.80	1.896	6.99	-264.9	-0.40 <sup>3</sup>
SB07	05/23/16	13.25	2.450	7.12	-241.0	-0.1 <sup>3</sup>
SB07	08/15/16	13.64	2.511	7.03	-126.6	0.17
SB07	11/21/16	12.74	3.010	7.05	-86.8	0.19
SB07	02/16/17	12.90	3.980	7.20	-108.9	0.33
SB07	05/09/17	17.76	2.710	6.90	-87.5	0.35
SB07	08/24/17	16.15	3.040	7.31	-176.2	0.02

**TABLE 2**  
**GROUNDWATER GEOCHEMICAL DATA**  
**NOBLE ENERGY, INC. - PLUGGED AND ABANDONED FRI 2-18**  
**TANK BATTERY AND WELLHEAD LOCATION**

Monitoring Well ID	Date	Temp (°C)	EC (mS/cm)	pH	ORP (mV)	DO (mg/L)
SB07	11/20/17	14.18	3.480	6.81	-169.2	0.08
SB07	02/26/18	11.33	4.020	7.18	-60.3	0.46
SB07	05/21/18	17.62	4.020	6.95	-130.1	0.08
SB07	08/27/18	13.84	4.430	6.93	-124.9	0.12
SB08	03/07/14 <sup>1</sup>	11.12	4.866	6.29	-170.9	3.95
SB08	05/19/14	13.39	5.197	6.80	-153.5	0.33
SB08	08/29/14	12.92	5.358	6.68	-74.4	0.34
SB08	11/21/14		Not Measured - LNAPL Present			
SB08	02/13/15		Not Measured - LNAPL Present			
SB08	05/21/15		Not Measured - LNAPL Present			
SB08	08/27/15	13.05	3.466	8.00	-187.6	0.07
SB08	11/24/15		Not Measured - LNAPL Present			
SB08	02/22/16	12.67	0.577	6.85	-197.4	-0.34 <sup>3</sup>
SB08	05/23/16	13.23	1.630	6.73	-220.2	0.23
SB08	08/15/16	12.84	1.574	6.93	-97.7	0.25
SB08	11/21/16	12.69	2.008	6.80	-88.8	0.34
SB08	02/16/17	12.90	4.557	7.00	-175.9	0.33
SB08	05/09/17	18.69	1.870	6.81	-84.63	0.32
SB08	08/24/17	16.18	2.090	7.25	-153.2	0.06
SB08	11/20/17	14.23	2.150	6.87	-134.0	0.05
SB08	02/26/18	11.39	3.050	6.90	-61.9	0.34
SB08	05/21/18	16.45	2.570	6.94	-114.6	0.13
SB08	08/27/18	14.89	4.200	6.65	-197.8	0.11
SB09	03/07/14 <sup>1</sup>	10.00	4.415	6.64	-123.5	8.81
SB09	05/19/14		Not Measured - LNAPL Present			
SB09	08/29/14		Not Measured - LNAPL Present			
SB09	11/21/14		Not Measured - LNAPL Present			
SB09	02/13/15		Not Measured - LNAPL Present			
SB09	05/21/15		Not Measured - LNAPL Present			
SB09	08/27/15		Not Measured - LNAPL Present			
SB09	11/24/15		Not Measured - LNAPL Present			
SB09	02/22/16		Not Measured - LNAPL Present			
SB09	05/23/16		Not Measured - LNAPL Present			
SB09	08/15/16		Not Measured - LNAPL Present			
SB09	11/21/16		Not Measured - LNAPL Present			
SB09	02/16/17		Not Measured - LNAPL Present			
SB09	05/09/17		Not Measured - LNAPL Present			
SB09	08/24/17		Not Measured - LNAPL Present			
SB09	11/20/17		Not Measured - LNAPL Present			
SB09	02/26/18		Not Measured - LNAPL Present			
SB09	05/21/18		Not Measured - LNAPL Present			
SB09	08/27/18		Not Measured - LNAPL Present			
SB10	03/07/14 <sup>1</sup>	11.48	8.344	6.31	-183.9	5.90

**TABLE 2**  
**GROUNDWATER GEOCHEMICAL DATA**  
**NOBLE ENERGY, INC. - PLUGGED AND ABANDONED FRI 2-18**  
**TANK BATTERY AND WELLHEAD LOCATION**

Monitoring Well ID	Date	Temp (°C)	EC (mS/cm)	pH	ORP (mV)	DO (mg/L)
SB10	05/19/14	13.26	9.942	6.35	-158.5	0.14
SB10	08/29/14		Not Measured - LNAPL Present			
SB10	11/21/14	12.85	11.050	6.57	-136.7	0.38
SB10	02/13/15	12.91	11.395	6.51	-7.3	0.72
SB10	05/21/15		Not Measured - LNAPL Present			
SB10	08/27/15	13.90	12.480	7.85	-134.40	0.28
SB10	11/24/15	12.79	13.700	11.82 <sup>2</sup>	-215.20	0.11
SB10	02/22/16	12.80	1.982	6.77	-249.90	-0.70 <sup>3</sup>
SB10	05/23/16	13.33	5.112	6.56	-192.50	0.16
SB10	08/15/16	14.06	7.100	6.66	-87.70	0.17
SB10	11/21/16	12.84	8.444	6.47	-100.8	0.29
SB10	02/16/17	12.90	9.152	6.61	-128.3	0.39
SB10	05/09/17	18.69	7.950	6.55	-72.8	0.43
SB10	08/24/17	15.75	8.750	6.93	-186.1	0.01
SB10	11/20/17	13.62	9.120	6.65	-195.4	0.03
SB10	02/26/18	11.37	9.950	6.74	-91.5	0.35
SB10	05/21/18	17.91	5.420	6.57	-171.2	0.27
SB10	08/27/18	15.07	8.520	6.93	-262.3	0.13
SB11	02/24/14	12.60	2.218	7.38	20.2	0.49
SB11	05/19/14	13.03	2.312	7.25	130.9	6.69
SB11	08/29/14	12.65	2.423	7.49	118.1	0.10
SB11	11/21/14	12.49	2.524	7.39	-104.9	0.65
SB11	02/13/15	12.54	2.548	7.23	28.2	0.30
SB11	05/21/15	12.57	2.712	7.07	-2.5	0.11
SB11	08/27/15	12.55	2.787	8.21	-117.6	0.11
SB11	11/24/15	12.23	2.778	6.87	-35.7	0.26
SB11	02/22/16	12.37	2.840	7.25	-79.9	0.40
SB11	05/23/16	12.55	2.953	5.10 <sup>2</sup>	134.2	0.31
SB11	08/15/16	12.64	2.953	7.09	51.2	0.26
SB11	11/21/16	12.27	2.852	7.02	-11.6	0.92
SB11	02/16/17	12.40	2.838	7.16	-77.3	0.40
SB11	05/09/17	16.51	2.350	6.84	95.8	1.09
SB11	08/24/17	18.76	2.320	7.72	73.2	0.20
SB11	11/20/17	14.22	2.690	7.06	38.0	0.29
SB11	02/26/18	11.63	2.870	7.26	18.0	0.55
SB11	05/21/18	17.35	2.730	7.33	26.0	1.52
SB11	08/27/18	14.92	2.870	6.89	-65.2	0.25
SB12	02/24/14	12.86	5.748	7.17	70.2	2.79
SB12	05/19/14	12.68	5.941	7.31	137.2	0.20
SB12	08/29/14	12.46	5.920	7.46	159.6	0.17
SB12	11/21/14	12.41	5.969	7.75	177.3	1.22
SB12	02/13/15	12.33	5.842	7.35	53.5	0.33
SB12	05/21/15	12.35	5.566	7.13	17.6	0.39



**TABLE 2**  
**GROUNDWATER GEOCHEMICAL DATA**  
**NOBLE ENERGY, INC. - PLUGGED AND ABANDONED FRI 2-18**  
**TANK BATTERY AND WELLHEAD LOCATION**

Monitoring Well ID	Date	Temp (°C)	EC (mS/cm)	pH	ORP (mV)	DO (mg/L)
SB12	08/27/15	12.47	5.864	7.52	87.4	0.33
SB12	11/24/15	11.96	5.667	6.74	44.1	0.56
SB12	02/22/16	12.14	5.649	7.52	16.5	0.34
SB12	05/23/16	12.35	5.561	7.15	87.9	4.5
SB12	08/15/16	12.63	5.643	7.36	167.5	0.19
SB12	11/21/16	12.09	5.682	7.40	-11.0	0.09
SB12	02/16/17	12.20	5.709	7.49	166.7	0.60
SB12	05/09/17	Not Measured - Removed From Groundwater Monitoring Program				
SB12	08/24/17	16.02	7.720	7.92	8.10	0.51
SB12	11/20/17	14.45	3.610	6.89	-138.0	0.14
SB12	02/26/18	12.21	4.430	7.56	-14.1	0.15
SB12	05/21/18	14.94	5.550	7.43	-69.3	0.02
SB12	08/27/18	13.58	5.720	7.11	-111.3	0.13
SB13	02/24/14	12.72	3.556	7.98	23.5	0.16
SB13	05/19/14	13.75	4.699	7.52	202.2	0.14
SB13	08/29/14	12.89	4.605	7.58	154.6	0.10
SB13	11/21/14	12.75	4.651	7.83	164.4	1.37
SB13	02/13/15	12.65	4.861	7.35	42.9	0.41
SB13	05/21/15	12.72	4.708	7.10	-10.9	0.10
SB13	08/27/15	12.70	4.958	7.54	44.1	0.07
SB13	11/24/15	12.41	5.028	6.54	59.7	0.45
SB13	02/22/16	12.59	4.902	7.15	-29.5	0.25
SB13	05/23/16	13.14	5.040	7.10	-154.3	0.14
SB13	08/15/16	13.90	4.547	6.87	76.5	0.39
SB13	11/21/16	12.49	4.885	6.85	-9.5	0.42
SB13	02/16/17	12.60	5.213	7.30	-30.4	0.64
SB13	05/09/17	17.65	4.350	6.97	-36.7	1.04
SB13	08/24/17	14.22	4.790	7.36	-94.4	0.18
SB13	11/20/17	13.24	5.110	6.92	-106.0	0.27
SB13	02/26/18	11.83	5.420	7.12	-22.7	0.26
SB13	05/21/18	16.55	5.170	7.05	-61.1	0.15
SB13	08/27/18	14.02	5.230	6.83	-63.7	0.13
SB14	02/24/14	12.91	2.000	7.29	63.6	0.15
SB14	05/19/14	12.99	2.071	6.96	62.0	0.13
SB14	08/29/14	12.87	2.051	7.17	5.2	0.22
SB14	11/21/14	12.72	2.063	7.48	-122.5	0.51
SB14	02/13/15	12.77	1.977	7.10	-52.0	0.50
SB14	05/21/15	12.83	1.979	7.01	-122.2	0.18
SB14	08/27/15	12.78	2.079	8.30	-148.2	0.08
SB14	11/24/15	12.65	1.896	10.77 <sup>2</sup>	-125.3	0.51
SB14	02/22/16	12.66	1.890	7.25	-234.1	0.33
SB14	05/23/16	13.15	1.985	6.95	-228.7	0.05
SB14	08/15/16	13.88	2.674	7.09	-83.5	0.20

**TABLE 2**  
**GROUNDWATER GEOCHEMICAL DATA**  
**NOBLE ENERGY, INC. - PLUGGED AND ABANDONED FRI 2-18**  
**TANK BATTERY AND WELLHEAD LOCATION**

Monitoring Well ID	Date	Temp (°C)	EC (mS/cm)	pH	ORP (mV)	DO (mg/L)
SB14	11/21/16	12.61	2.154	6.87	-56.4	1.91
SB14	02/16/17	12.70	2.245	7.00	-81.4	0.60
SB14	05/09/17	16.54	1.950	6.69	-35.6	0.38
SB14	08/24/17	17.38	1.990	7.51	-133.5	0.03
SB14	11/20/17	13.22	2.240	7.06	-123.2	0.11
SB14	02/26/18	11.30	2.500	7.07	-9.8	0.30
SB14	05/21/18	19.46	2.430	7.03	-35.4	0.87
SB14	08/27/18	16.39	2.400	6.76	-85.9	0.25
SB15	02/24/14	12.50	3.080	6.97	-204.4	0.33
SB15	05/19/14	13.42	2.698	6.67	-46.9	0.60
SB15	08/29/14	12.91	2.588	6.92	17.6	0.57
SB15	11/21/14	12.55	2.404	6.97	-156.4	0.81
SB15	02/13/15	12.13	2.526	6.97	-47.2	1.12
SB15	05/21/15	12.74	1.857	6.98	-124.0	0.13
SB15	08/27/15	13.06	0.025	7.56	-62.2	9.29
SB15	11/24/15	12.55	1.124	10.12 <sup>2</sup>	-88.3	0.29
SB15	02/22/16	12.52	1.089	7.54	-79.5	0.20
SB15	05/23/16	12.87	2.028	6.83	-178.8	0.12
SB15	08/15/16	13.03	2.481	6.88	-8.6	0.20
SB15	11/21/16	12.61	2.891	6.79	-30.2	0.22
SB15	02/16/17	13.00	3.557	6.94	-3.1	0.16
SB15	05/09/17	16.39	3.490	6.86	95.7	0.20
SB15	08/24/17	18.43	2.860	7.36	-94.0	0.07
SB15	11/20/17	13.90	4.130	6.81	86.9	0.47
SB15	02/26/18	11.51	4.410	6.77	43.2	1.12
SB15	05/21/18	16.61	4.180	6.70	73.4	0.74
SB15	08/27/18	14.77	4.170	6.49	48.6	0.20
SB16	02/24/14	Not Measured - Insufficient Water				
SB16	05/19/14	Not Measured - Insufficient Water				
SB16	08/29/14	Not Measured - Insufficient Water				
SB16	11/21/14	Not Measured - Insufficient Water				
SB16	02/13/15	Not Measured - Insufficient Water				
SB16	05/21/15	Not Measured - Insufficient Water				
SB16	08/27/15	Removed From Groundwater Monitoring Program - Plugged and Abandoned				
SB16R	03/07/14 <sup>1</sup>	10.84	3.736	6.84	-97.4	9.04
SB16R	05/19/14	12.95	4.355	7.15	-28.9	0.60
SB16R	08/29/14	Not Measured - LNAPL Present				
SB16R	11/21/14	Not Measured - LNAPL Present				
SB16R	02/13/15	Not Measured - LNAPL Present				
SB16R	05/21/15	Not Measured - LNAPL Present				
SB16R	08/27/15	Not Measured - LNAPL Present				
SB16R	11/24/15	Not Measured - LNAPL Present				
SB16R	02/22/16	Not Measured - LNAPL Present				

**TABLE 2**  
**GROUNDWATER GEOCHEMICAL DATA**  
**NOBLE ENERGY, INC. - PLUGGED AND ABANDONED FRI 2-18**  
**TANK BATTERY AND WELLHEAD LOCATION**

Monitoring Well ID	Date	Temp (°C)	EC (mS/cm)	pH	ORP (mV)	DO (mg/L)
SB16R	05/23/16	Not Measured - LNAPL Present				
SB16R	08/15/16	Not Measured - LNAPL Present				
SB16R	11/21/16	Not Measured - LNAPL Present				
SB16R	02/16/17	Not Measured - LNAPL Present				
SB16R	05/09/07	Not Measured - Well Damaged and Removed from Monitoring Program				
SB16R2	08/24/17	19.10	4.18	7.66	-56.3	0.03
SB16R2	11/20/17	Not Measured - LNAPL Present				
SB16R2	02/27/18	Not Measured - LNAPL Present				
SB16R2	05/21/18	Not Measured - LNAPL Present				
SB16R2	08/27/18	Not Measured - LNAPL Present				
SB17	02/24/14	12.27	5.859	7.17	49.0	1.01
SB17	05/19/14	13.08	5.904	7.15	155.9	0.38
SB17	08/29/14	12.79	5.908	7.49	158.3	0.27
SB17	11/21/14	12.68	5.913	7.53	135.9	0.99
SB17	02/13/15	12.57	5.832	7.19	38.5	0.32
SB17	05/21/15	12.67	5.643	7.06	-13.9	0.67
SB17	08/27/15	12.67	5.729	7.57	51.0	0.95
SB17	11/24/15	12.29	5.647	6.77	52.5	2.33
SB17	02/22/16	12.38	5.734	7.37	9.6	0.26
SB17	05/23/16	12.83	5.683	7.20	38.7	0.20
SB17	08/15/16	12.99	5.710	7.30	171.8	0.63
SB17	11/21/16	12.40	5.724	7.34	8.4	0.41
SB17	02/16/17	12.50	5.834	7.34	112.0	0.31
SB17	05/09/17	16.96	4.930	7.16	49.3	0.35
SB17	08/24/17	18.35	5.300	7.62	10.5	0.02
SB17	11/20/17	13.90	5.360	7.05	-34.3	0.10
SB17	02/26/18	11.33	5.920	7.36	35.9	0.19
SB17	05/21/18	16.45	5.590	7.29	-49.5	0.07
SB17	08/27/18	13.62	5.860	7.07	26.4	0.12
SB18	02/24/14	12.56	5.622	7.18	59.6	0.50
SB18	05/19/14	12.84	5.669	7.13	169.2	0.41
SB18	08/29/14	12.98	5.644	7.38	13.4	0.07
SB18	11/21/14	12.54	5.812	7.43	-72.9	0.95
SB18	02/13/15	12.53	5.597	7.19	24.8	0.37
SB18	05/21/15	12.49	2.299	7.08	-69.0	0.16
SB18	08/27/15	12.72	4.188	8.15	-129.6	0.14
SB18	11/24/15	12.28	5.283	6.68	20.9	0.29
SB18	02/22/16	12.33	5.263	7.33	-46.8	0.21
SB18	05/23/16	12.80	5.221	7.11	-19.7	0.68
SB18	08/15/16	12.95	5.464	7.13	117.1	0.81
SB18	11/21/16	12.39	5.533	7.20	6.9	0.17
SB18	02/16/17	12.50	5.620	7.31	17.6	0.38
SB18	05/09/17	17.17	4.600	6.88	-58.5	0.45

**TABLE 2**  
**GROUNDWATER GEOCHEMICAL DATA**  
**NOBLE ENERGY, INC. - PLUGGED AND ABANDONED FRI 2-18**  
**TANK BATTERY AND WELLHEAD LOCATION**

Monitoring Well ID	Date	Temp (°C)	EC (mS/cm)	pH	ORP (mV)	DO (mg/L)
SB18	08/24/17	Not Measured - Removed From Groundwater Monitoring Program				
SB18	11/20/17	Not Measured - Removed From Groundwater Monitoring Program				
SB19	02/24/14	12.24	5.457	7.16	19.5	0.91
SB19	05/19/14	13.17	5.473	7.18	82.7	0.30
SB19	08/29/14	12.68	5.376	7.34	-2.2	0.11
SB19	11/21/14	12.47	5.578	7.31	-101.9	1.20
SB19	02/13/15	12.45	5.469	7.04	25.5	1.80
SB19	05/21/15	12.44	5.145	7.00	-49.4	0.33
SB19	08/27/15	12.61	5.408	8.12	-119.5	0.20
SB19	11/24/15	12.15	5.243	6.63	-14.9	0.80
SB19	02/22/16	12.25	5.290	7.31	-111.8	0.21
SB19	05/23/16	12.75	5.209	7.18	-109.4	0.13
SB19	08/15/16	12.76	5.301	7.16	7.4	0.56
SB19	11/21/16	12.28	5.298	7.18	-31.2	0.70
SB19	02/16/17	12.40	5.398	7.30	52.7	0.96
SB19	05/09/17	16.85	4.500	7.02	-50.2	0.45
SB19	08/24/17	14.15	1.950	7.90	-154.7	0.03
SB19	11/20/17	13.15	2.260	7.22	-95.8	0.34
SB19	02/26/18	12.27	2.760	7.54	-20.1	0.11
SB19	05/21/18	Not Measured - Well Obstructed <sup>4</sup>				
SB19	08/27/18	Not Measured - Well Obstructed <sup>4</sup>				
SB20	02/24/14	Not Measured - Insufficient Water				
SB20	05/19/14	13.97	4.530	7.17	181.4	0.95
SB20	08/29/14	12.72	4.834	7.27	43.4	0.15
SB20	11/21/14	12.41	4.888	7.41	-6.2	1.86
SB20	02/13/15	12.41	4.802	6.74	50.0	1.08
SB20	05/21/15	12.54	4.722	6.97	71.5	1.61
SB20	08/27/15	13.78	0.045	7.77	-26.8	10.71
SB20	11/24/15	12.39	3.669	11.22 <sup>2</sup>	-203.2	0.11
SB20	02/22/16	12.44	0.903	7.34	-82.8	0.73
SB20	05/23/16	12.98	1.720	7.36	-110.4	0.19
SB20	08/15/16	12.88	1.716	7.37	-29.8	0.42
SB20	11/21/16	12.42	2.671	7.15	-28.4	0.41
SB20	02/16/17	12.50	3.913	7.13	-71.4	0.55
SB20	05/09/17	16.64	3.520	6.92	-2.8	0.45
SB20	08/24/17	14.44	3.530	7.55	-87.9	0.16
SB20	11/20/17	13.07	2.580	7.21	-76.4	0.09
SB20	02/26/18	11.42	3.540	7.22	-10.2	0.20
SB20	05/21/18	16.52	4.590	7.10	-37.4	0.16
SB20	08/27/18	14.47	4.540	6.90	-118.1	0.10
SB20R	02/24/14	Not Measured - Insufficient Water				
SB20R	05/19/14	Not Measured - Insufficient Water				
SB20R	08/29/14	Not Measured - Insufficient Water				

