

FOURTH QUARTER 2019 SITE MONITORING AND REMEDATION SUMMARY REPORT

FEATHER 31-15

COGCC SPILL TRACKING # 444673
COGCC REMEDIATION # 10120



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1.0 INTRODUCTION

This Fourth Quarter 2019 Site Monitoring and Remediation Summary Report (Report) presents the results of groundwater sampling activities and operational information for the air sparge (AS) and soil vapor extraction (SVE) remediation system at the Feather 31-15 site (Site).

Field activities detailed in this report were performed by Tasman Geosciences, Inc. (Tasman), on behalf of Noble Energy, Inc. (Noble), in order to further evaluate groundwater conditions and conduct remediation activities at the Site. The data collected were used to develop the analytical summary tables, groundwater elevation map, benzene concentration map presented herein, optimize the remediation System operations and to evaluate emissions versus Colorado Department of Public Health and Environment (CDPHE) Air Pollution Control Division Air Pollution Emission Notice (APEN) requirements.

1.1 Site Background

The Site is located approximately 2.07 miles north-northwest of Keenesburg in Weld County, Colorado (Figure 1). Surrounded by agricultural crop land, the Site legal description is the northwest 1/4 of the northeast 1/4 of Section 15, Township 2 north, Range 64 west, of the 6th Principal Meridian. The Site is located on relatively flat terrain that slopes gradually to the north-northeast. The Site is approximately 3,500 feet (ft.) east of County Road 55 and approximately 380 ft. north of the Feather 31-15 wellhead, and has coordinates of 40.145495°, -104.534330°.

On February 3, 2016, Noble discovered a leak from the Feather 31-15 produced water tank. Subsequently, Noble filed a Form 19 Initial Spill/Release Report (Form 19) with the Colorado Oil and Gas Conservation Commission (COGCC) for the incident (Document # 400983708). The Form 19 was received by the COGCC and the incident was designated Spill/Release ID # 444673.

Soil and groundwater assessment activities were conducted at the Site on January 26, 2016. Tasman advanced nine soil borings (BH01-BH09) and converted two borings to groundwater monitoring wells (BH03 and BH08) around the tank battery, as illustrated on Figure 2. Based on data gathered during assessment activities, impacted soil excavation was completed on March 2 and 3, 2016.

During excavation activities, monitoring well BH03 was destroyed. From August 28, 2016 through December 21, 2016, Tasman returned to the Site to install forty-six monitoring wells to further delineate dissolved phase impacts to groundwater. Analytical results for soil and groundwater samples collected during site assessment activities were previously reported to Noble in a Site Assessment and Excavation Report submitted on February 13, 2017. A Form 27 pertaining to remediation activities at the Site was received by the COGCC on April 3, 2017, and document number 401249112 and remediation project number 10120 were assigned to the Site.

1.2 Site Topography, Geology, and Hydrogeology

The Site is situated approximately 4,961 feet above mean sea level (ft. amsl). Surface topography across the Site slopes gently to the north.

Site assessment soil borings indicate that the subsurface geology immediately beneath the Site is composed of medium density, well graded sand and clayey sand, underlain by stiff, inorganic, lean clay underlain by fat clay.

Groundwater was encountered at a range of approximately 7 ft. below ground surface (bgs) to 14 ft. bgs during monitoring well installation. Historic groundwater monitoring data indicates that the groundwater potentiometric surface flows toward the northeast.

2.0 FOURTH QUARTER 2019 GROUNDWATER MONITORING ACTIVITIES

Fourth Quarter 2019 groundwater monitoring activities were performed at the Site on October 25, 2019. The activities included measurement of groundwater levels and collection of groundwater samples from 44 of the 50 Site groundwater monitoring wells.

2.1 Groundwater Level Measurements

Both general procedures and significant observations for the groundwater gauging activities performed during the Fourth Quarter 2019 groundwater monitoring event are presented in the following sections.

General Procedures

Groundwater and light non-aqueous phase liquid (LNAPL) levels are gauged quarterly in order to evaluate hydraulic characteristics and to provide information regarding seasonal and annual fluctuations in groundwater elevations at the Site. During the Fourth Quarter 2019 groundwater monitoring event, groundwater and LNAPL levels were gauged at 45 monitoring well locations. Monitoring wells BH15, BH24, BH25R, BH44, and BH51 were obstructed and were not able to be gauged, and monitoring well BH19 was able to be gauged but not able to be sampled due to equipment stuck in the well. Groundwater and LNAPL elevation measurements are presented in Table 1.

Groundwater and LNAPL levels are measured on the north side of the well casing to the nearest 0.01-foot using an oil-water interface probe (IP). Groundwater level data were subsequently converted to elevations (ft. amsl) by subtracting the measured depth-to-water (DTW) from the well's top-of-casing (TOC) elevation survey datum. DTW data for wells containing LNAPL are converted to elevations by using the assumed LNAPL density of 0.75 times that of water. The formula used is presented in Table 1.

Significant Observations

During the Fourth Quarter 2019 groundwater monitoring event, the groundwater elevation at the Site ranged from 4,954.53 ft. amsl in BH49R to 4,964.47 ft. amsl in BH10. The groundwater potentiometric surface at the site slopes to the northeast, with a hydraulic gradient of approximately 0.02 feet per foot between wells BH49R and BH10. Groundwater elevation contours and the inferred flow direction are illustrated on Figure 3. LNAPL was not measured in any of the Site monitoring wells during the Fourth Quarter 2019 monitoring event.

2.2 Groundwater Purging and Sampling

This section summarizes both general procedures and significant observations from the groundwater purging and sampling activities conducted on October 25, 2019. During the Fourth Quarter 2019 groundwater monitoring event, groundwater samples were collected from 44 of the 50 wells in the Site monitoring well network.

General Procedures

Prior to collecting groundwater samples, groundwater levels were measured at each of the Site monitoring wells, as described above. The presence of LNAPL was also evaluated using an IP. Subsequently, a minimum of three casing volumes of groundwater (calculated from total well depth and groundwater level measurements) was purged from the each well prior to collecting a groundwater sample.

Groundwater samples were collected using dedicated, disposable, polyethylene bailers. Samples were placed in clean laboratory-supplied containers for the selected analytical method, packed in an ice-filled cooler, and kept at approximately 4 degrees Celsius for transportation to the laboratory.

Groundwater samples were submitted under standard chain-of-custody procedures to Summit Scientific Laboratory in Golden, Colorado for analysis of benzene, toluene, ethylbenzene, and total xylenes (BTEX) using United States Environmental Protection Agency (USEPA) Method 8260B.

3.0 FOURTH QUARTER 2019 GROUNDWATER SAMPLING RESULTS

This section presents the laboratory analytical results for groundwater samples collected during the Fourth Quarter 2019 groundwater monitoring event. Groundwater laboratory analytical data is presented in Table 2 and illustrated on Figure 4. The complete laboratory analytical reports are 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 groundwater standard of five micrograms per liter (µg/L) in seven of the 44 monitoring wells sampled

(BH16, BH22, BH23R2, BH26, BH33, BH36R, and BH48). Benzene concentrations associated with these seven monitoring wells ranged from 7.5 µg/L in BH48 to 16,000 µg/L in BH16. Isoconcentration contours for benzene concentrations detected above the COGCC Table 910-1 groundwater standard during the Fourth Quarter 2019 sampling event are illustrated on Figure 4.

- Toluene was detected above the COGCC Table 910-1 groundwater standard of 560 µg/L in one of the 44 monitoring wells sampled. BH16 had a toluene concentration of 6,100 µg/L.
- Ethylbenzene was detected above the COGCC Table 910-1 groundwater standard of 700 µg/L in two of the 44 Site monitoring wells sampled (BH16 and BH23R2). Ethylbenzene concentrations ranged from 780 µg/L in BH23R2 to 1,300 µg/L in BH16.
- Total xylenes were detected above the COGCC Table 910-1 groundwater standard of 1,400 µg/L in one of the 4 Site monitoring wells sampled. Total xylenes concentration in BH16 was 14,000 µg/L.

4.0 REMEDIATION SYSTEM

This section summarizes the installation and operational data for the AS/SVE remediation system (System) that is currently in operation at the Site. The System is shut down a minimum of one week prior to quarterly sampling events to allow for normalization of Site groundwater levels.

4.1 AS/SVE Remediation System Installation

Between November 14 and 29, 2017, Tasman retrofitted eight monitoring wells for use as AS wells and 13 for use as SVE wells as part of the System. The most current AS/SVE remediation well network in use is illustrated on Figure 4. The remediation wells are connected to the System remediation equipment via above ground conveyance lines. The System remediation equipment is housed in a trailer that was placed along the southern end of the Site. From May 16 through May 17, 2019 Tasman guided the installation of five dedicated air sparge wells in the northern part of the site (Figure 4). These air sparge wells were tied into the System prior to System restart after the second quarter 2019 groundwater monitoring event.

4.2 AS/SVE Remediation System Operations

Full-time operation of the AS System was initiated on December 4, 2017. On January 5, 2018, the SVE component of the System was initiated. From July 31, 2019 through October 16, 2019 the System SVE wells were operated at an average flow rate of 227.03 cubic feet per minute (cfm) at an average vacuum of -81.0 inches of water and an average runtime of 56%. The AS wells operated at an average pressure of 21.71 pounds per square inch (psi), and an average flow rate of 76.14 cfm. During this period the Air Sparge System operated with an average uptime of 69%.

A remediation system air emission analytical sample was collected on August 12th, September 30th and October 16, 2019 and submitted to Origins Laboratory in Denver, Colorado for analysis of BTEX and total petroleum hydrocarbons – gasoline range organics (TPH-GRO) by USEPA Method TO-15. Laboratory analytical results for these samples are summarized in Table 3. This laboratory data is used to calculate System effluent emission mass calculations. Tasman will continue to collect emission samples through the end of 2019 to monitor emissions and System operations. As detailed in Table 3, as of October 16, 2019, approximately 3.81 pounds of volatile organic compounds (VOCs) has been emitted by the System since startup. Approximately 3.48 pounds of BTEX and TPH-GRO has been emitted during 2019. Based on the air emission data collected to date, an air pollution emission notice (APEN) is currently not required as part of the System operations.

Charts 1 and 2 illustrate the periodic and total mass of VOCs removed by the System since operations were initiated.

5.0 UPCOMING SITE ACTIVITIES

Anticipated upcoming Site activities included the following:

- Complete the First Quarter 2020 groundwater sampling event in January; and
- Continue operations and maintenance of the remediation system; and
- Continue monthly effluent sampling of remediation system emissions; and
- Install additional dedicated AS wells.

TABLES

TABLE 1
GROUNDWATER ELEVATION DATA
NOBLE ENERGY, INC.
FEATHER 31-15



Monitoring Well ID	Date	Top of Casing Elevation (ft. AMSL)	Total Depth (ft. FTOC)	Depth to Water (ft.) ⁽⁴⁾	Depth to LNAPL (ft.) ⁽⁴⁾	LNAPL Thickness (ft.)	Groundwater elevation* (ft. AMSL)
BH03	01/28/16	NS	22.98	15.17	ND	ND	NS
BH03	09/01/16	Removed from Monitoring Network-Well Destroyed					
BH08	01/28/16	NS	24.95	13.15	ND	ND	NS
BH08	09/01/16	4960.47	22.60	6.16	ND	ND	4954.31
BH08	11/03/16	4960.47	22.57	6.79	ND	ND	4953.68
BH08	01/24/17	4960.47	22.63	7.21	ND	ND	4953.26
BH08	04/05/17	4960.47	22.60	7.54	ND	ND	4952.93
BH08	07/27/17	4960.47	22.53	7.26	ND	ND	4953.21
BH08	10/30/17	4960.47	22.52	7.92	ND	ND	4952.55
BH08	01/25/18	4960.47	22.59	8.31	ND	ND	4952.16
BH08	04/19/18	4960.47	22.54	8.71	ND	ND	4951.76
BH08	07/19/18	4960.47	22.54	8.43	ND	ND	4952.04
BH08	10/30/18	4960.47	22.48	9.34	ND	ND	4951.13
BH08	01/29/19	4960.47	22.49	9.84	ND	ND	4950.63
BH08	04/23/19	4960.47	22.46	8.02	ND	ND	4952.45
BH08	07/30/19	4960.47	22.52	9.06	ND	ND	4951.67
BH08	10/25/20	4960.47	22.55	10.23	ND	ND	4950.50
BH10	09/01/16	4964.48	21.98	10.36	ND	ND	4954.12
BH10	11/03/16	4964.48	21.95	10.98	ND	ND	4953.50
BH10	01/24/17	4964.48	22.03	11.37	ND	ND	4953.11
BH10	04/05/17	4964.48	21.98	11.72	ND	ND	4952.76
BH10	07/27/17	4964.48	21.95	11.49	ND	ND	4952.99
BH10	10/30/17	4964.48	21.94	12.06	ND	ND	4952.42
BH10	01/25/18	4964.48	21.98	12.40	ND	ND	4952.08
BH10	04/19/18	4964.48	21.95	12.81	ND	ND	4951.67
BH10	07/19/18	4964.48	21.99	12.51	ND	ND	4951.97
BH10	10/30/18	4964.48	21.95	13.35	ND	ND	4951.13
BH10	01/29/19	4964.48	21.95	13.87	ND	ND	4950.61
BH10	04/23/19	4964.48	21.95	12.20	ND	ND	4952.28
BH10	07/30/19	4964.48	22.08	9.58	ND	ND	4951.72
BH10	10/25/19	4964.47	22.00	10.78	ND	ND	4950.52
BH11	09/01/16	4960.77	16.86	6.73	ND	ND	4954.04
BH11	11/03/16	4960.77	18.32	7.29	ND	ND	4953.48
BH11	01/24/17	4960.77	17.93	7.72	ND	ND	4953.05
BH11	04/05/17	4960.77	17.79	8.04	ND	ND	4952.73
BH11	07/27/17	4960.77	17.69	7.78	ND	ND	4952.99
BH11	10/30/17	4960.77	17.63	8.40	ND	ND	4952.37
BH11	01/25/18	4959.80	15.56	7.80	ND	ND	4952.00
BH11	04/19/18	4959.80	15.85	8.41	ND	ND	4951.39
BH11	07/19/18	4959.80	15.75	8.12	ND	ND	4951.68
BH11	10/30/18	4959.80	16.42	8.82	ND	ND	4950.98

TABLE 1
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NOBLE ENERGY, INC.
FEATHER 31-15



Monitoring Well ID	Date	Top of Casing Elevation (ft. AMSL)	Total Depth (ft. FTOC)	Depth to Water (ft.) ⁽⁴⁾	Depth to LNAPL (ft.) ⁽⁴⁾	LNAPL Thickness (ft.)	Groundwater elevation* (ft. AMSL)
BH11	01/29/19	4959.80	15.40	9.35	ND	ND	4950.45
BH11	04/23/19	4959.80	15.07	7.51	ND	ND	4952.29
BH11	07/30/19	4959.80	14.27	8.07	ND	0	4951.73
BH11	10/25/19	4959.80	15.35	10.42	ND	ND	4949.38
BH12	09/01/16	4960.63	18.90	7.05	ND	ND	4953.58
BH12	11/03/16	4960.63	14.27	8.07	ND	ND	4952.56
BH12	01/24/17	4960.63	18.70	8.15	ND	ND	4952.48
BH12	04/05/17	4960.63	18.84	8.47	ND	ND	4952.16
BH12	07/27/17	4960.63	18.59	8.20	ND	ND	4952.43
BH12	10/30/17	4960.63	18.54	8.83	ND	ND	4951.80
BH12	01/25/18	4960.63	18.55	9.20	ND	ND	4951.43
BH12	04/19/18	4960.63	18.59	9.60	ND	ND	4951.03
BH12	07/19/18	4960.63	18.52	9.35	ND	ND	4951.28
BH12	10/30/18	4960.63	18.49	10.29	ND	ND	4950.34
BH12	01/29/19	4960.63	18.51	10.83	ND	ND	4949.80
BH12	04/23/19	4960.63	18.49	8.89	ND	ND	4951.74
BH12	07/30/19	4960.63	18.46	11.02	ND	ND	4951.74
BH12	10/25/19	4960.62	18.42	11.04	ND	ND	4949.70
BH13	09/01/16	4963.84	21.95	10.92	ND	ND	4952.92
BH13	11/03/16	4963.84	21.62	11.54	ND	ND	4952.30
BH13	01/24/17	4963.84	21.17	11.94	ND	ND	4951.90
BH13	04/05/17	4963.84	21.14	12.23	ND	ND	4951.61
BH13	07/27/17	4963.84	20.99	11.93	ND	ND	4951.91
BH13	10/30/17	4963.84	20.83	12.56	ND	ND ¹	4951.28
BH13	01/25/18	4959.84	16.36	8.87	ND	ND	4950.97
BH13	04/19/18	4959.84	16.29	9.28	ND	ND	4950.56
BH13	07/19/18	4959.84	16.34	8.98	ND	ND	4950.86
BH13	10/30/18	4959.84	16.28	9.85	ND	ND	4949.99
BH13	01/29/19	4959.84	16.22	10.37	ND	ND	4949.47
BH13	04/23/19	4959.84	16.20	8.54	ND	ND	4951.30
BH13	07/30/19	4959.84	16.06	9.66	ND	0	4951.30
BH13	10/25/19	4959.84	16.13	11.46	ND	ND	4951.24
BH14	09/01/16	4960.84	19.50	8.60	ND	ND	4952.24
BH14	11/03/16	4960.84	19.39	9.22	ND	ND	4951.62
BH14	01/24/17	4960.84	19.10	9.57	ND	ND	4951.27
BH14	04/05/17	4960.84	19.02	9.84	ND	ND	4951.00
BH14	07/27/17	4960.84	19.03	9.54	ND	ND	4951.30
BH14	10/30/17	4960.84	18.90	10.10	ND	ND	4950.74
BH14	01/25/18	4960.84	15.83	10.42	ND	ND	4950.42
BH14	04/19/18	4960.84	15.88	10.82	ND	ND	4950.02
BH14	07/19/18	4960.84	15.92	10.48	ND	ND	4950.36

TABLE 1
GROUNDWATER ELEVATION DATA
NOBLE ENERGY, INC.
FEATHER 31-15



Monitoring Well ID	Date	Top of Casing Elevation (ft. AMSL)	Total Depth (ft. FTOC)	Depth to Water (ft.) ⁽⁴⁾	Depth to LNAPL (ft.) ⁽⁴⁾	LNAPL Thickness (ft.)	Groundwater elevation* (ft. AMSL)
BH14	10/30/18	4960.84	15.90	11.38	ND	ND	4949.46
BH14	01/29/19	4960.84	15.93	11.92	ND	ND	4948.92
BH14	04/23/19	4960.84	15.93	10.04	ND	ND	4950.80
BH14	07/30/19	4960.84	15.95	11.08	ND	ND	4950.80
BH14	10/25/19	4960.84	15.96	12.08	ND	ND	4949.94
BH15	09/01/16	4961.83	21.04	10.90	ND	ND	4950.93
BH15	11/03/16	4961.83	22.32	11.39	ND	ND	4950.44
BH15	01/24/17	4961.83	22.32	11.67	ND	ND	4950.16
BH15	04/05/17	4961.83	22.40	11.92	ND	ND	4949.91
BH15	07/27/17	4961.83	22.35	11.57	ND	ND	4950.26
BH15	10/30/17	4961.83	22.36	12.03	ND	ND	4949.80
BH15	01/25/18	4961.83	22.32	12.38	ND	ND	4949.45
BH15	04/19/18	4961.83	22.60	13.06	ND	ND	4948.77
BH15	07/19/18	4961.83	22.27	12.26	ND	ND	4949.57
BH15	10/30/18	4961.83	22.00	13.10	ND	ND	4948.73
BH15	01/29/19	4961.83	22.00	14.45	ND	ND	4947.38
BH15	04/23/19	4961.83	22.07	12.06	ND	ND	4949.77
BH15	07/30/19	4961.83	22.18	9.54	ND	ND	4949.77
BH15	10/25/19	4961.82	Not Measured - Air Sparge Stinger Unable To Be Removed				
BH16	09/01/16	4960.67	19.54	8.85	ND	ND	4951.82
BH16	11/03/16	4960.67	19.50	9.44	ND	ND	4951.23
BH16	01/24/17	4960.67	19.55	9.77	ND	ND	4950.90
BH16	04/05/17	4960.67	19.60	10.04	ND	ND	4950.63
BH16	07/27/17	4960.67	19.49	9.68	ND	ND ¹	4950.99
BH16	10/30/17	4960.67	19.50	10.27	ND	ND	4950.40
BH16	01/25/18	4959.88	18.35	9.74	ND	ND	4950.14
BH16	04/19/18	4959.88	18.14	10.71	ND	ND	4949.17
BH16	07/19/18	4959.88	18.07	9.80	ND	ND	4950.08
BH16	10/30/18	4959.88	18.04	10.65	ND	ND	4949.23
BH16	01/29/19	4959.88	18.02	11.14	ND	ND	4948.74
BH16	04/23/19	4959.88	18.03	9.42	ND	ND	4950.46
BH16	07/30/19	4959.88	18.05	10.79	ND	ND	4950.03
BH16	10/25/19	4959.88	18.01	12.05	ND	ND	4948.77
BH17	09/23/16	4961.27	18.52	8.53	ND	ND	4952.74
BH17	11/03/16	4961.27	18.26	8.97	ND	ND	4952.30
BH17	01/24/17	4961.27	17.72	9.36	ND	ND	4951.91
BH17	04/05/17	4961.27	17.71	9.66	ND	ND	4951.61
BH17	07/27/17	4961.27	17.68	9.40	ND	ND	4951.87
BH17	10/30/17	4961.27	17.55	9.91	ND	ND	4951.36
BH17	01/25/18	4961.27	17.42	10.30	ND	ND	4950.97
BH17	04/19/18	4961.27	17.40	10.67	ND	ND	4950.60

TABLE 1
GROUNDWATER ELEVATION DATA
NOBLE ENERGY, INC.
FEATHER 31-15



Monitoring Well ID	Date	Top of Casing Elevation (ft. AMSL)	Total Depth (ft. FTOC)	Depth to Water (ft.) ⁽⁴⁾	Depth to LNAPL (ft.) ⁽⁴⁾	LNAPL Thickness (ft.)	Groundwater elevation* (ft. AMSL)
BH17	07/19/18	4961.27	17.26	10.19	ND	ND	4951.08
BH17	10/30/18	4961.27	17.27	11.06	ND	ND	4950.21
BH17	01/29/19	4961.27	17.17	11.60	ND	ND	4949.67
BH17	04/23/19	4961.27	17.17	10.04	ND	ND	4951.23
BH17	07/30/19	4961.27	17.15	10.50	ND	ND	4950.90
BH17	10/25/19	4961.27	17.08	10.50	ND	ND	4949.68
BH18	09/23/16	4962.91	21.43	11.30	ND	ND	4951.61
BH18	11/03/16	4962.91	22.26	11.72	ND	ND	4951.19
BH18	01/24/17	4962.91	22.33	12.06	ND	ND	4950.85
BH18	04/05/17	4962.91	22.30	12.34	ND	ND	4950.57
BH18	07/27/17	4962.91	22.18	12.06	ND	ND	4950.85
BH18	10/30/17	4962.91	22.29	12.51	ND	ND	4950.40
BH18	01/25/18	4962.91	22.25	12.85	ND	ND	4950.06
BH18	04/19/18	4962.91	22.21	13.22	ND	ND	4949.69
BH18	07/19/18	4962.91	22.24	12.68	ND	ND	4950.23
BH18	10/30/18	4962.91	22.20	13.49	ND	ND	4949.42
BH18	01/29/19	4962.91	22.20	14.08	ND	ND	4948.83
BH18	04/23/19	4962.91	22.20	12.52	ND	ND	4950.39
BH18	07/30/19	4962.91	22.24	9.34	ND	ND	4953.57
BH18	10/25/19	4962.91	22.06	10.52	ND	ND	4948.90
BH19	09/23/16	4961.23	18.11	9.11	ND	ND	4952.12
BH19	11/03/16	4961.23	18.59	9.53	ND	ND	4951.70
BH19	01/24/17	4961.23	18.58	9.87	ND	ND	4951.36
BH19	04/05/17	4961.23	18.57	10.16	ND	ND	4951.07
BH19	07/27/17	4961.23	18.49	9.82	ND	ND	4951.41
BH19	10/30/17	4961.23	18.46	10.38	ND	ND	4950.85
BH19	01/25/18	4960.28	17.52	9.81	ND	ND	4950.47
BH19	04/19/18	4960.28	17.66	10.17	ND	ND	4950.11
BH19	07/19/18	4960.28	17.75	9.74	ND	ND	4950.54
BH19	10/30/18	4960.28	17.73	10.68	ND	ND	4949.60
BH19	01/29/19	4960.28	17.59	11.23	ND	ND	4949.05
BH19	04/23/19	4960.28	17.54	9.45	ND	ND	4950.83
BH19 ³	07/30/19	4960.28	Obstruction in Well - Unable to Measure Groundwater Elevation				
BH19	10/25/19	4960.28	14.20	12.46	ND	ND	4949.08
BH20	09/23/16	4959.06	19.43	8.72	ND	ND	4950.34
BH20	11/03/16	4959.06	19.34	9.05	ND	ND	4950.01
BH20	01/24/17	4959.06	19.14	9.29	ND	ND	4949.77
BH20	04/05/17	4959.06	19.05	9.52	ND	ND	4949.54
BH20	07/27/17	4959.06	19.06	9.13	ND	ND	4949.93
BH20	10/30/17	4959.06	18.91	9.62	ND	ND	4949.44
BH20	01/25/18	4959.06	18.90	9.90	ND	ND	4949.16