**TABLE 2**  
**GROUNDWATER GEOCHEMICAL DATA**  
**NOBLE ENERGY, INC. - PLUGGED AND ABANDONED FRI 2-18**  
**TANK BATTERY AND WELLHEAD LOCATION**

Monitoring Well ID	Date	Temp (°C)	EC (mS/cm)	pH	ORP (mV)	DO (mg/L)
SB20R	11/21/14		Not Measured - Insufficient Water			
SB20R	02/13/15		Not Measured - Insufficient Water			
SB20R	05/21/15		Not Measured - Insufficient Water			
SB20R	08/27/15	Removed From Groundwater Monitoring Program - Plugged and Abandoned				
SB21	02/24/14		Not Measured - Insufficient Water			
SB21	05/19/14		Not Measured - LNAPL Present			
SB21	08/29/14		Not Measured - LNAPL Present			
SB21	11/21/14		Not Measured - LNAPL Present			
SB21	02/13/15		Not Measured - LNAPL Present			
SB21	05/21/15		Not Measured - LNAPL Present			
SB21	08/27/15		Not Measured - LNAPL Present			
SB21	11/24/15		Not Measured - LNAPL Present			
SB21	02/22/16		Not Measured - LNAPL Present			
SB21	05/23/16		Not Measured - LNAPL Present			
SB21	08/15/16		Not Measured - LNAPL Present			
SB21	11/21/16		Not Measured - LNAPL Present			
SB21	02/16/17		Not Measured - LNAPL Present			
SB21	05/09/17		Not Measured - LNAPL Present			
SB21	08/24/17		Not Measured - LNAPL Present			
SB21	11/20/17		Not Measured - LNAPL Present			
SB21	02/26/18		Not Measured - LNAPL Present			
SB21	05/21/18		Not Measured - LNAPL Present			
SB21	08/27/18		Not Measured - LNAPL Present			
SB22	02/24/14		Not Measured - Insufficient Water			
SB22	05/19/14		Not Measured - Insufficient Water			
SB22	08/29/14		Not Measured - Insufficient Water			
SB22	11/21/14		Not Measured - Insufficient Water			
SB22	02/13/15		Not Measured - Insufficient Water			
SB22	05/21/15		Not Measured - Insufficient Water			
SB22	08/27/15	Removed From Groundwater Monitoring Program - Plugged and Abandoned				
SB22R	02/24/14	12.29	3.073	7.19	83.1	0.20
SB22R	05/19/14	12.83	3.560	7.05	118.9	0.20
SB22R	08/29/14	12.53	2.767	6.99	-70.0	0.12
SB22R	11/21/14	12.48	3.792	7.45	12.6	1.53
SB22R	02/13/15	12.32	3.100	6.95	41.0	0.24
SB22R	05/21/15	12.32	2.598	7.06	-142.2	0.17
SB22R	08/27/15	12.77	3.703	7.83	-101.5	0.27
SB22R	11/24/15	12.31	2.760	9.79	-55.3	0.31
SB22R	02/22/16	12.19	1.353	7.09	-167.8	0.22
SB22R	05/23/16	12.64	1.731	7.07	-172.7	0.17
SB22R	08/15/16	12.54	2.838	6.97	-46.5	0.14
SB22R	11/21/16	12.35	1.536	7.04	-46.9	0.18
SB22R	02/16/17	12.40	4.735	7.00	-42.7	0.29

**TABLE 2**  
**GROUNDWATER GEOCHEMICAL DATA**  
**NOBLE ENERGY, INC. - PLUGGED AND ABANDONED FRI 2-18**  
**TANK BATTERY AND WELLHEAD LOCATION**

Monitoring Well ID	Date	Temp (°C)	EC (mS/cm)	pH	ORP (mV)	DO (mg/L)
SB22R	05/09/17	17.35	1.430	6.99	-66.8	0.42
SB22R	08/24/17	17.87	1.530	7.38	-159.6	0.01
SB22R	11/20/17	13.28	2.030	6.99	-166.7	0.21
SB22R	02/26/18	12.56	2.280	7.34	-46.3	0.03
SB22R	05/21/18	16.71	1.590	6.94	-156.9	0.12
SB22R	08/27/18	13.57	2.640	7.06	-108.0	0.12
SB23	03/07/14 <sup>1</sup>	11.26	1.978	7.07	-162.2	4.18
SB23	05/19/14	Not Measured - LNAPL Present				
SB23	08/29/14	Not Measured - LNAPL Present				
SB23	11/21/14	Not Measured - LNAPL Present				
SB23	02/13/15	Not Measured - LNAPL Present				
SB23	05/21/15	Not Measured - LNAPL Present				
SB23	08/27/15	Not Measured - Insufficient Water				
SB23	11/24/15	Not Measured - Insufficient Water				
SB23	02/22/16	Not Measured - Insufficient Water				
SB23	05/23/16	Not Measured - Insufficient Water				
SB23	08/15/16	Not Measured - Insufficient Water				
SB23	11/21/16	Not Measured - Insufficient Water				
SB23	02/16/17	Not Measured - Insufficient Water				
SB23	05/09/17	Not Measured - Removed from Groundwater Monitoring Program				
SB23R	08/24/17	Not Measured - LNAPL Present				
SB23R	11/20/17	13.43	2.22	7.17	-205.8	0.04
SB23R	02/26/18	Not Measured - LNAPL Present				
SB23R	05/21/18	Not Measured - LNAPL Present				
SB23R	08/27/18	Not Measured - LNAPL Present				
SB24	02/24/14	Not Measured - Insufficient Water				
SB24	05/19/14	Not Measured - Insufficient Water				
SB24	08/29/14	Not Measured - Insufficient Water				
SB24	11/21/14	Not Measured - Insufficient Water				
SB24	02/13/15	Not Measured - Insufficient Water				
SB24	05/21/15	Not Measured - Insufficient Water				
SB24	08/27/15	Removed From Groundwater Monitoring Program - Plugged and Abandoned				
SB24R	02/24/14	12.29	2.768	7.19	129.5	0.37
SB24R	05/19/14	12.75	3.496	6.88	226.0	0.21
SB24R	08/29/14	12.39	3.007	7.49	108.5	0.36
SB24R	11/21/14	12.30	4.164	7.45	152.4	1.49
SB24R	02/13/15	12.24	3.734	7.15	70.8	6.50
SB24R	05/21/15	12.27	2.891	7.13	10.7	0.20
SB24R	08/27/15	12.30	4.031	7.71	12.2	0.10
SB24R	11/24/15	12.22	2.667	8.45	-11.4	0.47
SB24R	02/22/16	12.07	2.758	7.55	59.5	0.34
SB24R	05/23/16	12.56	2.661	7.42	-108.2	0.49
SB24R	08/15/16	12.29	3.303	7.23	110.6	0.18

**TABLE 2**  
**GROUNDWATER GEOCHEMICAL DATA**  
**NOBLE ENERGY, INC. - PLUGGED AND ABANDONED FRI 2-18**  
**TANK BATTERY AND WELLHEAD LOCATION**

Monitoring Well ID	Date	Temp (°C)	EC (mS/cm)	pH	ORP (mV)	DO (mg/L)
SB24R	11/21/16	12.20	3.962	7.01	19.6	0.35
SB24R	02/16/17	12.20	4.113	7.12	153.4	0.58
SB24R	05/09/17	Not Measured - Removed From Groundwater Monitoring Program				
SB25	02/24/14	Not Measured - Insufficient Water				
SB25	05/19/14	Not Measured - Insufficient Water				
SB25	08/29/14	Not Measured - Insufficient Water				
SB25	11/21/14	Not Measured - Insufficient Water				
SB25	02/13/15	Not Measured - Insufficient Water				
SB25	05/21/15	Not Measured - Insufficient Water				
SB25	08/27/15	Removed From Groundwater Monitoring Program - Plugged and Abandoned				
SB25R	02/24/14	12.16	3.008	7.22	174.2	2.00
SB25R	05/19/14	12.65	3.214	7.11	219.5	0.18
SB25R	08/29/14	12.47	3.054	7.50	135.1	0.04
SB25R	11/21/14	12.38	3.195	7.55	22.9	0.85
SB25R	02/13/15	12.25	3.180	7.12	44.6	1.00
SB25R	05/21/15	12.41	2.960	7.09	38.8	0.14
SB25R	08/27/15	12.62	3.412	7.82	-52.2	0.10
SB25R	11/24/15	12.35	3.095	6.73	0.3	0.62
SB25R	02/22/16	12.12	0.317	7.22	-80.6	0.35
SB25R	05/23/16	12.53	2.652	7.18	-115.4	0.30
SB25R	08/15/16	12.60	0.585	7.55	-20.7	0.30
SB25R	11/21/16	12.31	1.002	7.56	-46.5	0.33
SB25R	02/16/17	12.30	0.816	7.65	-110.6	0.11
SB25R	05/09/17	16.01	1.200	7.19	-13.1	0.39
SB25R	08/24/17	14.31	1.240	8.08	-113.6	0.06
SB25R	11/20/17	12.94	1.840	7.24	-18.7	0.61
SB25R	02/26/18	11.18	2.290	7.51	18.6	0.50
SB25R	05/21/18	16.77	1.770	7.51	-55.0	0.30
SB25R	08/27/18	13.75	1.250	7.20	-75.3	0.77
SB26	02/24/14	12.80	2.212	7.60	171.0	0.56
SB26	05/19/14	12.89	1.999	7.75	216.9	0.62
SB26	08/29/14	12.51	2.026	7.85	96.0	0.10
SB26	11/21/14	12.20	2.260	7.99	86.4	1.81
SB26	02/13/15	12.23	1.836	7.59	140.6	0.77
SB26	05/21/15	12.39	1.753	7.35	20.5	0.30
SB26	08/27/15	12.43	1.833	7.74	65.3	0.15
SB26	11/24/15	12.20	1.025	9.87	-63.2	0.34
SB26	02/22/16	12.13	0.663	7.96	-69.5	0.23
SB26	05/23/16	12.64	0.637	7.62	-149.1	0.22
SB26	08/15/16	12.41	1.075	7.33	166.0	0.18
SB26	11/21/16	12.13	1.523	7.65	4.0	0.35

**TABLE 2**  
**GROUNDWATER GEOCHEMICAL DATA**  
**NOBLE ENERGY, INC. - PLUGGED AND ABANDONED FRI 2-18**  
**TANK BATTERY AND WELLHEAD LOCATION**

Monitoring Well ID	Date	Temp (°C)	EC (mS/cm)	pH	ORP (mV)	DO (mg/L)
SB26	02/16/17	12.30	1.836	6.67	156.2	0.71
SB26	05/09/17	Not Measured - Removed From Groundwater Monitoring Program				
SB27	02/24/14	Not Measured - Insufficient Water				
SB27	05/19/14	Not Measured - Insufficient Water				
SB27	08/29/14	Not Measured - Insufficient Water				
SB27	11/21/14	Not Measured - Insufficient Water				
SB27	02/13/15	Not Measured - Insufficient Water				
SB27	05/21/15	Not Measured - Insufficient Water				
SB27	08/27/15	Removed From Groundwater Monitoring Program - Plugged and Abandoned				
SB27R	02/24/14	11.95	3.014	7.35	152.0	4.99
SB27R	05/19/14	12.68	3.275	7.08	245.3	0.22
SB27R	08/29/14	12.41	3.053	7.59	103.5	0.06
SB27R	11/21/14	12.31	3.329	7.54	199.7	1.84
SB27R	02/13/15	12.26	3.157	7.25	25.6	0.44
SB27R	05/21/15	12.34	2.955	7.08	59.3	0.33
SB27R	08/27/15	12.45	3.411	7.58	9.8	0.39
SB27R	11/24/15	12.31	2.981	6.89	47.2	2.00
SB27R	02/22/16	12.17	3.030	7.38	17.3	0.22
SB27R	05/23/16	12.57	2.913	7.33	-76.6	1.65
SB27R	08/15/16	12.56	2.931	7.22	17.2	0.42
SB27R	11/21/16	12.30	3.021	7.19	-2.5	0.35
SB27R	02/16/17	12.30	3.449	7.12	36.8	0.45
SB27R	05/09/17	15.65	2.620	6.81	104.7	1.61
SB27R	08/24/17	17.43	2.670	7.92	174.2	0.32
SB27R	11/20/17	13.25	2.950	7.29	62.7	1.41
SB27R	02/26/18	11.44	3.290	7.31	31.5	0.08
SB27R	05/21/18	16.21	2.940	7.32	66.7	0.42
SB27R	08/27/18	14.07	3.500	6.82	-1.2	0.12
SB28	02/24/14	Not Measured - Insufficient Water				
SB28	05/19/14	Not Measured - Insufficient Water				
SB28	08/29/14	Not Measured - Insufficient Water				
SB28	11/21/14	Not Measured - Insufficient Water				
SB28	02/13/15	Not Measured - Insufficient Water				
SB28	05/21/15	Not Measured - Insufficient Water				
SB28	08/27/15	Removed From Groundwater Monitoring Program - Plugged and Abandoned				
SB28R	02/24/14	12.41	2.326	7.25	135.9	0.47
SB28R	05/19/14	12.49	3.130	7.50	254.3	0.83
SB28R	08/29/14	12.47	2.725	7.49	74.8	0.16
SB28R	11/21/14	12.35	3.429	7.60	153.4	2.06
SB28R	02/13/15	12.30	2.971	7.25	73.9	0.67
SB28R	05/21/15	12.32	2.204	7.22	23.5	0.17



**TABLE 2**  
**GROUNDWATER GEOCHEMICAL DATA**  
**NOBLE ENERGY, INC. - PLUGGED AND ABANDONED FRI 2-18**  
**TANK BATTERY AND WELLHEAD LOCATION**

Monitoring Well ID	Date	Temp (°C)	EC (mS/cm)	pH	ORP (mV)	DO (mg/L)
SB28R	08/27/15	12.85	1.927	7.74	6.1	1.16
SB28R	11/24/15	12.25	2.276	8.32	-3.2	0.54
SB28R	02/22/16	12.17	2.809	7.43	44.3	0.36
SB28R	05/23/16	12.45	2.618	7.35	-99.8	0.32
SB28R	08/15/16	12.59	1.937	7.38	38.7	1.20
SB28R	11/21/16		Not Measured - Insufficient Water			
SB28R	02/16/17		Not Measured - Well Obstructed <sup>4</sup>			
SB28R	05/09/17		Not Measured - Well Obstructed <sup>4</sup>			
SB28R	08/24/17		Not Measured - Well Obstructed <sup>4</sup>			
SB28R	11/20/17		Not Measured - Well Obstructed <sup>4</sup>			
SB28R	02/26/18		Not Measured - Well Obstructed <sup>4</sup>			
SB28R	05/21/18		Not Measured - Well Obstructed <sup>4</sup>			
SB28R	08/27/18		Not Measured - Well Obstructed <sup>4</sup>			
SB29	02/24/14	12.59	2.630	7.22	75.8	0.56
SB29	05/19/14	12.73	3.306	7.32	526.9	0.46
SB29	08/29/14	12.69	2.328	7.61	90.9	0.31
SB29	11/21/14	12.41	3.778	7.70	118.9	0.86
SB29	02/13/15	12.37	3.586	7.38	143.2	0.50
SB29	05/21/15	12.41	2.242	7.24	-28.0	0.20
SB29	08/27/15	12.50	3.900	7.67	-11.7	0.06
SB29	11/24/15	12.21	2.435	9.68	-50.3	0.69
SB29	02/22/16	12.21	1.198	7.57	24.5	0.16
SB29	05/23/16	12.58	1.616	7.44	-147.6	0.50
SB29	08/15/16	12.50	1.626	7.54	-19.8	0.21
SB29	11/21/16	12.26	1.995	7.76	5.0	0.34
SB29	02/16/17	12.40	3.075	7.48	191.5	0.59
SB29	05/09/17	Not Measured - Removed From Groundwater Monitoring Program				
SB30	03/07/14 <sup>1</sup>	9.64	3.415	6.83	-57.1	15.51
SB30	05/19/14		Not Measured - LNAPL Present			
SB30	08/29/14		Not Measured - LNAPL Present			
SB30	11/21/14		Not Measured - LNAPL Present			
SB30	02/13/15		Not Measured - LNAPL Present			
SB30	05/21/15		Not Measured - LNAPL Present			
SB30	08/27/15		Not Measured - LNAPL Present			
SB30	11/24/15		Not Measured - LNAPL Present			
SB30	02/22/16		Not Measured - LNAPL Present			
SB30	05/23/16		Not Measured - LNAPL Present			
SB30	08/15/16		Not Measured - LNAPL Present			
SB30	11/21/16		Not Measured - LNAPL Present			
SB30	02/16/17		Not Measured - LNAPL Present			
SB30	05/09/17		Not Measured -Spill Buster Present			

**TABLE 2**  
**GROUNDWATER GEOCHEMICAL DATA**  
**NOBLE ENERGY, INC. - PLUGGED AND ABANDONED FRI 2-18**  
**TANK BATTERY AND WELLHEAD LOCATION**

Monitoring Well ID	Date	Temp (°C)	EC (mS/cm)	pH	ORP (mV)	DO (mg/L)
SB30	08/24/17	Not Measured - LNAPL Present				
SB30	11/20/17	Not Measured - LNAPL Present				
SB30	02/26/18	Not Measured - LNAPL Present				
SB30	05/21/18	Not Measured - LNAPL Present				
SB30	08/27/18	Not Measured - LNAPL Present				
SB31	03/07/14 <sup>1</sup>	9.15	3.096	6.85	-47.2	14.40
SB31	05/19/14	Not Measured - LNAPL Present				
SB31	08/29/14	Not Measured - LNAPL Present				
SB31	11/21/14	Not Measured - LNAPL Present				
SB31	02/13/15	Not Measured - LNAPL Present				
SB31	05/21/15	Not Measured - LNAPL Present				
SB31	08/27/15	Not Measured - LNAPL Present				
SB31	11/24/15	Not Measured - LNAPL Present				
SB31	02/22/16	Not Measured - LNAPL Present				
SB31	05/23/16	Not Measured - LNAPL Present				
SB31	08/15/16	Not Measured - LNAPL Present				
SB31	11/21/16	Not Measured - LNAPL Present				
SB31	02/16/17	Not Measured - LNAPL Present				
SB31	05/09/17	Not Measured - Spill Buster Present				
SB31	08/24/17	Not Measured - LNAPL Present				
SB31	11/20/17	Not Measured - LNAPL Present				
SB31	02/26/18	Not Measured - LNAPL Present				
SB31	05/21/18	Not Measured - LNAPL Present				
SB31	08/27/18	Not Measured - LNAPL Present				
SB32	02/24/14	12.42	2.781	7.15	107.8	0.36
SB32	03/31/14	12.54	2.934	6.82	109.5	0.25
SB32	05/19/14	12.89	3.511	7.39	174.1	0.40
SB32	08/29/14	12.66	2.750	6.99	35.0	0.45
SB32	11/21/14	12.61	4.066	7.18	-145.9	1.22
SB32	02/13/15	12.47	3.926	6.92	-53.3	0.28
SB32	05/21/15	12.51	2.637	6.99	-82.0	0.11
SB32	08/27/15	Not Measured - Insufficient Water				
SB32	11/24/15	Not Measured - Insufficient Water				
SB32	02/22/16	Not Measured - Insufficient Water				
SB32	05/23/16	Not Measured - Insufficient Water				
SB32	08/15/16	Not Measured - Insufficient Water				
SB32	11/21/16	Not Measured - Insufficient Water				
SB32	02/16/17	Not Measured - Insufficient Water				
SB32	05/09/17	Not Measured - Insufficient Water				
SB32	08/24/17	Not Measured - Insufficient Water				
SB32	11/20/17	Not Measured - Insufficient Water				
SB32	02/26/18	Not Measured - Insufficient Water				
SB32	05/21/18	Not Measured - Insufficient Water				

**TABLE 2**  
**GROUNDWATER GEOCHEMICAL DATA**  
**NOBLE ENERGY, INC. - PLUGGED AND ABANDONED FRI 2-18**  
**TANK BATTERY AND WELLHEAD LOCATION**

Monitoring Well ID	Date	Temp (°C)	EC (mS/cm)	pH	ORP (mV)	DO (mg/L)
SB32	08/27/18	Not Measured - Insufficient Water				
SB33	02/24/14	Not Measured - Insufficient Water				
SB33	05/19/14	Not Measured - Insufficient Water				
SB33	08/29/14	12.37	6.177	7.08	131.8	0.11
SB33	11/21/14	12.28	6.165	7.18	-11.5	1.73
SB33	02/13/15	12.16	6.050	7.02	54.9	0.35
SB33	05/21/15	12.30	5.910	6.75	79.0	0.27
SB33	08/27/15	12.40	6.035	7.78	-98.4	0.12
SB33	11/24/15	12.22	5.976	6.65	-23.4	0.32
SB33	02/22/16	12.18	6.032	7.06	-42.7	0.20
SB33	05/23/16	12.48	5.933	6.92	-52.9	0.15
SB33	08/15/16	12.29	5.925	6.85	170.8	1.50
SB33	11/21/16	12.10	5.913	6.95	-3.9	0.12
SB33	02/16/17	12.10	5.920	7.07	32.3	0.65
SB33	05/09/17	Not Measured - Removed From Groundwater Monitoring Program				
SB34	02/24/14	12.36	2.316	7.14	188.9	0.72
SB34	05/19/14	12.99	2.366	7.31	245.1	0.34
SB34	08/29/14	12.61	2.328	7.20	127.4	0.30
SB34	11/21/14	12.32	2.393	7.72	176.6	1.77
SB34	02/13/15	12.17	2.308	7.10	64.4	4.30
SB34	05/21/15	12.49	2.247	7.07	33.6	0.15
SB34	08/27/15	12.57	2.298	7.60	18.9	0.23
SB34	11/24/15	12.30	2.303	8.13	26.5	1.08
SB34	02/22/16	12.21	2.292	7.34	37.7	0.20
SB34	05/23/16	12.63	2.283	7.20	-91.0	0.33
SB34	08/15/16	12.43	2.310	7.08	128.6	0.11
SB34	11/21/16	12.29	2.308	7.19	2.2	1.94
SB34	02/16/17	12.30	2.466	7.25	-59.8	0.51
SB34	05/09/17	Not Measured - Removed From Groundwater Monitoring Program				
SB35	03/31/14	12.42	2.861	6.69	118.3	0.39
SB35	05/19/14	12.56	2.905	4.38	184.8	0.30
SB35	08/29/14	12.46	2.887	7.55	107.5	0.11
SB35	11/21/14	12.44	3.078	7.69	89.1	1.40
SB35	02/13/15	12.29	2.897	7.26	31.9	0.72
SB35	05/21/15	12.38	2.787	7.06	46.1	0.14
SB35	08/27/15	12.54	3.036	7.75	-15.3	8.30
SB35	11/24/15	12.31	1.763	6.99	-16.9	0.41
SB35	02/22/16	12.18	1.881	7.40	-95.9	0.18
SB35	05/23/16	12.47	2.132	7.27	-103.7	0.20
SB35	08/15/16	12.44	2.261	7.17	-40.9	0.22
SB35	11/21/16	12.30	2.610	7.26	-16.0	0.46
SB35	02/16/17	12.30	2.990	7.30	19.0	0.35
SB35	05/09/17	16.19	2.410	7.03	89.7	0.49

**TABLE 2**  
**GROUNDWATER GEOCHEMICAL DATA**  
**NOBLE ENERGY, INC. - PLUGGED AND ABANDONED FRI 2-18**  
**TANK BATTERY AND WELLHEAD LOCATION**

Monitoring Well ID	Date	Temp (°C)	EC (mS/cm)	pH	ORP (mV)	DO (mg/L)
SB35	08/24/17	Not Measured - Removed From Groundwater Monitoring Program				
SB36	03/31/14	12.56	3.638	6.95	86.3	0.19
SB36	05/19/14	12.42	4.010	7.39	250.8	0.32
SB36	08/29/14	12.37	3.134	7.13	26.0	0.17
SB36	11/21/14	12.32	3.121	7.68	145.8	1.63
SB36	02/13/15	12.01	3.096	6.84	156.7	0.75
SB36	05/21/15	12.17	2.926	7.06	77.2	0.30
SB36	08/27/15	12.13	5.125	7.27	79.2	0.18
SB36	11/24/15	11.96	4.449	6.31	90.8	0.40
SB36	02/22/16	12.15	4.534	6.97	-14.8	0.32
SB36	05/23/16	12.33	3.978	6.58	-59.2	0.45
SB36	08/15/16	12.48	3.383	6.94	168.0	0.23
SB36	11/21/16	12.08	3.701	6.93	-78.8	0.13
SB36	02/16/17	12.20	4.224	6.89	-83.2	0.64
SB36	05/09/17	14.42	2.809	7.03	-112.7	0.16
SB36	08/24/17	13.14	3.640	7.45	-125.2	0.07
SB36	11/20/17	13.49	3.610	6.73	-207.0	0.16
SB36	02/26/18	12.52	3.700	7.18	-24.0	0.11
SB36	05/21/18	14.62	3.615	7.15	-197.9	0.06
SB36	08/27/18	13.67	3.400	6.90	-159.2	0.15
SB37	03/31/14	Not Measured - Insufficient Water				
SB37	05/19/14	12.92	3.378	6.97	245.5	0.22
SB37	08/29/14	12.69	2.263	7.09	-48.9	0.09
SB37	11/21/14	12.51	3.562	7.22	-30.0	1.57
SB37	02/13/15	12.54	3.581	6.88	47.3	0.24
SB37	05/21/15	12.53	2.066	7.18	-166.9	0.04
SB37	08/27/15	12.71	1.964	8.26	-203.4	0.29
SB37	11/24/15	12.48	1.874	8.70	-40.6	0.28
SB37	02/22/16	12.40	2.040	7.39	-205.9	0.04
SB37	05/23/16	Not Measured - LNAPL Present				
SB37	08/15/16	Not Measured - LNAPL Present				
SB37	11/21/16	Not Measured - LNAPL Present				
SB37	02/16/17	Not Measured - LNAPL Present				
SB37	05/09/17	Not Measured - LNAPL Present				
SB37	08/24/17	Not Measured - LNAPL Present				
SB37	11/20/17	Not Measured - LNAPL Present				
SB37	02/26/18	Not Measured - LNAPL Present				
SB37	05/21/18	Not Measured - LNAPL Present				
SB37	08/27/18	Not Measured - LNAPL Present				
SB38	03/31/14	12.49	2.701	7.03	77.0	2.09
SB38	05/19/14	12.60	2.728	7.45	250.8	0.22
SB38	08/29/14	12.33	2.378	7.47	27.3	0.19
SB38	11/21/14	12.32	2.658	7.69	151.3	0.41

**TABLE 2**  
**GROUNDWATER GEOCHEMICAL DATA**  
**NOBLE ENERGY, INC. - PLUGGED AND ABANDONED FRI 2-18**  
**TANK BATTERY AND WELLHEAD LOCATION**

Monitoring Well ID	Date	Temp (°C)	EC (mS/cm)	pH	ORP (mV)	DO (mg/L)
SB38	02/13/15	12.22	2.640	7.37	167.3	2.17
SB38	05/21/15	12.21	2.286	6.98	215.5	0.36
SB38	08/27/15	12.69	2.596	7.55	90.0	0.90
SB38	11/24/15	12.04	2.417	6.66	88.6	0.83
SB38	02/22/16	12.14	2.550	7.58	23.1	0.40
SB38	05/23/16	12.35	2.017	6.89	128.6	0.33
SB38	08/15/16	12.45	2.230	7.18	241.9	0.25
SB38	11/21/16	12.09	2.491	7.17	-18.8	0.16
SB38	02/16/17	12.30	2.648	7.20	2.6	0.49
SB38	05/09/17	15.84	2.028	6.86	54.0	0.44
SB38	08/24/17	14.08	2.080	7.62	125.4	0.60
SB38	11/20/17	14.19	2.320	6.80	99.3	0.54
SB38	02/26/18	12.51	2.760	7.27	48.3	0.16
SB38	05/21/18	13.85	2.840	7.24	72.5	0.03
SB38	08/27/18	14.20	2.580	7.03	58.6	0.44
SB39	04/18/14	13.52	6.588	6.98	160.8	2.90
SB39	05/19/14	12.51	6.540	7.19	258.0	0.35
SB39	08/29/14	12.30	6.203	7.51	126.6	0.07
SB39	11/21/14	12.22	6.402	7.53	216.0	2.12
SB39	02/13/15	12.15	6.336	7.00	65.1	0.61
SB39	05/21/15	12.10	5.814	6.77	226.3	0.23
SB39	08/27/15	12.41	4.085	7.23	94.9	0.59
SB39	11/24/15	11.72	4.033	6.27	91.6	1.32
SB39	02/22/16	11.90	3.954	7.08	23.2	0.31
SB39	05/23/16	Not Measured - Probe Malfunction				
SB39	08/15/16	12.36	3.704	7.05	280.1	3.48
SB39	11/21/16	11.86	3.846	6.97	111.5	2.52
SB39	02/16/17	12.00	3.862	6.93	411.2	1.79
SB39	05/09/17	16.37	2.92	6.75	94.83	1.36
SB39	08/24/17	14.40	2.98	7.52	220.2	7.70
SB39	11/20/17	13.21	3.74	6.93	28.4	0.71
SB39	02/26/18	11.93	4.38	7.10	40.5	1.94
SB39	05/21/18	16.68	4.167	7.06	50.6	1.20
SB39	08/27/18	15.67	4.02	6.77	47.2	2.99
SB40	04/18/14	12.58	3.878	7.22	140.1	1.17
SB40	05/19/14	12.36	3.888	7.54	232.0	0.58
SB40	08/29/14	12.14	3.561	7.61	88.0	3.20
SB40	11/21/14	11.49	3.553	7.60	88.4	2.20
SB40	02/13/15	12.11	3.559	7.13	76.0	2.01
SB40	05/21/15	12.12	3.485	6.50	250.1	0.90
SB40	08/27/15	12.22	3.721	7.34	116.2	0.12
SB40	11/24/15	11.91	2.703	6.65	108.7	4.74
SB40	02/22/16	12.03	2.260	7.24	192.0	0.41

**TABLE 2**  
**GROUNDWATER GEOCHEMICAL DATA**  
**NOBLE ENERGY, INC. - PLUGGED AND ABANDONED FRI 2-18**  
**TANK BATTERY AND WELLHEAD LOCATION**

Monitoring Well ID	Date	Temp (°C)	EC (mS/cm)	pH	ORP (mV)	DO (mg/L)
SB40	05/23/16	12.03	2.281	6.64	108.8	5.43
SB40	08/15/16	12.43	2.111	7.50	263.8	7.10
SB40	11/21/16	11.96	2.012	7.28	142.4	1.89
SB40	02/16/17	12.20	2.363	7.27	414.0	0.71
SB40	05/09/17	Not Measured - Removed From Groundwater Monitoring Program				
SB41	04/18/14	12.92	2.001	7.54	115.8	3.36
SB41	05/19/14	12.51	2.419	7.39	208.1	0.25
SB41	08/29/14	12.30	2.012	7.76	43.3	0.22
SB41	11/21/14	11.97	1.980	8.10	122.2	2.05
SB41	02/13/15	12.14	2.094	7.47	109.0	0.45
SB41	05/21/15	12.19	1.910	7.09	217.0	0.34
SB41	08/27/15	12.53	1.945	7.49	118.3	0.10
SB41	11/24/15	11.97	1.932	6.70	97.8	1.95
SB41	02/22/16	12.05	0.868	7.63	-68.5	0.38
SB41	05/23/16	12.28	1.846	6.97	105.0	0.53
SB41	08/15/16	12.48	2.570	7.38	250.9	0.22
SB41	11/21/16	12.04	2.546	7.17	240.9	1.39
SB41	02/16/17	12.20	2.379	7.43	421.4	0.54
SB41	05/09/17	Not Measured - Removed From Groundwater Monitoring Program				
SB42	04/18/14	12.61	2.645	7.37	205.9	6.44
SB42	05/19/14	12.66	3.096	7.23	250.0	0.44
SB42	08/29/14	12.54	2.304	7.64	143.0	0.54
SB42	11/21/14	12.42	2.259	7.84	58.6	0.84
SB42	02/13/15	12.44	3.195	7.22	37.3	0.69
SB42	05/21/15	12.29	2.030	7.21	128.8	0.25
SB42	08/27/15	12.56	2.059	7.56	84.0	0.08
SB42	11/24/15	12.20	2.034	6.75	8.5	0.25
SB42	02/22/16	12.17	1.923	7.65	-59.8	0.28
SB42	05/23/16	12.56	1.888	7.52	-145.9	0.42
SB42	08/15/16	12.65	1.884	7.47	48.5	0.43
SB42	11/21/16	12.15	1.941	7.42	-15.5	1.65
SB42	02/16/17	12.30	2.520	7.58	117.9	0.31
SB42	05/09/17	Not Measured - Removed From Groundwater Monitoring Program				

**NOTES:**

Temp (°C) = Temperature in degrees Celsius (°C)

EC (mS/cm) = Electrical conductivity in millisiemens per centimeter (mS/cm)

pH = Acidity or alkalinity in standard units

ORP (mV) = Oxidation reduction potential in millivolts (mV)

DO (mg/L) = Dissolved oxygen concentration in milligrams per liter (mg/L)

LNAPL = Light non-aqueous phase liquid

<sup>1</sup> Measured ex-situ due to the presence of LNAPL

<sup>2</sup> pH values appear anomalous for wells SB07, SB10, SB14, SB15, SB20 measured on 11/24/15, and for well SB11 on 5/23/16.

<sup>3</sup> DO values appear anomalous for wells SB07, SB08, SB10 measured on 02/22/16, and for well SB07 measured on 5/23/16.

<sup>4</sup> Obstruction in well large enough to block meter sensor, but did not block hydrasleeve deployment.

This table presents data collected by Tasman Geosciences. Historical data is presented in Attachment A of the Form 27 Site Assessment Report (COGCC Document #2148980)

**TABLE 3**  
**GROUNDWATER ANALYTICAL DATA**  
**NOBLE ENERGY, INC. - PLUGGED AND ABANDONED FRI 2-18**  
**TANK BATTERY AND WELLHEAD LOCATION**

Monitoring Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
<b>COGCC Groundwater Standard (µg/L)</b>		<b>5</b>	<b>560</b>	<b>700</b>	<b>1,400</b>
SB01	02/24/14	1.5	13.5	1.2	33.8
SB01	05/19/14	Removed From Groundwater Monitoring Program - Submerged Well Screen			
SB01	08/27/15	Removed From Groundwater Monitoring Program - Plugged and Abandoned			
SB02	02/24/14	25.1	<4.0	<4.0	<4.0
SB02	05/19/14	Removed From Groundwater Monitoring Program - Submerged Well Screen			
SB02	08/27/15	Removed From Groundwater Monitoring Program - Plugged and Abandoned			
SB03	02/24/14	<1.0	<1.0	<1.0	<1.0
SB03	05/19/14	<1.0	<5.0	<1.0	<3.0
SB03	08/29/14	<1.0	<5.0	<1.0	<3.0
SB03	11/21/14	<1.0	<5.0	<1.0	<3.0
SB03	02/13/15	<1.0	<5.0	<1.0	<3.0
SB03	05/21/15	<1.0	<5.0	<1.0	<3.0
SB03	08/27/15	<1.0	<5.0	<1.0	<3.0
SB03	11/24/15	1.45	<5.0	1.33	<3.0
SB03	02/22/16	2.57	<5.0	5.53	<3.0
SB03	05/23/16	3.2	<1.0	6.2	2.5
SB03	08/15/16	<1.0	<1.0	<1.0	<1.0
SB03	11/21/16	<1.0	<1.0	<1.0	<1.0
SB03	02/16/17	<1.0	<1.0	<1.0	<1.0
SB03	05/12/17	<1.0	<1.0	<1.0	<2.0
SB03	08/24/17	<1.0	<1.0	<1.0	<2.0
SB03	11/20/17	<1.0	<1.0	<1.0	<2.0
SB03	02/26/18	<1.0	<1.0	<1.0	<2.0
SB03	05/21/18	<1.0	<1.0	<1.0	<2.0
SB03	08/27/18	<1.0	<1.0	<1.0	<2.0
SB04	02/24/14	72.3	<1.0	<1.0	<1.0
SB04	05/19/14	6.4	<5.0	<1.0	<3.0
SB04	08/29/14	42	<5.0	<1.0	<3.0
SB04	11/21/14	7.9	<5.0	<1.0	<3.0
SB04	02/13/15	8.8	<5.0	<1.0	<3.0
SB04	05/21/15	100	<5.0	6.1	4.8
SB04	08/27/15	174	<5.0	3.26	3.28
SB04	11/24/15	1,760	<125	543	371
SB04	02/22/16	1,010	<5.0	223	366
SB04	05/23/16	490	<1.0	300	150
SB04	08/15/16	910	<1.0	640	150
SB04	11/21/16	970	1.4	1,100	<1.0
SB04	02/16/17	770	1.3	1,100	22
SB04	05/12/17	620	1.5	930	64
SB04	08/24/17	36	1.9	150	31
SB04 <sup>3</sup>	11/20/17	53	<1.0	110	<2.0
SB04	02/26/18	280	13	560	23
SB04	05/21/18	<1.0	<1.0	<1.0	<2.0
SB04	08/27/18	21	<1.0	2.7	2.5

Table 3-1

**TABLE 3**  
**GROUNDWATER ANALYTICAL DATA**  
**NOBLE ENERGY, INC. - PLUGGED AND ABANDONED FRI 2-18**  
**TANK BATTERY AND WELLHEAD LOCATION**



Monitoring Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
COGCC Groundwater Standard (µg/L)		5	560	700	1,400
SB05	02/24/14	Not Sampled - LNAPL Present			
SB05	05/19/14	Not Sampled - LNAPL Present			
SB05	08/29/14	Not Sampled - LNAPL Present			
SB05	11/21/14	Not Sampled - LNAPL Present			
SB05	02/13/15	Not Sampled - LNAPL Present			
SB05	05/21/15	Not Sampled - LNAPL Present			
SB05	08/27/15	Not Sampled - LNAPL Present			
SB05	11/24/15	Not Sampled - LNAPL Present			
SB05	02/22/16	Not Sampled - LNAPL Present			
SB05	05/23/16	Not Sampled - LNAPL Present			
SB05	08/15/16	Not Sampled - LNAPL Present			
SB05	11/21/16	Not Sampled - LNAPL Present			
SB05	02/16/17	Not Sampled - LNAPL Present			
SB05	05/12/17	Not Sampled - LNAPL Present			
SB05	08/24/17	Not Sampled - LNAPL Present			
SB05	11/20/17	Not Sampled - LNAPL Present			
SB05	02/26/18	Not Sampled - LNAPL Present			
SB05	05/18/18	Not Sampled - LNAPL Present			
SB05	08/27/18	Not Sampled - LNAPL Present			
SB06	02/24/14	<1.0	<1.0	<1.0	<1.0
SB06	05/19/14	<1.0	<5.0	<1.0	<3.0
SB06	08/29/14	<1.0	<5.0	<1.0	<3.0
SB06	11/21/14	<1.0	<5.0	<1.0	<3.0
SB06	02/13/15	<1.0	<5.0	<1.0	<3.0
SB06	05/21/15	<1.0	<5.0	<1.0	<3.0
SB06	08/27/15	23.2	<5.0	<1.0	4.97
SB06	11/24/15	2.39	<5.0	<1.0	<3.0
SB06	02/22/16	2.48	<5.0	<1.0	<3.0
SB06	05/23/16	2.6	<1.0	<1.0	2.7
SB06	08/15/16	<1.0	<1.0	<1.0	<1.0
SB06	11/21/16	<1.0	<1.0	<1.0	<1.0
SB06	02/16/17	2.0	<1.0	2.1	<1.0
SB06	05/12/17	<1.0	<1.0	<1.0	<2.0
SB06	08/24/17	<1.0	<1.0	<1.0	2.3
SB06	11/20/17	<1.0	<1.0	<1.0	<2.0
SB06	02/26/18	<1.0	<1.0	<1.0	<2.0
SB06	05/21/18	<1.0	<1.0	<1.0	<2.0
SB06	08/27/18	<1.0	<1.0	<1.0	<2.0
SB07	02/24/14	8,600	9,910	54.0	1,800
SB07	05/19/14	7,800	9,900	88	3,200
SB07	08/29/14	5,900	<2,500	<500	<1,500
SB07	11/21/14	8,600	6,000	<500	3,600
SB07	02/13/15	2,200	<250	<50	310
SB07	05/21/15	4,400	720	<50	430
SB07	08/27/15	642	784	<50	336
SB07	11/24/15	9,560	27,000	445	8,730