TABLE 1
GROUNDWATER ELEVATION DATA
NOBLE ENERGY, INC.
FEATHER 31-15



Monitoring Well ID	Date	Top of Casing Elevation (ft. AMSL)	Total Depth (ft. FTOC)	Depth to Water (ft.) ⁽⁴⁾	Depth to LNAPL (ft.) ⁽⁴⁾	LNAPL Thickness (ft.)	Groundwater elevation* (ft. AMSL)
BH20	04/19/18	4959.06	18.95	10.27	ND	ND	4948.79
BH20	07/19/18	4959.06	18.84	9.90	ND	ND	4949.16
BH20	10/30/18	4959.06	18.85	10.79	ND	ND	4948.27
BH20	01/29/19	4959.06	18.73	11.32	ND	ND	4947.74
BH20	04/23/19	4959.06	18.75	9.50	ND	ND	4949.56
BH20	07/30/19	4959.06	18.81	10.20	ND	ND	4949.05
BH20	10/25/19	4959.05	18.80	11.49	ND	ND	4947.76
BH21	09/23/16	4960.89	21.22	14.49	ND	ND	4946.40
BH21	11/03/16	4960.89	21.22	12.18	ND	ND	4948.71
BH21	01/24/17	4960.89	21.20	12.27	ND	ND	4948.62
BH21	04/05/17	4960.89	21.30	12.57	ND	ND	4948.32
BH21 ²	07/27/17	Well Damaged - Elevation Control Lost			ND	ND	NM
BH21	10/30/17	4960.90	21.24	12.59	ND	ND	4948.31
BH21	01/25/18	4960.90	21.40	12.96	ND	ND	4947.94
BH21	04/19/18	4960.90	21.24	13.23	ND	ND	4947.67
BH21	07/19/18	4960.90	21.22	12.81	ND	ND	4948.09
BH21	10/30/18	4960.90	21.24	13.56	ND	ND	4947.34
BH21	01/29/19	4960.90	21.23	14.11	ND	ND	4946.79
BH21	04/23/19	4960.90	21.23	12.62	ND	ND	4948.28
BH21	07/30/19	4960.90	21.24	9.83	ND	ND	4947.99
BH21	10/25/19	4960.90	21.29	10.95	ND	ND	4946.87
BH22	09/23/16	4961.11	20.94	11.49	ND	ND	4949.62
BH22	11/03/16	4961.11	20.90	11.79	ND	ND	4949.32
BH22	01/24/17	4961.11	20.70	11.94	ND	ND	4949.17
BH22	04/05/17	4961.11	20.80	12.20	ND	ND	4948.91
BH22 ²	07/27/17	Well Damaged - Elevation Control Lost			ND	ND	NM
BH22 ¹	10/30/17	4961.11	20.51	12.29	ND	ND	4948.82
BH22	01/25/18	4961.11	20.85	12.54	ND	ND	4948.57
BH22	04/19/18	4961.11	20.56	13.07	ND	ND	4948.04
BH22	07/19/18	4961.11	20.51	12.45	ND	ND	4948.66
BH22	10/30/18	4961.11	20.49	13.12	ND	ND	4947.99
BH22	01/29/19	4961.11	20.46	13.64	ND	ND	4947.47
BH22	04/23/19	4961.11	20.45	12.19	ND	ND	4948.92
BH22	07/30/19	4961.11	20.50	9.17	ND	ND	4948.68
BH22	10/25/19	4961.11	20.30	10.28	ND	ND	4947.57
BH23	09/23/16	4960.67	22.71	11.91	ND	ND	4948.76
BH23	11/03/16	4960.67	22.68	12.21	ND	ND	4948.46
BH23	01/24/17	4960.67	22.50	12.29	ND	ND	4948.38
BH23	04/05/17	4960.67	22.57	12.58	ND	ND	4948.09
BH23 ²	07/27/17	Well Damaged - Elevation Control Lost			ND	ND	NM
BH23	07/27/17	Broken Casing - Monitoring Well Destroyed					

TABLE 1
GROUNDWATER ELEVATION DATA
NOBLE ENERGY, INC.
FEATHER 31-15



Monitoring Well ID	Date	Top of Casing Elevation (ft. AMSL)	Total Depth (ft. FTOC)	Depth to Water (ft.) ⁽⁴⁾	Depth to LNAPL (ft.) ⁽⁴⁾	LNAPL Thickness (ft.)	Groundwater elevation* (ft. AMSL)
BH23R	10/30/17	4960.74	22.91	12.65	ND	ND	4948.09
BH23R	01/25/18	Well Damaged - Elevation Control Lost					
BH23R	04/19/18	Well Obstructed, Converted to Dedicated Air Sparge Well					
BH23R2	04/19/18	4960.72	22.59	13.08	ND	ND	4947.64
BH23R2	07/19/18	4960.72	22.63	12.65	ND	ND	4948.07
BH23R2	10/30/18	4960.72	22.60	13.24	ND	ND	4947.48
BH23R2	01/29/19	4960.72	22.60	13.83	ND	ND	4946.89
BH23R2	04/23/19	4960.72	22.59	12.46	ND	ND	4948.26
BH23R2	07/30/19	4960.72	22.60	8.45	ND	ND	4949.09
BH23R2	10/25/19	4960.72	22.62	10.50	ND	ND	4947.04
BH24	09/23/16	4960.30	21.75	11.63	ND	ND	4948.67
BH24	11/03/16	4960.30	22.38	11.87	ND	ND	4948.43
BH24	01/24/17	4960.30	22.70	11.95	ND	ND	4948.35
BH24	04/05/17	4960.30	22.82	12.22	ND	ND	4948.08
BH24	07/27/17	4960.30	22.75	11.91	ND	ND	4948.39
BH24	10/30/17	4960.30	22.77	12.23	ND	ND	4948.07
BH24	01/25/18	4960.30	22.95	12.59	ND	ND	4947.71
BH24	04/19/18	4960.30	23.25	13.15	ND	ND	4947.15
BH24	07/19/18	4960.30	22.97	12.44	ND	ND	4947.86
BH24	10/30/18	4960.30	23.14	13.13	ND	ND	4947.17
BH24	01/29/19	4960.30	23.13	13.66	ND	ND	4946.64
BH24	04/23/19	4960.30	23.13	12.34	ND	ND	4947.96
BH24	07/30/19	4960.30	14.00	9.69	ND	ND	4947.96
BH24	10/25/19	4960.29	Not Measured - Obstruction				
BH25	09/23/16	4960.28	22.91	11.98	ND	ND	4948.30
BH25	11/03/16	4960.28	22.91	12.23	ND	ND	4948.05
BH25	01/24/17	4960.28	22.88	12.36	ND	ND	4947.92
BH25	04/05/17	4960.28	22.94	12.63	ND	ND	4947.65
BH25 ²	07/27/17	Well Damaged - Elevation Control Lost				ND	NM
BH25	07/27/17	Broken Casing - Monitoring Well Destroyed					
BH25R	10/30/17	4960.31	22.87	16.03	ND	ND	4944.28
BH25R	01/25/18	4960.31	23.04	12.92	ND	ND	4947.39
BH25R	04/19/18	4960.31	22.87	13.24	ND	ND	4947.07
BH25R	07/19/18	4960.31	22.91	12.89	ND	ND	4947.42
BH25R	10/30/18	4960.31	22.97	13.50	ND	ND	4946.81
BH25R	01/29/19	4960.31	23.00	14.14	ND	ND	4946.17
BH25R	04/23/19	4960.31	22.98	12.85	ND	ND	4947.46
BH25R	07/30/19	4960.31	17.21	9.90	ND	ND	4947.39
BH25R	10/25/19	4960.31	Not Measured - Obstruction				
BH26	09/23/16	4959.46	22.85	12.76	ND	ND	4946.70
BH26	11/03/16	4959.46	22.60	12.96	ND	ND	4946.50

TABLE 1
GROUNDWATER ELEVATION DATA
NOBLE ENERGY, INC.
FEATHER 31-15



Monitoring Well ID	Date	Top of Casing Elevation (ft. AMSL)	Total Depth (ft. FTOC)	Depth to Water (ft.) ⁽⁴⁾	Depth to LNAPL (ft.) ⁽⁴⁾	LNAPL Thickness (ft.)	Groundwater elevation* (ft. AMSL)
BH26	01/24/17	4959.46	22.51	12.89	ND	ND	4946.57
BH26	04/05/17	4959.46	22.60	13.07	ND	ND	4946.39
BH26	07/27/17	4959.46	22.51	12.72	ND	ND	4946.74
BH26	10/30/17	4959.46	22.50	13.01	ND	ND	4946.45
BH26	01/25/18	4959.46	22.42	13.18	ND	ND	4946.28
BH26	04/19/18	4959.46	22.38	15.10	ND	ND	4944.36
BH26	07/19/18	4959.46	22.28	13.15	ND	ND	4946.31
BH26	10/30/18	4959.46	22.25	13.58	ND	ND	4945.88
BH26	01/29/19	4959.46	22.22	14.09	ND	ND	4945.37
BH26	04/23/19	4959.46	22.20	13.03	ND	ND	4946.43
BH26	07/30/19	4959.46	22.22	9.90	ND	ND	4946.39
BH26	10/25/19	4959.45	22.23	10.76	ND	ND	4945.53
BH27	09/23/16	4958.65	22.47	13.43	ND	ND	4945.22
BH27	11/03/16	4958.65	22.38	13.59	ND	ND	4945.06
BH27	01/24/17	4958.65	22.32	13.53	ND	ND	4945.12
BH27	04/05/17	4958.65	22.44	13.72	ND	ND	4944.93
BH27 ²	07/27/17	Well Damaged - Elevation Control Lost			ND	ND	NM
BH27	10/30/17	4958.64	22.37	13.51	ND	ND	4945.13
BH27	01/25/18	4958.64	22.52	13.80	ND	ND	4944.84
BH27	04/19/18	4958.64	22.37	14.05	ND	ND	4944.59
BH27	07/19/18	4958.64	22.41	13.84	ND	ND	4944.80
BH27	10/30/18	4958.64	22.40	14.16	ND	ND	4944.48
BH27	01/29/19	4958.64	22.40	14.79	ND	ND	4943.85
BH27	04/23/19	4958.64	22.37	13.86	ND	ND	4944.78
BH27	07/30/19	4958.64	22.44	10.62	ND	ND	4944.89
BH27	10/25/19	4958.64	22.39	11.42	ND	ND	4944.09
BH28	09/23/16	4957.57	22.68	14.01	ND	ND	4943.56
BH28	11/03/16	4957.57	22.56	14.05	ND	ND	4943.52
BH28	01/24/17	4957.57	22.38	13.91	ND	ND	4943.66
BH28	04/05/17	4957.57	22.46	14.01	ND	ND	4943.56
BH28 ²	07/27/17	Well Damaged - Elevation Control Lost			ND	ND	NM
BH28	07/27/17	Broken Casing - Monitoring Well Destroyed					
BH28R	10/30/17	4957.35	22.51	17.64	ND	ND	4939.71
BH28R	01/25/18	4957.35	22.59	13.61	ND	ND	4943.74
BH28R	04/19/18	4957.35	22.51	13.86	ND	ND	4943.49
BH28R	07/19/18	4957.35	22.56	13.69	ND	ND	4943.66
BH28R	10/30/18	4957.35	22.53	13.85	ND	ND	4943.50
BH28R	01/29/19	4957.35	22.53	14.48	ND	ND	4942.87
BH28R	04/23/19	4957.35	27.52	13.73	ND	ND	4943.62
BH28R	07/30/19	4957.35	22.58	10.90	ND	ND	4943.54
BH28R	10/25/19	4957.35	22.51	11.32	ND	ND	4943.12

TABLE 1
GROUNDWATER ELEVATION DATA
NOBLE ENERGY, INC.
FEATHER 31-15



Monitoring Well ID	Date	Top of Casing Elevation (ft. AMSL)	Total Depth (ft. FTOC)	Depth to Water (ft.) ⁽⁴⁾	Depth to LNAPL (ft.) ⁽⁴⁾	LNAPL Thickness (ft.)	Groundwater elevation* (ft. AMSL)
BH29	09/23/16	4958.73	21.53	13.07	ND	ND	4945.66
BH29	11/03/16	4958.73	21.86	13.30	ND	ND	4945.43
BH29	01/24/17	4958.73	21.93	13.26	ND	ND	4945.47
BH29	04/05/17	4958.73	21.92	13.45	ND	ND	4945.28
BH29 ²	07/27/17	Well Damaged - Elevation Control Lost			ND	ND	NM
BH29	10/30/17	4958.73	22.05	13.32	ND	ND	4945.41
BH29	01/25/18	4958.73	22.10	13.50	ND	ND	4945.23
BH29	04/19/18	4958.73	22.06	13.83	ND	ND	4944.90
BH29	07/19/18	4958.73	22.13	13.59	ND	ND	4945.14
BH29	10/30/18	4958.73	22.10	13.98	ND	ND	4944.75
BH29	01/29/19	4958.73	22.10	14.59	ND	ND	4944.14
BH29	04/23/19	4958.73	22.13	13.54	ND	ND	4945.19
BH29	07/30/19	4958.73	22.21	10.48	ND	ND	4945.17
BH29	10/25/19	4958.73	22.22	11.32	ND	ND	4944.33
BH30	11/03/16	4957.11	22.22	13.75	ND	ND	4943.36
BH30	01/24/17	4957.11	22.16	13.62	ND	ND	4943.49
BH30	04/05/17	4957.11	22.27	13.71	ND	ND	4943.40
BH30 ²	07/27/17	Well Damaged - Elevation Control Lost			ND	ND	NM
BH30	07/27/17	Broken Casing - Monitoring Well Destroyed					
BH30R	10/30/17	4957.80	26.58	19.18	ND	ND	4938.62
BH30R	01/25/18	4957.80	26.76	14.30	ND	ND	4943.50
BH30R	04/19/18	4957.80	26.59	14.45	ND	ND	4943.35
BH30R	07/19/18	4957.80	26.62	14.24	ND	ND	4943.56
BH30R	10/30/18	4957.80	25.98	15.03	ND	ND	4942.77
BH30R	01/29/19	4957.80	25.92	13.38	ND	ND	4944.42
BH30R	04/23/19	4957.80	25.96	14.40	ND	ND	4943.40
BH30R	07/30/19	4957.80	25.97	11.11	ND	ND	4943.68
BH30R	10/25/19	4957.80	25.90	11.62	ND	ND	4943.17
BH31	11/03/16	4958.22	20.43	13.14	ND	ND	4945.08
BH31	01/24/17	4958.22	20.35	13.09	ND	ND	4945.13
BH31	04/05/17	4958.22	24.20	13.25	ND	ND	4944.97
BH31 ²	07/27/17	Well Damaged - Elevation Control Lost			ND	ND	NM
BH31	10/30/17	4958.23	20.50	13.08	ND	ND	4945.15
BH31	01/25/18	4958.23	20.75	13.36	ND	ND	4944.87
BH31	04/19/18	4958.23	26.00	13.56	ND	ND	4944.67
BH31	07/19/18	4958.23	20.40	13.26	ND	ND	4944.97
BH31	10/30/18	4958.23	19.85	13.49	ND	ND	4944.74
BH31	01/29/19	4958.23	19.96	14.12	ND	ND	4944.11
BH31	04/23/19	4958.23	19.92	13.21	ND	ND	4945.02
BH31	07/30/19	4958.23	20.17	10.41	ND	ND	4945.08
BH31	10/25/19	4958.23	19.84	11.08	ND	ND	4944.41

TABLE 1
GROUNDWATER ELEVATION DATA
NOBLE ENERGY, INC.
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Monitoring Well ID	Date	Top of Casing Elevation (ft. AMSL)	Total Depth (ft. FTOC)	Depth to Water (ft.) ⁽⁴⁾	Depth to LNAPL (ft.) ⁽⁴⁾	LNAPL Thickness (ft.)	Groundwater elevation* (ft. AMSL)
BH32	11/03/16	4959.15	22.97	13.61	ND	ND	4945.54
BH32	01/24/17	4959.15	22.98	13.61	ND	ND	4945.54
BH32	04/05/17	4959.15	23.05	13.82	ND	ND	4945.33
BH32 ²	07/27/17	Well Damaged - Elevation Control Lost			ND	ND	NM
BH32	10/30/17	4959.15	23.02	14.77	ND	ND	4944.38
BH32	01/25/18	4959.15	23.05	13.89	ND	ND	4945.26
BH32	04/19/18	4959.15	18.02	14.22	ND	ND	4944.93
BH32	07/19/18	4959.15	23.09	13.94	ND	ND	4945.21
BH32	10/30/18	4959.15	23.05	14.12	ND	ND	4945.03
BH32	01/29/19	4959.15	23.05	14.74	ND	ND	4944.41
BH32	04/23/19	4959.15	23.04	13.90	ND	ND	4945.25
BH32	07/30/19	4959.15	23.09	10.25	ND	ND	4945.42
BH32	10/25/19	4959.15	23.03	10.93	ND	ND	4944.74
BH33	11/03/16	4956.82	22.78	14.91	ND	ND	4941.91
BH33	01/24/17	4956.82	22.71	14.66	ND	ND	4942.16
BH33	04/05/17	4956.82	22.83	14.76	ND	ND	4942.06
BH33 ²	07/27/17	Well Damaged - Elevation Control Lost			ND	ND	NM
BH33	10/30/17	4956.84	22.69	14.38	ND	ND	4942.46
BH33	01/25/18	4956.84	22.65	14.40	ND	ND	4942.44
BH33	04/19/18	4956.84	22.26	15.46	ND	ND	4941.38
BH33	07/19/18	4956.84	22.13	14.44	ND	ND	4942.40
BH33	10/30/18	4956.84	22.04	14.53	ND	ND	4942.31
BH33	01/29/19	4956.84	22.07	15.07	ND	ND	4941.77
BH33	04/23/19	4956.84	22.03	14.42	ND	ND	4942.42
BH33	07/30/19	4956.84	22.18	16.38	ND	ND	4937.47
BH33	10/25/19	4956.64	21.83	11.76	ND	ND	4942.09
BH34	11/03/16	4957.08	21.84	19.37	ND	ND	4937.71
BH34	01/24/17	4957.08	21.82	13.08	ND	ND	4944.00
BH34	04/05/17	4957.08	21.88	13.22	ND	ND	4943.86
BH34 ²	07/27/17	Well Damaged - Elevation Control Lost			ND	ND	NM
BH34	10/30/17	4958.32	23.09	14.19	ND	ND	4944.13
BH34	01/25/18	4958.32	23.16	14.41	ND	ND	4943.91
BH34	04/19/18	4958.32	23.09	14.62	ND	ND	4943.70
BH34	07/19/18	4958.32	23.13	14.48	ND	ND	4943.84
BH34	10/30/18	4958.32	23.09	14.51	ND	ND	4943.81
BH34	01/29/19	4958.32	23.09	15.13	ND	ND	4943.19
BH34	04/23/19	4958.32	23.09	14.41	ND	ND	4943.91
BH34	07/30/19	4958.32	23.14	10.74	ND	ND	4944.07
BH34	10/25/19	4958.32	23.09	11.31	ND	ND	4943.50
BH35	11/03/16	4957.41	22.52	17.90	ND	ND	4939.51
BH35	01/24/17	4957.41	22.49	15.03	ND	ND	4942.38

TABLE 1
GROUNDWATER ELEVATION DATA
NOBLE ENERGY, INC.
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Monitoring Well ID	Date	Top of Casing Elevation (ft. AMSL)	Total Depth (ft. FTOC)	Depth to Water (ft.) ⁽⁴⁾	Depth to LNAPL (ft.) ⁽⁴⁾	LNAPL Thickness (ft.)	Groundwater elevation* (ft. AMSL)
BH35	04/05/17	4957.41	17.56	15.17	ND	ND	4942.24
BH35	07/27/17	4957.41	22.51	14.74	ND	ND	4942.67
BH35	10/30/17	4957.41	22.52	14.79	ND	ND	4942.62
BH35	01/25/18	4957.41	22.59	14.90	ND	ND	4942.51
BH35	04/19/18	4957.41	22.51	15.13	ND	ND	4942.28
BH35	07/19/18	4957.41	22.57	14.99	ND	ND	4942.42
BH35	10/30/18	4957.41	22.53	14.98	ND	ND	4942.43
BH35	01/29/19	4957.41	22.52	15.58	ND	ND	4941.83
BH35	04/23/19	4957.41	22.52	14.92	ND	ND	4942.49
BH35	07/30/19	4957.41	22.50	11.51	ND	ND	4942.72
BH35	10/25/19	4957.40	22.52	12.04	ND	ND	4942.19
BH36	11/03/16	4955.19	22.02	14.64	ND	ND	4940.55
BH36	01/24/17	4955.19	21.96	14.34	ND	ND	4940.85
BH36	04/05/17	4955.19	22.06	14.36	ND	ND	4940.83
BH36 ²	07/27/17	Well Damaged - Elevation Control Lost			ND	ND	NM
BH36	07/27/17	Broken Casing - Monitoring Well Destroyed					
BH36R	10/30/17	4955.91	26.68	14.61	ND	ND	4941.30
BH36R	01/25/18	4955.91	26.69	14.71	ND	ND	4941.20
BH36R	04/19/18	4955.91	26.79	15.29	ND	ND	4940.62
BH36R	07/19/18	4955.91	26.02	14.64	ND	ND	4941.27
BH36R	10/30/18	4955.91	25.45	14.75	ND	ND	4941.16
BH36R	01/29/19	4955.91	25.43	15.10	ND	ND	4940.81
BH36R	04/23/19	4955.91	25.45	14.54	ND	ND	4941.37
BH36R	07/30/19	4955.91	25.61	11.24	ND	ND	4941.51
BH36R	10/25/19	4955.91	25.61	11.57	ND	ND	4941.18
BH37	11/03/16	4954.95	22.13	15.97	ND	ND	4938.98
BH37	01/24/17	4954.95	22.14	15.56	ND	ND	4939.39
BH37	04/05/17	4954.95	22.17	15.61	ND	ND	4939.34
BH37 ²	07/27/17	Well Damaged - Elevation Control Lost			ND	ND	NM
BH37	10/30/17	4954.98	22.29	15.15	ND	ND	4939.83
BH37	01/25/18	4954.98	22.27	15.06	ND	ND	4939.92
BH37	04/19/18	4954.98	22.06	17.02	ND	ND	4937.96
BH37	07/19/18	4954.98	22.03	15.11	ND	ND	4939.87
BH37	10/30/18	4954.98	22.00	15.00	ND	ND	4939.98
BH37	01/29/19	4954.98	22.02	15.41	ND	ND	4939.57
BH37	04/23/19	4954.98	22.02	14.97	ND	ND	4940.01
BH37	07/30/19	4954.98	22.09	12.10	ND	ND	4940.36
BH37	10/25/19	4954.98	22.05	12.46	ND	ND	4940.00
BH38	11/03/16	4955.15	22.05	15.13	ND	ND	4940.02
BH38	01/24/17	4955.15	22.02	14.80	ND	ND	4940.35
BH38	04/05/17	4955.15	22.07	14.84	ND	ND	4940.31

TABLE 1
GROUNDWATER ELEVATION DATA
NOBLE ENERGY, INC.
FEATHER 31-15



Monitoring Well ID	Date	Top of Casing Elevation (ft. AMSL)	Total Depth (ft. FTOC)	Depth to Water (ft.) ⁽⁴⁾	Depth to LNAPL (ft.) ⁽⁴⁾	LNAPL Thickness (ft.)	Groundwater elevation* (ft. AMSL)
BH38 ²	07/27/17	Well Damaged - Elevation Control Lost			ND	ND	NM
BH38	07/27/17	Broken Casing - Monitoring Well Destroyed					
BH38R	10/30/17	4955.69	26.66	14.86	ND	ND	4940.83
BH38R	01/25/18	4955.69	26.69	14.83	ND	ND	4940.86
BH38R	04/19/18	4955.69	26.69	15.06	ND	ND	4940.63
BH38R	07/19/18	4955.69	26.69	14.92	ND	ND	4940.77
BH38R	10/30/18	4955.69	26.64	14.86	ND	ND	4940.83
BH38R	01/29/19	4955.69	26.63	15.37	ND	ND	4940.32
BH38R	04/23/19	4955.69	26.66	14.86	ND	ND	4940.83
BH38R	07/30/19	4955.69	26.72	11.58	ND	ND	4941.10
BH38R	10/25/19	4955.69	26.65	11.97	ND	ND	4940.71
BH39	11/03/16	4955.83	22.46	14.25	ND	ND	4941.58
BH39	01/24/17	4955.83	22.42	13.98	ND	ND	4941.85
BH39	04/05/17	4955.83	22.49	14.06	ND	ND	4941.77
BH39 ²	07/27/17	Well Damaged - Elevation Control Lost			ND	ND	NM
BH39	10/30/17	4955.85	22.41	13.70	ND	ND	4942.15
BH39	01/25/18	4955.85	22.42	13.71	ND	ND	4942.14
BH39	04/19/18	4955.85	22.23	13.96	ND	ND	4941.89
BH39	07/19/18	4955.85	22.20	13.79	ND	ND	4942.06
BH39	10/30/18	4955.85	22.19	13.86	ND	ND	4941.99
BH39	01/29/19	4955.85	22.19	14.36	ND	ND	4941.49
BH39	04/23/19	4955.85	22.19	13.74	ND	ND	4942.11
BH39	07/30/19	4955.85	22.23	10.69	ND	ND	4942.30
BH39	10/25/19	4955.85	22.17	11.19	ND	ND	4941.80
BH40	11/03/16	4960.60	21.72	11.08	ND	ND	4949.52
BH40	01/24/17	4960.60	21.43	11.24	ND	ND	4949.36
BH40	04/05/17	4960.60	21.31	11.56	ND	ND	4949.04
BH40 ²	07/27/17	Well Damaged - Elevation Control Lost			ND	ND	NM
BH40	07/27/17	Broken Casing - Monitoring Well Destroyed					
BH40R	10/30/17	4961.06	22.73	12.09	ND	ND	4948.97
BH40R	01/25/18	4961.06	22.40	12.37	ND	ND	4948.69
BH40R	04/19/18	4961.06	22.26	12.70	ND	ND	4948.36
BH40R	07/19/18	4961.06	22.12	12.24	ND	ND	4948.82
BH40R	10/30/18	4961.06	22.13	12.84	ND	ND	4948.22
BH40R	01/29/19	4961.06	21.17	13.42	ND	ND	4947.64
BH40R	04/23/19	4961.06	22.15	12.00	ND	ND	4949.06
BH40R	07/30/19	4961.06	22.13	9.06	ND	ND	4948.88
BH40R	10/25/19	4961.06	22.07	10.10	ND	ND	4947.84
BH41	11/03/16	4959.08	21.13	11.14	ND	ND	4947.94
BH41	01/24/17	4959.08	20.94	11.27	ND	ND	4947.81
BH41	04/05/17	4959.08	20.92	11.52	ND	ND	4947.56