Table 3-2



**TABLE 3**  
**GROUNDWATER ANALYTICAL DATA**  
**NOBLE ENERGY, INC. - PLUGGED AND ABANDONED FRI 2-18**  
**TANK BATTERY AND WELLHEAD LOCATION**



Monitoring Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
<b>COGCC Groundwater Standard (µg/L)</b>		<b>5</b>	<b>560</b>	<b>700</b>	<b>1,400</b>
SB07	02/22/16	7,860	10,400	304	6,720
SB07	05/23/16	9,900	2,000	500	6,200
SB07	08/15/16	4,200	350	220	2,100
SB07	11/21/16	1,100	110	60	560
SB07	02/16/17	3,500	230	270	5,800
SB07	05/12/17	2,700	66	200	5,400
SB07	08/24/17	2,300	300	160	3,700
SB07	11/20/17	1,800	160	170	2,700
SB07	02/26/18	1,900	140	250	1,600
SB07	05/21/18	700	19	82	980
SB07	08/27/18	450	<1.0	110	590
SB08	02/24/14	Not Sampled - LNAPL Present			
SB08	05/19/14	5,500	12,000	480	10,000
SB08	08/29/14	5,000	4,100	600	12,000
SB08	11/21/14	Not Sampled - LNAPL Present			
SB08	02/13/15	Not Sampled - LNAPL Present			
SB08	05/21/15	Not Sampled - LNAPL Present			
SB08	08/27/15	4,710	7,120	252	8,720
SB08	11/24/15	Not Sampled - LNAPL Present			
SB08	02/22/16	3,600	5,950	459	10,100
SB08	05/23/16	5,200	5,000	920	16,000
SB08	08/15/16	6,400	5,300	780	17,000
SB08	11/21/16	6,500	6,100	840	13,000
SB08	02/16/17	4,600	5,000	750	13,000
SB08	05/12/17	5,400	4,800	530	12,000
SB08	08/24/17	4,800	3,000	770	12,000
SB08	11/20/17	6,200	750	440	10,000
SB08	02/26/18	6,100	630	540	9,100
SB08	05/21/18	5,100	500	220	9,700
SB08	08/27/18	4,400	1,200	520	8,500
SB09	02/24/14	Not Sampled - LNAPL Present			
SB09	05/19/14	Not Sampled - LNAPL Present			
SB09	08/29/14	Not Sampled - LNAPL Present			
SB09	11/21/14	Not Sampled - LNAPL Present			
SB09	02/13/15	Not Sampled - LNAPL Present			
SB09	05/21/15	Not Sampled - LNAPL Present			
SB09	08/27/15	Not Sampled - LNAPL Present			
SB09	11/24/15	Not Sampled - LNAPL Present			
SB09	02/22/16	Not Sampled - LNAPL Present			
SB09	05/23/16	Not Sampled - LNAPL Present			
SB09	08/15/16	Not Sampled - LNAPL Present			
SB09	11/21/16	Not Sampled - LNAPL Present			
SB09	02/16/17	Not Sampled - LNAPL Present			
SB09	05/12/17	Not Sampled - LNAPL Present			
SB09	08/24/17	Not Sampled - LNAPL Present			

Table 3-3

**TABLE 3**  
**GROUNDWATER ANALYTICAL DATA**  
**NOBLE ENERGY, INC. - PLUGGED AND ABANDONED FRI 2-18**  
**TANK BATTERY AND WELLHEAD LOCATION**



Monitoring Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
<b>COGCC Groundwater Standard (µg/L)</b>		<b>5</b>	<b>560</b>	<b>700</b>	<b>1,400</b>
SB09	11/20/17	Not Sampled - LNAPL Present			
SB09	02/26/18	Not Sampled - LNAPL Present			
SB09	05/18/18	Not Sampled - LNAPL Present			
SB09	08/27/18	Not Sampled - LNAPL Present			
SB10	02/24/14	Not Sampled - LNAPL Present			
SB10	05/19/14	14,000	18,000	640	12,000
SB10	08/29/14	Not Sampled - LNAPL Present			
SB10	11/21/14	15,000	24,000	1,100	21,000
SB10	02/13/15	15,000	33,000	620	13,000
SB10	05/21/15	Not Sampled - LNAPL Present			
SB10	08/27/15	14,900	32,900	713	11,300
SB10	11/24/15	9,920	20,700	<1,000	9,280
SB10	02/22/16	3,520	6,670	458	9,620
SB10	05/23/16	7,200	16,000	1,200	18,000
SB10	08/15/16	6,700	14,000	710	18,000
SB10	11/21/16	6,900	5,600	1,000	13,000
SB10	02/16/17	4,800	2,600	790	10,000
SB10	05/12/17	5,700	2,700	590	10,000
SB10	08/24/17	4,900	1,300	880	8,900
SB10	11/20/17	3,500	140	450	6,400
SB10	02/26/18	1,800	16	380	3,200
SB10	05/21/18	560	2	30	850
SB10	08/27/18	370	3.2	75	380
SB11	02/24/14	1,550	<1.0	127	<1.0
SB11	05/19/14	49	<5.0	<1.0	<3.0
SB11	08/29/14	170	<5.0	20	<3.0
SB11	11/21/14	250	<5.0	22	<3.0
SB11	02/13/15	94	<5.0	28	<3.0
SB11	05/21/15	120	<5.0	16	<3.0
SB11	08/27/15	48.2	<5.0	<1.0	3.61
SB11	11/24/15	50.6	<5.0	111	<3.0
SB11	02/22/16	11.5	<5.0	59.4	<3.0
SB11	05/23/16	64	<1.0	38	<1.0
SB11	08/15/16	<1.0	<1.0	<1.0	<1.0
SB11	11/21/16	2.1	<1.0	14	<1.0
SB11	02/16/17	<1.0	<1.0	<1.0	<1.0
SB11	05/12/17	<1.0	<1.0	<1.0	<2.0
SB11	08/24/17	<1.0	<1.0	<1.0	<2.0
SB11	11/20/17	<1.0	<1.0	<1.0	<2.0
SB11	02/26/18	1.6	<1.0	1.1	7.4
SB11	05/21/18	<1.0	<1.0	<1.0	<2.0
SB11	08/27/18	<1.0	<1.0	<1.0	<2.0
SB12	02/24/14	<1.0	<1.0	<1.0	<1.0
SB12	05/19/14	<1.0	<5.0	<1.0	<3.0
SB12	08/29/14	<1.0	<5.0	<1.0	<3.0
SB12	11/21/14	<1.0	<5.0	<1.0	<3.0

Table 3-4

**TABLE 3**  
**GROUNDWATER ANALYTICAL DATA**  
**NOBLE ENERGY, INC. - PLUGGED AND ABANDONED FRI 2-18**  
**TANK BATTERY AND WELLHEAD LOCATION**



Monitoring Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
COGCC Groundwater Standard (µg/L)		5	560	700	1,400
SB12	02/13/15	<1.0	<5.0	<1.0	<3.0
SB12	05/21/15	<1.0	<5.0	<1.0	<3.0
SB12	08/27/15	<1.0	<5.0	<1.0	<3.0
SB12	11/24/15	<1.0	<5.0	<1.0	<3.0
SB12	02/22/16	<1.0	<5.0	<1.0	<3.0
SB12	05/23/16	<1.0	<1.0	<1.0	<1.0
SB12	08/15/16	<1.0	<1.0	<1.0	<1.0
SB12	11/21/16	<1.0	<1.0	<1.0	<1.0
SB12	02/16/17	<1.0	<1.0	<1.0	<1.0
SB12	05/12/17	Well Not Sampled This Event <sup>2</sup>			
SB12	08/24/17	<1.0	<1.0	<1.0	<2.0
SB12	11/20/17	<1.0	<1.0	<1.0	<2.0
SB12	02/26/18	<1.0	<1.0	<1.0	<2.0
SB12	05/21/18	<1.0	<1.0	<1.0	<2.0
SB12	08/27/18	<1.0	<1.0	<1.0	<2.0
SB13	02/24/14	<1.0	<1.0	<1.0	1.4
SB13	05/19/14	<1.0	<5.0	<1.0	<3.0
SB13	08/29/14	1.3	<5.0	<1.0	<3.0
SB13	11/21/14	<1.0	<5.0	<1.0	<3.0
SB13	02/13/15	<1.0	<5.0	<1.0	<3.0
SB13	05/21/15	<1.0	<5.0	<1.0	<3.0
SB13	08/27/15	<1.0	<5.0	<1.0	<3.0
SB13	11/24/15	1.15	<5.0	<1.0	<3.0
SB13	02/22/16	10.6	<5.0	8.85	16
SB13	05/23/16	14	7.0	40	40
SB13	08/15/16	<1.0	<1.0	<1.0	<1.0
SB13	11/21/16	30	2.8	31	57
SB13	02/16/17	51	1.6	61	42
SB13	05/12/17	21	<1.0	48	<2.0
SB13	08/24/17	<1.0	<1.0	<1.0	<2.0
SB13	11/20/17	<1.0	<1.0	6.2	<2.0
SB13	02/26/18	1.4	<1.0	<1.0	<2.0
SB13	05/21/18	<1.0	<1.0	<1.0	<2.0
SB13	08/27/18	<1.0	<1.0	<1.0	<2.0
SB14	02/24/14	1,220	62.4	88.3	314
SB14	05/19/14	140	<5.0	1.4	4.8
SB14	08/29/14	2,600	<5.0	130	50
SB14	11/21/14	2,100	<500	120	<300
SB14	02/13/15	1,700	<100	210	<60
SB14	05/21/15	1,400	<100	310	<60
SB14	08/27/15	2,570	<100	394	<60
SB14	11/24/15	5,070	334	978	797
SB14	02/22/16	4,390	648	717	1,080
SB14	05/23/16	2,600	8.8	1,200	170
SB14	08/15/16	1,700	<1.0	1.9	48

Table 3-5

**TABLE 3**  
**GROUNDWATER ANALYTICAL DATA**  
**NOBLE ENERGY, INC. - PLUGGED AND ABANDONED FRI 2-18**  
**TANK BATTERY AND WELLHEAD LOCATION**

Monitoring Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
<b>COGCC Groundwater Standard (µg/L)</b>		<b>5</b>	<b>560</b>	<b>700</b>	<b>1,400</b>
SB14	11/21/16	400	1.6	680	53
SB14	02/16/17	<1.0	<1.0	<1.0	<1.0
SB14	05/12/17	15	<1.0	180	<2.0
SB14	08/24/17	<1.0	<1.0	<1.0	<2.0
SB14	11/20/17	1.8	<1.0	<1.0	<2.0
SB14	02/26/18	3.2	<1.0	<1.0	<2.0
SB14	05/21/18	<1.0	<1.0	<1.0	<2.0
SB14	08/27/18	2.2	<1.0	<1.0	<2.0
SB15	02/24/14	4,610	8,690	553	10,900
SB15	05/19/14	3,900	2,500	530	9,700
SB15	08/29/14	2,000	<120	700	4,100
SB15	11/21/14	480	<120	190	880
SB15	02/13/15	100	<25	70	420
SB15	05/21/15	64	<25	30	230
SB15	08/27/15	91.7	<25	40.8	379
SB15	11/24/15	8.84	<5.0	<1.0	5.11
SB15	02/22/16	10.8	<5.0	<1.0	8.21
SB15	05/23/16	4.1	<1.0	5.7	26
SB15	08/15/16	<1.0	<1.0	<1.0	<1.0
SB15	11/21/16	<1.0	<1.0	<1.0	<1.0
SB15	02/16/17	<1.0	<1.0	<1.0	<1.0
SB15	05/12/17	14	<1.0	<1.0	2.1
SB15	08/24/17	<1.0	<1.0	<1.0	<2.0
SB15	11/20/17	<1.0	<1.0	<1.0	<2.0
SB15	02/26/18	<1.0	<1.0	<1.0	<2.0
SB15	05/21/18	<1.0	<1.0	<1.0	<2.0
SB15	08/27/18	21	<1.0	<1.0	<2.0
SB16	02/24/14	Not Sampled - Insufficient Water			
SB16	05/19/14	Not Sampled - Insufficient Water			
SB16	08/29/14	Not Sampled - Insufficient Water			
SB16	11/21/14	Not Sampled - Insufficient Water			
SB16	02/13/15	Not Sampled - Insufficient Water			
SB16	05/21/15	Not Sampled - Insufficient Water			
SB16	08/27/15	Removed From Groundwater Monitoring Program - Plugged and Abandoned			
SB16R	02/24/14	Not Sampled - LNAPL Present			
SB16R	05/19/14	6,000	26,000	770	14,000
SB16R	08/29/14	Not Sampled - LNAPL Present			
SB16R	11/21/14	Not Sampled - LNAPL Present			
SB16R	02/13/15	Not Sampled - LNAPL Present			
SB16R	05/21/15	Not Sampled - LNAPL Present			
SB16R	08/27/15	Not Sampled - LNAPL Present			
SB16R	11/24/15	Not Sampled - LNAPL Present			
SB16R	02/22/16	Not Sampled - LNAPL Present			
SB16R	05/23/16	Not Sampled - LNAPL Present			
SB16R	08/15/16	Not Sampled - LNAPL Present			

**TABLE 3**  
**GROUNDWATER ANALYTICAL DATA**  
**NOBLE ENERGY, INC. - PLUGGED AND ABANDONED FRI 2-18**  
**TANK BATTERY AND WELLHEAD LOCATION**

Monitoring Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
<b>COGCC Groundwater Standard (µg/L)</b>		<b>5</b>	<b>560</b>	<b>700</b>	<b>1,400</b>
SB16R	11/21/16	Not Sampled - LNAPL Present			
SB16R	02/16/17	Not Sampled - LNAPL Present			
SB16R	05/12/17	Not Sampled - Monitoring Well Damaged and Removed from Monitoring Program			
SB16R2	08/24/17	1,200	3,100	45	2,300
SB16R2	11/20/17	Not Sampled - LNAPL Present			
SB16R2	02/27/18	Not Sampled - LNAPL Present			
SB16R2	05/18/18	Not Sampled - LNAPL Present			
SB16R2	08/27/18	Not Sampled - LNAPL Present			
SB17	02/24/14	<1.0	<1.0	<1.0	<1.0
SB17	05/19/14	<1.0	<5.0	<1.0	<3.0
SB17	08/29/14	<1.0	<5.0	<1.0	<3.0
SB17	11/21/14	<1.0	<5.0	<1.0	<3.0
SB17	02/13/15	<1.0	<5.0	<1.0	<3.0
SB17	05/21/15	<1.0	<5.0	<1.0	<3.0
SB17	08/27/15	<1.0	<5.0	<1.0	<3.0
SB17	11/24/15	<1.0	<5.0	<1.0	<3.0
SB17	02/22/16	<1.0	<5.0	<1.0	<3.0
SB17	05/23/16	<1.0	<1.0	<1.0	<1.0
SB17	08/15/16	<1.0	<1.0	<1.0	<1.0
SB17	11/21/16	<1.0	<1.0	<1.0	<1.0
SB17	02/16/17	<1.0	<1.0	<1.0	<1.0
SB17	05/12/17	<1.0	<1.0	<1.0	<2.0
SB17	08/24/17	<1.0	<1.0	<1.0	<2.0
SB17	11/20/17	<1.0	<1.0	<1.0	<2.0
SB17	02/26/18	<1.0	<1.0	<1.0	<2.0
SB17	05/21/18	<1.0	<1.0	<1.0	<2.0
SB17	08/27/18	<1.0	<1.0	<1.0	<2.0
SB18	02/24/14	<1.0	<1.0	<1.0	<1.0
SB18	05/19/14	<1.0	<5.0	<1.0	<3.0
SB18	08/29/14	<1.0	<5.0	<1.0	<3.0
SB18	11/21/14	<1.0	<5.0	<1.0	<3.0
SB18	02/13/15	<1.0	<5.0	<1.0	<3.0
SB18	05/21/15	<1.0	<5.0	<1.0	<3.0
SB18	08/27/15	<1.0	<5.0	<1.0	<3.0
SB18	11/24/15	<1.0	<5.0	<1.0	<3.0
SB18	02/22/16	<1.0	<5.0	<1.0	<3.0
SB18	05/23/16	1.9	<1.0	<1.0	<1.0
SB18	08/15/16	<1.0	<1.0	<1.0	<1.0
SB18	11/21/16	<1.0	<1.0	<1.0	<1.0
SB18	02/16/17	<1.0	<1.0	<1.0	<1.0
SB18	05/12/17	<1.0	<1.0	<1.0	<2.0
SB18	08/24/17	Not Sampled - Removed From Groundwater Monitoring Program			

**TABLE 3**  
**GROUNDWATER ANALYTICAL DATA**  
**NOBLE ENERGY, INC. - PLUGGED AND ABANDONED FRI 2-18**  
**TANK BATTERY AND WELLHEAD LOCATION**

Monitoring Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
<b>COGCC Groundwater Standard (µg/L)</b>		<b>5</b>	<b>560</b>	<b>700</b>	<b>1,400</b>
SB19	02/24/14	<1.0	<1.0	<1.0	<1.0
SB19	05/19/14	<1.0	<5.0	<1.0	<3.0
SB19	08/29/14	<1.0	<5.0	<1.0	3.4
SB19	11/21/14	<1.0	<5.0	<1.0	<3.0
SB19	02/13/15	<1.0	<5.0	<1.0	<3.0
SB19	05/21/15	<1.0	<5.0	<1.0	<3.0
SB19	08/27/15	<1.0	<5.0	<1.0	<3.0
SB19	11/24/15	<1.0	<5.0	<1.0	<3.0
SB19	02/22/16	<1.0	<5.0	<1.0	<3.0
SB19	05/23/16	<1.0	<1.0	<1.0	<1.0
SB19	08/15/16	<1.0	<1.0	<1.0	<1.0
SB19	11/21/16	<1.0	<1.0	<1.0	<1.0
SB19	02/16/17	<1.0	<1.0	<1.0	<1.0
SB19	05/12/17	<1.0	<1.0	<1.0	<2.0
SB19	08/24/17	<1.0	<1.0	<1.0	<2.0
SB19	11/20/17	<1.0	<1.0	<1.0	<2.0
SB19	02/26/18	<1.0	<1.0	<1.0	<2.0
SB19	05/21/18	<1.0	<1.0	<1.0	<2.0
SB19	08/27/18	<1.0	<1.0	<1.0	<2.0
SB20	02/24/14	Not Sampled - Insufficient Water			
SB20	05/19/14	<1.0	<5.0	<1.0	<3.0
SB20	08/29/14	<1.0	<5.0	<1.0	3.5
SB20	11/21/14	<1.0	<5.0	<1.0	<3.0
SB20	02/13/15	<1.0	<5.0	<1.0	<3.0
SB20	05/21/15	<1.0	<5.0	<1.0	<3.0
SB20	08/27/15	<1.0	<5.0	<1.0	<3.0
SB20	11/24/15	<1.0	<5.0	<1.0	<3.0
SB20	02/22/16	<1.0	<5.0	<1.0	<3.0
SB20	05/23/16	<1.0	<1.0	<1.0	<1.0
SB20	08/15/16	<1.0	<1.0	<1.0	<1.0
SB20	11/21/16	<1.0	<1.0	<1.0	<1.0
SB20	02/16/17	<1.0	<1.0	<1.0	<1.0
SB20	05/12/17	<1.0	<1.0	<1.0	<2.0
SB20	08/24/17	<1.0	<1.0	<1.0	<2.0
SB20	11/20/17	<1.0	<1.0	<1.0	<2.0
SB20	02/26/18	<1.0	<1.0	<1.0	<2.0
SB20	05/21/18	1.3	<1.0	<1.0	<2.0
SB20	08/27/18	<1.0	<1.0	<1.0	<2.0
SB20R	02/24/14	Not Sampled - Insufficient Water			
SB20R	05/19/14	Not Sampled - Insufficient Water			
SB20R	08/29/14	Not Sampled - Insufficient Water			
SB20R	11/21/14	Not Sampled - Insufficient Water			
SB20R	02/13/15	Not Sampled - Insufficient Water			
SB20R	05/21/15	Not Sampled - Insufficient Water			
SB20R	08/27/15	Removed From Groundwater Monitoring Program - Plugged and Abandoned			

**TABLE 3**  
**GROUNDWATER ANALYTICAL DATA**  
**NOBLE ENERGY, INC. - PLUGGED AND ABANDONED FRI 2-18**  
**TANK BATTERY AND WELLHEAD LOCATION**

Monitoring Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
<b>COGCC Groundwater Standard (µg/L)</b>		<b>5</b>	<b>560</b>	<b>700</b>	<b>1,400</b>
SB21	02/24/14	Not Sampled - LNAPL Present			
SB21	05/19/14	Not Sampled - LNAPL Present			
SB21	08/29/14	Not Sampled - LNAPL Present			
SB21	11/21/14	Not Sampled - LNAPL Present			
SB21	02/13/15	Not Sampled - LNAPL Present			
SB21	05/21/15	Not Sampled - LNAPL Present			
SB21	08/27/15	Not Sampled - LNAPL Present			
SB21	11/24/15	Not Sampled - LNAPL Present			
SB21	02/22/16	Not Sampled - LNAPL Present			
SB21	05/23/16	Not Sampled - LNAPL Present			
SB21	08/15/16	Not Sampled - LNAPL Present			
SB21	11/21/16	Not Sampled - LNAPL Present			
SB21	02/16/17	Not Sampled - LNAPL Present			
SB21	05/12/17	Not Sampled - LNAPL Present			
SB21	08/24/17	Not Sampled - LNAPL Present			
SB21	11/20/17	Not Sampled - LNAPL Present			
SB21	02/26/18	Not Sampled - LNAPL Present			
SB21	05/18/18	Not Sampled - LNAPL Present			
SB21	08/27/18	Not Sampled - LNAPL Present			
SB22	02/24/14	Not Sampled - Insufficient Water			
SB22	05/19/14	Not Sampled - Insufficient Water			
SB22	08/29/14	Not Sampled - Insufficient Water			
SB22	11/21/14	Not Sampled - Insufficient Water			
SB22	02/13/15	Not Sampled - Insufficient Water			
SB22	05/21/15	Not Sampled - Insufficient Water			
SB22	08/27/15	Removed From Groundwater Monitoring Program - Plugged and Abandoned			
SB22R	02/24/14	270	1,190	6.9	598
SB22R	05/19/14	110	1,900	5.0	1,600
SB22R	08/29/14	270	730	19	2,100
SB22R	11/21/14	110	220	<10	1,100
SB22R	02/13/15	22	5.5	2.4	110
SB22R	05/21/15	31	<5.0	<1.0	140
SB22R	08/27/15	<1.0	<5.1	<1.1	8.46
SB22R	11/24/15	2.34	<5.2	<1.2	21.8
SB22R	02/22/16	86.4	829	31.0	2,380
SB22R	05/23/16	190	150	43	750
SB22R	08/15/16	<1.0	<1.0	<1.0	<1.0
SB22R	11/21/16	2.2	2.7	2.5	<1.0
SB22R	02/16/17	4.4	<1.0	2.0	1.1
SB22R	05/12/17	1.5	1.6	<1.0	<2.0
SB22R	08/24/17	<1.0	<1.0	<1.0	<2.0
SB22R	11/20/17	1.1	2.0	<1.0	3.8
SB22R	02/26/18	18	44	6.5	140
SB22R	05/21/18	14	5.8	2.6	56
SB22R	08/27/18	2.4	<1.0	<1.0	<2.0

Table 3-9

**TABLE 3**  
**GROUNDWATER ANALYTICAL DATA**  
**NOBLE ENERGY, INC. - PLUGGED AND ABANDONED FRI 2-18**  
**TANK BATTERY AND WELLHEAD LOCATION**

Monitoring Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
<b>COGCC Groundwater Standard (µg/L)</b>		<b>5</b>	<b>560</b>	<b>700</b>	<b>1,400</b>
SB23	02/24/14	Not Sampled - LNAPL Present			
SB23	05/19/14	Not Sampled - LNAPL Present			
SB23	08/29/14	Not Sampled - LNAPL Present			
SB23	11/21/14	Not Sampled - LNAPL Present			
SB23	02/13/15	Not Sampled - LNAPL Present			
SB23	05/21/15	Not Sampled - LNAPL Present			
SB23	08/27/15	Not Sampled - Insufficient Water			
SB23	11/24/15	Not Sampled - Insufficient Water			
SB23	02/22/16	Not Sampled - Insufficient Water			
SB23	05/23/16	Not Sampled - Insufficient Water			
SB23	08/15/16	Not Sampled - Insufficient Water			
SB23	11/21/16	Not Sampled - Insufficient Water			
SB23	02/16/17	Not Sampled - Insufficient Water			
SB23	05/12/17	Not Sampled - Removed From Groundwater Monitoring Program			
SB23R	08/24/17	Not Sampled - LNAPL Present			
SB23R	11/20/17	6,500	24,000	540	18,000
SB23R	02/26/18	Not Sampled - LNAPL Present			
SB23R	05/18/18	Not Sampled - LNAPL Present			
SB23R	08/27/18	Not Sampled - LNAPL Present			
SB24	02/24/14	Not Sampled - Insufficient Water			
SB24	05/19/14	Not Sampled - Insufficient Water			
SB24	08/29/14	Not Sampled - Insufficient Water			
SB24	11/21/14	Not Sampled - Insufficient Water			
SB24	02/13/15	Not Sampled - Insufficient Water			
SB24	05/21/15	Not Sampled - Insufficient Water			
SB24	08/27/15	Removed From Groundwater Monitoring Program - Plugged and Abandoned			
SB24R	02/24/14	<1.0	<1.0	<1.0	<1.0
SB24R	05/19/14	1.3	<5.0	<1.0	<3.0
SB24R	08/29/14	<1.0	<5.0	<1.0	<3.0
SB24R	11/21/14	<1.0	<5.0	<1.0	<3.0
SB24R	02/13/15	<1.0	<5.0	<1.0	4.0
SB24R	05/21/15	<1.0	<5.0	<1.0	<3.0
SB24R	08/27/15	<1.0	<5.0	<1.0	<3.0
SB24R	11/24/15	<1.0	<5.0	<1.0	<3.0
SB24R	02/22/16	<1.0	<5.0	<1.0	<3.0
SB24R	05/23/16	<1.0	<1.0	<1.0	<1.0
SB24R	08/15/16	<1.0	<1.0	<1.0	<1.0
SB24R	11/21/16	<1.0	<1.0	<1.0	<1.0
SB24R	02/16/17	<1.0	<1.0	<1.0	<1.0
SB24R	05/12/17	Not Sampled - Removed From Groundwater Monitoring Program			
SB25	02/24/14	Not Sampled - Insufficient Water			
SB25	05/19/14	Not Sampled - Insufficient Water			
SB25	08/29/14	Not Sampled - Insufficient Water			
SB25	11/21/14	Not Sampled - Insufficient Water			
SB25	02/13/15	Not Sampled - Insufficient Water			
SB25	05/21/15	Not Sampled - Insufficient Water			
SB25	08/27/15	Removed From Groundwater Monitoring Program - Plugged and Abandoned			



**TABLE 3**  
**GROUNDWATER ANALYTICAL DATA**  
**NOBLE ENERGY, INC. - PLUGGED AND ABANDONED FRI 2-18**  
**TANK BATTERY AND WELLHEAD LOCATION**

Monitoring Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
COGCC Groundwater Standard (µg/L)		5	560	700	1,400
SB25R	02/24/14	<1.0	<1.0	<1.0	<1.0
SB25R	05/19/14	<1.0	<5.0	<1.0	<3.0
SB25R	08/29/14	<1.0	<5.0	<1.0	<3.0
SB25R	11/21/14	<1.0	<5.0	<1.0	<3.0
SB25R	02/13/15	<1.0	<5.0	<1.0	<3.0
SB25R	05/21/15	<1.0	<5.0	<1.0	<3.0
SB25R	08/27/15	<1.0	<5.0	<1.0	<3.0
SB25R	11/24/15	<1.0	<5.0	<1.0	<3.0
SB25R	02/22/16	<1.0	<5.0	<1.0	<3.0
SB25R	05/23/16	<1.0	<1.0	<1.0	<1.0
SB25R	08/15/16	<1.0	<1.0	<1.0	<1.0
SB25R	11/21/16	<1.0	<1.0	<1.0	<1.0
SB25R	02/16/17	<1.0	<1.0	<1.0	<1.0
SB25R	05/12/17	<1.0	<1.0	<1.0	<2.0
SB25R	08/24/17	<1.0	<1.0	<1.0	<2.0
SB25R	11/20/17	<1.0	<1.0	<1.0	<2.0
SB25R	02/26/18	<1.0	<1.0	<1.0	<2.0
SB25R	05/21/18	<1.0	<1.0	<1.0	<2.0
SB25R	08/27/18	<1.0	<1.0	<1.0	<2.0
SB26	02/24/14	<1.0	<1.0	<1.0	<1.0
SB26	05/19/14	3.0	<5.0	<1.0	<3.0
SB26	08/29/14	<1.0	<5.0	<1.0	<3.0
SB26	11/21/14	<1.0	<5.0	<1.0	<3.0
SB26	02/13/15	<1.0	<5.0	<1.0	<3.0
SB26	05/21/15	<1.0	<5.0	<1.0	<3.0
SB26	08/27/15	<1.0	<5.0	<1.0	<3.0
SB26	11/24/15	<1.0	<5.0	<1.0	<3.0
SB26	02/22/16	<1.0	<5.0	<1.0	<3.0
SB26	05/23/16	<1.0	<1.0	<1.0	<1.0
SB26	08/15/16	<1.0	<1.0	<1.0	<1.0
SB26	11/21/16	<1.0	<1.0	<1.0	<1.0
SB26	02/16/17	<1.0	<1.0	<1.0	<1.0
SB26	05/12/17	Not Sampled - Removed From Groundwater Monitoring Program			
SB27	02/24/14	Not Sampled - Insufficient Water			
SB27	05/19/14	Not Sampled - Insufficient Water			
SB27	08/29/14	Not Sampled - Insufficient Water			
SB27	11/21/14	Not Sampled - Insufficient Water			
SB27	02/13/15	Not Sampled - Insufficient Water			
SB27	05/21/15	Not Sampled - Insufficient Water			
SB27	08/27/15	Removed From Groundwater Monitoring Program - Plugged and Abandoned			
SB27R	02/24/14	<1.0	<1.0	<1.0	<1.0
SB27R	05/19/14	16	<5.0	<1.0	<3.0
SB27R	08/29/14	<1.0	<5.0	<1.0	<3.0

**TABLE 3**  
**GROUNDWATER ANALYTICAL DATA**  
**NOBLE ENERGY, INC. - PLUGGED AND ABANDONED FRI 2-18**  
**TANK BATTERY AND WELLHEAD LOCATION**

Monitoring Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
<b>COGCC Groundwater Standard (µg/L)</b>		<b>5</b>	<b>560</b>	<b>700</b>	<b>1,400</b>
SB27R	11/21/14	<1.0	<5.0	<1.0	<3.0
SB27R	02/13/15	<1.0	<5.0	<1.0	<3.0
SB27R	05/21/15	<1.0	<5.0	<1.0	<3.0
SB27R	08/27/15	<1.00	<5.00	<1.00	<3.00
SB27R	11/24/15	<1.00	<5.00	<1.00	<3.00
SB27R	02/22/16	<1.00	<5.00	<1.00	<3.00
SB27R	05/23/16	<1.0	<1.0	<1.0	<1.0
SB27R	08/15/16	<1.0	<1.0	<1.0	<1.0
SB27R	11/21/16	<1.0	<1.0	<1.0	<1.0
SB27R	02/16/17	<1.0	<1.0	<1.0	<1.0
SB27R	05/12/17	<1.0	<1.0	<1.0	<2.0
SB27R	08/24/17	<1.0	<1.0	<1.0	<2.0
SB27R	11/20/17	<1.0	<1.0	<1.0	11
SB27R	02/26/18	<1.0	<1.0	<1.0	<2.0
SB27R	05/21/18	<1.0	<1.0	<1.0	<2.0
SB27R	08/27/18	<1.0	<1.0	<1.0	<2.0
SB28	02/24/14	Not Sampled - Insufficient Water			
SB28	05/19/14	Not Sampled - Insufficient Water			
SB28	08/29/14	Not Sampled - Insufficient Water			
SB28	11/21/14	Not Sampled - Insufficient Water			
SB28	02/13/15	Not Sampled - Insufficient Water			
SB28	05/21/15	Not Sampled - Insufficient Water			
SB28	08/27/15	Removed From Groundwater Monitoring Program - Plugged and Abandoned			
SB28R	02/24/14	<1.0	<1.0	<1.0	3.01
SB28R	05/19/14	<1.0	<5.0	<1.0	<3.0
SB28R	08/29/14	<1.0	<5.0	<1.0	<3.0
SB28R	11/21/14	<1.0	<5.0	<1.0	<3.0
SB28R	02/13/15	<1.0	<5.0	<1.0	<3.0
SB28R	05/21/15	<1.0	<5.0	<1.0	<3.0
SB28R	08/27/15	<1.0	<5.0	<1.0	<3.0
SB28R	11/24/15	<1.0	<5.0	<1.0	<3.0
SB28R	02/22/16	<1.0	<5.0	<1.0	<3.0
SB28R	05/23/16	<1.0	<1.0	<1.0	<1.0
SB28R	08/15/16	<1.0	<1.0	<1.0	<1.0
SB28R	11/21/16	Not Sampled - Insufficient Water			
SB28R	02/16/17	<1.0	<1.0	<1.0	<1.0
SB28R	05/12/17	<1.0	<1.0	<1.0	<2.0
SB28R <sup>1</sup>	08/24/17	<1.0	<1.0	<1.0	<2.0
SB28R <sup>1</sup>	11/20/17	<1.0	<1.0	<1.0	<2.0
SB28R <sup>1</sup>	02/26/18	<1.0	<1.0	<1.0	<2.0
SB28R	05/21/18	<1.0	<1.0	<1.0	<2.0
SB28R	08/27/18	<1.0	<1.0	<1.0	<2.0
SB29	02/24/14	<1.0	<1.0	<1.0	<1.0
SB29	05/19/14	<1.0	<5.0	<1.0	<3.0

**TABLE 3**  
**GROUNDWATER ANALYTICAL DATA**  
**NOBLE ENERGY, INC. - PLUGGED AND ABANDONED FRI 2-18**  
**TANK BATTERY AND WELLHEAD LOCATION**

Monitoring Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
COGCC Groundwater Standard (µg/L)		5	560	700	1,400
SB29	08/29/14	<1.0	<5.0	<1.0	<3.0
SB29	11/21/14	<1.0	<5.0	<1.0	<3.0
SB29	02/13/15	<1.0	<5.0	<1.0	<3.0
SB29	05/21/15	<1.0	<5.0	<1.0	<3.0
SB29	08/27/15	<1.0	<5.0	<1.0	<3.0
SB29	11/24/15	<1.0	<5.0	<1.0	<3.0
SB29	02/22/16	<1.0	<5.0	<1.0	<3.0
SB29	05/23/16	<1.0	<1.0	<1.0	<1.0
SB29	08/15/16	<1.0	<1.0	<1.0	<1.0
SB29	11/21/16	<1.0	<1.0	<1.0	<1.0
SB29	02/16/17	<1.0	<1.0	<1.0	<1.0
SB29	05/12/17	Not Sampled - Removed From Groundwater Monitoring Program			
SB30	02/24/14	Not Sampled - LNAPL Present			
SB30	05/19/14	Not Sampled - LNAPL Present			
SB30	08/29/14	Not Sampled - LNAPL Present			
SB30	11/21/14	Not Sampled - LNAPL Present			
SB30	02/13/15	Not Sampled - LNAPL Present			
SB30	05/21/15	Not Sampled - LNAPL Present			
SB30	08/27/15	Not Sampled - LNAPL Present			
SB30	11/24/15	Not Sampled - LNAPL Present			
SB30	02/22/16	Not Sampled - LNAPL Present			
SB30	02/22/16	Not Sampled - LNAPL Present			
SB30	08/15/16	Not Sampled - LNAPL Present			
SB30	11/21/16	Not Sampled - LNAPL Present			
SB30	02/16/17	Not Sampled - LNAPL Present			
SB30	05/12/17	Not Sampled - Spill Buster Present			
SB30	08/24/17	Not Sampled - LNAPL Present			
SB30	11/20/17	Not Sampled - LNAPL Present			
SB30	02/26/18	Not Sampled - LNAPL Present			
SB30	05/18/18	Not Sampled - LNAPL Present			
SB30	08/27/18	Not Sampled - LNAPL Present			
SB31	02/24/14	Not Sampled - LNAPL Present			
SB31	05/19/14	Not Sampled - LNAPL Present			
SB31	08/29/14	Not Sampled - LNAPL Present			
SB31	11/21/14	Not Sampled - LNAPL Present			
SB31	02/13/15	Not Sampled - LNAPL Present			
SB31	05/21/15	Not Sampled - LNAPL Present			
SB31	08/27/15	Not Sampled - LNAPL Present			
SB31	02/22/16	Not Sampled - LNAPL Present			
SB31	02/22/16	Not Sampled - LNAPL Present			
SB31	05/23/16	Not Sampled - LNAPL Present			
SB31	08/15/16	Not Sampled - LNAPL Present			
SB31	11/21/16	Not Sampled - LNAPL Present			

**TABLE 3**  
**GROUNDWATER ANALYTICAL DATA**  
**NOBLE ENERGY, INC. - PLUGGED AND ABANDONED FRI 2-18**  
**TANK BATTERY AND WELLHEAD LOCATION**

Monitoring Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
COGCC Groundwater Standard (µg/L)		5	560	700	1,400
SB31	02/16/17	Not Sampled - LNAPL Present			
SB31	05/12/17	Not Sampled - Spill Buster Present			
SB31	08/24/17	Not Sampled - LNAPL Present			
SB31	11/20/17	Not Sampled - LNAPL Present			
SB31	02/26/18	Not Sampled - LNAPL Present			
SB31	05/18/18	Not Sampled - LNAPL Present			
SB31	08/27/18	Not Sampled - LNAPL Present			
SB32	02/24/14	1.1	6.2	<1.0	7.3
SB32	03/31/14	3.6	15	<1.0	18
SB32	05/19/14	5.2	38	1.2	91
SB32	08/29/14	4.9	30	1.8	220
SB32	11/21/14	<1.0	<5.0	<1.0	7.1
SB32	02/13/15	<1.0	<5.0	<1.0	<3.0
SB32	05/21/15	<1.0	<5.0	<1.0	3.3
SB32	08/27/15	Not Sampled - Insufficient Water			
SB32	11/24/15	Not Sampled - Insufficient Water			
SB32	02/22/16	Not Sampled - Insufficient Water			
SB32	05/23/16	Not Sampled - Insufficient Water			
SB32	08/15/16	Not Sampled - Insufficient Water			
SB32	11/21/16	Not Sampled - Insufficient Water			
SB32	02/16/17	Not Sampled - Insufficient Water			
SB32	05/12/17	Not Sampled - Insufficient Water			
SB32	08/24/17	Not Sampled - Insufficient Water			
SB32	11/20/17	Not Sampled - Insufficient Water			
SB32	02/26/18	Not Sampled - Insufficient Water			
SB32	05/18/18	Not Sampled - Insufficient Water			
SB32	08/27/18	Not Sampled - Insufficient Water			
SB33	02/24/14	Not Sampled - Insufficient Water			
SB33	05/19/14	Not Sampled - Insufficient Water			
SB33	08/29/14	<1.0	<5.0	<1.0	<3.0
SB33	11/21/14	<1.0	<5.0	<1.0	<3.0
SB33	02/13/15	<1.0	<5.0	<1.0	6.2
SB33	05/21/15	<1.0	<5.0	<1.0	<3.0
SB33	08/27/15	<1.0	<5.0	<1.0	<3.0
SB33	11/24/15	<1.0	<5.0	<1.0	<3.0
SB33	02/22/16	<1.0	<5.0	<1.0	<3.0
SB33	05/23/16	<1.0	<1.0	<1.0	<1.0
SB33	08/15/16	<1.0	<1.0	<1.0	<1.0
SB33	11/21/16	<1.0	<1.0	<1.0	<1.0
SB33	02/16/17	<1.0	<1.0	<1.0	<1.0
SB33	05/12/17	Not Sampled - Removed From Groundwater Monitoring Program			
SB34	02/24/14	<1.0	<1.0	<1.0	<1.0
SB34	05/19/14	1.1	<5.0	<1.0	<3.0
SB34	08/29/14	<1.0	<5.0	<1.0	<3.0

**TABLE 3**  
**GROUNDWATER ANALYTICAL DATA**  
**NOBLE ENERGY, INC. - PLUGGED AND ABANDONED FRI 2-18**  
**TANK BATTERY AND WELLHEAD LOCATION**