TABLE 1
GROUNDWATER ELEVATION DATA
NOBLE ENERGY, INC.
FEATHER 31-15



Monitoring Well ID	Date	Top of Casing Elevation (ft. AMSL)	Total Depth (ft. FTOC)	Depth to Water (ft.) ⁽⁴⁾	Depth to LNAPL (ft.) ⁽⁴⁾	LNAPL Thickness (ft.)	Groundwater elevation* (ft. AMSL)
BH41 ²	07/27/17	Well Damaged - Elevation Control Lost			ND	ND	NM
BH41	07/27/17	Broken Casing - Monitoring Well Destroyed					
BH41R	10/30/17	4959.22	21.59	11.66	ND	ND	4947.56
BH41R	01/25/18	4959.22	21.65	12.00	ND	ND	4947.22
BH41R	04/19/18	4959.22	21.65	12.28	ND	ND	4946.94
BH41R	07/19/18	4959.22	21.64	11.89	ND	ND	4947.33
BH41R	10/30/18	4959.22	21.61	12.36	ND	ND	4946.86
BH41R	01/29/19	4959.22	21.62	12.92	ND	ND	4946.30
BH41R	04/23/19	4959.22	21.63	11.78	ND	ND	4947.44
BH41R	07/30/19	4959.22	21.70	9.51	ND	ND	4947.44
BH41R	10/25/19	4959.22	21.62	10.43	ND	ND	4946.52
BH42	11/03/16	4959.24	22.18	12.44	ND	ND	4946.80
BH42	01/24/17	4959.24	22.07	12.25	ND	ND	4946.99
BH42	04/05/17	4959.24	22.17	12.50	ND	ND	4946.74
BH42 ²	07/27/17	Well Damaged - Elevation Control Lost			ND	ND	NM
BH42	07/27/17	Broken Casing - Monitoring Well Destroyed					
BH42R	10/30/17	4959.01	22.03	20.57	ND	ND	4938.44
BH42R	01/25/18	4959.01	22.10	12.48	ND	ND	4946.53
BH42R	04/19/18	4959.01	22.10	12.80	ND	ND	4946.21
BH42R	07/19/18	4959.01	22.08	12.54	ND	ND	4946.47
BH42R	10/30/18	4959.01	22.04	13.05	ND	ND	4945.96
BH42R	01/29/19	4959.01	22.04	13.69	ND	ND	4945.32
BH42R	04/23/19	4959.01	22.04	12.33	ND	ND	4946.68
BH42R	07/30/19	4959.01	22.10	10.17	ND	ND	4946.44
BH42R	10/25/19	4959.01	22.03	11.12	ND	ND	4945.49
BH43	11/03/16	4959.74	21.72	11.53	ND	ND	4948.21
BH43	01/24/17	4959.74	21.26	11.64	ND	ND	4948.10
BH43	04/05/17	4959.74	21.10	11.82	ND	ND	4947.92
BH43 ²	07/27/17	Well Damaged - Elevation Control Lost			ND	ND	NM
BH43	07/27/17	Broken Casing - Monitoring Well Destroyed					
BH43R	10/30/17	4960.58	22.53	20.23	ND	ND	4940.35
BH43R	01/25/18	4960.58	22.60	13.00	ND	ND	4947.58
BH43R	04/19/18	4960.58	22.61	13.30	ND	ND	4947.28
BH43R	07/19/18	4960.58	22.58	12.98	ND	ND	4947.60
BH43R	10/30/18	4960.58	22.55	14.64	ND	ND	4945.94
BH43R	01/29/19	4960.58	22.55	14.24	ND	ND	4946.34
BH43R	04/23/19	4960.58	22.55	12.79	ND	ND	4947.79
BH43R	07/30/19	4960.58	22.82	10.01	ND	ND	4947.48
BH43R	10/25/19	4960.58	22.53	11.04	ND	ND	4946.45
BH44	11/03/16	4955.00	21.68	17.75	ND	ND	4937.25
BH44	01/24/17	4955.00	21.64	17.29	ND	ND	4937.71

TABLE 1
GROUNDWATER ELEVATION DATA
NOBLE ENERGY, INC.
FEATHER 31-15



Monitoring Well ID	Date	Top of Casing Elevation (ft. AMSL)	Total Depth (ft. FTOC)	Depth to Water (ft.) ⁽⁴⁾	Depth to LNAPL (ft.) ⁽⁴⁾	LNAPL Thickness (ft.)	Groundwater elevation* (ft. AMSL)
BH44	04/05/17	4955.00	21.71	17.24	ND	ND	4937.76
BH44 ²	07/27/17	Well Damaged - Elevation Control Lost			ND	ND	NM
BH44	10/30/17	4955.00	21.67	16.70	ND	ND	4938.30
BH44	01/25/18	4955.00	21.90	16.72	ND	ND	4938.28
BH44	04/19/18	4955.00	21.95	16.85	ND	ND	4938.15
BH44	07/19/18	4955.00	21.91	16.82	ND	ND	4938.18
BH44	10/30/18	4955.00	21.95	16.64	ND	ND	4938.36
BH44	01/29/19	4955.00	21.97	16.92	ND	ND	4938.08
BH44	04/23/19	4955.00	22.01	16.61	ND	ND	4938.39
BH44	07/30/19	4955.00	Not Measured - Obstruction				
BH44	10/25/19	4955.00	Not Measured - Obstruction				
BH45	11/03/16	4954.87	22.21	21.08	ND	ND	4933.79
BH45	01/24/17	4954.87	22.19	17.14	ND	ND	4937.73
BH45	04/05/17	4954.87	22.25	17.06	ND	ND	4937.81
BH45 ²	07/27/17	Well Damaged - Elevation Control Lost			ND	ND	NM
BH45	10/30/17	4954.89	22.23	16.49	ND	ND	4938.40
BH45	01/25/18	4954.89	22.30	16.50	ND	ND	4938.39
BH45	04/19/18	4954.89	22.35	16.55	ND	ND	4938.34
BH45	07/19/18	4954.89	22.27	16.51	ND	ND	4938.38
BH45	10/30/18	4954.89	22.23	16.20	ND	ND	4938.69
BH45	01/29/19	4954.89	22.25	16.60	ND	ND	4938.29
BH45	04/23/19	4954.89	22.23	16.33	ND	ND	4938.56
BH45	07/30/19	4954.89	22.29	12.92	ND	ND	4939.03
BH45	10/25/19	4954.89	22.23	13.13	ND	ND	4938.82
BH46	01/24/17	4955.31	22.25	15.64	ND	ND	4939.67
BH46	04/05/17	4955.31	22.30	15.64	ND	ND	4939.67
BH46 ²	07/27/17	Well Damaged - Elevation Control Lost			ND	ND	NM
BH46	10/30/17	4955.32	22.27	15.24	ND	ND	4940.08
BH46	01/25/18	4955.32	22.34	15.23	ND	ND	4940.09
BH46	04/19/18	4955.32	22.38	15.42	ND	ND	4939.90
BH46	07/19/18	4955.32	22.30	15.29	ND	ND	4940.03
BH46	10/30/18	4955.32	22.27	15.11	ND	ND	4940.21
BH46	01/29/19	4955.32	22.28	15.59	ND	ND	4939.73
BH46	04/23/19	4955.32	22.31	15.14	ND	ND	4940.18
BH46	07/30/19	4955.32	22.36	12.12	ND	ND	4940.57
BH46	10/25/19	4955.32	22.30	11.50	ND	ND	4941.19
BH47	01/24/17	4954.60	22.25	18.91	ND	ND	4935.69
BH47	04/05/17	4954.60	22.31	18.51	ND	ND	4936.09
BH47 ²	07/27/17	Well Damaged - Elevation Control Lost			ND	ND	NM
BH47	10/30/17	4954.63	22.31	17.90	ND	ND	4936.73
BH47	01/25/18	4954.63	22.39	17.85	ND	ND	4936.78

TABLE 1
GROUNDWATER ELEVATION DATA
NOBLE ENERGY, INC.
FEATHER 31-15



Monitoring Well ID	Date	Top of Casing Elevation (ft. AMSL)	Total Depth (ft. FTOC)	Depth to Water (ft.) ⁽⁴⁾	Depth to LNAPL (ft.) ⁽⁴⁾	LNAPL Thickness (ft.)	Groundwater elevation* (ft. AMSL)
BH47	04/19/18	4954.63	22.40	17.86	ND	ND	4936.77
BH47	07/19/18	4954.63	22.35	17.79	ND	ND	4936.84
BH47	10/30/18	4954.63	22.32	17.48	ND	ND	4937.15
BH47	01/29/19	4954.63	22.32	17.78	ND	ND	4936.85
BH47	04/23/19	4954.63	22.32	17.57	ND	ND	4937.06
BH47	07/30/19	4954.63	22.32	14.31	ND	ND	4937.56
BH47	10/25/19	4954.63	22.31	14.46	ND	ND	4937.41
BH48	01/24/17	4954.71	22.30	18.58	ND	ND	4936.13
BH48	04/05/17	4954.71	22.36	18.54	ND	ND	4936.17
BH48 ²	07/27/17	Well Damaged - Elevation Control Lost			ND	ND	NM
BH48	10/30/17	4954.72	22.35	17.97	ND	ND	4936.75
BH48	01/25/18	4954.72	22.42	17.86	ND	ND	4936.86
BH48	04/19/18	4954.72	22.43	18.87	ND	ND	4935.85
BH48	07/19/18	4954.72	22.34	17.79	ND	ND	4936.93
BH48	10/30/18	4954.72	22.34	17.57	ND	ND	4937.15
BH48	01/29/19	4954.72	22.35	17.79	ND	ND	4936.93
BH48	04/23/19	4954.72	22.35	17.60	ND	ND	4937.12
BH48	07/30/19	4954.72	22.37	14.54	ND	ND	4937.56
BH48	10/25/19	4954.72	22.35	14.67	ND	ND	4937.43
BH49	01/24/17	4954.51	22.22	18.39	ND	ND	4936.12
BH49	04/05/17	4954.51	22.29	18.23	ND	ND	4936.28
BH49 ²	07/27/17	Well Damaged - Elevation Control Lost			ND	ND	NM
BH49	07/27/17	Broken Casing - Monitoring Well Destroyed					
BH49R	10/30/17	4954.53	25.93	17.48	ND	ND	4937.05
BH49R	01/25/18	4954.53	26.03	17.26	ND	ND	4937.27
BH49R	04/19/18	4954.53	25.43	18.67	ND	ND	4935.86
BH49R	07/19/18	4954.53	25.45	17.31	ND	ND	4937.22
BH49R	10/30/18	4954.53	25.51	17.06	ND	ND	4937.47
BH49R	01/29/19	4954.53	25.55	17.30	ND	ND	4937.23
BH49R	04/23/19	4954.53	25.55	17.07	ND	ND	4937.46
BH49R	07/30/19	4954.53	25.73	14.34	ND	ND	4937.89
BH49R	10/25/19	4954.53	25.66	14.50	ND	ND	4937.73
BH50	01/24/17	4955.18	22.26	16.87	ND	ND	4938.31
BH50	04/05/17	4955.18	22.40	16.68	ND	ND	4938.50
BH50 ²	07/27/17	Well Damaged - Elevation Control Lost			ND	ND	NM
BH50	10/30/17	4955.18	22.27	16.06	ND	ND	4939.12
BH50	01/25/18	4955.18	22.49	16.05	ND	ND	4939.13
BH50	04/19/18	4955.18	22.55	16.17	ND	ND	4939.01
BH50	07/19/18	4955.18	22.26	16.67	ND	ND	4938.51
BH50	10/30/18	4955.18	22.30	17.02	ND	ND	4938.16
BH50	01/29/19	4955.18	22.13	17.35	ND	ND	4937.83

TABLE 1
GROUNDWATER ELEVATION DATA
NOBLE ENERGY, INC.
FEATHER 31-15



Monitoring Well ID	Date	Top of Casing Elevation (ft. AMSL)	Total Depth (ft. FTOC)	Depth to Water (ft.) ⁽⁴⁾	Depth to LNAPL (ft.) ⁽⁴⁾	LNAPL Thickness (ft.)	Groundwater elevation* (ft. AMSL)
BH50	04/23/19	4955.18	22.10	16.40	ND	ND	4938.78
BH50	07/30/19	4955.18	22.13	13.53	ND	ND	4938.64
BH50	10/25/19	4955.18	22.08	13.52	ND	ND	4938.79
BH51	01/24/17	4955.85	22.10	19.59	ND	ND	4936.26
BH51	04/05/17	4955.85	22.17	19.26	ND	ND	4936.59
BH51 ²	07/27/17	Well Damaged - Elevation Control Lost			ND	ND	NM
BH51	10/30/17	4955.87	22.16	18.43	ND	ND	4937.44
BH51	01/25/18	4955.87	22.20	18.27	ND	ND	4937.60
BH51	04/19/18	4955.87	22.35	15.40	ND	ND	4940.47
BH51	07/19/18	4955.87	22.30	18.27	ND	ND	4937.60
BH51	10/30/18	4955.87	22.26	18.00	ND	ND	4937.87
BH51	01/29/19	4955.87	22.25	18.28	ND	ND	4937.59
BH51	04/23/19	4955.87	22.16	17.97	ND	ND	4937.90
BH51	07/30/19	4955.87	21.19	14.77	ND	0	4938.26
BH51	10/25/19	4955.87	Not Measured - Obstruction				
BH52	01/24/17	4955.46	22.31	19.45	ND	ND	4936.01
BH52	04/05/17	4955.46	22.36	17.34	ND	ND	4938.12
BH52 ²	07/27/17	Well Damaged - Elevation Control Lost			ND	ND	NM
BH52	07/27/17	Broken Casing - Monitoring Well Destroyed					
BH52R	10/30/17	4954.68	29.59	16.46	ND	ND	4938.22
BH52R	01/25/18	4954.68	29.65	15.22	ND	ND	4939.46
BH52R	04/19/18	4954.68	29.69	15.42	ND	ND	4939.26
BH52R	07/19/18	4954.68	29.64	15.28	ND	ND	4939.40
BH52R	10/30/18	4954.68	29.61	15.11	ND	ND	4939.57
BH52R	01/29/19	4954.68	29.60	15.53	ND	ND	4939.15
BH52R	04/23/19	4954.68	29.60	15.28	ND	ND	4939.40
BH52R	07/30/19	4954.68	29.68	12.99	ND	ND	4939.86
BH52R	10/25/19	4954.68	29.59	13.33	ND	ND	4939.52
BH53 ²	07/27/17	Well Damaged - Elevation Control Lost			ND	ND	NM
BH53	07/27/17	Broken Casing - Monitoring Well Destroyed					
BH53R	10/30/17	4956.07	33.21	20.83	ND	ND	4935.24
BH53R	01/25/18	4956.07	33.18	20.60	ND	ND	4935.47
BH53R	04/19/18	4956.07	31.77	20.83	ND	ND	4935.24
BH53R	07/19/18	4956.07	31.66	20.45	ND	ND	4935.62
BH53R	10/30/18	4956.07	31.65	20.17	ND	ND	4935.90
BH53R	01/29/19	4956.07	31.71	20.32	ND	ND	4935.75
BH53R	04/23/19	4956.07	31.76	20.12	ND	ND	4935.95
BH53R	07/30/19	4956.07	31.77	16.50	ND	ND	4936.41
BH53R	10/25/19	4956.07	31.71	16.53	ND	ND	4936.38
BH54 ²	07/27/17	Well Damaged - Elevation Control Lost			ND	ND	DRY
BH54	07/27/17	Broken Casing - Monitoring Well Destroyed					

TABLE 1
GROUNDWATER ELEVATION DATA
NOBLE ENERGY, INC.
FEATHER 31-15



Monitoring Well ID	Date	Top of Casing Elevation (ft. AMSL)	Total Depth (ft. FTOC)	Depth to Water (ft.) ⁽⁴⁾	Depth to LNAPL (ft.) ⁽⁴⁾	LNAPL Thickness (ft.)	Groundwater elevation* (ft. AMSL)
BH54R	10/30/17	4957.29	32.62	22.13	ND	ND	4935.16
BH54R	01/25/18	4957.29	32.53	21.21	ND	ND	4936.08
BH54R	04/20/18	Unable to Gauge - Well Obstruction					
BH54R	07/19/18	4957.29	31.91	21.58	ND	ND	4935.71
BH54R	07/30/18	4957.29	31.90	21.55	ND	ND	4935.74
BH54R	10/30/18	4957.29	31.75	21.28	ND	ND	4936.01
BH54R	01/29/19	4957.29	31.78	21.43	ND	ND	4935.86
BH54R	04/23/19	4957.29	31.75	21.25	ND	ND	4936.04
BH54R	07/30/19	4957.29	31.83	17.70	ND	ND	4936.47
BH54R	10/25/19	4957.29	31.75	17.64	ND	ND	4936.53
BH55 ²	07/27/17	Well Damaged - Elevation Control Lost			ND	ND	NM
BH55	07/27/17	Broken Casing - Monitoring Well Destroyed					
BH55R	10/30/17	4957.03	36.46	20.82	ND	ND	4936.21
BH55R	01/25/18	4957.03	36.55	20.46	ND	ND	4936.57
BH55R	04/19/18	4957.03	35.20	22.06	ND	ND	4934.97
BH55R	07/19/18	4957.03	35.10	20.36	ND	ND	4936.67
BH55R	10/30/18	4957.03	35.10	20.10	ND	ND	4936.93
BH55R	01/29/19	4957.03	35.12	20.28	ND	ND	4936.75
BH55R	04/23/19	4957.03	35.15	20.03	ND	ND	4937.00
BH55R	07/30/19	4957.03	35.21	16.49	ND	ND	4937.46
BH55R	10/25/19	4957.03	35.12	16.53	ND	ND	4937.42
BH56	07/30/19	4959.63	33.00	11.87	ND	ND	4940.40
BH56 ⁽⁵⁾	10/25/19	NM	30.00	NM	ND	ND	NM
BH57	07/30/19	4961.02	31.54	15.32	ND	ND	4939.28
BH57	10/25/19	4956.49	31.23	19.71	ND	ND	4934.89
BH58	07/30/19	4960.97	32.64	12.39	ND	ND	4941.34
BH58 ⁽⁵⁾	10/25/19	NM	28.81	NM	ND	ND	NM

Notes:

ft. = Feet

AMSL = Above mean sea level

BTOC = Below top of casing

LNAPL = Light non-aqueous phase liquid

ND = No LNAPL detected

NM = Not measured

NS = Not surveyed

Monitoring wells MW-01 through MW-06 were destroyed during site excavations

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

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

LNAPL relative density was assumed to be approximately 0.75

1. Sheen present on groundwater.

TABLE 1
GROUNDWATER ELEVATION DATA
NOBLE ENERGY, INC.
FEATHER 31-15



Monitoring Well ID	Date	Top of Casing Elevation (ft. AMSL)	Total Depth (ft. FTOC)	Depth to Water (ft.) ⁽⁴⁾	Depth to LNAPL (ft.) ⁽⁴⁾	LNAPL Thickness (ft.)	Groundwater elevation* (ft. AMSL)
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2. Cattle damaged monitoring well prior to the 3Q2017 sampling event, resulting in lost casing elevation.
3. Obstruction present in well on 7/30/2019. Obstruction could not be removed on 7/31/2019 but was able to be dislodged enough to access groundwater, purge 1 gallon and collect a groundwater sample.
4. Depth to water measurements collected prior to third quarter 2019 were measured from top of well casing. Subsequent measurements were collected from top of casing and adjusted using survey data to reflect depth of water from ground surface.
5. Well casing broken near ground surface, elevation control lost.

TABLE 2
GROUNDWATER ANALYTICAL DATA
NOBLE ENERGY, INC.
FEATHER 31-15

Monitoring Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
COGCC Groundwater Standard (ug/L)		5	560	700	1,400
BH03	01/28/16	940	3,700	430	7,100
BH03	09/01/16	Removed from Monitoring Network-Well Destroyed			
BH08	01/28/16	<1.0	1.1	<1.0	3.2
BH08	09/01/16	<1.0	<1.0	<1.0	<1.0
BH08	11/03/16	<1.0	<1.0	<1.0	<1.0
BH08	01/24/17	<1.0	<1.0	<1.0	<1.0
BH08	04/05/17	<1.0	<1.0	<1.0	<2.0
BH08	07/27/17	<1.0	<1.0	<1.0	<2.0
BH08	10/30/17	<1.0	<1.0	<1.0	<2.0
BH08	01/25/18	<1.0	<1.0	<1.0	<2.0
BH08	04/19/18	<1.0	<1.0	<1.0	<2.0
BH08	07/19/18	<1.0	<1.0	<1.0	<2.0
BH08	10/30/18	<1.0	<1.0	<1.0	<2.0
BH08	01/29/19	<1.0	<1.0	<1.0	<2.0
BH08	04/23/19	<1.0	<1.0	<1.0	<2.0
BH08	07/30/19	<1.0	<1.0	<1.0	<2.0
BH08	10/25/19	<1.0	<1.0	<1.0	<2.0
BH10	09/01/16	<1.0	<1.0	<1.0	<1.0
BH10	11/03/16	<1.0	<1.0	<1.0	<1.0
BH10	01/24/17	<1.0	<1.0	<1.0	<1.0
BH10	04/05/17	<1.0	<1.0	<1.0	<2.0
BH10	07/27/17	<1.0	<1.0	<1.0	<2.0
BH10	10/30/17	<1.0	<1.0	<1.0	<2.0
BH10	01/25/18	<1.0	<1.0	<1.0	<2.0
BH10	04/19/18	<1.0	<1.0	<1.0	<2.0
BH10	07/19/18	<1.0	<1.0	<1.0	<2.0
BH10	10/30/18	<1.0	<1.0	<1.0	<2.0
BH10	01/29/19	<1.0	<1.0	<1.0	<2.0
BH10	04/23/19	<1.0	<1.0	<1.0	<2.0
BH10	07/30/19	<1.0	<1.0	<1.0	<2.0
BH10	10/25/19	<1.0	<1.0	<1.0	<2.0
BH11	09/01/16	<1.0	<1.0	<1.0	18
BH11	11/03/16	57	70	24	260
BH11	01/24/17	<1.0	<1.0	<1.0	<1.0
BH11	04/05/17	13	<1.0	8.1	30
BH11	07/27/17	9.4	<1.0	20	13
BH11	10/30/17	<1.0	<1.0	<1.0	<2.0
BH11	01/25/18	1.1	<1.0	1.2	<2.0
BH11	04/19/18	4.7	<1.0	10	5.2

TABLE 2
GROUNDWATER ANALYTICAL DATA
NOBLE ENERGY, INC.
FEATHER 31-15

Monitoring Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
COGCC Groundwater Standard (ug/L)		5	560	700	1,400
BH11	07/19/18	<1.0	<1.0	<1.0	<2.0
BH11	10/30/18	<1.0	<1.0	<1.0	<2.0
BH11	01/29/19	<1.0	<1.0	<1.0	<2.0
BH11	04/23/19	<1.0	<1.0	<1.0	<2.0
BH11	07/30/19	<1.0	<1.0	<1.0	<2.0
BH11	10/25/19	<1.0	<1.0	<1.0	<2.0
BH12	09/01/16	<1.0	<1.0	<1.0	<1.0
BH12	11/03/16	<1.0	<1.0	<1.0	<1.0
BH12	01/24/17	<1.0	<1.0	<1.0	<1.0
BH12	04/05/17	<1.0	<1.0	<1.0	<2.0
BH12	07/27/17	<1.0	<1.0	<1.0	<2.0
BH12	10/30/17	<1.0	<1.0	<1.0	<2.0
BH12	01/25/18	<1.0	<1.0	<1.0	<2.0
BH12	04/19/18	<1.0	<1.0	<1.0	<2.0
BH12	07/19/18	<1.0	<1.0	<1.0	<2.0
BH12	10/30/18	<1.0	<1.0	<1.0	<2.0
BH12	01/29/19	<1.0	<1.0	<1.0	<2.0
BH12	04/23/19	<1.0	<1.0	<1.0	<2.0
BH12	07/30/19	<1.0	<1.0	<1.0	<2.0
BH12	10/25/19	<1.0	<1.0	<1.0	<2.0
BH13	09/01/16	5,000	4,700	<1.0	16,000
BH13	11/03/16	4,800	2,900	690	15,000
BH13	01/24/17	3,000	610	380	13,000
BH13	04/05/17	2,900	670	1,100	11,000
BH13	07/27/17	1,000	190	470	3,200
BH13	10/30/17	470	27	2.3	2,600
BH13	01/25/18	22	<1.0	12.0	85
BH13	04/19/18	66	<1.0	220	130
BH13	07/19/18	12	<1.0	150	42
BH13	10/30/18	1.5	<1.0	53	<2.0
BH13	01/29/19	<1.0	<1.0	28	<2.0
BH13	04/23/19	<1.0	<1.0	120	<2.0
BH13	07/30/19	<1.0	<1.0	<1.0	<2.0
BH13	10/25/19	<1.0	<1.0	3.1	<2.0
BH14	09/01/16	<1.0	<1.0	<1.0	<1.0
BH14	11/03/16	<1.0	<1.0	<1.0	<1.0
BH14	01/24/17	<1.0	<1.0	<1.0	<1.0
BH14	04/05/17	<1.0	<1.0	<1.0	<2.0
BH14	07/27/17	<1.0	<1.0	<1.0	<2.0