Monitoring Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
<b>COGCC Groundwater Standard (µg/L)</b>		<b>5</b>	<b>560</b>	<b>700</b>	<b>1,400</b>
SB34	11/21/14	<1.0	<5.0	<1.0	<3.0
SB34	02/13/15	<1.0	<5.0	<1.0	<3.0
SB34	05/21/15	<1.0	<5.0	<1.0	<3.0
SB34	08/27/15	<1.0	<5.0	<1.0	<3.0
SB34	11/24/15	<1.0	<5.0	<1.0	<3.0
SB34	02/22/16	<1.0	<5.0	<1.0	<3.0
SB34	05/23/16	<1.0	<1.0	<1.0	<1.0
SB34	08/15/16	<1.0	<1.0	<1.0	<1.0
SB34	11/21/16	<1.0	<1.0	<1.0	<1.0
SB34	02/16/17	<1.0	<1.0	<1.0	<1.0
SB34	05/12/17	Not Sampled - Removed From Groundwater Monitoring Program			
SB35	03/31/14	<1.0	<5.0	<1.0	<3.0
SB35	05/19/14	<1.0	<5.0	<1.0	<3.0
SB35	08/29/14	<1.0	<5.0	<1.0	<3.0
SB35	11/21/14	<1.0	<5.0	<1.0	<3.0
SB35	02/13/15	<1.0	<5.0	<1.0	<3.0
SB35	05/21/15	<1.0	<5.0	<1.0	<3.0
SB35	08/27/15	<1.0	<5.0	<1.0	<3.0
SB35	11/24/15	<1.0	<5.0	<1.0	<3.0
SB35	02/22/16	<1.0	<5.0	<1.0	<3.0
SB35	05/23/16	<1.0	<1.0	<1.0	<1.0
SB35	08/15/16	<1.0	<1.0	<1.0	<1.0
SB35	11/21/16	<1.0	<1.0	<1.0	<1.0
SB35	02/16/17	<1.0	<1.0	<1.0	<1.0
SB35	05/12/17	<1.0	<1.0	<1.0	<2.0
SB35	08/24/17	Not Sampled - Removed From Groundwater Monitoring Program			
SB36	03/31/14	<b>77</b>	<5.0	3.2	<3.0
SB36	05/19/14	<b>220</b>	<5.0	<1.0	<3.0
SB36	08/29/14	<b>240</b>	<5.0	4.7	<3.0
SB36	11/21/14	<b>120</b>	<25	6	<15
SB36	02/13/15	<b>64</b>	<25	170	<15
SB36	05/21/15	<b>36</b>	<25	480	<15
SB36	08/27/15	<b>140</b>	<25	27.5	<b>2,460</b>
SB36	11/24/15	<b>22.5</b>	<5.0	<1.0	714
SB36	02/22/16	<5.0	<25	<5.0	114
SB36	05/23/16	<1.0	<1.0	<1.0	140
SB36	08/15/16	<1.0	<1.0	<1.0	21
SB36	11/21/16	3.2	1.5	21	160
SB36	02/16/17	4.4	<1.0	49	100
SB36	05/12/17	6.0	1.7	54	46
SB36	08/24/17	<1.0	<1.0	<1.0	<2.0
SB36	11/20/17	<b>5.6</b>	4.3	50	6.7
SB36	02/26/18	1.6	<1.0	3.8	<2.0
SB36	05/21/18	<1.0	<1.0	<1.0	<2.0
SB36	08/27/18	<1.0	<1.0	<1.0	<2.0
SB37	03/31/14	Not Sampled - Insufficient Water			
SB37	05/19/14	<b>40</b>	80	<1.0	1,100
SB37	08/29/14	<b>680</b>	<b>1,000</b>	<20	<b>2,700</b>

Table 3-15

**TABLE 3**  
**GROUNDWATER ANALYTICAL DATA**  
**NOBLE ENERGY, INC. - PLUGGED AND ABANDONED FRI 2-18**  
**TANK BATTERY AND WELLHEAD LOCATION**

Monitoring Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
<b>COGCC Groundwater Standard (µg/L)</b>		<b>5</b>	<b>560</b>	<b>700</b>	<b>1,400</b>
SB37	11/21/14	390	470	<20	1,300
SB37	02/13/15	370	940	<20	5,000
SB37	05/21/15	150	200	<20	1,300
SB37	08/27/15	162	872	20.2	1,980
SB37	11/24/15	263	4,100	129	7,670
SB37	02/22/16	488	8,070	290	10,200
SB37	05/23/16	Not Sampled - LNAPL Present			
SB37	08/15/16	Not Sampled - LNAPL Present			
SB37	11/21/16	Not Sampled - LNAPL Present			
SB37	02/16/17	Not Sampled - LNAPL Present			
SB37	05/12/17	Not Sampled - LNAPL Present			
SB37	08/24/17	Not Sampled - LNAPL Present			
SB37	11/20/17	Not Sampled - LNAPL Present			
SB37	02/26/18	Not Sampled - LNAPL Present			
SB37	05/18/18	Not Sampled - LNAPL Present			
SB37	08/27/18	Not Sampled - LNAPL Present			
SB38	03/31/14	14	10	3.1	32
SB38	05/19/14	16	<5.0	<1.0	<3.0
SB38	08/29/14	<1.0	<5.0	<1.0	<3.0
SB38	11/21/14	<1.0	<5.0	<1.0	<3.0
SB38	02/13/15	<1.0	<5.0	<1.0	<3.0
SB38	05/21/15	<1.0	<5.0	<1.0	<3.0
SB38	08/27/15	136	<5.0	<1.0	<3.0
SB38	11/24/15	3.16	<5.0	<1.0	<3.0
SB38	02/22/16	2.11	<5.0	<1.0	<3.0
SB38	05/23/16	1.7	<1.0	<1.0	<1.0
SB38	08/15/16	<1.0	<1.0	<1.0	<1.0
SB38	11/21/16	<1.0	<1.0	<1.0	<1.0
SB38	02/16/17	<1.0	<1.0	<1.0	<1.0
SB38	05/12/17	<1.0	<1.0	<1.0	<2.0
SB38	08/24/17	<1.0	<1.0	<1.0	<2.0
SB38	11/20/17	<1.0	<1.0	<1.0	4.2
SB38	02/26/18	<1.0	<1.0	<1.0	<2.0
SB38	05/21/18	<1.0	<1.0	<1.0	<2.0
SB38	08/27/18	<1.0	<1.0	<1.0	<2.0
SB39	04/18/14	<1.0	<5.0	<1.0	<3.0
SB39	05/19/14	<1.0	<5.0	<1.0	<3.0
SB39	08/29/14	<1.0	<5.0	<1.0	<3.0
SB39	11/21/14	<1.0	<5.0	<1.0	<3.0

**TABLE 3**  
**GROUNDWATER ANALYTICAL DATA**  
**NOBLE ENERGY, INC. - PLUGGED AND ABANDONED FRI 2-18**  
**TANK BATTERY AND WELLHEAD LOCATION**



Monitoring Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
<b>COGCC Groundwater Standard (µg/L)</b>		<b>5</b>	<b>560</b>	<b>700</b>	<b>1,400</b>
SB39	02/13/15	<1.0	<5.0	<1.0	<3.0
SB39	05/21/15	<1.0	<5.0	<1.0	<3.0
SB39	08/27/15	<1.0	<5.0	<1.0	<3.0
SB39	11/24/15	<1.0	<5.0	<1.0	<3.0
SB39	02/22/16	<1.0	<5.0	<1.0	<3.0
SB39	05/23/16	<1.0	<1.0	<1.0	<1.0
SB39	08/15/16	<1.0	<1.0	<1.0	<1.0
SB39	11/21/16	<1.0	<1.0	<1.0	<1.0
SB39	02/16/17	<1.0	<1.0	<1.0	<1.0
SB39	05/12/17	<1.0	<1.0	<1.0	<2.0
SB39	08/24/17	<1.0	<1.0	<1.0	<2.0
SB39	11/20/17	<1.0	<1.0	<1.0	<2.0
SB39	02/26/18	<1.0	<1.0	<1.0	<2.0
SB39	05/21/18	<1.0	<1.0	<1.0	<2.0
SB39	08/27/18	<1.0	<1.0	<1.0	<2.0
SB40	04/18/14	<1.0	<5.0	<1.0	<3.0
SB40	05/19/14	<1.0	<5.0	<1.0	<3.0
SB40	08/29/14	<1.0	<5.0	<1.0	<3.0
SB40	11/21/14	<1.0	<5.0	<1.0	<3.0
SB40	02/13/15	<1.0	<5.0	<1.0	<3.0
SB40	05/21/15	<1.0	<5.0	<1.0	<3.0
SB40	08/27/15	<1.0	<5.0	<1.0	<3.0
SB40	11/24/15	<1.0	<5.0	<1.0	<3.0
SB40	02/22/16	<1.0	<5.0	<1.0	<3.0
SB40	05/23/16	<1.0	<1.0	<1.0	<1.0
SB40	08/15/16	<1.0	<1.0	<1.0	<1.0
SB40	11/21/16	<1.0	<1.0	<1.0	<1.0
SB40	02/16/17	<1.0	<1.0	<1.0	<1.0
SB40	05/12/17	Not Sampled - Removed From Groundwater Monitoring Program			
SB41	04/18/14	<1.0	<5.0	<1.0	<3.0
SB41	05/19/14	<1.0	<5.0	<1.0	<3.0
SB41	08/29/14	<1.0	<5.0	<1.0	<3.0
SB41	11/21/14	<1.0	<5.0	<1.0	<3.0
SB41	02/13/15	<1.0	<5.0	<1.0	<3.0
SB41	05/21/15	<1.0	<5.0	<1.0	<3.0
SB41	08/27/15	<1.0	<5.0	<1.0	<3.0
SB41	11/24/15	<1.0	<5.0	<1.0	<3.0
SB41	02/22/16	<1.0	<5.0	<1.0	<3.0
SB41	05/23/16	<1.0	<1.0	<1.0	<1.0
SB41	08/15/16	<1.0	<1.0	<1.0	<1.0
SB41	11/21/16	<1.0	<1.0	<1.0	<1.0
SB41	02/16/17	<1.0	<1.0	<1.0	<1.0
SB41	05/12/17	Not Sampled - Removed From Groundwater Monitoring Program			

Table 3-17

**TABLE 3**  
**GROUNDWATER ANALYTICAL DATA**  
**NOBLE ENERGY, INC. - PLUGGED AND ABANDONED FRI 2-18**  
**TANK BATTERY AND WELLHEAD LOCATION**

Monitoring Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
<b>COGCC Groundwater Standard (µg/L)</b>		<b>5</b>	<b>560</b>	<b>700</b>	<b>1,400</b>
SB42	04/18/14	<1.0	<5.0	<1.0	<3.0
SB42	05/19/14	<1.0	<5.0	<1.0	<3.0
SB42	08/29/14	<1.0	<5.0	<1.0	<3.0
SB42	11/21/14	<1.0	<5.0	<1.0	<3.0
SB42	02/13/15	<1.0	<5.0	<1.0	<3.0
SB42	05/21/15	<1.0	<5.0	<1.0	<3.0
SB42	08/27/15	<1.0	<5.0	<1.0	<3.0
SB42	11/24/15	<1.0	<5.0	<1.0	<3.0
SB42	02/22/16	<1.0	<5.0	<1.0	<3.0
SB42	05/23/16	<1.0	<1.0	<1.0	<1.0
SB42	08/15/16	<1.0	<1.0	<1.0	<1.0
SB42	11/21/16	<1.0	<1.0	<1.0	<1.0
SB42	02/16/17	<1.0	<1.0	<1.0	<1.0
SB42	05/12/17	Not Sampled - Removed From Groundwater Monitoring Program			
DUP (SB06)	02/24/14	<1.0	<1.0	<1.0	<1.0
DUP (SB08)	05/19/14	6,000	16,000	540	12,000
DUP (SB22R)	08/29/14	290	700	<20	2,200
DUP (SB37)	11/21/14	400	530	<20	1,400
DUP (SB37)	08/27/15	176	899	20.3	2,000
DUPE (SB37)	11/24/15	233	1,080	70.5	1,730
DUPE (SB37)	02/22/16	295	4,310	170	6,270
Dupe01 (SB10)	02/16/17	5,100	2,600	840	11,000
Dup (SB07)	08/24/17	2,500	260	170	3,700
Dup (SB23R)	11/20/17	4,500	17,000	410	14,000
Dup (SB08)	02/26/18	6,100	680	510	7,600
DUP (SB08)	05/21/18	4,500	130	100	8,100
DUP (SB07)	08/27/18	190	<1.0	77	690
Trip Blank	02/24/14	<1.0	<1.0	<1.0	<1.0
Trip Blank	04/18/14	<1.0	<5.0	<1.0	<3.0
Trip Blank	05/19/14	<1.0	<5.0	<1.0	<3.0
Trip Blank	08/29/14	<1.0	<5.0	<1.0	<3.0
Trip Blank	11/21/14	<1.0	<5.0	<1.0	<3.0
Trip Blank	08/27/15	<1.0	<5.0	<1.0	<3.0
Trip Blank	11/24/15	<1.0	<5.0	<1.0	<3.0
Trip Blank	02/22/16	<1.0	<5.0	<1.0	<3.0
Red Cooler (TB-1)	11/18/16	<1.0	<1.0	<1.0	<1.0
Blue Cooler (TB-2)	11/18/16	<1.0	<1.0	<1.0	<1.0
Trip Blank Blue	02/16/17	<1.0	<1.0	<1.0	<1.0
Trip Blank Red	02/16/17	<1.0	<1.0	<1.0	<1.0
Trip Blank	05/11/17	<1.0	<1.0	<1.0	<2.0
Trip Blank 01	08/24/17	<1.0	<1.0	<1.0	<2.0
Trip Blank 1	11/20/17	<1.0	<1.0	<1.0	<2.0
Trip Blank	02/26/18	<1.0	<1.0	<1.0	<2.0

Table 3-18



**TABLE 3**  
**GROUNDWATER ANALYTICAL DATA**  
**NOBLE ENERGY, INC. - PLUGGED AND ABANDONED FRI 2-18**  
**TANK BATTERY AND WELLHEAD LOCATION**



Monitoring Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
<b>COGCC Groundwater Standard (µg/L)</b>		<b>5</b>	<b>560</b>	<b>700</b>	<b>1,400</b>
Trip Blank	05/21/18	<1.0	<1.0	<1.0	<2.0
Trip Blank	08/27/18	<1.0	<1.0	<1.0	<2.0

**Notes:**

COGCC = Colorado Oil and Gas Conservation Commission

µg/L = Micrograms per liter

< = Analytical result is less than the indicated laboratory reporting limit

LNAPL = Light non-aqueous phase liquid

DUP = Duplicate sample

<sup>1</sup> Well obstruction large enough to block meter sensor, small enough to allow hydrasleeve deployment.

<sup>2</sup> Tasman recommended a reduced groundwater monitoring well network to Noble Energy on March 29, 2017 based on historical groundwater data.

<sup>3</sup> Diluted sample run was analyzed outside of holding time, but results are comparable with previous quarter. Therefore, sample results are viewed as estimated, but acceptable.

Groundwater standards referenced from COGCC Table 910-1

**Highlighted results exceed the COGCC Table 910-1 standard**

This table presents data collected by Tasman Geosciences. Historical data is presented in Attachment A of the Form 27 Site Assessment Report (COGCC Document #2148980)

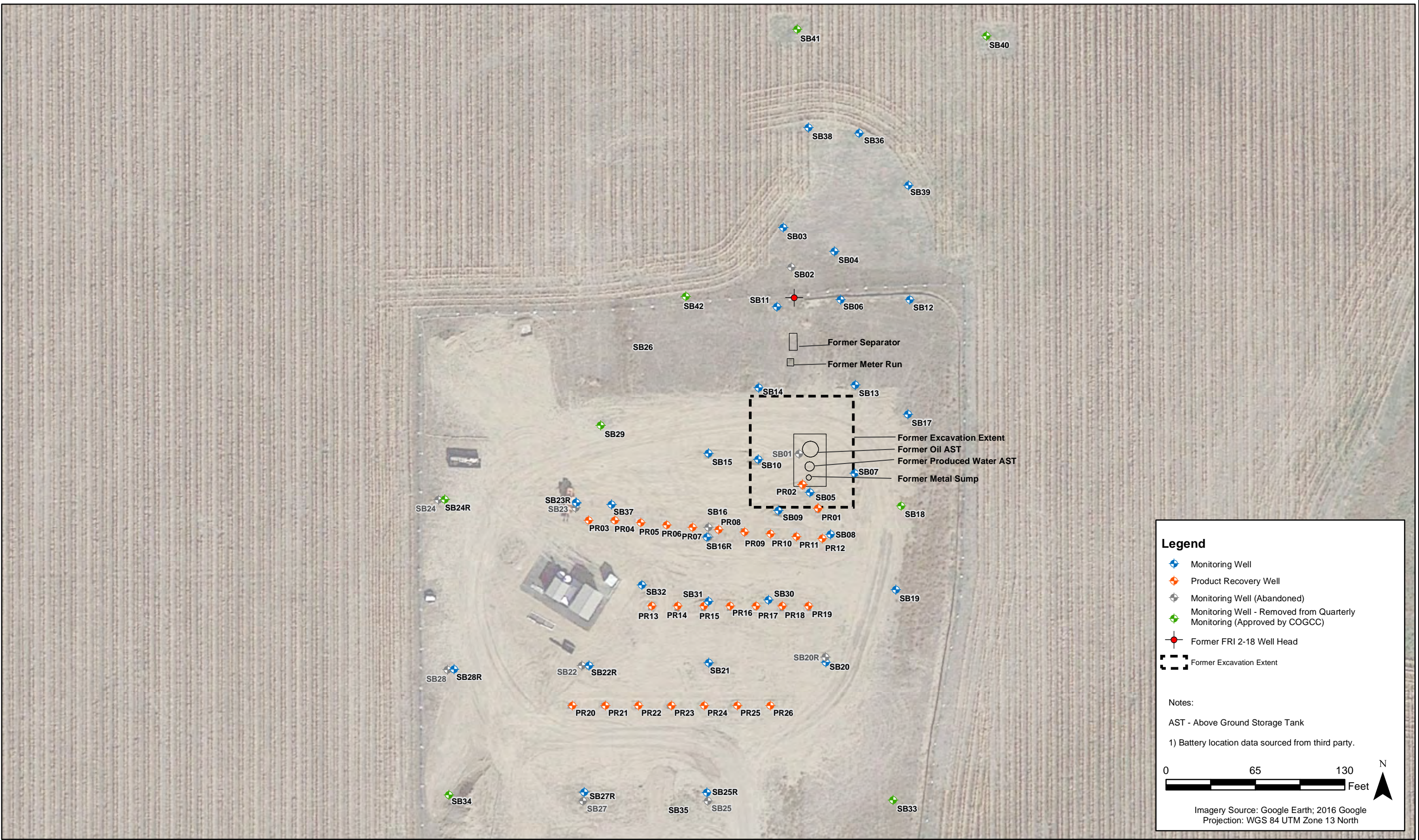
**Table 4**  
**Soil Vapor Extraction System Operational Data**  
**Third Quarter 2018**

[illegible]



## FIGURES





DATE:	June 2018
DESIGNED BY:	B. Bruns
DRAWN BY:	D. Arnold



Tasman Geosciences, Inc.  
6899 Pecos Street - Unit C  
Denver, CO 80221

Noble Energy, Inc. - DJ Basin  
Plugged & Abandoned Fri 2-18 Tank Battery & Wellhead Location  
Section 18, Township 1 South, Range 67 West  
Adams County, Colorado

Site Overview  
Map

Figure  
2





DATE:	September 2018
DESIGNED BY:	B. Bruns
DRAWN BY:	D. Arnold

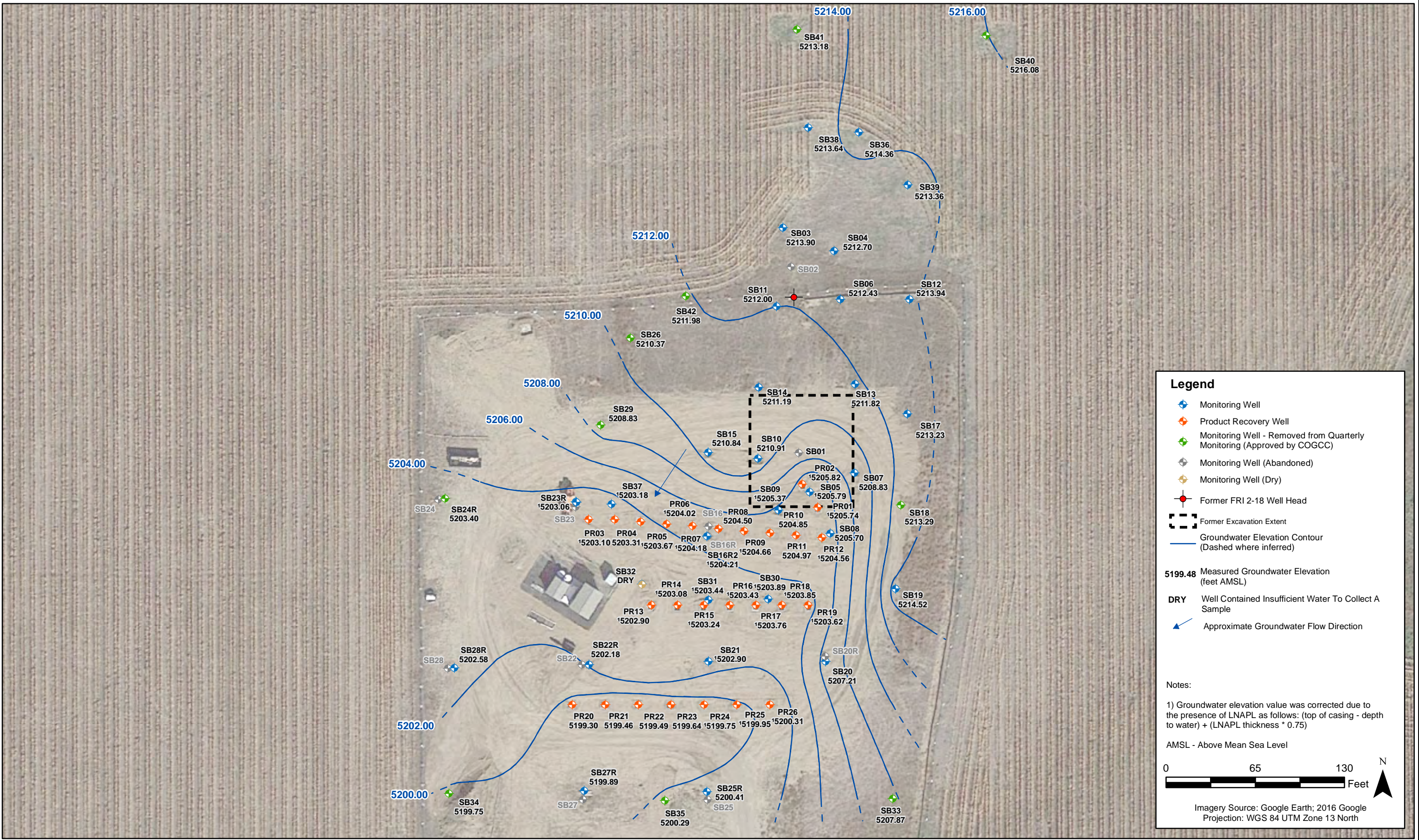


**Noble Energy, Inc.**  
**Plugged & Abandoned Fri 2-18 Tank Battery & Wellhead Location**  
Section 18, Township 1 South, Range 67 West  
Adams County, Colorado

**LNAPL**  
**Thickness Map**  
(1Q2018, 2Q2018, 3Q2018)

**Figure**  
**3**





DATE:	September 2018
DESIGNED BY:	B. Bruns
DRAWN BY:	D. Arnold



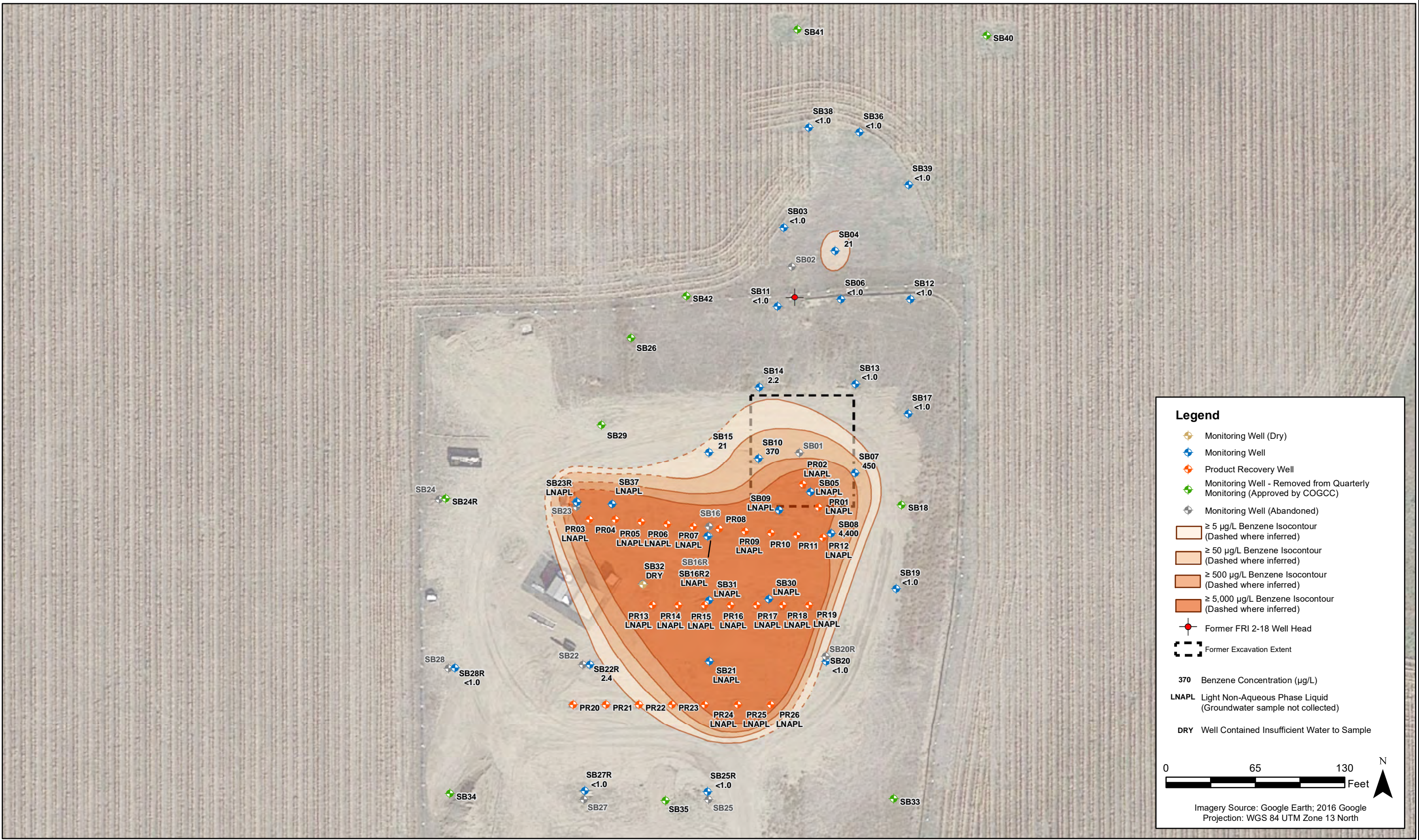
Tasman Geosciences, Inc.  
6899 Pecos Street - Unit C  
Denver, CO 80221

**Noble Energy, Inc. - DJ Basin**  
**Plugged & Abandoned Fri 2-18 Tank Battery & Wellhead Location**  
Section 18, Township 1 South, Range 67 West  
Adams County, Colorado

**Groundwater Potentiometric  
Surface Contour Map  
(08/24/2018)**

**Figure  
4**





DATE:	September 2018
DESIGNED BY:	B. Bruns
DRAWN BY:	D. Arnold



Tasman Geosciences, Inc.  
6899 Pecos Street - Unit C  
Denver, CO 80221

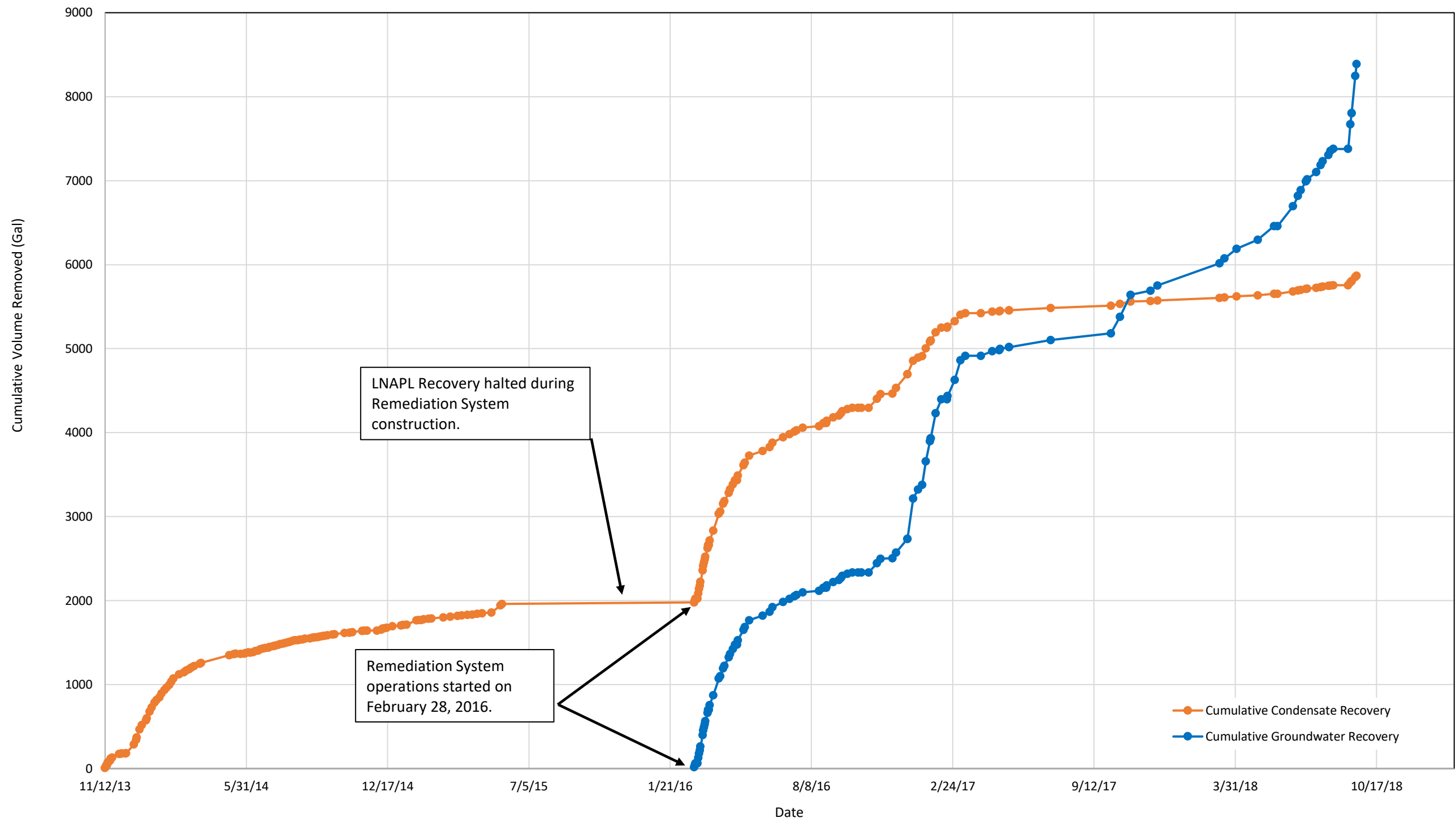
**Noble Energy, Inc. - DJ Basin**  
**Plugged & Abandoned Fri 2-18 Tank Battery & Wellhead Location**  
Section 18, Township 1 South, Range 67 West  
Adams County, Colorado

**Benzene in Groundwater,  
Isoconcentration Contour  
Map  
(08/27/2018)**

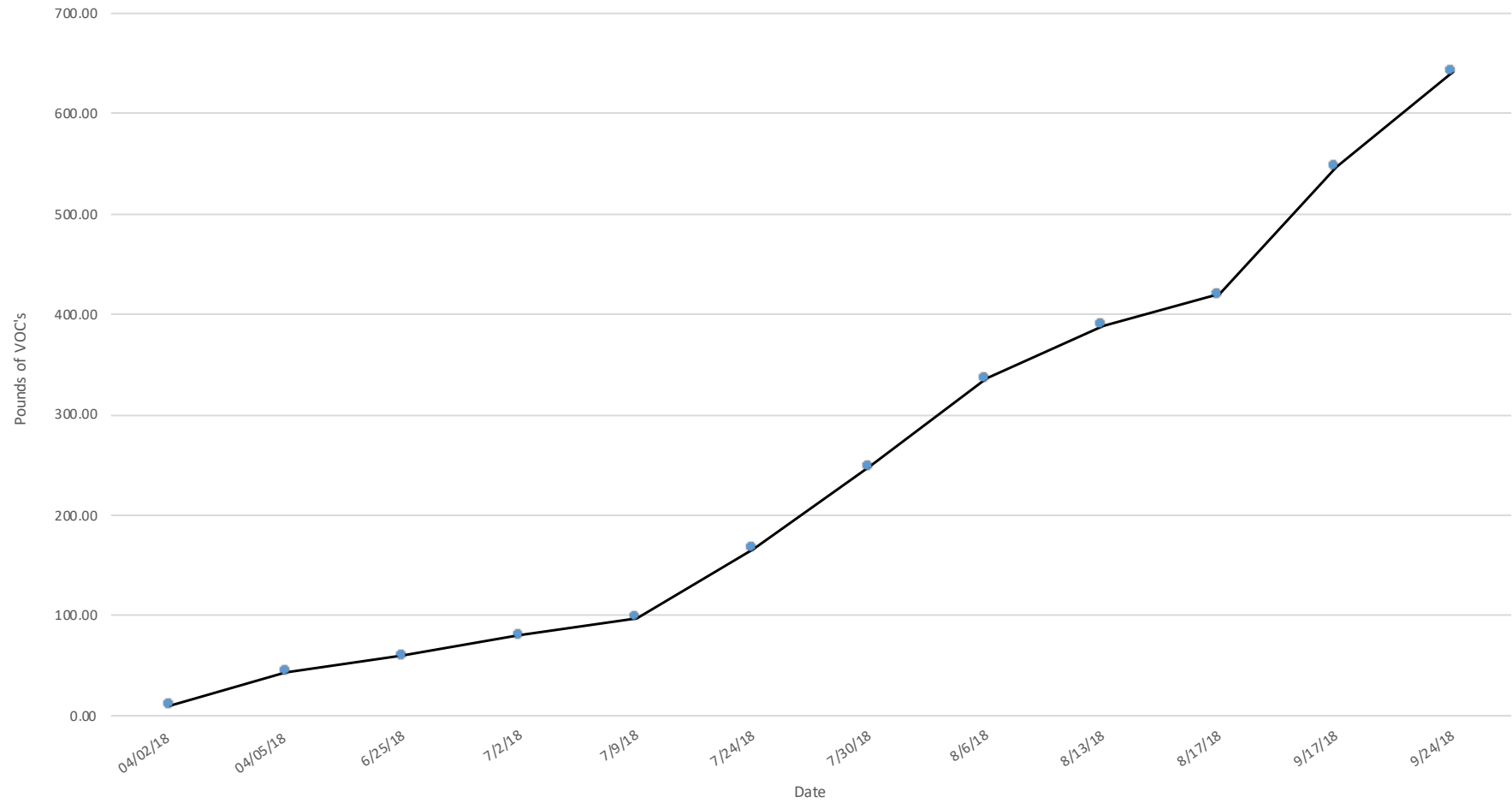
**Figure  
5**



Figure 6  
Noble FRI 2-18 Remediation System  
Cumulative Volume of Condensate & Groundwater Removed - Gallons



**Figure 7**  
**Fri 2-18 Remediation System**  
**Cumulative SVE Mass Removal**



# **ATTACHMENT A**

## **LABORATORY ANALYTICAL DATA REPORT**

# Summit Scientific

---

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

September 03, 2018

Brandon Bruns  
Tasman Geosciences  
6899 Pecos St, Unit C  
Denver, CO 80221  
RE: Noble - Fri 2-18

Enclosed are the results of analyses for samples received by Summit Scientific on 08/27/18 17:15. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read 'Paul Shrewsbury', with a stylized, cursive script.

Paul Shrewsbury For Ben Shrewsbury  
Laboratory Manager



Tasman Geosciences  
6899 Pecos St, Unit C  
Denver CO, 80221

Project: Noble - Fri 2-18

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
09/03/18 12:22

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SB03	1808343-01	Water	08/27/18 09:44	08/27/18 17:15
SB04	1808343-02	Water	08/27/18 11:26	08/27/18 17:15
SB06	1808343-03	Water	08/27/18 09:56	08/27/18 17:15
SB07	1808343-04	Water	08/27/18 12:12	08/27/18 17:15
SB08	1808343-05	Water	08/27/18 12:30	08/27/18 17:15
SB10	1808343-06	Water	08/27/18 12:45	08/27/18 17:15
SB11	1808343-07	Water	08/27/18 10:04	08/27/18 17:15
SB12	1808343-08	Water	08/27/18 09:50	08/27/18 17:15
SB13	1808343-09	Water	08/27/18 10:18	08/27/18 17:15
SB14	1808343-10	Water	08/27/18 10:10	08/27/18 17:15
SB15	1808343-11	Water	08/27/18 10:20	08/27/18 17:15
SB17	1808343-12	Water	08/27/18 10:25	08/27/18 17:15
SB19	1808343-13	Water	08/27/18 10:34	08/27/18 17:15
SB20	1808343-14	Water	08/27/18 11:40	08/27/18 17:15
SB22R	1808343-15	Water	08/27/18 11:46	08/27/18 17:15
SB25R	1808343-16	Water	08/27/18 10:53	08/27/18 17:15
SB27R	1808343-17	Water	08/27/18 11:02	08/27/18 17:15
SB28R	1808343-18	Water	08/27/18 11:13	08/27/18 17:15
SB36	1808343-19	Water	08/27/18 09:31	08/27/18 17:15
SB38	1808343-20	Water	08/27/18 09:18	08/27/18 17:15
SB39	1808343-21	Water	08/27/18 09:37	08/27/18 17:15
DUP	1808343-22	Water	08/27/18 00:00	08/27/18 17:15
Trip Blank	1808343-23	Water	08/27/18 08:30	08/27/18 17:15

Summit Scientific

*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.*

# Summit Scientific

741 Corporate Circle Suite I ♦ Golden, Colorado 80401  
303-277-9310 ♦ 303-374-5933 Fax

Page 1 of 3

Client: Noble/Tasman  
Address: \_\_\_\_\_  
City/State/Zip: \_\_\_\_\_  
Phone: 970.210.6571 Fax: \_\_\_\_\_  
Sampler Name: T. Lichtenberg

Project Manager: Brandon Bruns, Invoice: Jacob Evans  
E-Mail: Bbruns@tasman-geo.com  
Project Name: Fri 2-18  
Project Number: \_\_\_\_\_

Sample Description	Date Sampled	Time Sampled	Number of Containers	Preservative				Matrix			Analyze For:				Special Instructions	
				HCl	HNO <sub>3</sub>	None	Other (Specify)	Groundwater	Soil	Air - Canister Serial #	Other (Specify)	8260 BTEX	8260B GBTEXN	8015 DRO		pH, EC, SAR
SB03	8/27/2018	944	3	X				X								
SB04		1126		X												
SB06		956		X												
SB07		1212			X											
SB08		1230			X											
SB10		1245				X										
SB11		1004		X												
SB12		950		X												
SB13		1018		X												
SB14		1010		X												

Relinquished by: [Signature] Date/Time: 8-27-18 17:15 Received by: [Signature] Date/Time: 8-27-18 17:15

Relinquished by: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Received by: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Relinquished by: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Received in Lab by: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Turn Around Time (Check): ☐ Same Day ☐ 24 Hours ☐ 48 Hours ☒ 72 Hours Standard

Notes: \_\_\_\_\_

Sample Integrity: Temperature Upon Receipt: 8.1  
Intact: Yes ☒ No ☐

# Summit Scientific

741 Corporate Circle Suite I ♦ Golden, Colorado 80401  
303-277-9310 ♦ 303-374-5933 Fax

Page 2 of 3

Client: Noble/Tasman  
Address: \_\_\_\_\_  
City/State/Zip: \_\_\_\_\_  
Phone: 970.210.6571 Fax: \_\_\_\_\_  
Sampler Name: T. Lichtenberg

Project Manager: Brandon Bruns, Invoice: Jacob Evans  
E-Mail: Bbruns@tasman-geo.com  
Project Name: Fri 2-18  
Project Number: \_\_\_\_\_

Sample Description	Date Sampled	Time Sampled	Number of Containers	Preservative				Matrix		Analyze For:				Special Instructions	
				HCl	HNO <sub>3</sub>	None	Other (Specify)	Groundwater	Soil	Air - Canister Serial #	Other (Specify)	8260 BTEX	8260B GBTEXN		8015 DRO
SB15	8/27/2018	1020	3	X				X							
SB17		1025		X											
SB19		1034		X											
SB20		1140		X											
SB22R		1146		X											
SB25R		1053		X											
SB27R		1102		X											
SB28R		1113		X											
SB36		931		X											
SB38		918		X											

Relinquished by: [Signature] Date/Time: 8-27-18 17:15 Received by: [Signature] Date/Time: 8-27-18 17:15

Relinquished by: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Received by: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Relinquished by: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Received in Lab by: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Turn Around Time (Check): ☐ Same Day ☐ 24 Hours ☐ 72 Hours ☒ Standard

Sample Integrity: Temperature Upon Receipt: 2.1  
Intact: Yes ☒ No ☐

Notes: \_\_\_\_\_

741 Corporate Circle Suite I ♦ Golden, Colorado 80401  
303-277-9310 ♦ 303-374-5933 Fax

[www.s2scientific.com](http://www.s2scientific.com)



# Sample Receipt Checklist

S2 Work Order: \_\_\_\_\_

Client: NOBLE / TASMAN Client Project ID: FRI 2-18

Shipped Via: P.U. Airbill #: \_\_\_\_\_  
(UPS, FedEx, Hand Delivered, Pick-up, etc.)