TABLE 2
GROUNDWATER ANALYTICAL DATA
NOBLE ENERGY, INC.
FEATHER 31-15

Monitoring Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
COGCC Groundwater Standard (ug/L)		5	560	700	1,400
BH14	10/30/17	<1.0	<1.0	<1.0	<2.0
BH14	01/25/18	<1.0	<1.0	<1.0	<2.0
BH14	04/19/18	<1.0	<1.0	<1.0	<2.0
BH14	07/19/18	<1.0	<1.0	<1.0	<2.0
BH14	10/30/18	<1.0	<1.0	<1.0	<2.0
BH14	01/29/19	<1.0	<1.0	<1.0	<2.0
BH14	04/23/19	<1.0	<1.0	<1.0	<2.0
BH14	07/30/19	<1.0	<1.0	<1.0	<2.0
BH14	10/25/19	<1.0	<1.0	<1.0	<2.0
BH15	09/01/16	4,300	8,000	410	7,900
BH15	11/03/16	2,300	4,700	380	6,500
BH15	01/24/17	8,400	2,800	600	10,000
BH15	04/05/17	4,000	170	510	2,900
BH15	07/27/17	4,500	990	510	2,300
BH15	10/30/17	1,700	210	320	1,600
BH15	01/25/18	4,800	56	260	670
BH15	04/19/18	3,700	67	370	1,200
BH15	07/19/18	740	31	35	230
BH15	10/30/18	620	<1.0	87	110
BH15	01/29/19	200	2.0	69	41
BH15	04/23/19	430	<1.0	160	59
BH15	07/30/19	<1.0	<1.0	<1.0	<2.0
BH15	10/25/19	Not Sampled - Unable to Remove Stinger			
BH16	09/01/16	32,000	51,000	1,100	34,000
BH16	11/03/16	22,000	34,000	1,500	23,000
BH16	01/24/17	21,000	31,000	680	29,000
BH16	04/05/17	26,000	20,000	2,200	33,000
BH16	07/27/17	17,000	18,000	2,400	34,000
BH16	10/30/17	18,000	21,000	1,600	23,000
BH16	01/25/18	3,000	1,100	170	2,300
BH16	04/19/18	970	73	83	270
BH16	07/19/18	4,800	140	100	330
BH16	10/30/18	11,000	2,700	500	4,700
BH16	01/29/19	6,000	240	340	2,000
BH16	04/23/19	2,600	200	120	850
BH16	07/30/19	6,100	2,400	310	5,900
BH16	10/25/19	16,000	6,100	1,300	14,000
BH17	09/23/16	<1.0	<1.0	<1.0	<1.0
BH17	11/03/16	<1.0	<1.0	<1.0	<1.0

TABLE 2
GROUNDWATER ANALYTICAL DATA
NOBLE ENERGY, INC.
FEATHER 31-15

Monitoring Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
COGCC Groundwater Standard (ug/L)		5	560	700	1,400
BH17	01/24/17	<1.0	<1.0	<1.0	<1.0
BH17	04/05/17	<1.0	<1.0	<1.0	<2.0
BH17	07/27/17	<1.0	<1.0	<1.0	<2.0
BH17	10/30/17	<1.0	<1.0	<1.0	<2.0
BH17	01/25/18	<1.0	<1.0	<1.0	<2.0
BH17	04/19/18	<1.0	<1.0	<1.0	<2.0
BH17	07/19/18	<1.0	<1.0	<1.0	<2.0
BH17	10/30/18	<1.0	<1.0	<1.0	<2.0
BH17	01/29/19	<1.0	<1.0	<1.0	<2.0
BH17	04/23/19	<1.0	<1.0	<1.0	<2.0
BH17	07/30/19	<1.0	<1.0	<1.0	<2.0
BH17	10/25/19	<1.0	<1.0	<1.0	<2.0
BH18	09/23/16	<1.0	<1.0	<1.0	<1.0
BH18	11/03/16	<1.0	<1.0	<1.0	<1.0
BH18	01/24/17	<1.0	<1.0	<1.0	<1.0
BH18	04/05/17	<1.0	<1.0	<1.0	<2.0
BH18	07/27/17	<1.0	<1.0	<1.0	<2.0
BH18	10/30/17	<1.0	<1.0	<1.0	<2.0
BH18	01/25/18	<1.0	<1.0	<1.0	<2.0
BH18	04/19/18	<1.0	<1.0	<1.0	<2.0
BH18	07/19/18	<1.0	<1.0	<1.0	<2.0
BH18	10/30/18	<1.0	<1.0	<1.0	<2.0
BH18	01/29/19	<1.0	<1.0	<1.0	<2.0
BH18	04/23/19	<1.0	<1.0	<1.0	<2.0
BH18	07/30/19	<1.0	<1.0	<1.0	<2.0
BH18	10/25/19	<1.0	<1.0	<1.0	<2.0
BH19	09/23/16	1,000	500	72	1,300
BH19	11/03/16	8,000	3,700	520	9,100
BH19	01/24/17	5,400	1.2	<1.0	3,100
BH19	04/05/17	5,600	<1.0	560	1,700
BH19	07/27/17	280	44	<1.0	230
BH19	10/30/17	1,800	1.6	140	430
BH19	01/25/18	1,100	<1.0	27	60
BH19	04/19/18	1,800	<1.0	210	330
BH19	07/19/18	2,500	<1.0	200	110
BH19	10/30/18	1,200	<1.0	230	47
BH19	01/29/19	410	<1.0	70	<2.0
BH19	04/23/19	Not Sampled - Obstruction in Well			
BH19	07/31/19	36	<1.0	5.8	16

TABLE 2
GROUNDWATER ANALYTICAL DATA
NOBLE ENERGY, INC.
FEATHER 31-15

Monitoring Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
COGCC Groundwater Standard (ug/L)		5	560	700	1,400
BH19	10/25/19	Not Sampled - Obstruction in well			
BH20	09/23/16	<1.0	<1.0	<1.0	280
BH20	11/03/16	<1.0	<1.0	<1.0	<1.0
BH20	01/24/17	<1.0	<1.0	<1.0	<1.0
BH20	04/05/17	<1.0	<1.0	<1.0	<2.0
BH20	07/27/17	<1.0	<1.0	<1.0	<2.0
BH20	10/30/17	<1.0	<1.0	<1.0	<2.0
BH20	01/25/18	<1.0	<1.0	<1.0	<2.0
BH20	04/19/18	<1.0	<1.0	<1.0	<2.0
BH20	07/19/18	<1.0	<1.0	<1.0	<2.0
BH20	10/30/18	<1.0	<1.0	<1.0	<2.0
BH20	01/29/19	<1.0	<1.0	<1.0	<2.0
BH20	04/23/19	<1.0	<1.0	<1.0	<2.0
BH20	07/30/19	<1.0	<1.0	<1.0	<2.0
BH20	10/25/19	<1.0	<1.0	<1.0	<2.0
BH21	09/23/16	2,400	2,800	470	1,500
BH21	11/03/16	5,000	12,000	560	9,600
BH21	01/24/17	2,900	30	<1.0	6,200
BH21	04/05/17	4,700	<1.0	530	3,100
BH21	07/27/17	3,100	<1.0	380	130
BH21	10/30/17	1,900	150	40	6.2
BH21	01/25/18	<1.0	<1.0	<1.0	<2.0
BH21	04/19/18	430	<1.0	280	<2.0
BH21	07/19/18	<1.0	<1.0	<1.0	<2.0
BH21	10/30/18	22	<1.0	250	<2.0
BH21	01/29/19	18	<1.0	120	<2.0
BH21	04/23/19	5.1	<1.0	23	<2.0
BH21	07/30/19	<1.0	<1.0	<1.0	<2.0
BH21	10/25/19	4.4	<1.0	3.1	<2.0
BH22	09/23/16	8,800	24,000	1,900	28,000
BH22	11/03/16	5,500	10,000	670	19,000
BH22	01/24/17	9,100	13,000	2,000	51,000
BH22	04/05/17	8,900	2,800	2,000	23,000
BH22	07/27/17	4,800	330	750	17,000
BH22	10/30/17	1,800	91	770	3,500
BH22	01/25/18	92	1.3	2.7	2.7
BH22	04/19/18	520	1.9	110	34
BH22	07/19/18	740	<1.0	49	45
BH22	10/30/18	<1.0	<1.0	<1.0	<2.0

TABLE 2
GROUNDWATER ANALYTICAL DATA
NOBLE ENERGY, INC.
FEATHER 31-15

Monitoring Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
COGCC Groundwater Standard (ug/L)		5	560	700	1,400
BH22	01/29/19	25	<1.0	4.4	11
BH22	04/23/19	550	1.8	47	120
BH22	07/30/19	<1.0	<1.0	<1.0	<2.0
BH22	10/25/19	160	6.8	3.2	20
BH23	09/23/16	11,000	21,000	1,400	21,000
BH23	11/03/16	6,200	6,800	430	7,900
BH23	01/24/17	4,900	5,300	<1.0	11,000
BH23	04/05/17	3,800	4,900	420	7,200
BH23	07/27/17	<1.0	<1.0	<1.0	<2.0
BH23	07/27/17	Broken Casing - Monitoring Well Destroyed			
BH23R	10/30/17	4,200	110	34	4,000
BH23R	01/26/18	35	47	12	250
BH23R	04/19/18	Well Obstructed - Converted to Dedicated Air Sparge Well			
BH23R2	04/19/18	3,200	6,000	550	13,000
BH23R2	07/19/18	2,700	2,200	630	8,600
BH23R2	10/30/18	4,400	33	810	9,600
BH23R2	01/29/19	3,300	220	660	4,800
BH23R2	04/23/19	1,000	<1.0	260	760
BH23R2	07/30/19	870	1.0	<1.0	650
BH23R2	10/25/19	3,300	130	780	920
BH24	09/23/16	13,000	5,200	500	4,200
BH24	11/03/16	12,000	1,900	650	2,400
BH24	01/24/17	6,300	47	<1.0	4,000
BH24	04/05/17	9,100	1.0	910	950
BH24	07/27/17	3,500	2.1	3.7	1,200
BH24	10/30/17	660	3.5	340	110
BH24	01/25/18	74	<1.0	19	14
BH24	04/19/18	1,700	48	220	190
BH24	07/19/18	2,200	22	<1.0	220
BH24	10/30/18	<1.0	<1.0	<1.0	<2.0
BH24	01/29/19	<1.0	66	66	160
BH24	04/23/19	<1.0	<1.0	<1.0	8.6
BH24	07/30/19	2,300	460	<1.0	1,700
BH24	10/25/19	Not Sampled - Obstruction in Well			
BH25	09/23/16	5,400	22,000	1,200	19,000
BH25	11/03/16	4,500	15,000	1,200	20,000
BH25	01/24/17	2,700	2,400	<1.0	16,000
BH25	04/05/17	3,400	1,100	400	14,000
BH25	07/27/17	2,900	9.9	290	11,000

TABLE 2
GROUNDWATER ANALYTICAL DATA
NOBLE ENERGY, INC.
FEATHER 31-15

Monitoring Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
COGCC Groundwater Standard (ug/L)		5	560	700	1,400
BH25R	10/30/17	88	3.7	<1.0	1,800
BH25R	01/25/18	3,300	<1.0	180	7,300
BH25R	04/19/18	1,000	<1.0	180	1,500
BH25R	07/19/18	860	1.2	270	550
BH25R	10/30/18	1,800	<1.0	480	1,000
BH25R	01/29/19	<1.0	<1.0	<1.0	<2.0
BH25R	04/23/19	160	<1.0	74	2.0
BH25R	07/30/19	<1.0	<1.0	<1.0	<2.0
BH25R	10/25/19	Not Sampled - Obstruction in Well			
BH26	09/23/16	3,900	8,100	890	13,000
BH26	11/03/16	3,700	3,000	780	13,000
BH26	01/24/17	3,300	210	<1.0	8,900
BH26	04/05/17	3,200	160	250	4,300
BH26	07/27/17	1,600	13	95	1,200
BH26	10/30/17	400	120	350	4,400
BH26	01/25/18	100	18	5.3	140
BH26	04/19/18	550	<1.0	99	83
BH26	07/19/18	1.6	<1.0	13	<2.0
BH26	10/30/18	380	<1.0	180	3.4
BH26	01/29/19	200	<1.0	100	<2.0
BH26	04/23/19	110	<1.0	38	<2.0
BH26	07/30/19	<1.0	<1.0	<1.0	<2.0
BH26	10/25/19	21	<1.0	22	<2.0
BH27	09/23/16	2,100	7,900	660	11,000
BH27	11/03/16	2,300	7,300	790	13,000
BH27	01/24/17	110	3	<1.0	190
BH27	04/05/17	1,100	19	120	1,600
BH27	07/27/17	810	<1.0	330	480
BH27	10/30/17	130	<1.0	1.1	46
BH27	01/25/18	290	<1.0	57	<2.0
BH27	04/19/18	120	<1.0	150	40
BH27	07/19/18	29	<1.0	57	7.9
BH27	10/30/18	20	<1.0	17	63
BH27	01/29/19	4.4	<1.0	2.2	24
BH27	04/23/19	<1.0	<1.0	<1.0	<2.0
BH27	07/30/19	<1.0	<1.0	<1.0	<2.0
BH27	10/25/19	<1.0	<1.0	<1.0	<2.0
BH28	09/23/16	<1.0	<1.0	<1.0	<1.0
BH28	11/03/16	<1.0	<1.0	<1.0	<1.0

TABLE 2
GROUNDWATER ANALYTICAL DATA
NOBLE ENERGY, INC.
FEATHER 31-15

Monitoring Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
COGCC Groundwater Standard (ug/L)		5	560	700	1,400
BH28	01/24/17	<1.0	<1.0	<1.0	<1.0
BH28	04/05/17	<1.0	<1.0	<1.0	<2.0
BH28	07/27/17	<1.0	<1.0	<1.0	<2.0
BH28	07/27/17	Broken Casing - Monitoring Well Destroyed			
BH28R	10/30/17	<1.0	<1.0	<1.0	<2.0
BH28R	01/25/18	<1.0	<1.0	<1.0	<2.0
BH28R	04/19/18	<1.0	<1.0	<1.0	<2.0
BH28R	07/19/18	<1.0	<1.0	<1.0	2.2
BH28R	10/30/18	<1.0	<1.0	<1.0	<2.0
BH28R	01/29/19	<1.0	<1.0	<1.0	<2.0
BH28R	04/23/19	<1.0	<1.0	<1.0	<2.0
BH28R	07/30/19	<1.0	<1.0	<1.0	<2.0
BH28R	10/25/19	<1.0	<1.0	<1.0	<2.0
BH29	09/23/16	<1.0	<1.0	<1.0	<1.0
BH29	11/03/16	<1.0	<1.0	<1.0	<1.0
BH29	01/24/17	<1.0	<1.0	<1.0	<1.0
BH29	04/05/17	<1.0	<1.0	<1.0	<2.0
BH29	07/27/17	<1.0	<1.0	<1.0	<2.0
BH29	10/30/17	<1.0	<1.0	<1.0	<2.0
BH29	01/25/18	<1.0	<1.0	<1.0	<2.0
BH29	04/19/18	<1.0	<1.0	<1.0	<2.0
BH29	07/19/18	<1.0	<1.0	<1.0	<2.0
BH29	10/30/18	<1.0	<1.0	<1.0	<2.0
BH29	01/29/19	<1.0	<1.0	<1.0	<2.0
BH29	04/23/19	<1.0	<1.0	<1.0	<2.0
BH29	07/30/19	<1.0	<1.0	<1.0	<2.0
BH29	10/25/19	<1.0	<1.0	<1.0	<2.0
BH30	10/25/16	4,300	24,000	1,100	18,000
BH30	11/03/16	3,900	18,000	1,100	19,000
BH30	01/24/17	2,200	11,000	670	12,000
BH30	04/05/17	1,400	4,900	640	6,000
BH30	07/27/17	21	17	3.7	59
BH30	07/27/17	Broken Casing - Monitoring Well Destroyed			
BH30R	10/30/17	1,200	1,000	67	11,000
BH30R	01/25/18	1,400	<1.0	34	340
BH30R	04/19/18	250	<1.0	190	1,000
BH30R	07/19/18	200	<1.0	160	200
BH30R	10/30/18	<1.0	<1.0	<1.0	<2.0
BH30R	01/29/19	2.6	<1.0	1.0	7.8

TABLE 2
GROUNDWATER ANALYTICAL DATA
NOBLE ENERGY, INC.
FEATHER 31-15

Monitoring Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
COGCC Groundwater Standard (ug/L)		5	560	700	1,400
BH30R	04/23/19	<1.0	<1.0	<1.0	<2.0
BH30R	07/30/19	<1.0	<1.0	<1.0	<2.0
BH30R	10/25/19	<1.0	<1.0	<1.0	<2.0
BH31	10/25/16	4,100	2,700	170	3,900
BH31	11/03/16	3,700	3,700	250	4,800
BH31	01/24/17	1,300	<1.0	<1.0	2,100
BH31	04/05/17	1,500	<1.0	99	120
BH31	07/27/17	<1.0	<1.0	<1.0	<2.0
BH31	10/30/17	1.2	1.4	46	28
BH31	01/25/18	1,100	<1.0	70	2.7
BH31	04/19/18	960	<1.0	160	<2.0
BH31	07/19/18	76	<1.0	14	12
BH31	10/30/18	93	<1.0	22	61
BH31	01/29/19	24	2.6	22	140
BH31	04/23/19	<1.0	<1.0	<1.0	<2.0
BH31	07/30/19	<1.0	<1.0	<1.0	<2.0
BH31	10/25/19	<1.0	<1.0	2.2	<2.0
BH32	10/25/16	<1.0	2.8	<1.0	2.7
BH32	11/03/16	<1.0	<1.0	<1.0	<1.0
BH32	01/24/17	<1.0	<1.0	<1.0	<1.0
BH32	04/05/17	<1.0	<1.0	<1.0	<2.0
BH32	07/27/17	<1.0	<1.0	<1.0	<2.0
BH32	04/19/18	<1.0	<1.0	<1.0	<2.0
BH32	07/19/18	<1.0	<1.0	<1.0	<2.0
BH32	10/30/18	<1.0	<1.0	<1.0	<2.0
BH32	01/29/19	<1.0	<1.0	<1.0	<2.0
BH32	04/23/19	<1.0	<1.0	<1.0	<2.0
BH32	07/30/19	<1.0	<1.0	<1.0	<2.0
BH32	10/25/19	<1.0	<1.0	<1.0	<2.0
BH33	10/25/16	11,000	17,000	790	12,000
BH33	11/03/16	10,000	18,000	870	15,000
BH33	01/24/17	<1.0	17	1.3	4,400
BH33	04/05/17	4,300	19	550	1,100
BH33	07/27/17	<1.0	<1.0	200	1,100
BH33	10/30/17	4,300	69	2.2	160
BH33	01/25/18	72	2.9	4.8	59
BH33	04/19/18	230	<1.0	74	140
BH33	07/19/18	28	<1.0	6.9	19
BH33	10/30/18	3.1	<1.0	<1.0	2.5

TABLE 2
GROUNDWATER ANALYTICAL DATA
NOBLE ENERGY, INC.
FEATHER 31-15

Monitoring Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
COGCC Groundwater Standard (ug/L)		5	560	700	1,400
BH33	01/29/19	1.7	<1.0	1.0	2.4
BH33	04/23/19	<1.0	<1.0	<1.0	<2.0
BH33	07/30/19	<1.0	<1.0	<1.0	<2.0
BH33	10/25/19	200	<1.0	2.0	4.9
BH34	10/25/16	Not Sampled - Insufficient Water			
BH34	11/03/16	<1.0	<1.0	<1.0	<1.0
BH34	01/24/17	<1.0	<1.0	<1.0	<1.0
BH34	04/05/17	<1.0	<1.0	<1.0	<2.0
BH34	07/27/17	<1.0	<1.0	<1.0	<2.0
BH34	10/30/17	3.0	<1.0	<1.0	3.0
BH34	01/25/18	<1.0	<1.0	<1.0	<2.0
BH34	04/19/18	<1.0	<1.0	<1.0	<2.0
BH34	07/19/18	<1.0	<1.0	<1.0	<2.0
BH34	10/30/18	<1.0	<1.0	<1.0	<2.0
BH34	01/29/19	<1.0	<1.0	<1.0	<2.0
BH34	04/23/19	<1.0	<1.0	<1.0	<2.0
BH34	07/30/19	<1.0	<1.0	<1.0	<2.0
BH34	10/25/19	<1.0	<1.0	<1.0	<2.0
BH35	10/25/16	Not Sampled - Insufficient Water			
BH35	11/03/16	<1.0	<1.0	<1.0	<1.0
BH35	01/24/17	<1.0	<1.0	<1.0	<1.0
BH35	04/05/17	<1.0	<1.0	<1.0	<2.0
BH35	07/27/17	<1.0	<1.0	<1.0	<2.0
BH35	10/30/17	1.0	<1.0	<1.0	2.1
BH35	01/25/18	<1.0	<1.0	<1.0	<2.0
BH35	04/19/18	<1.0	<1.0	<1.0	<2.0
BH35	07/19/18	<1.0	<1.0	<1.0	<2.0
BH35	10/30/18	<1.0	<1.0	<1.0	<2.0
BH35	01/29/19	<1.0	<1.0	<1.0	<2.0
BH35	04/23/19	<1.0	<1.0	<1.0	<2.0
BH35	07/30/19	<1.0	<1.0	<1.0	<2.0
BH35	10/25/19	<1.0	<1.0	<1.0	<2.0
BH36	10/25/16	6,800	9,800	520	8,500
BH36	11/03/16	4,300	2,200	320	4,700
BH36	01/24/17	2,200	24	<1.0	150
BH36	04/05/17	2,600	510	260	1,200
BH36	07/27/17	2,200	56	250	480
BH36	07/27/17	Broken Casing - Monitoring Well Destroyed			
BH36R	10/30/17	2,800	290	15	4,300

TABLE 2
GROUNDWATER ANALYTICAL DATA
NOBLE ENERGY, INC.
FEATHER 31-15

Monitoring Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
COGCC Groundwater Standard (ug/L)		5	560	700	1,400
BH36R	01/25/18	2,700	<1.0	84	500
BH36R	04/19/18	1,300	<1.0	110	260
BH36R	07/19/18	1,400	3,800	250	4,400
BH36R	10/30/18	<1.0	56	25	580
BH36R	01/29/19	250	5.4	14	84
BH36R	04/23/19	1.4	<1.0	<1.0	2.1
BH36R	07/30/19	<1.0	<1.0	<1.0	<2.0
BH36R	10/25/19	22	10	2.2	27
BH37	10/25/16	4,700	4,800	170	4,300
BH37	11/03/16	4,900	3,200	210	4,400
BH37	01/24/17	<1.0	<1.0	<1.0	<1.0
BH37	04/05/17	2,500	1,100	210	960
BH37	07/27/17	1,000	<1.0	27	44
BH37	04/19/18	260	<1.0	42	3.8
BH37	07/19/18	<1.0	3.4	<1.0	8.4
BH37	10/30/18	450	<1.0	20	<2.0
BH37	01/29/19	16	<1.0	37	<2.0
BH37	04/23/19	2.2	<1.0	11	<2.0
BH37	07/30/19	<1.0	<1.0	<1.0	<2.0
BH37	10/25/19	3.0	1.3	1.5	2.8
BH38	10/25/16	3.8	7.1	<1.0	12
BH38	11/03/16	<1.0	<1.0	<1.0	<1.0
BH38	01/24/17	<1.0	<1.0	<1.0	<1.0
BH38	04/05/17	<1.0	<1.0	<1.0	<2.0
BH38	07/27/17	1.2	<1.0	<1.0	<2.0
BH38	07/27/17	Broken Casing - Monitoring Well Destroyed			
BH38R	10/30/17	<1.0	<1.0	<1.0	<2.0
BH38R	01/25/18	<1.0	<1.0	<1.0	<2.0
BH38R	04/19/18	<1.0	<1.0	<1.0	<2.0
BH38R	07/19/18	<1.0	<1.0	<1.0	<2.0
BH38R	10/30/18	<1.0	<1.0	<1.0	<2.0
BH38R	01/29/19	<1.0	<1.0	<1.0	<2.0
BH38R	04/23/19	<1.0	<1.0	<1.0	<2.0
BH38R	07/30/19	<1.0	<1.0	<1.0	<2.0
BH38R	10/25/19	<1.0	<1.0	<1.0	<2.0
BH39	11/03/16	<1.0	<1.0	<1.0	<1.0
BH39	01/24/17	<1.0	<1.0	<1.0	<1.0
BH39	04/05/17	<1.0	<1.0	<1.0	<2.0
BH39	07/27/17	<1.0	<1.0	<1.0	<2.0

TABLE 2
GROUNDWATER ANALYTICAL DATA
NOBLE ENERGY, INC.
FEATHER 31-15

Monitoring Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
COGCC Groundwater Standard (ug/L)		5	560	700	1,400
BH39	10/30/17	<1.0	<1.0	<1.0	<2.0
BH39	01/25/18	<1.0	<1.0	<1.0	<2.0
BH39	04/19/18	<1.0	<1.0	<1.0	<2.0
BH39	07/19/18	<1.0	<1.0	<1.0	<2.0
BH39	10/30/18	<1.0	<1.0	<1.0	<2.0
BH39	01/29/19	<1.0	<1.0	<1.0	<2.0
BH39	04/23/19	<1.0	<1.0	<1.0	<2.0
BH39	07/30/19	<1.0	<1.0	<1.0	<2.0
BH39	10/25/19	<1.0	<1.0	<1.0	<2.0
BH40	11/03/16	<1.0	<1.0	<1.0	2.2
BH40	01/24/17	<1.0	<1.0	<1.0	<1.0
BH40	04/05/17	<1.0	<1.0	<1.0	<2.0
BH40	07/27/17	<1.0	<1.0	<1.0	<2.0
BH40	07/27/17	Broken Casing - Monitoring Well Destroyed			
BH40R	10/30/17	<1.0	<1.0	<1.0	<2.0
BH40R	01/25/18	<1.0	<1.0	<1.0	<2.0
BH40R	04/19/18	<1.0	<1.0	<1.0	<2.0
BH40R	07/19/18	<1.0	<1.0	<1.0	<2.0
BH40R	10/30/18	<1.0	<1.0	<1.0	<2.0
BH40R	01/29/19	<1.0	<1.0	<1.0	<2.0
BH40R	04/23/19	<1.0	<1.0	<1.0	<2.0
BH40R	07/30/19	<1.0	<1.0	<1.0	<2.0
BH40R	10/25/19	<1.0	<1.0	<1.0	<2.0
BH41	11/03/16	<1.0	<1.0	<1.0	<1.0
BH41	01/24/17	<1.0	<1.0	<1.0	<1.0
BH41	04/05/17	<1.0	<1.0	<1.0	<2.0
BH41	07/27/17	<1.0	<1.0	<1.0	<2.0
BH41	07/27/17	Broken Casing - Monitoring Well Destroyed			
BH41R	10/30/17	<1.0	<1.0	<1.0	<2.0
BH41R	01/25/18	<1.0	<1.0	<1.0	<2.0
BH41R	04/19/18	<1.0	<1.0	<1.0	<2.0
BH41R	07/19/18	<1.0	<1.0	<1.0	<2.0
BH41R	10/30/18	<1.0	<1.0	<1.0	<2.0
BH41R	01/29/19	<1.0	<1.0	<1.0	<2.0
BH41R	04/23/19	<1.0	<1.0	<1.0	<2.0
BH41R	07/30/19	<1.0	<1.0	<1.0	<2.0
BH41R	10/25/19	<1.0	<1.0	<1.0	<2.0
BH42	11/03/16	<1.0	<1.0	<1.0	<1.0
BH42	01/24/17	<1.0	<1.0	<1.0	<1.0

TABLE 2
GROUNDWATER ANALYTICAL DATA
NOBLE ENERGY, INC.
FEATHER 31-15

Monitoring Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
COGCC Groundwater Standard (ug/L)		5	560	700	1,400
BH42	04/05/17	<1.0	<1.0	<1.0	<2.0
BH42	07/27/17	<1.0	<1.0	<1.0	<2.0
BH42	07/27/17	Broken Casing - Monitoring Well Destroyed			
BH42R	10/30/17	<1.0	<1.0	<1.0	<2.0
BH42R	01/25/18	<1.0	<1.0	<1.0	<2.0
BH42R	04/19/18	<1.0	<1.0	<1.0	<2.0
BH42R	07/19/18	<1.0	<1.0	<1.0	<2.0
BH42R	10/30/18	<1.0	<1.0	<1.0	<2.0
BH42R	01/29/19	<1.0	<1.0	<1.0	<2.0
BH42R	04/23/19	<1.0	<1.0	<1.0	<2.0
BH42R	07/30/19	<1.0	<1.0	<1.0	<2.0
BH42R	10/25/19	<1.0	<1.0	<1.0	<2.0
BH43	11/03/16	<1.0	1.2	<1.0	27
BH43	01/24/17	<1.0	<1.0	<1.0	<1.0
BH43	04/05/17	<1.0	<1.0	<1.0	<2.0
BH43	07/27/17	<1.0	<1.0	<1.0	<2.0
BH43	07/27/17	Broken Casing - Monitoring Well Destroyed			
BH43R	10/30/17	<1.0	<1.0	<1.0	<2.0
BH43R	01/25/18	<1.0	<1.0	<1.0	<2.0
BH43R	04/19/18	<1.0	<1.0	<1.0	<2.0
BH43R	07/19/18	<1.0	<1.0	<1.0	<2.0
BH43R	10/30/18	<1.0	<1.0	<1.0	<2.0
BH43R	01/29/19	<1.0	<1.0	<1.0	<2.0
BH43R	04/23/19	<1.0	<1.0	<1.0	<2.0
BH43R	07/30/19	<1.0	<1.0	<1.0	<2.0
BH43R	10/25/19	<1.0	<1.0	<1.0	<2.0
BH44	11/03/16	4,200	20	2.3	590
BH44	01/24/17	<1.0	<1.0	<1.0	<1.0
BH44	04/05/17	580	<1.0	<1.0	<2.0
BH44	07/27/17	100	<1.0	<1.0	<2.0
BH44	10/30/17	<1.0	<1.0	<1.0	<2.0
BH44	01/25/18	21	<1.0	<1.0	<2.0
BH44	04/19/18	1.2	<1.0	<1.0	<2.0
BH44	07/19/18	11	<1.0	<1.0	<2.0
BH44	10/30/18	17	<1.0	<1.0	<2.0
BH44	01/29/19	3.8	<1.0	<1.0	<2.0
BH44	04/23/19	1.2	<1.0	<1.0	<2.0
BH44	07/30/19	Not Sampled - Obstruction in Well			
BH44	10/25/19	Not Sampled - Obstruction in Well			

TABLE 2
GROUNDWATER ANALYTICAL DATA
NOBLE ENERGY, INC.
FEATHER 31-15

Monitoring Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
COGCC Groundwater Standard (ug/L)		5	560	700	1,400
BH45	11/03/16	<1.0	9.3	<1.0	3.9
BH45	01/24/17	<1.0	<1.0	<1.0	<1.0
BH45	04/05/17	<1.0	<1.0	<1.0	<2.0
BH45	07/27/17	<1.0	<1.0	<1.0	<2.0
BH45	10/30/17	<1.0	<1.0	<1.0	<2.0
BH45	01/25/18	<1.0	<1.0	<1.0	<2.0
BH45	04/19/18	<1.0	<1.0	<1.0	<2.0
BH45	07/19/18	<1.0	<1.0	<1.0	<2.0
BH45	10/30/18	<1.0	<1.0	<1.0	<2.0
BH45	01/29/19	<1.0	<1.0	<1.0	<2.0
BH45	04/23/19	<1.0	<1.0	<1.0	<2.0
BH45	07/30/19	<1.0	<1.0	<1.0	<2.0
BH45	10/25/19	<1.0	<1.0	<1.0	<2.0
BH46	01/24/17	<1.0	<1.0	<1.0	<1.0
BH46	04/05/17	<1.0	<1.0	<1.0	<2.0
BH46	07/27/17	<1.0	<1.0	<1.0	<2.0
BH46	10/30/17	<1.0	<1.0	<1.0	<2.0
BH46	01/25/18	<1.0	<1.0	<1.0	<2.0
BH46	04/19/18	<1.0	<1.0	<1.0	<2.0
BH46	07/19/18	<1.0	<1.0	<1.0	<2.0
BH46	10/30/18	<1.0	<1.0	<1.0	<2.0
BH46	01/29/19	<1.0	<1.0	<1.0	<2.0
BH46	04/23/19	<1.0	<1.0	<1.0	<2.0
BH46	07/30/19	<1.0	<1.0	<1.0	<2.0
BH46	10/25/19	<1.0	<1.0	<1.0	<2.0
BH47	01/24/17	<1.0	<1.0	<1.0	<1.0
BH47	04/05/17	<1.0	<1.0	<1.0	<2.0
BH47	07/27/17	<1.0	<1.0	<1.0	<2.0
BH47	10/30/17	<1.0	<1.0	<1.0	<2.0
BH47	01/25/18	<1.0	<1.0	<1.0	<2.0
BH47	04/19/18	<1.0	<1.0	<1.0	<2.0
BH47	07/19/18	<1.0	<1.0	<1.0	<2.0
BH47	10/30/18	<1.0	<1.0	<1.0	<2.0
BH47	01/29/19	<1.0	<1.0	<1.0	<2.0
BH47	04/23/19	<1.0	<1.0	<1.0	<2.0
BH47	07/30/19	<1.0	<1.0	<1.0	<2.0
BH47	10/25/19	<1.0	<1.0	<1.0	<2.0
BH48	01/24/17	<1.0	<1.0	<1.0	<1.0
BH48	04/05/17	1,300	<1.0	<1.0	8.4

TABLE 2
GROUNDWATER ANALYTICAL DATA
NOBLE ENERGY, INC.
FEATHER 31-15

Monitoring Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
COGCC Groundwater Standard (ug/L)		5	560	700	1,400
BH48	07/27/17	300	<1.0	<1.0	<2.0
BH48	10/30/17	1.2	<1.0	<1.0	<2.0
BH48	01/25/18	<1.0	<1.0	<1.0	<2.0
BH48	04/19/18	<1.0	<1.0	<1.0	<2.0
BH48	07/19/18	<1.0	<1.0	<1.0	<2.0
BH48	10/30/18	130	<1.0	<1.0	<2.0
BH48	01/29/19	89	<1.0	<1.0	<2.0
BH48	04/23/19	10	<1.0	<1.0	<2.0
BH48	07/30/19	<1.0	<1.0	<1.0	<2.0
BH48	10/25/19	7.5	<1.0	<1.0	<2.0
BH49	01/24/17	<1.0	<1.0	<1.0	<1.0
BH49	04/05/17	250	<1.0	<1.0	<2.0
BH49	07/27/17	64	<1.0	<1.0	<2.0
BH49	07/27/17	Broken Casing - Monitoring Well Destroyed			
BH49R	10/30/17	<1.0	<1.0	<1.0	<2.0
BH49R	01/25/18	230	<1.0	<1.0	<2.0
BH49R	04/19/18	<1.0	<1.0	<1.0	<2.0
BH49R	07/19/18	<1.0	<1.0	<1.0	<2.0
BH49R	10/30/18	2.2	<1.0	<1.0	<2.0
BH49R	01/29/19	26	<1.0	<1.0	<2.0
BH49R	04/23/19	3.6	<1.0	<1.0	<2.0
BH49R	07/30/19	<1.0	<1.0	<1.0	<2.0
BH49R	10/25/19	2.5	<1.0	<1.0	<2.0
BH50	01/24/17	1,600	3,400	280	5,100
BH50	04/05/17	820	1.2	160	330
BH50	07/27/17	740	<1.0	170	340
BH50	10/30/17	<1.0	<1.0	<1.0	<2.0
BH50	01/25/18	170	<1.0	150	<2.0
BH50	04/19/18	190	<1.0	250	<2.0
BH50	07/19/18	44	<1.0	36	130
BH50	10/30/18	3.1	<1.0	5.3	x
BH50	01/29/19	<1.0	<1.0	<1.0	<2.0
BH50	04/23/19	<1.0	<1.0	<1.0	<2.0
BH50	07/30/19	<1.0	<1.0	<1.0	<2.0
BH50	10/25/19	<1.0	<1.0	<1.0	<2.0
BH51	01/24/17	<1.0	<1.0	<1.0	<1.0
BH51	04/05/17	<1.0	<1.0	<1.0	<2.0
BH51	07/27/17	<1.0	<1.0	<1.0	<2.0
BH51	10/30/17	<1.0	<1.0	<1.0	<2.0

TABLE 2
GROUNDWATER ANALYTICAL DATA
NOBLE ENERGY, INC.
FEATHER 31-15

Monitoring Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
COGCC Groundwater Standard (ug/L)		5	560	700	1,400
BH51	01/25/18	<1.0	<1.0	<1.0	<2.0
BH51	04/19/18	<1.0	<1.0	<1.0	<2.0
BH51	07/19/18	<1.0	<1.0	<1.0	<2.0
BH51	10/30/18	<1.0	<1.0	<1.0	<2.0
BH51	01/29/19	<1.0	<1.0	<1.0	<2.0
BH51	04/23/19	<1.0	<1.0	<1.0	<2.0
BH51	07/30/19	<1.0	<1.0	<1.0	<2.0
BH51	10/25/19	Not Sampled - Obstruction in Well			
BH52	01/24/17	<1.0	<1.0	<1.0	<1.0
BH52	04/05/17	<1.0	<1.0	<1.0	<2.0
BH52	07/27/17	<1.0	<1.0	<1.0	<2.0
BH52	07/27/17	Broken Casing - Monitoring Well Destroyed			
BH52R	10/30/17	<1.0	<1.0	<1.0	<2.0
BH52R	01/25/18	<1.0	<1.0	<1.0	<2.0
BH52R	04/19/18	<1.0	<1.0	<1.0	<2.0
BH52R	07/19/18	<1.0	<1.0	<1.0	<2.0
BH52R	10/30/18	<1.0	<1.0	<1.0	<2.0
BH52R	01/29/19	<1.0	<1.0	<1.0	<2.0
BH52R	04/23/19	<1.0	<1.0	<1.0	<2.0
BH52R	07/30/19	<1.0	<1.0	<1.0	<2.0
BH52R	10/25/19	<1.0	<1.0	<1.0	<2.0
BH53	07/27/17	<1.0	<1.0	<1.0	<2.0
BH53	07/27/17	Broken Casing - Monitoring Well Destroyed			
BH53R	10/30/17	<1.0	<1.0	<1.0	<2.0
BH53R	01/25/18	67	<1.0	<1.0	<2.0
BH53R	04/19/18	<1.0	<1.0	<1.0	<2.0
BH53R	07/19/18	<1.0	<1.0	<1.0	<2.0
BH53R	10/30/18	21	<1.0	<1.0	<2.0
BH53R	01/29/19	9.1	<1.0	<1.0	<2.0
BH53R	04/23/19	2.1	<1.0	<1.0	<2.0
BH53R	07/30/19	<1.0	<1.0	<1.0	<2.0
BH53R	10/25/19	<1.0	<1.0	<1.0	<2.0
BH54	07/27/17	Not Sampled - Insufficient Water			
BH54	07/27/17	Broken Casing - Monitoring Well Destroyed			
BH54R	10/30/17	<1.0	<1.0	<1.0	<2.0
BH54R	01/25/18	1,400	<1.0	<1.0	<2.0
BH54R	04/20/18	<1.0	<1.0	<1.0	<2.0
BH54R	07/19/18	16	<1.0	<1.0	<2.0
BH54R	07/30/18	<1.0	<1.0	<1.0	<2.0

TABLE 2
GROUNDWATER ANALYTICAL DATA
NOBLE ENERGY, INC.
FEATHER 31-15

Monitoring Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
COGCC Groundwater Standard (ug/L)		5	560	700	1,400
BH54R	10/30/18	66	<1.0	<1.0	<2.0
BH54R	01/29/19	33	<1.0	<1.0	<2.0
BH54R	04/23/19	17	<1.0	<1.0	<2.0
BH54R	07/30/19	<1.0	<1.0	<1.0	<2.0
BH54R	10/25/19	4.3	<1.0	<1.0	<2.0
BH55	07/27/17	<1.0	<1.0	<1.0	<2.0
BH55	07/27/17	Broken Casing - Monitoring Well Destroyed			
BH55R	10/30/17	<1.0	<1.0	<1.0	<2.0
BH55R	01/25/18	1.1	<1.0	<1.0	<2.0
BH55R	04/19/18	<1.0	<1.0	<1.0	<2.0
BH55R	07/19/18	<1.0	<1.0	<1.0	<2.0
BH55R	10/30/18	<1.0	<1.0	<1.0	<2.0
BH55R	01/29/19	<1.0	<1.0	<1.0	<2.0
BH55R	04/23/19	<1.0	<1.0	<1.0	<2.0
BH55R	07/30/19	<1.0	<1.0	<1.0	<2.0
BH55R	10/25/19	<1.0	<1.0	<1.0	<2.0
BH56	07/30/19	<1.0	<1.0	<1.0	<2.0
BH56	10/25/19	<1.0	<1.0	<1.0	<2.0
BH57	07/30/19	<1.0	<1.0	<1.0	<2.0
BH57	10/25/19	<1.0	<1.0	<1.0	<2.0
BH58	07/30/19	<1.0	<1.0	<1.0	<2.0
BH58	10/25/19	<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

Groundwater standards referenced from COGCC Table 910-1

Highlighted results are equal to or exceed the COGCC Table 910-1 standard

TABLE 3
REMEDIATION SYSTEM AIR EMISSION DATA SUMMARY
NOBLE ENERGY, INC. FEATHER 31-15



Soil Vapor Extraction															
Date	SVE Runtime Meter Reading	Period Incremental Operating Hours	Total Hours In Operating Period	Period Runtime Factor (%)	Effluent Temp (°F)	Sys Vacuum (inches of WC)	Effluent OVC (ppm)	Effluent Concentration (ug/m3)	Air Flow Rate (cfm)	Grams/cubic feet	grams/minute	Mass Extracted (lbs)		Incremental Mass Removed (lbs)	Cumulative Mass Removed (lbs)
												lbs/hour	lbs total		
01/12/18	8,345.1	167.5	168	100%	73.2	-14.5	0.3	4,510	23.4	0.00013	0.003	0.00040	0.07	0.07	0.07
02/15/18	8,846.4	501.3	816	61%	62.7	-14.4	0.1	4,280	5.9	0.00012	0.0007	0.00009	0.05	0.05	0.11
03/27/18	9,742.5	896.1	960	93%	70.0	-21.9	0.3	2,510	5.2	0.00007	0.0004	0.00005	0.04	0.04	0.16
05/29/18	10,587.9	845.4	1,512	56%	73.9	-14.4	0.1	0	6.8	0.00000	0.0000	0.00000	0.00	0.00	0.16
06/25/18	11,232.8	644.9	648	100%	74.9	-14.2	0.0	2,710.0	7.9	0.00008	0.0006	0.00008	0.05	0.05	0.21
07/25/18	11,609.1	376.3	720	52%	75.9	-15.2	0.0	10,500	8.4	0.00030	0.0025	0.00033	0.12	0.12	0.33
08/17/18	11,965.5	356.4	552	65%	76.9	-14.2	0.0	0	3.95	0.00000	0.0000	0.00000	0.00	0.00	0.33
09/17/18	12,743.7	778.2	744	105%	87.0	-14.0	0.0	0	7.75	0.00000	0.0000	0.00000	0.00	0.00	0.33
10/17/18	13,412.6	668.9	720	93%	69.8	-14.9	0.0	0	5.46	0.00000	0.0000	0.00000	0.00	0.00	0.33
11/21/18	14,086.8	674.2	840	80%	70.8	-15.1	0.0	0	5.59	0.00000	0.0000	0.00000	0.00	0.00	0.33
12/20/18	14,648.0	561.2	696	81%	71.8	-15.4	0.1	0	34.37	0.00000	0.0000	0.00000	0.00	0.00	0.33
01/21/19	15,301.0	653.0	768	85%	72.8	-14.6	0.0	12,900	30.03	0.00037	0.0110	0.00145	0.95	0.95	1.28
02/25/19	15,947.3	646.3	840	77%	73.8	-14.0	0.0	0	12.34	0.00000	0.0000	0.00000	0.00	0.00	1.28
03/26/19	16,514.3	567.0	696	81%	74.8	-14.4	0.6	0	21.17	0.00000	0.0000	0.00000	0.00	0.00	1.28
03/26/19	31,477.0	New Remediation Trailer with New Hours Meter												0.00	1.28
07/23/19	31,599.4	122.4	2,856	4%	84.8	-100.0	69.2	2,340	72.36	0.00007	0.0048	0.00063	0.08	0.08	1.36
08/12/19	31,888.5	289.1	480	60%	113.0	-36.2	1.8	2,510	90.84	0.00007	0.0065	0.00085	0.25	0.25	1.60
09/30/19	32,281.4	392.9	1,176	33%	75.4	-39.7	0.0	15,100	81.60	0.00043	0.0349	0.00461	1.81	1.81	3.42
10/16/19	32,436.1	154.7	384	40%	75.0	-27.5	0.0	2,400	285.67	0.00007	0.0194	0.00257	0.40	0.40	3.81

Notes:

HC: Hydrocarbon

OVC: Organic Vapor Concentration

WC: Water Column

° F : degrees fahrenheit

ppm: parts per million

cfm: cubic feet per minute

Effluent concentration is based on total petroleum hydrocarbons - gasoline range organics

NM: Not Measured

Total Pounds Emitted Since Startup	3.81
Total Tons Emitted Since Startup	0.00191
Total Pounds Emitted in 2018	0.33
Total Tons Emitted in 2018	0.00017
Total Pounds Emitted in 2019	3.48
Total Tons Emitted in 2019	0.00174

FIGURES

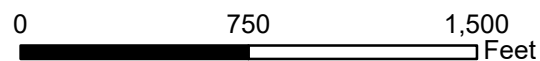
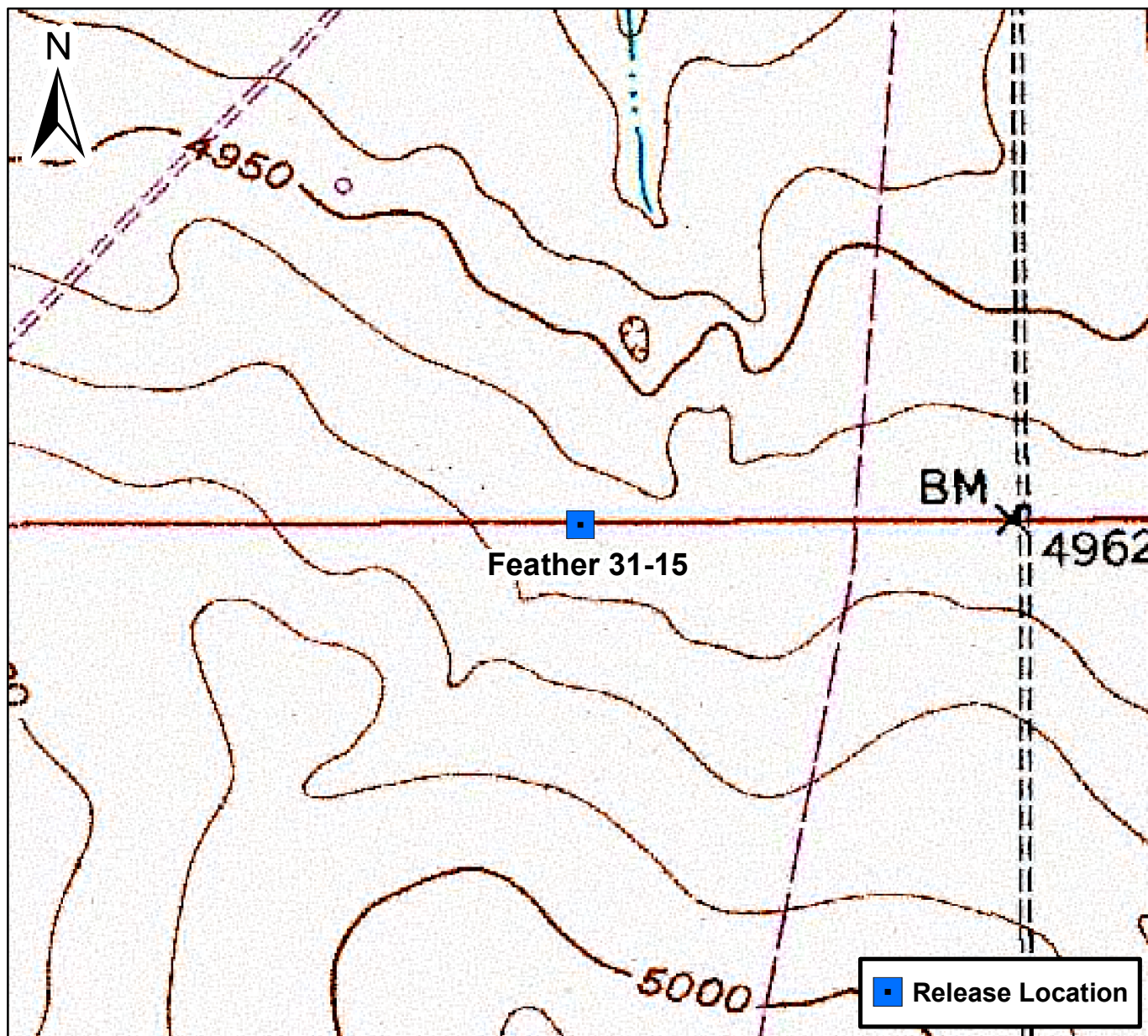
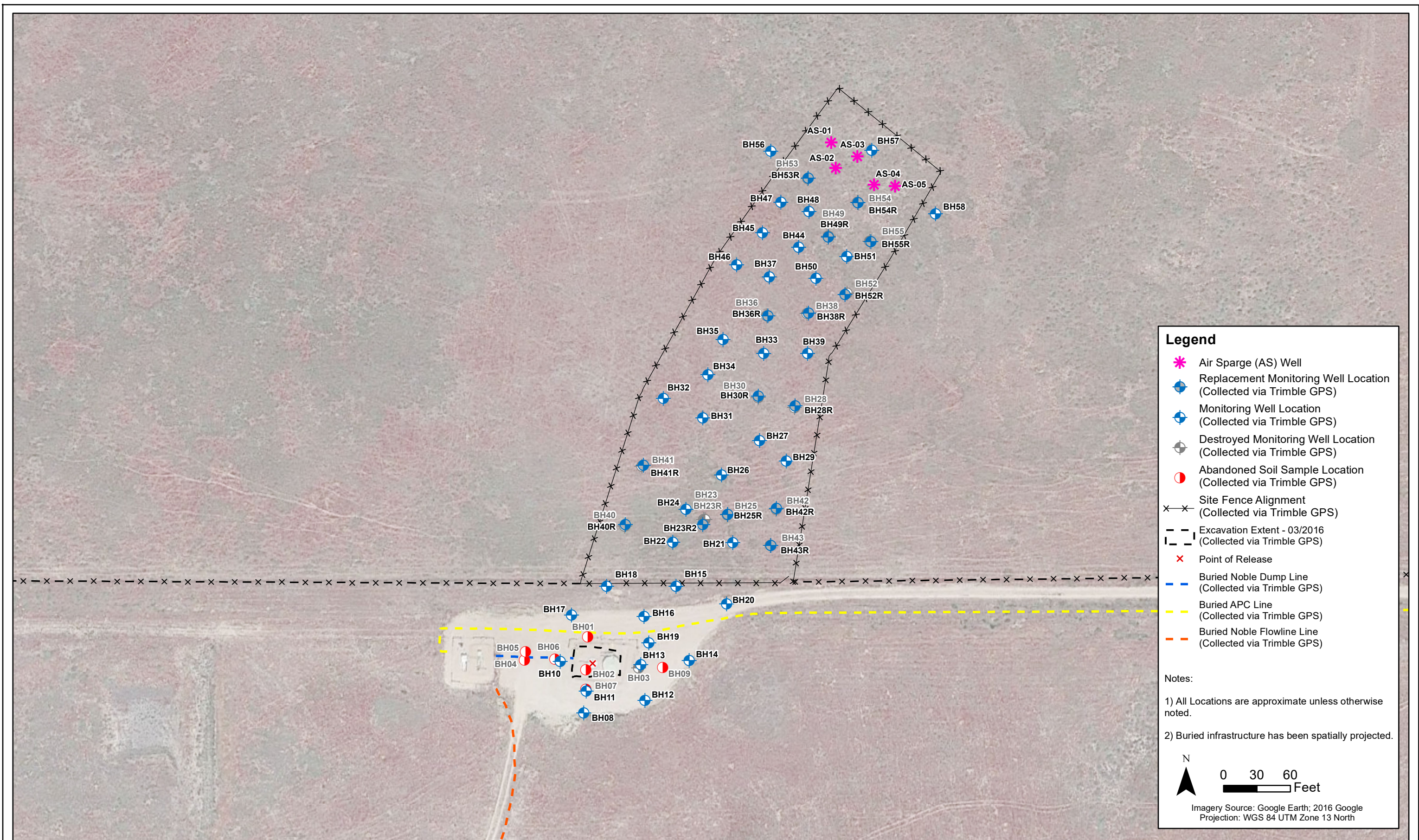



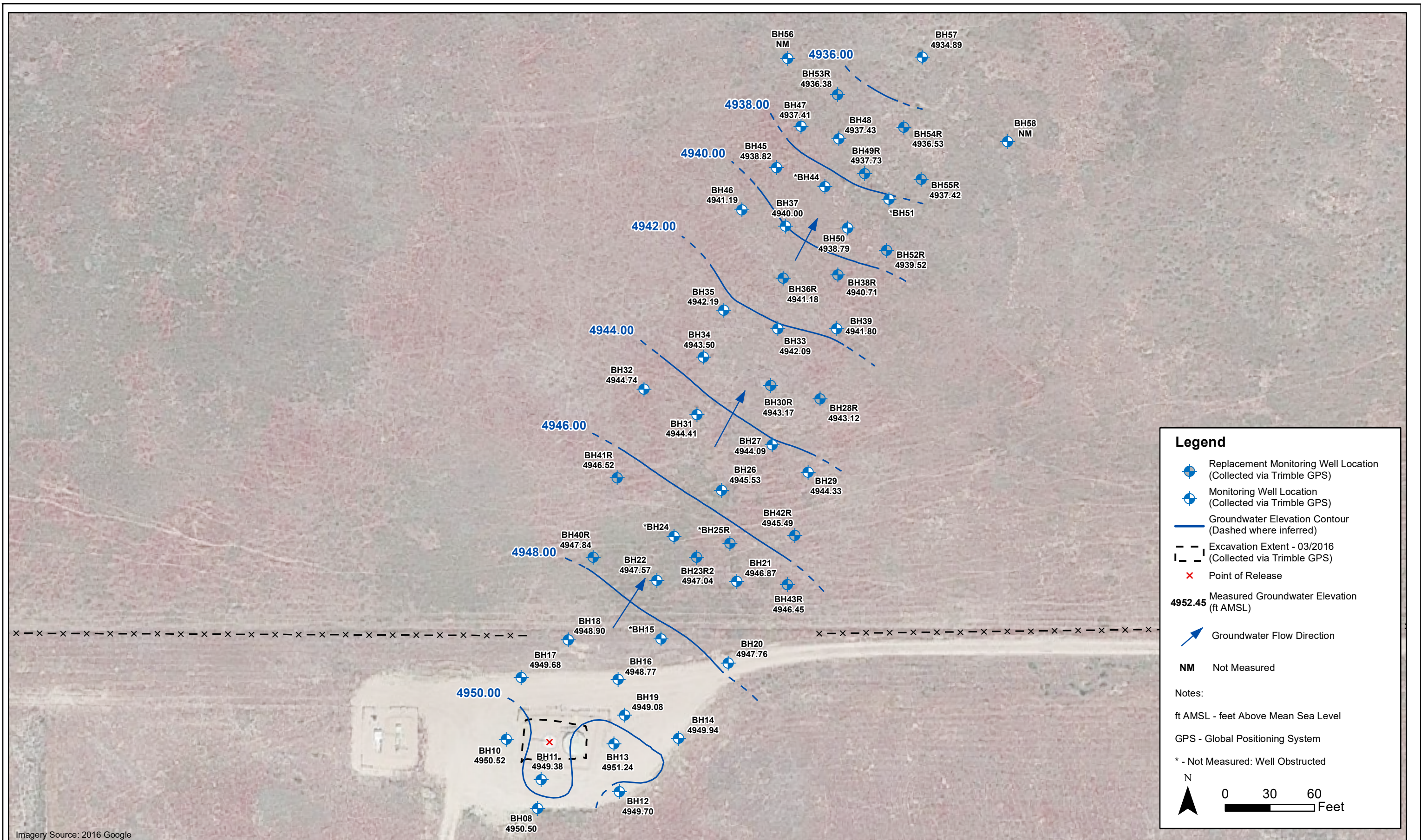
Figure 1

Site Location Map
Feather 31-15
NWNE S15 T2N R64W
Weld County, Colorado





DATE: June 2019	 Tasman Geosciences, Inc. 6855 W. 119th Ave Broomfield, CO 80020	Noble Energy - DJ Basin Feather 31-15 NWNE Section 15, Township 2 North, Range 64 West Weld County, Colorado	Site Overview Map	FIGURE 2
DESIGNED BY: B. Bruns				
DRAWN BY: C. Olson				



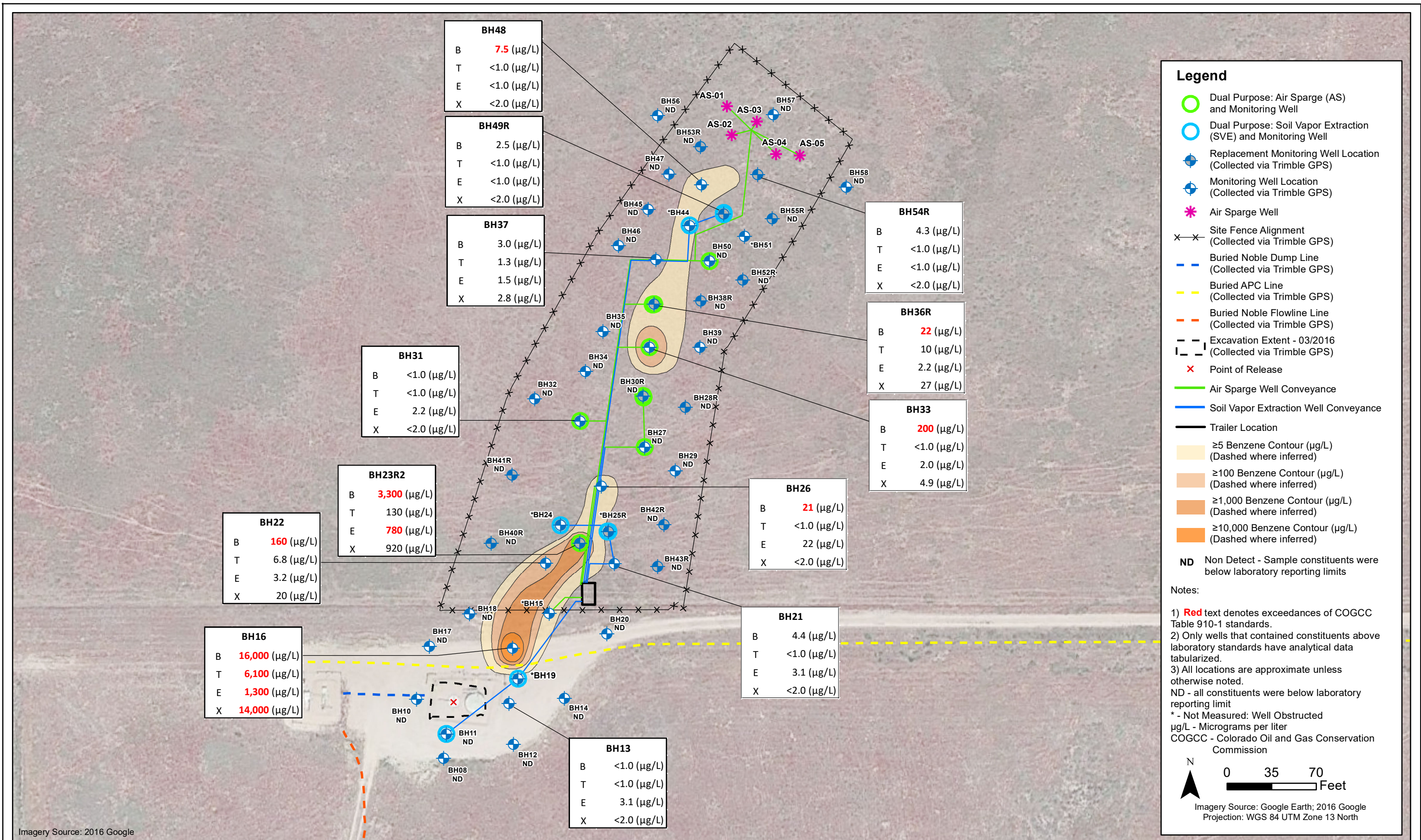
DATE:	December 2019
DESIGNED BY:	B. Bruns
DRAWN BY:	L. Martin



Noble Energy - DJ Basin
Feather 31-15
NWNE Section 15, Township 2 North, Range 64 West
Weld County, Colorado

Groundwater Potentiometric
Surface Map
(10/25/2019)

FIGURE
3



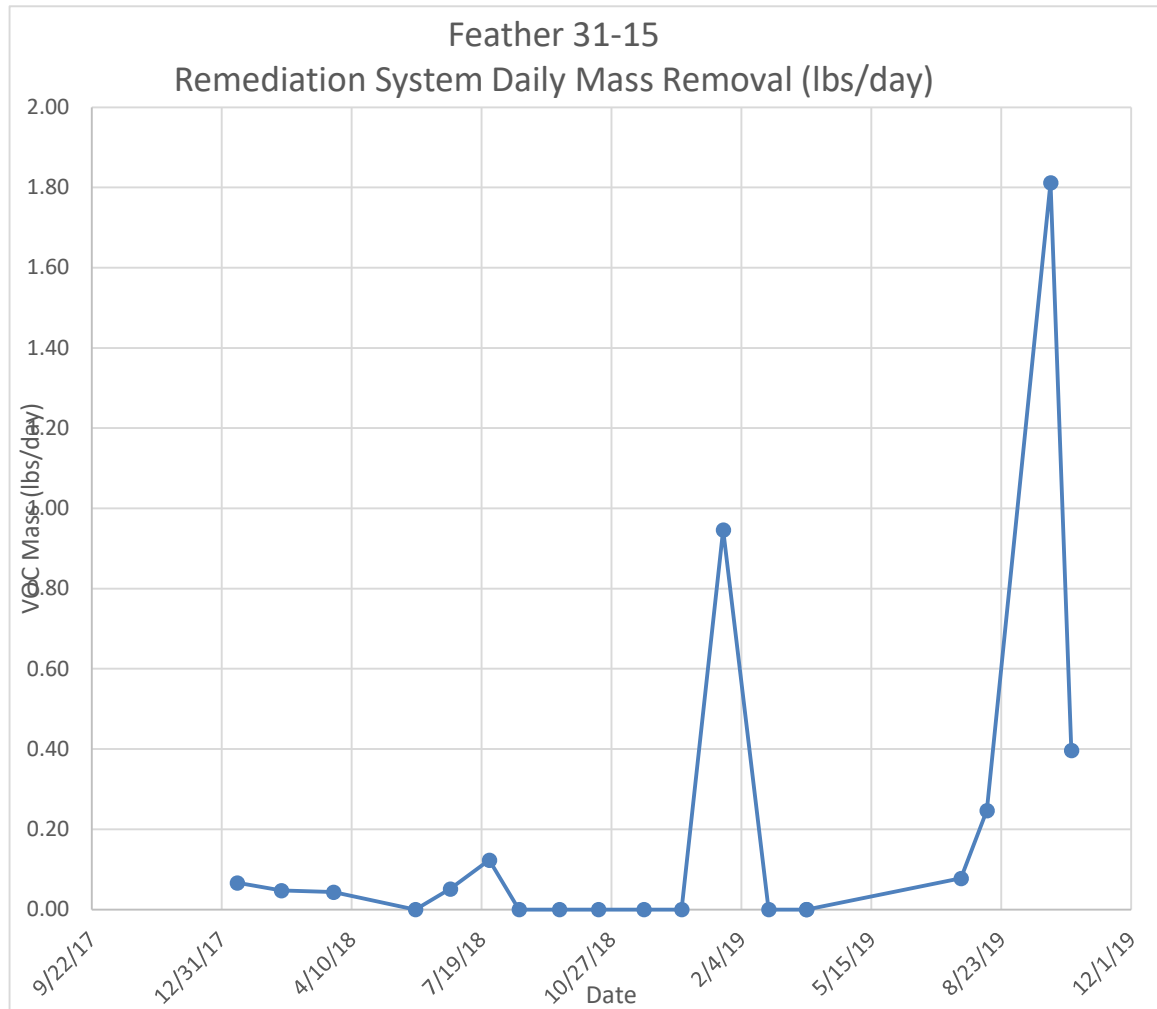
DATE:	December 2019
DESIGNED BY:	B. Bruns
DRAWN BY:	L. Martin

Figure 5
Feather 31-15
Average Benzene Concentration VS Quarterly Sampling Event Date

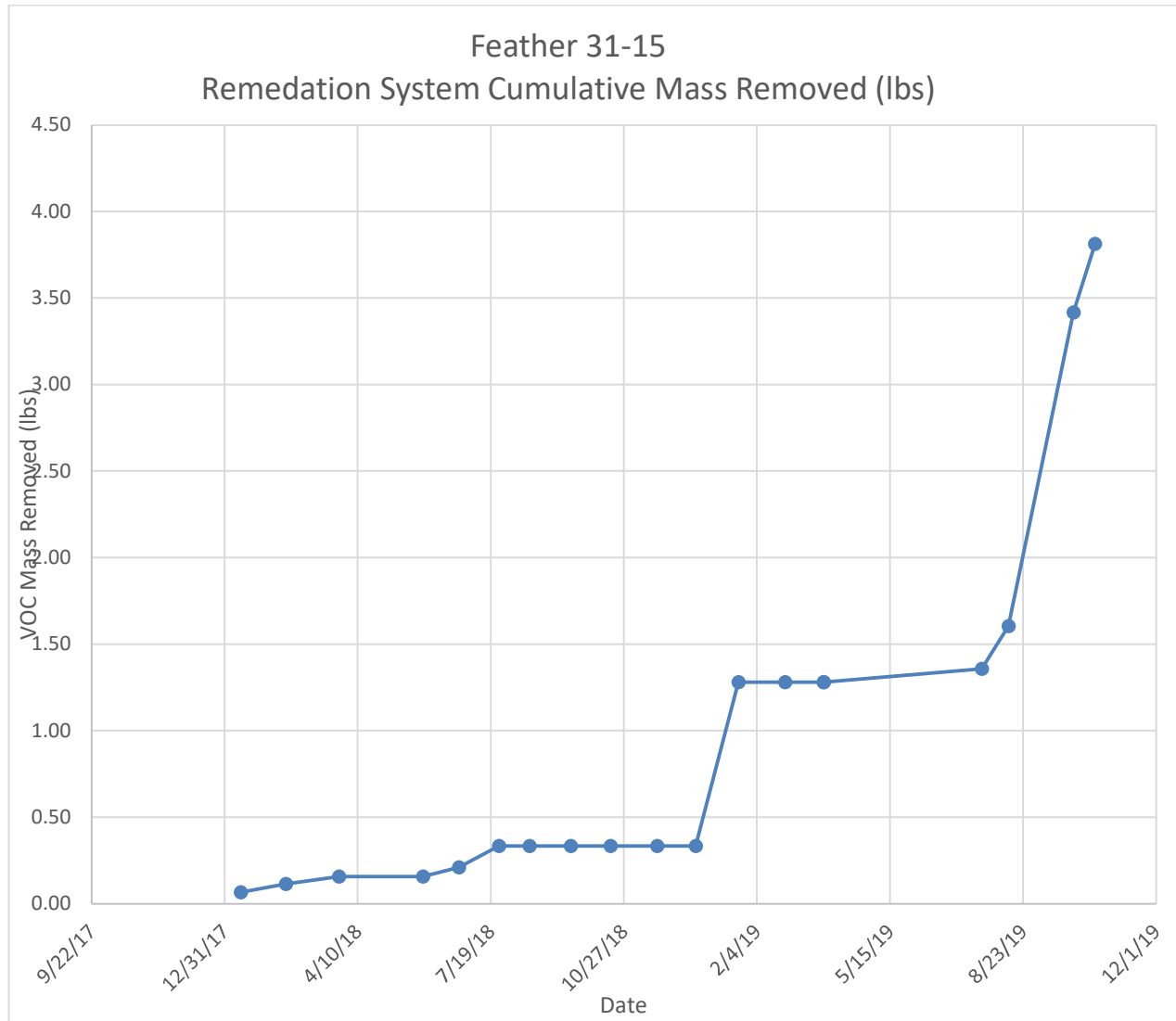


CHARTS

**Chart 1 - Periodic Mass Removal
Remediation System Air Emissions**



**Chart 2 - Cumulative Mass Removal
Remediation System Air Emissions**



ATTACHMENT A

LABORATORY ANALYTICAL DATA REPORTS

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

November 04, 2019

Brandon Bruns

Tasman Geosciences

6855 W. 119th Ave.

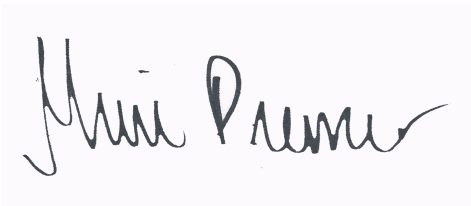
Broomfield, CO 80020

RE: Noble - Feather 31-15

Work Order # 1910327

Enclosed are the results of analyses for samples received by Summit Scientific on 10/25/19 17:30. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink on a light blue background. The signature is written in a cursive style and reads "Muri Premier".

Muri Premier For Paul Shrewsbury

President



Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Feather 31-15

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/04/19 15:49

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH08	1910327-01	Water	10/25/19 10:40	10/25/19 17:30
BH10	1910327-02	Water	10/25/19 11:00	10/25/19 17:30
BH11	1910327-03	Water	10/25/19 10:50	10/25/19 17:30
BH12	1910327-04	Water	10/25/19 11:10	10/25/19 17:30
BH13	1910327-05	Water	10/25/19 11:20	10/25/19 17:30
BH14	1910327-06	Water	10/25/19 11:30	10/25/19 17:30
BH16	1910327-07	Water	10/25/19 12:30	10/25/19 17:30
BH17	1910327-08	Water	10/25/19 11:40	10/25/19 17:30
BH18	1910327-09	Water	10/25/19 10:55	10/25/19 17:30
BH20	1910327-10	Water	10/25/19 11:00	10/25/19 17:30
BH21	1910327-11	Water	10/25/19 13:09	10/25/19 17:30
BH22	1910327-12	Water	10/25/19 12:45	10/25/19 17:30
BH23R2	1910327-13	Water	10/25/19 13:15	10/25/19 17:30
BH26	1910327-14	Water	10/25/19 12:50	10/25/19 17:30
BH27	1910327-15	Water	10/25/19 12:36	10/25/19 17:30
BH28R	1910327-16	Water	10/25/19 12:41	10/25/19 17:30
BH29	1910327-17	Water	10/25/19 12:28	10/25/19 17:30
BH30R	1910327-18	Water	10/25/19 12:29	10/25/19 17:30
BH31	1910327-19	Water	10/25/19 11:32	10/25/19 17:30
BH32	1910327-20	Water	10/25/19 11:54	10/25/19 17:30
BH33	1910327-21	Water	10/25/19 13:11	10/25/19 17:30
BH34	1910327-22	Water	10/25/19 12:18	10/25/19 17:30
BH35	1910327-23	Water	10/25/19 11:57	10/25/19 17:30
BH36R	1910327-24	Water	10/25/19 13:38	10/25/19 17:30
BH37	1910327-25	Water	10/25/19 13:27	10/25/19 17:30
BH38R	1910327-26	Water	10/25/19 13:17	10/25/19 17:30
BH39	1910327-27	Water	10/25/19 12:51	10/25/19 17:30

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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.



Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Feather 31-15

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/04/19 15:49

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH40R	1910327-28	Water	10/25/19 11:24	10/25/19 17:30
BH41R	1910327-29	Water	10/25/19 11:44	10/25/19 17:30
BH42R	1910327-30	Water	10/25/19 12:15	10/25/19 17:30
BH43R	1910327-31	Water	10/25/19 11:11	10/25/19 17:30
BH45	1910327-32	Water	10/25/19 11:29	10/25/19 17:30
BH46	1910327-33	Water	10/25/19 11:52	10/25/19 17:30
BH47	1910327-34	Water	10/25/19 11:23	10/25/19 17:30
BH48	1910327-35	Water	10/25/19 13:20	10/25/19 17:30
BH49R	1910327-36	Water	10/25/19 13:32	10/25/19 17:30
BH50	1910327-37	Water	10/25/19 12:59	10/25/19 17:30
BH52R	1910327-38	Water	10/25/19 11:48	10/25/19 17:30
BH53R	1910327-39	Water	10/25/19 11:04	10/25/19 17:30
BH54R	1910327-40	Water	10/25/19 12:38	10/25/19 17:30
BH55R	1910327-41	Water	10/25/19 11:18	10/25/19 17:30
BH56	1910327-42	Water	10/25/19 12:23	10/25/19 17:30
BH57	1910327-43	Water	10/25/19 12:04	10/25/19 17:30
BH58	1910327-44	Water	10/25/19 11:00	10/25/19 17:30

This report has been edited from the original.

Sample ID BH23R has been changed to BH23R2 per request of AD 11.4.2019

Summit Scientific

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1910327.1

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

Page 1 of 5Client: Noble/TasmanAddress: 6855 W 119th AveCity/State/Zip: Broomfield CO 80020Phone: 303-487-1228 Fax:Sampler Name: JMKWSProject Manager: Brandon Bruns, Invoice: Jacob EvansE-Mail: Bbruns@tasman-geo.comProject Name: Feather 31-15Project Number: 119

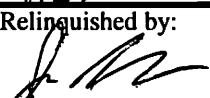
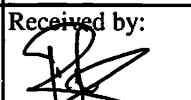
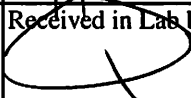
Sample Description	Date Sampled	Time Sampled	Number of Containers	Preservative				Matrix			Analyze For:										Special Instructions					
				HCl	HNO ₃	None	Other (Specify)	Groundwater	Soil	Air - Canister Serial #	Other (Specify)	BTEX														
BH08	10/25/19	1040	3	X				X				X														
BH10	10/25/19	1100	3	X				X				X														
BH11	10/25/19	1050	3	X				X				X														
BH12	10/25/19	1110	3	X				X				X														
BH13	10/25/19	1120	3	X				X				X														
BH14	10/25/19	1130	3	X				X				X														
BH16	10/25/19	1230	3	X				X				X														
BH17	10/25/19	1140	3	X				X				X														
BH18	10/25/19	1055	3	X				X				X														
BH20	10/25/19	1100	3	X				X				X														

Relinquished by: <u>[Signature]</u>	Date/Time: <u>10/25/19 1455</u>	Received by: <u>Tasman Lock Box</u>	Date/Time: <u>10/25/19 1455</u>	Turn Around Time (Check)	Notes:
Relinquished by: <u>Tasman Lock Box</u>	Date/Time: <u>10/25/19 1730</u>	Received by: <u>[Signature]</u>	Date/Time: <u>10/25/19 1730</u>	Same Day <input type="checkbox"/> 72 Hours <input type="checkbox"/> 24 Hours <input type="checkbox"/> Standard <input checked="" type="checkbox"/> 48 Hours <input type="checkbox"/>	
Relinquished by:	Date/Time:	Received in Lab by: <u>[Signature]</u>	Date/Time:	Sample Integrity: <u>SC</u> Temperature Upon Receipt: <u>SC</u> Intact: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	

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Page 2 of 5


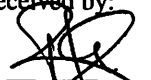
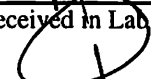
Project Manager: Brandon Bruns, Invoice: Jacobs Evans
E-Mail: Bbruns@tasman-geo.com
Project Name: Feather 31-15
Project Number: n/a

				Preservative				Matrix				Analyze For:										
Sample Description	Date Sampled	Time Sampled	Number of Containers	HCl	HNO ₃	None	Other (Specify)	Groundwater	Soil	Air - Canister Serial #	Other (Specify)	BTX										Special Instructions
BH21	10/25/19	1309	3	X				X				X										
BH22	10/25/19	1245	3	X				X				X										
BH23R	10/25/19	1315	3	X				X				X										
BH26	10/25/19	1250	3	X				X				X										
BH27	10/25/19	1236	3	X				X				X										
BH28R	10/25/19	1241	3	X				X				X										
BH29	10/25/19	1228	3	X				X				X										
BH30R	10/25/19	1229	3	X				X				X										
BH31	10/25/19	1132	3	X				X				X										
BH32	10/25/19	1154	3	X				X				X										
Relinquished by:  Date/Time: 10/25/19 1455				Received by: Tasman Lock Box Date/Time: 10/25/19 1455				Turn Around Time (Check) Same Day <input type="checkbox"/> 72 Hours <input type="checkbox"/> 24 Hours <input type="checkbox"/> Standard <input checked="" type="checkbox"/> 48 Hours <input type="checkbox"/>										Notes:				
Relinquished by: Tasman Lock Box Date/Time: 10/25/19 1730				Received by:  Date/Time: 10/25/19 1730				Sample Integrity: Temperature Upon Receipt: 8.6 Intact: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>														
Relinquished by:				Received in Lab by:  Date/Time:																		

Summit Scientific

Page 3 of 5

Project Manager: Brandon Bruns, Invoice: Jacks Evans
E-Mail: Bbruns@tasman-geo.com
Project Name: Feather 31-5
Project Number: n/a

				Preservative				Matrix				Analyze For:								Special Instructions
Sample Description	Date Sampled	Time Sampled	Number of Containers	HCl	HNO ₃	None	Other (Specify)	Groundwater	Soil	Air - Canister Serial #	Other (Specify)	BTEX								
BH33	10/25/19	1311	3	X				X				X								
BH34	10/25/19	1218	3	X				X				X								
BH35	10/25/19	1157	3	X				X				X								
BH36R	10/25/19	1338	3	X				X				X								
BH37	10/25/19	1327	3	X				X				X								
BH38R	10/25/19	1317	3	X				X				X								
BH39	10/25/19	1251	3	X				X				X								
BH40R	10/25/19	1124	3	X				X				X								
BH41R	10/25/19	1144	3	X				X				X								
BH42R	10/25/19	1215	3	X				X				X								
Relinquished by:  Date/Time: 10/25/19 1455				Received by: Tasman Lock Box Date/Time: 10/25/19 1455				Turn Around Time (Check)				Notes:								
								Same Day <input type="checkbox"/>				72 Hours <input type="checkbox"/>								
								24 Hours <input type="checkbox"/>				Standard <input checked="" type="checkbox"/>								
								48 Hours <input type="checkbox"/>												
Relinquished by: Tasman Lock Box Date/Time: 10/25/19 1730				Received by:  Date/Time: 10/25/19 1730				Sample Integrity:												
Relinquished by:				Received in Lab by: 				Temperature Upon Receipt:				S-6								
								Intact: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>												

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1910327.4

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Page 4 of 5

Client: Noble/Tusman
Address: 6855 W 119th Ave
City/State/Zip: Broomfield CO 80020
Phone: 303-487-1228 Fax: _____
Sampler Name: J Marcus

Project Manager: Brandon Bruns, Invoiced Jacob Evans
E-Mail: Bbruns@tusman-geo.com
Project Name: Father 31-K
Project Number: n/a

Sample Description	Date Sampled	Time Sampled	Number of Containers	Preservative				Matrix			Analyze For:												Special Instructions				
				HCl	HNO ₃	None	Other (Specify)	Groundwater	Soil	Air - Canister Serial #	Other (Specify)	BTEX															
BH43R	10/25/19	1111	3	X				X				X															
BH45	10/25/19	1129	3	X				X				X															
BH46	10/25/19	1152	3	X				X				X															
BH47	10/25/19	1123	3	X				X				X															
BH48	10/25/19	1320	3	X				X				X															
BH49R	10/25/19	1332	3	X				X				X															
BH50	10/25/19	1259	3	X				X				X															
BH52R	10/25/19	1148	3	X				X				X															
BH53R	10/25/19	1104	3	X				X				X															
BH54R	10/25/19	1238	3	X				X				X															

Relinquished by: <u>[Signature]</u> Date/Time: <u>10/25/19 1455</u>	Received by: <u>Tusman Lock Box</u> Date/Time: <u>10/25/19 1455</u>	Turn Around Time (Check) Same Day <input type="checkbox"/> 72 Hours <input type="checkbox"/> 24 Hours <input type="checkbox"/> Standard <input checked="" type="checkbox"/> 48 Hours <input type="checkbox"/>	Notes:
Relinquished by: <u>Tusman Lock Box</u> Date/Time: <u>10/25/19 1720</u>	Received by: <u>[Signature]</u> Date/Time: <u>10/25/19 1720</u>	Sample Integrity: <u>S.C.</u>	
Relinquished by: _____ Date/Time: _____	Received in Lab by: <u>[Signature]</u> Date/Time: _____	Temperature Upon Receipt: <u>S.C.</u> Intact: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	

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Page 5 of 5

Sampler Name: J Marcus

Project Number: n/a

www.s2scientific.com

~~Yes~~

Sample Receipt Checklist

S2 Work Order 1910327

Client: Noble / Masman Client Project ID: Feather 31-15

Shipped Via: H.D./P.U./FedEx/UPS/USPS/Other Airbill #: _____

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

Temp (°C)	<u>5.6</u>
-----------	------------

Thermometer ID: 61857155-K

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature at 4°C +/- 2°C ⁽¹⁾ ? NOTE: If samples are delivered the same day of sampling, this requirement is met provided that there is evidence that cooling has begun.	<u>X</u>			
Were all samples received intact ⁽¹⁾ ?	<u>X</u>			
Was adequate sample volume provided ⁽¹⁾ ?	<u>X</u>			
If custody seals are present, are they intact ⁽¹⁾ ?			<u>X</u>	
Are samples with holding times due within 48 hours sample due within 48 hours present?		<u>X</u>		
Is a chain-of-custody (COC) form present and filled out completely ⁽¹⁾ ?	<u>X</u>			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	<u>X</u>			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	<u>X</u>			
Is the COC properly relinquished by the client w/ date and time recorded ⁽¹⁾ ?	<u>X</u>			
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.		<u>X</u>		
Are samples preserved that require preservation (excluding cooling) ⁽¹⁾ ? Note the type of preservative in the Comments column – HCl, H2SO4, NaOH, HNO3, ect	<u>X</u>			
If samples are acid preserved for metals, is the pH ≤ 2 ⁽¹⁾ ? Record the pH in Comments.			<u>X</u>	
If dissolved metals are requested, were samples field filtered?			<u>X</u>	
Additional Comments (if any): 				
⁽¹⁾ If NO, then contact the client before proceeding with analysis and note in case narrative.				

TEB
Custodian Printed Name or Initials

[Signature]
Signature of Custodian

10/25/19
Date/Time

1864



Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Feather 31-15

Project Number: [none]

Project Manager: Brandon Bruns

Reported:

11/04/19 15:49

BH08
1910327-01 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/25/19 10:40**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	1910422	10/29/19	10/31/19	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	2.0		"	"	"	"	"	"	

Date Sampled: **10/25/19 10:40**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		115 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		104 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		89.5 %		21-167		"	"	"	"	

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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.



Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Feather 31-15

Project Number: [none]

Project Manager: Brandon Bruns

Reported:

11/04/19 15:49

BH10

1910327-02 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/25/19 11:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1910422	10/29/19	10/31/19	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **10/25/19 11:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		120 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		105 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		92.3 %	21-167		"	"	"	"	

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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.



Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Feather 31-15

Project Number: [none]

Project Manager: Brandon Bruns

Reported:

11/04/19 15:49

BH11

1910327-03 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/25/19 10:50**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1910422	10/29/19	10/31/19	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **10/25/19 10:50**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		134 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		101 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		95.6 %	21-167		"	"	"	"	

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.



Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Feather 31-15

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/04/19 15:49

BH12
1910327-04 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/25/19 11:10**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1910422	10/29/19	10/31/19	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **10/25/19 11:10**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		127 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		104 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		96.8 %	21-167		"	"	"	"	

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.



Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Feather 31-15

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/04/19 15:49

BH13
1910327-05 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/25/19 11:20**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1910422	10/29/19	11/01/19	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	3.1	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **10/25/19 11:20**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		122 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		103 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		104 %	21-167		"	"	"	"	

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.



Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Feather 31-15

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/04/19 15:49

BH14
1910327-06 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/25/19 11:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1910422	10/29/19	11/01/19	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **10/25/19 11:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		115 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		112 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		98.5 %	21-167		"	"	"	"	

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.



Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Feather 31-15

Project Number: [none]

Project Manager: Brandon Bruns

Reported:

11/04/19 15:49

BH16

1910327-07 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 10/25/19 12:30

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	16000	100		ug/l	100	1910422	10/29/19	11/01/19	EPA 8260B	
Toluene	6100	100		"	"	"	"	"	"	
Ethylbenzene	1300	100		"	"	"	"	"	"	
Xylenes (total)	14000	200		"	"	"	"	"	"	

Date Sampled: 10/25/19 12:30

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		124 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		106 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		102 %		21-167		"	"	"	"	

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.



Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Feather 31-15

Project Number: [none]

Project Manager: Brandon Bruns

Reported:

11/04/19 15:49

BH17

1910327-08 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/25/19 11:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1910422	10/29/19	11/01/19	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **10/25/19 11:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		111 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		107 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		97.9 %	21-167		"	"	"	"	

Summit Scientific

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Feather 31-15

Project Number: [none]

Project Manager: Brandon Bruns

Reported:

11/04/19 15:49

BH18

1910327-09 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/25/19 10:55**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1910422	10/29/19	11/01/19	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **10/25/19 10:55**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		117 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		102 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		102 %	21-167		"	"	"	"	

Summit Scientific

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6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Feather 31-15

Project Number: [none]

Project Manager: Brandon Bruns

Reported:

11/04/19 15:49

BH20

1910327-10 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/25/19 11:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1910422	10/29/19	11/01/19	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **10/25/19 11:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		127 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		105 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		98.3 %	21-167		"	"	"	"	

Summit Scientific

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6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Feather 31-15

Project Number: [none]

Project Manager: Brandon Bruns

Reported:

11/04/19 15:49

BH21

1910327-11 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 10/25/19 13:09

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	4.4	1.0		ug/l	1	1910422	10/29/19	11/01/19	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	3.1	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	2.0		"	"	"	"	"	"	

Date Sampled: 10/25/19 13:09

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		121 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		105 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		97.2 %		21-167		"	"	"	"	

Summit Scientific

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Project: Noble - Feather 31-15

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/04/19 15:49

BH22
1910327-12 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/25/19 12:45**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	160	1.0		ug/l	1	1910422	10/29/19	11/01/19	EPA 8260B	
Toluene	6.8	1.0		"	"	"	"	"	"	
Ethylbenzene	3.2	1.0		"	"	"	"	"	"	
Xylenes (total)	20	2.0		"	"	"	"	"	"	

Date Sampled: **10/25/19 12:45**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		132 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		101 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		92.6 %		21-167		"	"	"	"	

Summit Scientific

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6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Feather 31-15

Project Number: [none]

Project Manager: Brandon Bruns

Reported:

11/04/19 15:49

BH23R2
1910327-13 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/25/19 13:15**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	3300	100	ug/l	100	1910422	10/29/19	11/01/19	EPA 8260B	
Toluene	130	100	"	"	"	"	"	"	
Ethylbenzene	780	100	"	"	"	"	"	"	
Xylenes (total)	920	200	"	"	"	"	"	"	

Date Sampled: **10/25/19 13:15**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		121 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		105 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		96.0 %	21-167		"	"	"	"	

Summit Scientific

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Project: Noble - Feather 31-15

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/04/19 15:49

BH26
1910327-14 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/25/19 12:50**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	21	1.0		ug/l	1	1910422	10/29/19	11/01/19	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	22	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	2.0		"	"	"	"	"	"	

Date Sampled: **10/25/19 12:50**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		130 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		113 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		104 %		21-167		"	"	"	"	

Summit Scientific

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Project: Noble - Feather 31-15

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/04/19 15:49

BH27
1910327-15 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/25/19 12:36**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1910422	10/29/19	11/01/19	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **10/25/19 12:36**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		122 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		107 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		92.9 %	21-167		"	"	"	"	

Summit Scientific

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Project: Noble - Feather 31-15

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/04/19 15:49

BH28R
1910327-16 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/25/19 12:41**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1910422	10/29/19	11/01/19	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **10/25/19 12:41**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		117 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		101 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		95.3 %	21-167		"	"	"	"	

Summit Scientific

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Broomfield CO, 80020

Project: Noble - Feather 31-15

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/04/19 15:49

BH29
1910327-17 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/25/19 12:28**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1910422	10/29/19	11/01/19	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **10/25/19 12:28**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		125 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		98.0 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		97.0 %	21-167		"	"	"	"	

Summit Scientific

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6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Feather 31-15

Project Number: [none]

Project Manager: Brandon Bruns

Reported:

11/04/19 15:49

BH30R

1910327-18 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 10/25/19 12:29

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1910422	10/29/19	11/01/19	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: 10/25/19 12:29

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		122 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		110 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		105 %	21-167		"	"	"	"	

Summit Scientific

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6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Feather 31-15

Project Number: [none]

Project Manager: Brandon Bruns

Reported:

11/04/19 15:49

BH31

1910327-19 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/25/19 11:32**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1910422	10/29/19	11/01/19	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	2.2	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **10/25/19 11:32**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		122 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		106 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		95.6 %	21-167		"	"	"	"	

Summit Scientific

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Broomfield CO, 80020

Project: Noble - Feather 31-15

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/04/19 15:49

BH32
1910327-20 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/25/19 11:54**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1910422	10/29/19	11/01/19	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **10/25/19 11:54**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		122 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		116 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		89.9 %	21-167		"	"	"	"	

Summit Scientific

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6855 W. 119th Ave.
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Project: Noble - Feather 31-15

Project Number: [none]

Project Manager: Brandon Bruns

Reported:

11/04/19 15:49

BH33

1910327-21 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/25/19 13:11**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	200	1.0	ug/l	1	1910423	10/29/19	10/29/19	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	2.0	1.0	"	"	"	"	"	"	
Xylenes (total)	4.9	2.0	"	"	"	"	"	"	

Date Sampled: **10/25/19 13:11**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		95.3 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		83.3 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		96.9 %	21-167		"	"	"	"	

Summit Scientific

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6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Feather 31-15

Project Number: [none]

Project Manager: Brandon Bruns

Reported:

11/04/19 15:49

BH34

1910327-22 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 10/25/19 12:18

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1910423	10/29/19	10/31/19	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: 10/25/19 12:18

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		111 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		74.7 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		96.4 %	21-167		"	"	"	"	

Summit Scientific

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6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Feather 31-15

Project Number: [none]

Project Manager: Brandon Bruns

Reported:

11/04/19 15:49

BH35

1910327-23 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 10/25/19 11:57

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1910423	10/29/19	10/31/19	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: 10/25/19 11:57

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		89.9 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		85.6 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		94.5 %	21-167		"	"	"	"	

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.



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6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Feather 31-15

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/04/19 15:49

BH36R
1910327-24 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/25/19 13:38**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	22	1.0		ug/l	1	1910423	10/29/19	10/31/19	EPA 8260B	
Toluene	10	1.0		"	"	"	"	"	"	
Ethylbenzene	2.2	1.0		"	"	"	"	"	"	
Xylenes (total)	27	2.0		"	"	"	"	"	"	

Date Sampled: **10/25/19 13:38**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		95.1 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		85.3 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		94.8 %		21-167		"	"	"	"	

Summit Scientific

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6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Feather 31-15

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/04/19 15:49

BH37
1910327-25 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/25/19 13:27**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	3.0	1.0	ug/l	1	1910423	10/29/19	10/31/19	EPA 8260B	
Toluene	1.3	1.0	"	"	"	"	"	"	
Ethylbenzene	1.5	1.0	"	"	"	"	"	"	
Xylenes (total)	2.8	2.0	"	"	"	"	"	"	

Date Sampled: **10/25/19 13:27**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		158 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		116 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		99.2 %	21-167		"	"	"	"	

Summit Scientific

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6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Feather 31-15

Project Number: [none]

Project Manager: Brandon Bruns

Reported:

11/04/19 15:49

BH38R

1910327-26 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/25/19 13:17**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1910423	10/29/19	10/31/19	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **10/25/19 13:17**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		103 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		83.2 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		94.8 %	21-167		"	"	"	"	

Summit Scientific

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Feather 31-15

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/04/19 15:49

BH39
1910327-27 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/25/19 12:51**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1910423	10/29/19	10/31/19	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **10/25/19 12:51**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		96.3 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		87.0 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		96.4 %	21-167		"	"	"	"	

Summit Scientific

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6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Feather 31-15

Project Number: [none]

Project Manager: Brandon Bruns

Reported:

11/04/19 15:49

BH40R

1910327-28 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 10/25/19 11:24

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1910423	10/29/19	10/31/19	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: 10/25/19 11:24

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		103 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		78.9 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		94.8 %	21-167		"	"	"	"	

Summit Scientific

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6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Feather 31-15

Project Number: [none]

Project Manager: Brandon Bruns

Reported:

11/04/19 15:49

BH41R

1910327-29 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/25/19 11:44**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1910423	10/29/19	10/31/19	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **10/25/19 11:44**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		151 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		125 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		95.6 %	21-167		"	"	"	"	

Summit Scientific

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6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Feather 31-15

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/04/19 15:49

BH42R
1910327-30 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/25/19 12:15**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1910423	10/29/19	10/31/19	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **10/25/19 12:15**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		105 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		86.1 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		95.9 %	21-167		"	"	"	"	

Summit Scientific

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6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Feather 31-15

Project Number: [none]

Project Manager: Brandon Bruns

Reported:

11/04/19 15:49

BH43R

1910327-31 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/25/19 11:11**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1910423	10/29/19	10/31/19	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **10/25/19 11:11**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		89.5 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		85.8 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		95.1 %	21-167		"	"	"	"	

Summit Scientific

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6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Feather 31-15

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/04/19 15:49

BH45
1910327-32 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/25/19 11:29**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1910423	10/29/19	10/31/19	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **10/25/19 11:29**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		101 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		84.2 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		98.0 %	21-167		"	"	"	"	

Summit Scientific

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Feather 31-15

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/04/19 15:49

BH46
1910327-33 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/25/19 11:52**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1910423	10/29/19	11/01/19	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **10/25/19 11:52**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		112 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		91.1 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		98.9 %	21-167		"	"	"	"	

Summit Scientific

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Broomfield CO, 80020

Project: Noble - Feather 31-15

Project Number: [none]

Project Manager: Brandon Bruns

Reported:

11/04/19 15:49

BH47

1910327-34 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/25/19 11:23**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1910421	10/29/19	11/01/19	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **10/25/19 11:23**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		106 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		84.5 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		95.0 %	21-167		"	"	"	"	

Summit Scientific

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6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Feather 31-15

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/04/19 15:49

BH48
1910327-35 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/25/19 13:20**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	7.5	1.0	ug/l	1	1910421	10/29/19	11/01/19	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **10/25/19 13:20**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		132 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		98.0 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		99.8 %	21-167		"	"	"	"	

Summit Scientific

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6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Feather 31-15

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/04/19 15:49

BH49R
1910327-36 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/25/19 13:32**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	2.5	1.0		ug/l	1	1910421	10/29/19	11/01/19	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	2.0		"	"	"	"	"	"	

Date Sampled: **10/25/19 13:32**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		119 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		96.5 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		96.7 %		21-167		"	"	"	"	

Summit Scientific

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Broomfield CO, 80020

Project: Noble - Feather 31-15

Project Number: [none]

Project Manager: Brandon Bruns

Reported:

11/04/19 15:49

BH50

1910327-37 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/25/19 12:59**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1910421	10/29/19	11/01/19	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **10/25/19 12:59**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		117 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		74.3 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		98.6 %	21-167		"	"	"	"	

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.



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6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Feather 31-15

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/04/19 15:49

BH52R
1910327-38 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/25/19 11:48**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1910421	10/29/19	11/01/19	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **10/25/19 11:48**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		128 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		94.7 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		97.3 %	21-167		"	"	"	"	

Summit Scientific

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6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Feather 31-15

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/04/19 15:49

BH53R
1910327-39 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/25/19 11:04**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1910421	10/29/19	11/01/19	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **10/25/19 11:04**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		126 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		98.8 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		95.0 %	21-167		"	"	"	"	

Summit Scientific

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6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Feather 31-15

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/04/19 15:49

BH54R
1910327-40 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/25/19 12:38**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	4.3	1.0	ug/l	1	1910421	10/29/19	11/01/19	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **10/25/19 12:38**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		88.5 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		79.7 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		96.6 %	21-167		"	"	"	"	

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.



Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Feather 31-15

Project Number: [none]

Project Manager: Brandon Bruns

Reported:

11/04/19 15:49

BH55R

1910327-41 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/25/19 11:18**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1910421	10/29/19	11/01/19	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **10/25/19 11:18**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		113 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		86.2 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		97.0 %	21-167		"	"	"	"	

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.



Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Feather 31-15

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/04/19 15:49

BH56
1910327-42 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/25/19 12:23**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1910421	10/29/19	11/01/19	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **10/25/19 12:23**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		121 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		88.3 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		99.0 %	21-167		"	"	"	"	

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.



Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Feather 31-15

Project Number: [none]

Project Manager: Brandon Bruns

Reported:

11/04/19 15:49

BH57

1910327-43 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/25/19 12:04**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1910421	10/29/19	11/01/19	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **10/25/19 12:04**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		103 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		81.7 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		99.8 %	21-167		"	"	"	"	

Summit Scientific

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6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Feather 31-15

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/04/19 15:49

BH58
1910327-44 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/25/19 11:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1910421	10/29/19	11/01/19	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **10/25/19 11:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		103 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		87.1 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		96.1 %	21-167		"	"	"	"	

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.



Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Feather 31-15

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/04/19 15:49

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 1910421 - EPA 5030 Water MS

Blank (1910421-BLK1)

Prepared: 10/29/19 Analyzed: 10/31/19

Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes (total)	ND	2.0	"							
Surrogate: 1,2-Dichloroethane-d4	14.3		"	13.3		107	23-173			
Surrogate: Toluene-d8	14.1		"	13.3		106	20-170			
Surrogate: 4-Bromofluorobenzene	13.8		"	13.3		103	21-167			

LCS (1910421-BS1)

Prepared: 10/29/19 Analyzed: 10/31/19

Benzene	26.9	1.0	ug/l	33.3		80.7	51-132			
Toluene	27.6	1.0	"	33.3		82.9	51-138			
Ethylbenzene	29.1	1.0	"	33.3		87.2	58-146			
m,p-Xylene	59.5	2.0	"	66.7		89.2	57-144			
o-Xylene	27.4	1.0	"	33.3		82.1	53-146			
Surrogate: 1,2-Dichloroethane-d4	15.3		"	13.3		115	23-173			
Surrogate: Toluene-d8	13.4		"	13.3		100	20-170			
Surrogate: 4-Bromofluorobenzene	14.1		"	13.3		106	21-167			

Matrix Spike (1910421-MS1)

Source: 1910310-01

Prepared: 10/29/19 Analyzed: 10/31/19

Benzene	28.0	1.0	ug/l	33.3	ND	84.0	34-141			
Toluene	28.3	1.0	"	33.3	ND	84.9	27-151			
Ethylbenzene	30.1	1.0	"	33.3	ND	90.3	29-160			
m,p-Xylene	59.2	2.0	"	66.7	ND	88.7	20-166			
o-Xylene	29.0	1.0	"	33.3	ND	87.0	33-159			
Surrogate: 1,2-Dichloroethane-d4	17.9		"	13.3		134	23-173			
Surrogate: Toluene-d8	13.8		"	13.3		103	20-170			
Surrogate: 4-Bromofluorobenzene	14.4		"	13.3		108	21-167			

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.



Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Feather 31-15

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/04/19 15:49

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 1910421 - EPA 5030 Water MS

Matrix Spike Dup (1910421-MSD1)		Source: 1910310-01			Prepared: 10/29/19 Analyzed: 10/31/19					
Benzene	27.9	1.0	ug/l	33.3	ND	83.8	34-141	0.286	30	
Toluene	28.2	1.0	"	33.3	ND	84.6	27-151	0.389	30	
Ethylbenzene	28.3	1.0	"	33.3	ND	84.9	29-160	6.20	30	
m,p-Xylene	57.1	2.0	"	66.7	ND	85.7	20-166	3.46	30	
o-Xylene	27.9	1.0	"	33.3	ND	83.8	33-159	3.76	30	
Surrogate: 1,2-Dichloroethane-d4		18.4	"	13.3		138	23-173			
Surrogate: Toluene-d8		14.2	"	13.3		107	20-170			
Surrogate: 4-Bromofluorobenzene		13.0	"	13.3		97.4	21-167			

Batch 1910422 - EPA 5030 Water MS

Blank (1910422-BLK1)		Prepared: 10/29/19 Analyzed: 10/31/19								
Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes (total)	ND	2.0	"							
Surrogate: 1,2-Dichloroethane-d4		17.6	"	13.3		132	23-173			
Surrogate: Toluene-d8		14.6	"	13.3		110	20-170			
Surrogate: 4-Bromofluorobenzene		13.7	"	13.3		102	21-167			

LCS (1910422-BS1)		Prepared: 10/29/19 Analyzed: 10/31/19								
Benzene	26.5	1.0	ug/l	33.3		79.5	51-132			
Toluene	28.0	1.0	"	33.3		83.9	51-138			
Ethylbenzene	29.4	1.0	"	33.3		88.1	58-146			
m,p-Xylene	57.1	2.0	"	66.7		85.7	57-144			
o-Xylene	28.1	1.0	"	33.3		84.3	53-146			
Surrogate: 1,2-Dichloroethane-d4		15.5	"	13.3		116	23-173			
Surrogate: Toluene-d8		13.8	"	13.3		103	20-170			
Surrogate: 4-Bromofluorobenzene		13.2	"	13.3		98.8	21-167			

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.



Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Feather 31-15

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/04/19 15:49

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 1910422 - EPA 5030 Water MS

Matrix Spike (1910422-MS1)		Source: 1910327-01			Prepared: 10/29/19 Analyzed: 10/31/19					
Benzene	27.3	1.0	ug/l	33.3	ND	82.0	34-141			
Toluene	29.8	1.0	"	33.3	ND	89.4	27-151			
Ethylbenzene	28.0	1.0	"	33.3	ND	84.1	29-160			
m,p-Xylene	54.9	2.0	"	66.7	ND	82.3	20-166			
o-Xylene	27.2	1.0	"	33.3	ND	81.7	33-159			
Surrogate: 1,2-Dichloroethane-d4	16.3		"	13.3		122	23-173			
Surrogate: Toluene-d8	13.3		"	13.3		99.8	20-170			
Surrogate: 4-Bromofluorobenzene	13.2		"	13.3		98.9	21-167			

Matrix Spike Dup (1910422-MSD1)		Source: 1910327-01			Prepared: 10/29/19 Analyzed: 10/31/19					
Benzene	26.6	1.0	ug/l	33.3	ND	79.8	34-141	2.78	30	
Toluene	27.6	1.0	"	33.3	ND	82.8	27-151	7.70	30	
Ethylbenzene	28.0	1.0	"	33.3	ND	83.9	29-160	0.250	30	
m,p-Xylene	54.7	2.0	"	66.7	ND	82.0	20-166	0.365	30	
o-Xylene	26.7	1.0	"	33.3	ND	80.1	33-159	2.00	30	
Surrogate: 1,2-Dichloroethane-d4	16.8		"	13.3		126	23-173			
Surrogate: Toluene-d8	14.2		"	13.3		106	20-170			
Surrogate: 4-Bromofluorobenzene	12.6		"	13.3		94.4	21-167			

Batch 1910423 - EPA 5030 Water MS

Blank (1910423-BLK1)		Prepared & Analyzed: 10/29/19								
Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes (total)	ND	2.0	"							
Surrogate: 1,2-Dichloroethane-d4	10.5		"	13.3		78.8	23-173			
Surrogate: Toluene-d8	11.6		"	13.3		86.8	20-170			
Surrogate: 4-Bromofluorobenzene	12.9		"	13.3		97.0	21-167			

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.



Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Feather 31-15

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
11/04/19 15:49

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 1910423 - EPA 5030 Water MS

LCS (1910423-BS1)

Prepared & Analyzed: 10/29/19

Benzene	34.0	1.0	ug/l	33.3		102	51-132			
Toluene	28.3	1.0	"	33.3		85.0	51-138			
Ethylbenzene	35.9	1.0	"	33.3		108	58-146			
m,p-Xylene	68.0	2.0	"	66.7		102	57-144			
o-Xylene	34.7	1.0	"	33.3		104	53-146			
Surrogate: 1,2-Dichloroethane-d4	13.2		"	13.3		98.7	23-173			
Surrogate: Toluene-d8	11.0		"	13.3		82.1	20-170			
Surrogate: 4-Bromofluorobenzene	12.8		"	13.3		96.3	21-167			

Matrix Spike (1910423-MS1)

Source: 1910327-21

Prepared & Analyzed: 10/29/19

Benzene	193	1.0	ug/l	33.3	195	NR	34-141			QM-4X
Toluene	31.1	1.0	"	33.3	ND	93.3	27-151			
Ethylbenzene	37.2	1.0	"	33.3	2.03	105	29-160			
m,p-Xylene	70.7	2.0	"	66.7	2.87	102	20-166			
o-Xylene	36.0	1.0	"	33.3	2.02	102	33-159			
Surrogate: 1,2-Dichloroethane-d4	12.9		"	13.3		96.9	23-173			
Surrogate: Toluene-d8	12.0		"	13.3		89.9	20-170			
Surrogate: 4-Bromofluorobenzene	12.8		"	13.3		95.6	21-167			

Matrix Spike Dup (1910423-MSD1)

Source: 1910327-21

Prepared & Analyzed: 10/29/19

Benzene	162	1.0	ug/l	33.3	195	NR	34-141	17.7	30	QM-4X
Toluene	29.0	1.0	"	33.3	ND	87.1	27-151	6.95	30	
Ethylbenzene	33.4	1.0	"	33.3	2.03	94.2	29-160	10.7	30	
m,p-Xylene	63.2	2.0	"	66.7	2.87	90.5	20-166	11.2	30	
o-Xylene	32.7	1.0	"	33.3	2.02	92.0	33-159	9.78	30	
Surrogate: 1,2-Dichloroethane-d4	12.7		"	13.3		95.2	23-173			
Surrogate: Toluene-d8	12.3		"	13.3		92.2	20-170			
Surrogate: 4-Bromofluorobenzene	12.7		"	13.3		95.1	21-167			

Summit Scientific

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Feather 31-15

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/04/19 15:49

Notes and Definitions

QM-4X	The spike recovery was outside of QC acceptance limits for the MS and/or MSD due to analyte concentration at 4 times or greater the spike concentration. The QC batch was accepted based on LCS and/or LCSD recoveries within the acceptance limits.
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

October 09, 2019

Tasman Geosciences

Brandon Bruns

6855 Wet 119th Avenue

Broomfield CO 80020

Project Name - Noble - Feather 31-15**Project Number - [none]**

Attached are your analytical results for Noble - Feather 31-15 received by Origins Laboratory, Inc. October 01, 2019. This project is associated with Origins project number Y910023-01.

The analytical results in the following report were analyzed under the guidelines of EPA Methods. These methods are identified as follows; "SW" are defined in SW-846, "EPA" are defined in 40CFR part 136 and "SM" are defined in the most current revision of Standard Methods For the Examination of Water and Wastewater.

The analytical results apply specifically to the samples and analyses specified per the attached Chain of Custody. As such, this report shall not be reproduced except in full, without the written approval of Origin's laboratory.

Unless otherwise noted, the analytical results for all soil samples are reported on a wet weight basis. All analytical analyses were performed under NELAP guidelines unless noted by a data qualifier.

Any holding time exceedances, deviations from the method specifications or deviations from Origins Laboratory's Standard Operating Procedures are outlined in the case narrative.

Thank you for selecting Origins for your analytical needs. Please contact us with any questions concerning this report, or if we can help with anything at all.

Origins Laboratory, Inc.
303.433.1322
o-squad@oelabinc.com



Tasman Geosciences
6855 Wet 119th Avenue
Broomfield CO 80020

Brandon Bruns
Project Number: [none]
Project: Noble - Feather 31-15

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
V001	Y910023-01	Air	September 30, 2019 12:38	10/01/2019 17:15

Origins Laboratory, Inc.



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

Tasman Geosciences
6855 Wet 119th Avenue
Broomfield CO 80020

Brandon Bruns
Project Number: [none]
Project: Noble - Feather 31-15

ORIGINS
LABORATORY, INC

www.originslaboratory.com

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

page 1 of 1

Client: Noble
Address: _____
Telephone Number: _____
Email Address: Kwaller@tasman-geo.com

Project Manager: Brandon Bruns
Project Name: Feather 31-15
Project Number: _____
Samples Collected By: Ty Galloway

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix			Analysis		Sample Instructions
				Unpreserved	HCl	HNO ₃	Other	Groundwater	Soil	Air Summa #	Other		
V001-09-30-19-1238	9-30-19	1238	1	<input checked="" type="checkbox"/>							11882	✓	1
													2
													3
													4
													5
													6
													7
													8
													9
													10

Relinquished By: [Signature] Date: 9-30-19 Time: 14:30

Relinquished By: [Signature] Date: 10-1-19 Time: 1741

Received By: [Signature] Date: 9-30-19 Time: 1430

Received By: [Signature] Date: 10/1/19 Time: 175

Temp Received: _____

Date Results Needed: _____

Origins Laboratory, Inc.

Jefe Pellegrini

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.

Tasman Geosciences
6855 Wet 119th Avenue
Broomfield CO 80020

Brandon Bruns
Project Number: [none]
Project: Noble - Feather 31-15

Origins Laboratory

Sample Receipt Checklist

F-012207-01-R1
Effective Date: 01/09/12

Origins Work Order: Y916023

Client: Tasman

Client Project ID: Feather 31-15

Checklist Completed by: JG

Shipped Via: HD

(UPS, FedEx, Hand Delivered, Pick-up, etc.)

Date/time completed: 10/2/2019

Airbill #: N/A

Matrix(s) Received: (Check all that apply): Soil/Solid Water ☒ Other: Air

Cooler Number/Temperature: 1 / - °C / - °C / - °C (Describe) - °C

Thermometer ID: T003

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C ⁽¹⁾ ?		<input checked="" type="checkbox"/>		<u>Air</u>
Is there ice present (document if blue ice is used)		<input checked="" type="checkbox"/>		
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)		<input checked="" type="checkbox"/>		
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)		<input checked="" type="checkbox"/>		
Were all samples received intact ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Was adequate sample volume provided ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Are short holding time analytes or samples with HTs due within 48 hours present ⁽¹⁾ ?		<input checked="" type="checkbox"/>		
Is a chain-of-custody (COC) present and filled out completely ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Is the COC properly relinquished by the client with date and time recorded ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
For volatiles in water — is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.			<input checked="" type="checkbox"/>	
Are samples preserved that require preservation and was it checked ⁽¹⁾ ? (note ID of confirmation instrument used in comments) / (preservation is not confirmed for subcontracted analyses in order to insure sample integrity) / (pH < 2 for samples preserved with HNO ₃ , HCL, H ₂ SO ₄) / (pH > 10 for samples preserved with NaAsO ₂ +NaOH, ZnAc+NaOH)			<input checked="" type="checkbox"/>	
Additional Comments (if any):				

⁽¹⁾ If NO, then contact the client before proceeding with analysis and note date/time and person contacted as well as the corrective action to in the additional comments (above) and the case narrative.

Reviewed by (Project Manager) [Signature]

10/3/19
Date/Time Reviewed

Origins Laboratory, Inc.

Jefe Pellegrini

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.

Tasman Geosciences
6855 Wet 119th Avenue
Broomfield CO 80020

Brandon Bruns
Project Number: [none]
Project: Noble - Feather 31-15

V001

9/30/2019 12:38:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y910023-01 (Air)

GBTEX by TO-15M GC/MS

T

Gasoline Range Hydrocarbons	15100	400	ug/m ³ Air	2	B9J0709	JMS	10/07/2019	10/08/2019
Benzene	8.24	5.60	"	"	"	JMS	"	"
Toluene	147	10.0	"	"	"	JMS	"	"
Ethylbenzene	19.8	10.0	"	"	"	JMS	"	"
m,p-Xylene	518	38.0	"	"	"	JMS	"	"
o-Xylene	67.7	9.40	"	"	"	JMS	"	"
Surrogate: 1,2-Dichloroethane-d4	100 %	70-130			"	"		"
Surrogate: Toluene-d8	96.3 %	70-130			"	"		10/07/2019
Surrogate: 4-Bromofluorobenzene	114 %	70-130			"	"		10/08/2019

Origins Laboratory, Inc.



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

Tasman Geosciences
6855 Wet 119th Avenue
Broomfield CO 80020

Brandon Brunns
Project Number: [none]
Project: Noble - Feather 31-15

Volatile Organic Compounds by TO-15 in Air - Quality Control Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B9J0709 - Default Prep - Air										
Blank (B9J0709-BLK1)					Prepared: 10/07/2019 Analyzed: 10/07/2019					T
Gasoline Range Hydrocarbons	ND	200	ug/m ³ Air							U
Benzene	ND	2.80	"							U
Toluene	ND	5.00	"							U
Ethylbenzene	ND	5.00	"							U
m,p-Xylene	ND	19.0	"							U
o-Xylene	ND	4.70	"							U
Surrogate: 1,2-Dichloroethane-d4	10.8		ppbv	10.0		108	70-130			
Surrogate: Toluene-d8	9.54		"	10.0		95.4	70-130			
Surrogate: 4-Bromofluorobenzene	9.52		"	10.0		95.2	70-130			
LCS (B9J0709-BS1)					Prepared: 10/07/2019 Analyzed: 10/07/2019					T
Benzene	32.8	2.80	ug/m ³ Air	31.9		103	70-130			
Toluene	44.6	5.00	"	37.7		118	70-130			
Ethylbenzene	43.2	5.00	"	43.4		99.4	70-130			
m,p-Xylene	167	19.0	"	174		96.1	70-130			
o-Xylene	41.7	4.70	"	43.4		96.1	70-130			
Surrogate: 1,2-Dichloroethane-d4	9.31		ppbv	10.0		93.1	70-130			
Surrogate: Toluene-d8	10.8		"	10.0		108	70-130			
Surrogate: 4-Bromofluorobenzene	10.1		"	10.0		101	70-130			
LCS Dup (B9J0709-BSD1)					Prepared: 10/07/2019 Analyzed: 10/07/2019					T
Benzene	33.4	2.80	ug/m ³ Air	31.9		104	70-130	1.64	25	
Toluene	43.9	5.00	"	37.7		117	70-130	1.45	25	
Ethylbenzene	42.5	5.00	"	43.4		97.8	70-130	1.62	25	
m,p-Xylene	166	19.0	"	174		95.7	70-130	0.365	25	
o-Xylene	42.0	4.70	"	43.4		96.8	70-130	0.726	25	
Surrogate: 1,2-Dichloroethane-d4	9.53		ppbv	10.0		95.3	70-130			

Origins Laboratory, Inc.



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

Tasman Geosciences
6855 Wet 119th Avenue
Broomfield CO 80020

Brandon Bruns
Project Number: [none]
Project: Noble - Feather 31-15

Volatile Organic Compounds by TO-15 in Air - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B9J0709 - Default Prep - Air

LCS Dup (B9J0709-BSD1)

Prepared: 10/07/2019 Analyzed: 10/07/2019

T

Surrogate: Toluene-d8	10.6		ppbv	10.0		106	70-130			
Surrogate: 4-Bromofluorobenzene	9.96		"	10.0		99.6	70-130			

Origins Laboratory, Inc.



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

Jen Pellegrini For Noelle Doyle Mathis, President

Tasman Geosciences
6855 Wet 119th Avenue
Broomfield CO 80020

Brandon Bruns
Project Number: [none]
Project: Noble - Feather 31-15

Notes and Definitions

U Sample is Non-Detect.

T The TO-15 analysis is not part of the NELAC accreditation

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported at a wet weight basis.

Origins Laboratory, Inc.



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

October 22, 2019

Tasman Geosciences

Brandon Bruns

6855 Wet 119th Avenue

Broomfield CO 80020

Project Name - Noble - Feather 31-15**Project Number - [none]**

Attached are your analytical results for Noble - Feather 31-15 received by Origins Laboratory, Inc. October 16, 2019. This project is associated with Origins project number Y910254-01.

The analytical results in the following report were analyzed under the guidelines of EPA Methods. These methods are identified as follows; "SW" are defined in SW-846, "EPA" are defined in 40CFR part 136 and "SM" are defined in the most current revision of Standard Methods For the Examination of Water and Wastewater.

The analytical results apply specifically to the samples and analyses specified per the attached Chain of Custody. As such, this report shall not be reproduced except in full, without the written approval of Origin's laboratory.

Unless otherwise noted, the analytical results for all soil samples are reported on a wet weight basis. All analytical analyses were performed under NELAP guidelines unless noted by a data qualifier.

Any holding time exceedances, deviations from the method specifications or deviations from Origins Laboratory's Standard Operating Procedures are outlined in the case narrative.

Thank you for selecting Origins for your analytical needs. Please contact us with any questions concerning this report, or if we can help with anything at all.

Origins Laboratory, Inc.
303.433.1322
o-squad@oelabinc.com



Tasman Geosciences
6855 Wet 119th Avenue
Broomfield CO 80020

Brandon Bruns
Project Number: [none]
Project: Noble - Feather 31-15

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
V001	Y910254-01	Air	October 16, 2019 10:35	10/16/2019 16:35

Origins Laboratory, Inc.



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Tasman Geosciences
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Broomfield CO 80020

Brandon Bruns
Project Number: [none]
Project: Noble - Feather 31-15

www.originslaboratory.com

9910254

ORIGINS
LABORATORY, INC

page 1 of 1

Client: Noble / Tasman
Address: 6855 W 119th Ave
Broomfield, CO
Telephone Number: 303-487-1228
Email Address: Brandon@tasmanys.com

Project Manager: Brandon Bruns
Project Name: Feather 31-15
Project Number: _____
Samples Collected By: Ty Callaway

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

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative					Matrix			Analysis		Sample Instructions	
				Unpreserved	HCl	HNO ₃	Other	Groundwater	Soil	Air Summary Container #	Other	Gate X			
V001	10-16-19	10:35	1	X							10360			X	
Relinquished By: <u>[Signature]</u>	Date: <u>10-16-19</u>	Time: <u>13:30</u>												Date: <u>10-16-19</u>	Time: <u>1330</u>
Relinquished By: <u>[Signature]</u>	Date: <u>10-16-19</u>	Time: <u>16:35</u>												Date: <u>10/16/19</u>	Time: <u>1635</u>

Date Results Needed

Temp Received-

Origins Laboratory, Inc.

Jefe Pellegrini

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6855 Wet 119th Avenue
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Brandon Bruns
Project Number: [none]
Project: Noble - Feather 31-15

Origins Laboratory

F-012207-01-R1
Effective Date: 01/09/12

Sample Receipt Checklist

Origins Work Order: 191025-4

Client: Tasman

Client Project ID: Noble - Feather 31-5

Checklist Completed by: JP

Shipped Via: HD

(UPS, FedEx, Hand Delivered, Pick-up, etc.)

Date/time completed: 10/17/19

Airbill #: NA

Matrix(s) Received: (Check all that apply): Soil/Solid Water X Other: air

(Describe)

Cooler Number/Temperature: - / - °C - / - °C - / - °C - / - °C

Thermometer ID: -

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C ⁽¹⁾ ?			X	
Is there ice present (document if blue ice is used)			X	
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)		X		
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)		X		
Were all samples received intact ⁽¹⁾ ?	Y			
Was adequate sample volume provided ⁽¹⁾ ?	X			
Are short holding time analytes or samples with HTs due within 48 hours present ⁽¹⁾ ?		X		
Is a chain-of-custody (COC) present and filled out completely ⁽¹⁾ ?	Y			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	Y			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	Y			
Is the COC properly relinquished by the client with date and time recorded ⁽¹⁾ ?	X			
For volatiles in water – is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.			Y	
Are samples preserved that require preservation and was it checked ⁽¹⁾ ? (note ID of confirmation instrument used in comments) / (preservation is not confirmed for subcontracted analyses in order to insure sample integrity)/(pH <2 for samples preserved with HNO ₃ , HCL, H ₂ SO ₄) / (pH >10 for samples preserved with NaAsO ₂ +NaOH, ZnAc+NaOH)			X	
Additional Comments (if any):				

⁽¹⁾ If NO, then contact the client before proceeding with analysis and note date/time and person contacted as well as the corrective action to in the additional comments (above) and the case narrative.

Reviewed by (Project Manager) JP

Date/Time Reviewed 10-17-19

Origins Laboratory, Inc.

Jefe Pellegrini

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Tasman Geosciences
6855 Wet 119th Avenue
Broomfield CO 80020

Brandon Bruns
Project Number: [none]
Project: Noble - Feather 31-15

V001

10/16/2019 10:35:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y910254-01 (Air)

GBTEX by TO-15M GC/MS

T									
Gasoline Range Hydrocarbons	2400	400	ug/m ³ Air	2	B9J1801	JMS	10/18/2019	10/21/2019	
Benzene	ND	5.60	"	"	"	JMS	"	"	U
Toluene	36.7	10.0	"	"	"	JMS	"	"	
Ethylbenzene	ND	10.0	"	"	"	JMS	"	"	U
m,p-Xylene	260	38.0	"	"	"	JMS	"	"	
o-Xylene	28.4	9.40	"	"	"	JMS	"	"	
Surrogate: 1,2-Dichloroethane-d4	108 %	70-130			"	"	"	"	
Surrogate: Toluene-d8	106 %	70-130			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	106 %	70-130			"	"	"	"	

Origins Laboratory, Inc.



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Broomfield CO 80020

Brandon Brunns
Project Number: [none]
Project: Noble - Feather 31-15

Volatile Organic Compounds by TO-15 in Air - Quality Control Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B9J1801 - Default Prep - Air										
Blank (B9J1801-BLK1)					Prepared: 10/18/2019 Analyzed: 10/18/2019					T
Gasoline Range Hydrocarbons	ND	200	ug/m ³ Air							U
Benzene	ND	2.80	"							U
Toluene	ND	5.00	"							U
Ethylbenzene	ND	5.00	"							U
m,p-Xylene	ND	19.0	"							U
o-Xylene	ND	4.70	"							U
Surrogate: 1,2-Dichloroethane-d4	10.9		ppbv	10.0		109	70-130			
Surrogate: Toluene-d8	9.12		"	10.0		91.2	70-130			
Surrogate: 4-Bromofluorobenzene	9.23		"	10.0		92.3	70-130			
LCS (B9J1801-BS1)					Prepared: 10/18/2019 Analyzed: 10/18/2019					T
Benzene	33.7	2.80	ug/m ³ Air	31.9		106	70-130			
Toluene	44.3	5.00	"	37.7		118	70-130			
Ethylbenzene	41.9	5.00	"	43.4		96.5	70-130			
m,p-Xylene	161	19.0	"	174		92.6	70-130			
o-Xylene	39.1	4.70	"	43.4		90.1	70-130			
Surrogate: 1,2-Dichloroethane-d4	9.80		ppbv	10.0		98.0	70-130			
Surrogate: Toluene-d8	10.3		"	10.0		103	70-130			
Surrogate: 4-Bromofluorobenzene	10.2		"	10.0		102	70-130			
LCS Dup (B9J1801-BSD1)					Prepared: 10/18/2019 Analyzed: 10/18/2019					T
Benzene	33.1	2.80	ug/m ³ Air	31.9		104	70-130	1.82	25	
Toluene	42.7	5.00	"	37.7		113	70-130	3.72	25	
Ethylbenzene	42.9	5.00	"	43.4		98.7	70-130	2.25	25	
m,p-Xylene	168	19.0	"	174		96.6	70-130	4.23	25	
o-Xylene	42.5	4.70	"	43.4		97.8	70-130	8.20	25	
Surrogate: 1,2-Dichloroethane-d4	9.68		ppbv	10.0		96.8	70-130			

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Brandon Bruns
Project Number: [none]
Project: Noble - Feather 31-15

Volatile Organic Compounds by TO-15 in Air - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B9J1801 - Default Prep - Air

LCS Dup (B9J1801-BSD1)

Prepared: 10/18/2019 Analyzed: 10/18/2019

T

Surrogate: Toluene-d8	10.2		ppbv	10.0		102	70-130			
Surrogate: 4-Bromofluorobenzene	9.47		"	10.0		94.7	70-130			

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Notes and Definitions

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ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

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