Matrix (check all that apply):      Air      Soil/Solid   X   Water      Other: \_\_\_\_\_  
(Describe)

Temp (°C)	<u>2.1</u>
-----------	------------

Thermometer ID: 61857155-K

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature at 4°C +/- 2°C <sup>(1)</sup> ?				
NOTE: If samples are delivered the same day of sampling, this requirement is met provided that there is evidence that cooling has begun.	X			
Were all samples received intact <sup>(1)</sup> ?	X			
Was adequate sample volume provided <sup>(1)</sup> ?	X			
If custody seals are present, are they intact <sup>(1)</sup> ?			X	
Are samples with holding times due within 48 hours sample due within 48 hours present?			X	
Is a chain-of-custody (COC) form present and filled out completely <sup>(1)</sup> ?	X			
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	X			
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	X			
Is the COC properly relinquished by the client w/ date and time recorded <sup>(1)</sup> ?	X			
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.		X		
Are samples preserved that require preservation (excluding cooling) <sup>(1)</sup> ? Note the type of preservative in the Comments column – HCl, H <sub>2</sub> SO <sub>4</sub> , NaOH, HNO <sub>3</sub> , ect	X			HCL
If samples are acid preserved for metals, is the pH ≤ 2 <sup>(1)</sup> ? Record the pH in Comments.			X	
If dissolved metals are requested, were samples field filtered?			X	
Additional Comments (if any):				

<sup>(1)</sup> If NO, then contact the client before proceeding with analysis and note in case narrative.

Muri  
Custodian Printed Name or Initials

[Signature]  
Signature or Initials of Custodian

17:40  
Date/Time



Tasman Geosciences  
6899 Pecos St, Unit C  
Denver CO, 80221

Project: Noble - Fri 2-18

Project Number: [none]

Project Manager: Brandon Bruns

**Reported:**  
09/03/18 12:22

**SB03**  
**1808343-01 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **08/27/18 09:44**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	1808325	08/28/18	08/28/18	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	2.0		"	"	"	"	"	"	

Date Sampled: **08/27/18 09:44**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		86.2 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		96.3 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		99.8 %		21-167		"	"	"	"	

Summit Scientific

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Tasman Geosciences  
6899 Pecos St, Unit C  
Denver CO, 80221

Project: Noble - Fri 2-18

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
09/03/18 12:22

**SB04**  
**1808343-02 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **08/27/18 11:26**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>Benzene</b>	<b>21</b>	1.0		ug/l	1	1808325	08/28/18	08/28/18	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
<b>Ethylbenzene</b>	<b>2.7</b>	1.0		"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>2.5</b>	2.0		"	"	"	"	"	"	

Date Sampled: **08/27/18 11:26**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		88.5 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		98.3 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		99.0 %		21-167		"	"	"	"	

Summit Scientific

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Tasman Geosciences  
6899 Pecos St, Unit C  
Denver CO, 80221

Project: Noble - Fri 2-18

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
09/03/18 12:22

**SB06**  
**1808343-03 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **08/27/18 09:56**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1808325	08/28/18	08/28/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **08/27/18 09:56**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		85.8 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		96.2 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		99.6 %	21-167		"	"	"	"	

Summit Scientific

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Tasman Geosciences  
6899 Pecos St, Unit C  
Denver CO, 80221

Project: Noble - Fri 2-18

Project Number: [none]  
Project Manager: Brandon Brun

**Reported:**  
09/03/18 12:22

**SB07**  
**1808343-04 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **08/27/18 12:12**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>Benzene</b>	<b>450</b>	10		ug/l	10	1808325	08/28/18	08/28/18	EPA 8260B	
Toluene	ND	1.0		"	1	"	"	"	"	
<b>Ethylbenzene</b>	<b>110</b>	10		"	10	"	"	"	"	
<b>Xylenes (total)</b>	<b>590</b>	20		"	"	"	"	"	"	

Date Sampled: **08/27/18 12:12**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		82.7 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		99.6 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		97.1 %		21-167		"	"	"	"	

Summit Scientific

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Tasman Geosciences  
6899 Pecos St, Unit C  
Denver CO, 80221

Project: Noble - Fri 2-18

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
09/03/18 12:22

**SB08**  
**1808343-05 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **08/27/18 12:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
<b>Benzene</b>	<b>4400</b>	100	ug/l	100	1808325	08/28/18	08/29/18	EPA 8260B	
<b>Toluene</b>	<b>1200</b>	100	"	"	"	"	"	"	
<b>Ethylbenzene</b>	<b>520</b>	100	"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>8500</b>	200	"	"	"	"	"	"	

Date Sampled: **08/27/18 12:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		83.9 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		101 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		94.4 %	21-167		"	"	"	"	

Summit Scientific

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Tasman Geosciences  
6899 Pecos St, Unit C  
Denver CO, 80221

Project: Noble - Fri 2-18

Project Number: [none]

Project Manager: Brandon Brun

**Reported:**  
09/03/18 12:22

**SB10**  
**1808343-06 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **08/27/18 12:45**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>Benzene</b>	<b>370</b>	10		ug/l	10	1808325	08/28/18	08/29/18	EPA 8260B	
<b>Toluene</b>	<b>3.2</b>	1.0		"	1	"	"	"	"	
<b>Ethylbenzene</b>	<b>75</b>	10		"	10	"	"	"	"	
<b>Xylenes (total)</b>	<b>380</b>	20		"	"	"	"	"	"	

Date Sampled: **08/27/18 12:45**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		86.0 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		99.7 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		98.0 %		21-167		"	"	"	"	

Summit Scientific

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Tasman Geosciences  
6899 Pecos St, Unit C  
Denver CO, 80221

Project: Noble - Fri 2-18

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
09/03/18 12:22

**SB11**  
**1808343-07 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **08/27/18 10:04**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1808325	08/28/18	08/29/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **08/27/18 10:04**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		83.3 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		96.0 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		101 %	21-167		"	"	"	"	

Summit Scientific

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Tasman Geosciences  
6899 Pecos St, Unit C  
Denver CO, 80221

Project: Noble - Fri 2-18

Project Number: [none]

Project Manager: Brandon Bruns

**Reported:**  
09/03/18 12:22

**SB12**  
**1808343-08 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **08/27/18 09:50**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1808325	08/28/18	08/29/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **08/27/18 09:50**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		81.1 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		96.5 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		99.5 %	21-167		"	"	"	"	

Summit Scientific

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Tasman Geosciences  
6899 Pecos St, Unit C  
Denver CO, 80221

Project: Noble - Fri 2-18

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
09/03/18 12:22

**SB13**  
**1808343-09 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **08/27/18 10:18**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1808325	08/28/18	08/29/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **08/27/18 10:18**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		82.6 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		97.1 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		102 %	21-167		"	"	"	"	

Summit Scientific

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Tasman Geosciences  
6899 Pecos St, Unit C  
Denver CO, 80221

Project: Noble - Fri 2-18

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
09/03/18 12:22

**SB14**  
**1808343-10 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **08/27/18 10:10**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>Benzene</b>	<b>2.2</b>	1.0		ug/l	1	1808325	08/28/18	08/29/18	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	2.0		"	"	"	"	"	"	

Date Sampled: **08/27/18 10:10**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		85.5 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		99.2 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		102 %		21-167		"	"	"	"	

Summit Scientific

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Tasman Geosciences  
6899 Pecos St, Unit C  
Denver CO, 80221

Project: Noble - Fri 2-18

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
09/03/18 12:22

**SB15**  
**1808343-11 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **08/27/18 10:20**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>Benzene</b>	<b>21</b>	1.0		ug/l	1	1808325	08/28/18	08/29/18	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	2.0		"	"	"	"	"	"	

Date Sampled: **08/27/18 10:20**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		88.3 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		97.5 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		99.4 %		21-167		"	"	"	"	

Summit Scientific

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Tasman Geosciences  
6899 Pecos St, Unit C  
Denver CO, 80221

Project: Noble - Fri 2-18

Project Number: [none]

Project Manager: Brandon Bruns

**Reported:**  
09/03/18 12:22

**SB17**  
**1808343-12 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **08/27/18 10:25**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1808325	08/28/18	08/29/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **08/27/18 10:25**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		80.2 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		95.0 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		100 %	21-167		"	"	"	"	

Summit Scientific

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Tasman Geosciences  
6899 Pecos St, Unit C  
Denver CO, 80221

Project: Noble - Fri 2-18

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
09/03/18 12:22

**SB19**  
**1808343-13 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **08/27/18 10:34**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1808325	08/28/18	08/29/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **08/27/18 10:34**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		79.4 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		96.6 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		100 %	21-167		"	"	"	"	

Summit Scientific

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Tasman Geosciences  
6899 Pecos St, Unit C  
Denver CO, 80221

Project: Noble - Fri 2-18

Project Number: [none]

Project Manager: Brandon Bruns

**Reported:**  
09/03/18 12:22

**SB20**  
**1808343-14 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **08/27/18 11:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1808325	08/28/18	08/29/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **08/27/18 11:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		81.6 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		95.4 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		99.8 %	21-167		"	"	"	"	

Summit Scientific

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Tasman Geosciences  
6899 Pecos St, Unit C  
Denver CO, 80221

Project: Noble - Fri 2-18

Project Number: [none]

Project Manager: Brandon Bruns

**Reported:**  
09/03/18 12:22

**SB22R**  
**1808343-15 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **08/27/18 11:46**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>Benzene</b>	<b>2.4</b>	1.0		ug/l	1	1808325	08/28/18	08/29/18	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	2.0		"	"	"	"	"	"	

Date Sampled: **08/27/18 11:46**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		83.6 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		93.7 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		97.3 %		21-167		"	"	"	"	

Summit Scientific

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Tasman Geosciences  
6899 Pecos St, Unit C  
Denver CO, 80221

Project: Noble - Fri 2-18

Project Number: [none]

Project Manager: Brandon Bruns

**Reported:**  
09/03/18 12:22

**SB25R**  
**1808343-16 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **08/27/18 10:53**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1808325	08/28/18	08/29/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **08/27/18 10:53**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		80.6 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		96.2 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		98.6 %	21-167		"	"	"	"	

Summit Scientific

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Tasman Geosciences  
6899 Pecos St, Unit C  
Denver CO, 80221

Project: Noble - Fri 2-18

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
09/03/18 12:22

**SB27R**  
**1808343-17 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **08/27/18 11:02**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1808325	08/28/18	08/29/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **08/27/18 11:02**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		82.5 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		95.8 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		99.2 %	21-167		"	"	"	"	

Summit Scientific

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Tasman Geosciences  
6899 Pecos St, Unit C  
Denver CO, 80221

Project: Noble - Fri 2-18

Project Number: [none]

Project Manager: Brandon Bruns

**Reported:**  
09/03/18 12:22

**SB28R**  
**1808343-18 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **08/27/18 11:13**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1808325	08/28/18	08/29/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **08/27/18 11:13**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		81.1 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		94.6 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		103 %	21-167		"	"	"	"	

Summit Scientific

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Tasman Geosciences  
6899 Pecos St, Unit C  
Denver CO, 80221

Project: Noble - Fri 2-18

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
09/03/18 12:22

**SB36**  
**1808343-19 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **08/27/18 09:31**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1808325	08/28/18	08/29/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **08/27/18 09:31**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		83.5 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		95.2 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		100 %	21-167		"	"	"	"	

Summit Scientific

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Tasman Geosciences  
6899 Pecos St, Unit C  
Denver CO, 80221

Project: Noble - Fri 2-18

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
09/03/18 12:22

**SB38**  
**1808343-20 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **08/27/18 09:18**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1808325	08/28/18	08/29/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **08/27/18 09:18**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		83.8 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		97.4 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		99.7 %	21-167		"	"	"	"	

Summit Scientific

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Tasman Geosciences  
6899 Pecos St, Unit C  
Denver CO, 80221

Project: Noble - Fri 2-18

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
09/03/18 12:22

**SB39**  
**1808343-21 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **08/27/18 09:37**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1808321	08/28/18	08/29/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **08/27/18 09:37**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		84.5 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		95.9 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		101 %	21-167		"	"	"	"	

Summit Scientific

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Tasman Geosciences  
6899 Pecos St, Unit C  
Denver CO, 80221

Project: Noble - Fri 2-18

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
09/03/18 12:22

**DUP**  
**1808343-22 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **08/27/18 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>Benzene</b>	<b>190</b>	1.0		ug/l	1	1808321	08/28/18	08/29/18	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
<b>Ethylbenzene</b>	<b>77</b>	1.0		"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>690</b>	2.0		"	"	"	"	"	"	

Date Sampled: **08/27/18 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		77.3 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		99.5 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		98.5 %		21-167		"	"	"	"	

Summit Scientific

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Tasman Geosciences  
6899 Pecos St, Unit C  
Denver CO, 80221

Project: Noble - Fri 2-18

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
09/03/18 12:22

**Trip Blank**  
**1808343-23 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **08/27/18 08:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1808321	08/28/18	08/29/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **08/27/18 08:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		83.4 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		94.7 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		97.7 %	21-167		"	"	"	"	

Summit Scientific

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Tasman Geosciences  
6899 Pecos St, Unit C  
Denver CO, 80221

Project: Noble - Fri 2-18

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
09/03/18 12:22

## Volatile Organic Compounds by EPA Method 8260B - Quality Control

### Summit Scientific

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

#### Batch 1808321 - EPA 5030 Water MS

##### Blank (1808321-BLK1)

Prepared: 08/28/18 Analyzed: 08/29/18

Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes (total)	ND	2.0	"							
Surrogate: 1,2-Dichloroethane-d4	13.9		"	13.2		106	23-173			
Surrogate: Toluene-d8	13.4		"	13.3		100	20-170			
Surrogate: 4-Bromofluorobenzene	13.0		"	13.3		97.7	21-167			

##### LCS (1808321-BS1)

Prepared: 08/28/18 Analyzed: 08/29/18

Benzene	47.7	1.0	ug/l	50.0		95.5	70-130			
Toluene	46.4	1.0	"	50.0		92.8	70-130			
Ethylbenzene	46.7	1.0	"	50.0		93.4	70-130			
m,p-Xylene	84.4	2.0	"	100		84.4	70-130			
o-Xylene	46.7	1.0	"	50.0		93.3	70-130			
Surrogate: 1,2-Dichloroethane-d4	13.1		"	13.2		99.3	23-173			
Surrogate: Toluene-d8	13.3		"	13.3		99.7	20-170			
Surrogate: 4-Bromofluorobenzene	13.2		"	13.3		99.4	21-167			

##### Matrix Spike (1808321-MS1)

Source: 1808349-01

Prepared: 08/28/18 Analyzed: 08/29/18

Benzene	52.6	1.0	ug/l	50.0	ND	105	70-130			
Toluene	51.4	1.0	"	50.0	ND	103	70-130			
Ethylbenzene	50.8	1.0	"	50.0	ND	102	70-130			
m,p-Xylene	92.3	2.0	"	100	ND	92.3	70-130			
o-Xylene	50.8	1.0	"	50.0	ND	102	70-130			
Surrogate: 1,2-Dichloroethane-d4	14.0		"	13.2		106	23-173			
Surrogate: Toluene-d8	13.1		"	13.3		98.5	20-170			
Surrogate: 4-Bromofluorobenzene	13.2		"	13.3		98.9	21-167			

Summit Scientific

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Tasman Geosciences  
6899 Pecos St, Unit C  
Denver CO, 80221

Project: Noble - Fri 2-18

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
09/03/18 12:22

**Volatile Organic Compounds by EPA Method 8260B - Quality Control**  
**Summit Scientific**

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

**Batch 1808321 - EPA 5030 Water MS**

**Matrix Spike Dup (1808321-MSD1)**

Source: 1808349-01

Prepared: 08/28/18 Analyzed: 08/29/18

Benzene	50.3	1.0	ug/l	50.0	ND	101	70-130	4.39	30	
Toluene	48.8	1.0	"	50.0	ND	97.6	70-130	5.11	30	
Ethylbenzene	49.0	1.0	"	50.0	ND	98.0	70-130	3.51	30	
m,p-Xylene	88.9	2.0	"	100	ND	88.9	70-130	3.82	30	
o-Xylene	48.8	1.0	"	50.0	ND	97.5	70-130	4.08	30	
Surrogate: 1,2-Dichloroethane-d4	13.7		"	13.2		104	23-173			
Surrogate: Toluene-d8	13.6		"	13.3		102	20-170			
Surrogate: 4-Bromofluorobenzene	13.5		"	13.3		101	21-167			

**Batch 1808325 - EPA 5030 Water MS**

**Blank (1808325-BLK1)**

Prepared & Analyzed: 08/28/18

Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes (total)	ND	2.0	"							
Surrogate: 1,2-Dichloroethane-d4	10.8		"	13.2		81.8	23-173			
Surrogate: Toluene-d8	12.8		"	13.3		95.6	20-170			
Surrogate: 4-Bromofluorobenzene	13.5		"	13.3		101	21-167			

**LCS (1808325-BS1)**

Prepared & Analyzed: 08/28/18

Benzene	25.2	1.0	ug/l	33.3		75.7	70-130			
Toluene	25.7	1.0	"	33.3		77.2	70-130			
Ethylbenzene	25.3	1.0	"	33.3		76.0	70-130			
m,p-Xylene	49.2	2.0	"	66.7		73.8	70-130			
o-Xylene	23.6	1.0	"	33.3		70.7	70-130			
Surrogate: 1,2-Dichloroethane-d4	10.3		"	13.2		78.0	23-173			
Surrogate: Toluene-d8	14.3		"	13.3		107	20-170			
Surrogate: 4-Bromofluorobenzene	12.8		"	13.3		95.9	21-167			

Summit Scientific

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Tasman Geosciences  
6899 Pecos St, Unit C  
Denver CO, 80221

Project: Noble - Fri 2-18

Project Number: [none]  
Project Manager: Brandon Brun

**Reported:**  
09/03/18 12:22

**Volatile Organic Compounds by EPA Method 8260B - Quality Control**  
**Summit Scientific**

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

**Batch 1808325 - EPA 5030 Water MS**

Matrix Spike (1808325-MS1)		Source: 1808343-01			Prepared & Analyzed: 08/28/18					
Benzene	27.7	1.0	ug/l	33.3	ND	83.0	70-130			
Toluene	29.2	1.0	"	33.3	ND	87.7	70-130			
Ethylbenzene	29.1	1.0	"	33.3	ND	87.2	70-130			
m,p-Xylene	53.5	2.0	"	66.7	ND	80.2	70-130			
o-Xylene	27.3	1.0	"	33.3	ND	81.8	70-130			
<hr/>										
Surrogate: 1,2-Dichloroethane-d4	11.1		"	13.2		84.3	23-173			
Surrogate: Toluene-d8	14.3		"	13.3		107	20-170			
Surrogate: 4-Bromofluorobenzene	12.6		"	13.3		94.6	21-167			
<hr/>										
Matrix Spike Dup (1808325-MSD1)		Source: 1808343-01			Prepared & Analyzed: 08/28/18					
Benzene	29.7	1.0	ug/l	33.3	ND	89.2	70-130	7.21	30	
Toluene	32.2	1.0	"	33.3	ND	96.6	70-130	9.60	30	
Ethylbenzene	33.2	1.0	"	33.3	ND	99.5	70-130	13.1	30	
m,p-Xylene	61.3	2.0	"	66.7	ND	92.0	70-130	13.7	30	
o-Xylene	31.1	1.0	"	33.3	ND	93.2	70-130	13.0	30	
<hr/>										
Surrogate: 1,2-Dichloroethane-d4	11.3		"	13.2		85.6	23-173			
Surrogate: Toluene-d8	13.9		"	13.3		104	20-170			
Surrogate: 4-Bromofluorobenzene	12.5		"	13.3		93.7	21-167			

Summit Scientific

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Tasman Geosciences  
6899 Pecos St, Unit C  
Denver CO, 80221

Project: Noble - Fri 2-18

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
09/03/18 12:22

### Notes and Definitions

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference