FEATHER 31-15
PRODUCED WATER TANK RELEASE
API #: 05-123 -21075
Spill/Release Point ID #: 444673
Remediation Project #: 10120

SECOND QUARTER 2018
Site Monitoring and Remediation Summary Report

June 18, 2018

Image: Google Earth

PREPARED ON BEHALF OF

Noble Energy, Inc.
2115 117th Avenue
Greeley, Colorado 80631

PREPARED BY

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

TABLE OF CONTENTS

TABLES

FIGURES

ATTACHMENTS

1.0 INTRODUCTION

This Second Quarter 2018 Site Monitoring and Remediation Summary Report (Report) presents the results of groundwater sampling activities and details regarding the installation and operation of an air sparge (AS) and soil vapor extraction (SVE) remediation system at the Feather 31-15 Produced Water Tank Release 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, 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 (9) soil borings (BH01-BH09) and converted two (2) 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 (46) monitoring wells to further delineate dissolved phase impacts to groundwater at the Site. Analytical results for soil and groundwater samples collected during site assessment activities were previously reported to Noble in a Site Assessment and Excavation Report delivered 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, followed by stiff, inorganic, high plasticity lean then fat clay.

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

2.0 SECOND QUARTER 2018 GROUNDWATER MONITORING ACTIVITIES

Second Quarter 2018 groundwater monitoring activities were performed at the Site on April 19 and 20, 2018. Monitoring well BH54R sampled April 20, 2018 due to difficulty removing remediation system equipment from the well. The activities included measurement of groundwater levels and collection of groundwater samples from all forty-seven (47) Site monitoring well locations.

2.1 Groundwater Level Measurements

Both general procedures and significant observations for the groundwater gauging activities performed during the Second Quarter 2018 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 Second Quarter 2018 groundwater monitoring event, groundwater and LNAPL levels were gauged at all monitoring well locations the Site monitoring network. Groundwater and LNAPL elevation measurements are presented in Table 2.

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 was converted to elevation by using the assumed LNAPL density of 0.75 times that of water. The formula used is presented in Table 2.

Significant Observations

During the Second Quarter 2018 groundwater monitoring event, the groundwater elevation at the Site ranged from 4,934.97 ft. amsl in BH55R to 4,954.56 ft. amsl in BH13. The groundwater potentiometric surface at the site slopes to the northeast, with a hydraulic gradient of approximately 0.045 feet per foot between wells BH13 and BH55R. 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 Second Quarter 2018 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 April 19 and 20, 2018. During the Second Quarter 2018 groundwater monitoring event, groundwater samples were collected from each of the 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. Monitoring well BH54R was sampled using a peristaltic pump, due to an obstruction in the well that precluded sampling with a bailer. 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.

Significant Observations

- LNAPL was not observed in any of the Site monitoring wells during the Second Quarter 2018 monitoring event.

3.0 SECOND QUARTER 2018 GROUNDWATER SAMPLING RESULTS

This section presents the laboratory analytical results for groundwater samples collected during the Second Quarter 2018 groundwater monitoring event. Groundwater laboratory analytical data is presented in Table 1 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 (5) micrograms per liter (µg/L) in seventeen (17) of the forty-seven (47) monitoring wells sampled (BH13, BH15, BH16, BH19, BH21, BH22, BH23R2, BH24, BH25R, BH26, BH27, BH30R, BH31, BH33, BH36R, BH37, and BH50). Benzene concentrations associated with these seventeen (17) monitoring wells ranged from 66 µg/L in BH13 to 3,700 µg/L in BH15. Isoconcentration contours indicating the area where benzene concentrations in groundwater were above the regulatory standard during the Second Quarter 2018 sampling event are illustrated on Figure 4.

- Toluene was detected above the COGCC Table 910-1 groundwater standard of 560 µg/L in one (1) of the forty-seven (47) Site monitoring wells sampled (BH23R2). The toluene concentration associated with BH23R2 was detected at 6,000 µg/L.

- Ethylbenzene was not detected above the COGCC Table 910-1 groundwater standard of 700 µg/L in any of the forty-seven (47) Site monitoring wells sampled.

- Total xylenes were detected above the COGCC Table 910-1 groundwater standard of 1,400 µg/L in two (2) of the forty-seven (47) Site monitoring wells sampled (BH23R2 and BH25R). Total xylenes concentrations associated with these monitoring wells were 13,000 and 1,500 µg/L, respectively.

4.0 REMEDIATION SYSTEM

This section summarizes the installation and operational data for the AS/SVE remediation system that is currently in operation at the Site. The remediation system is shut down a minimum of one (1) 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 (8) monitoring wells for use as AS wells and thirteen (13) for use as SVE wells to be used in operation of the remediation system (System). The AS/SVE remediation well network 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.

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 January 25 to May 29, 2018, the System SVE wells were operated at an average flow rate of 6 cubic feet per minute (cfm) at an average vacuum of 16.9 inches of water. The AS wells operated at an average pressure of 7.8 pounds per square inch (psi) , and an average flow rate of 10.1 cfm . From January 25 to May 29, 2018 the System operated with an average uptime of 72.5%.

Remediation system air emission analytical samples were collected on March 27 and May 29, 2018 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 2018 to determine if a CDPHE APEN will be required for the System operations. As detailed in Table 3, as of May 29, 2018, approximately 0.16 pounds of petroleum hydrocarbons has been emitted by the System since startup. Based on the air emission data collected to date, an APEN is currently not required as part of the System operations.

5.0 UPCOMING SITE ACTIVITIES

Anticipated upcoming Site activities include the following:

- Modify Remediation System layout to address northern portion of plume; and
- Complete the Third Quarter 2018 groundwater sampling event in July; and
- Continue operations and maintenance of the remediation system; and
- Continue monthly effluent sampling of remediation system emissions.

TABLES

TABLE 1
GROUNDWATER ANALYTICAL DATA
NOBLE ENERGY, INC. - FEATHER 31-15 PRODUCED WATER TANK RELEASE

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
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
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
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
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**

TABLE 1
GROUNDWATER ANALYTICAL DATA
NOBLE ENERGY, INC. - FEATHER 31-15 PRODUCED WATER TANK RELEASE

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**
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
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
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
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
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
BH17	09/23/16	<1.0	<1.0	<1.0	<1.0
BH17	11/03/16	<1.0	<1.0	<1.0	<1.0
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
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

TABLE 1
GROUNDWATER ANALYTICAL DATA
NOBLE ENERGY, INC. - FEATHER 31-15 PRODUCED WATER TANK RELEASE

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**
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
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
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
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
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
BH23	09/23/16	**11,000**	**21,000**	**1,400**	**21,000**
BH23	11/03/16	**6,200**	**6,800**	430	**7,900**

TABLE 1
GROUNDWATER ANALYTICAL DATA
NOBLE ENERGY, INC. - FEATHER 31-15 PRODUCED WATER TANK RELEASE

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**
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
BH23R2	04/19/18	**3,200**	**6,000**	550	**13,000**
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
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**
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**
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
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

TABLE 1
GROUNDWATER ANALYTICAL DATA
NOBLE ENERGY, INC. - FEATHER 31-15 PRODUCED WATER TANK RELEASE

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	09/23/16	<1.0	<1.0	<1.0	<1.0
BH28	11/03/16	<1.0	<1.0	<1.0	<1.0
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
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
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
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
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

TABLE 1
GROUNDWATER ANALYTICAL DATA
NOBLE ENERGY, INC. - FEATHER 31-15 PRODUCED WATER TANK RELEASE

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**
BH32	04/19/18	<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
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
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
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**
BH36R	01/25/18	**2,700**	<1.0	84	500
BH36R	04/19/18	**1,300**	<1.0	110	260
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

TABLE 1
GROUNDWATER ANALYTICAL DATA
NOBLE ENERGY, INC. - FEATHER 31-15 PRODUCED WATER TANK RELEASE

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**
BH37	04/19/18	**260**	<1.0	42	3.8
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
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
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
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
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
BH42	11/03/16	<1.0	<1.0	<1.0	<1.0
BH42	01/24/17	<1.0	<1.0	<1.0	<1.0
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

TABLE 1
GROUNDWATER ANALYTICAL DATA
NOBLE ENERGY, INC. - FEATHER 31-15 PRODUCED WATER TANK RELEASE

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**
BH42R	01/25/18	<1.0	<1.0	<1.0	<2.0
BH42R	04/19/18	<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
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
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
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
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
BH48	01/24/17	<1.0	<1.0	<1.0	<1.0
BH48	04/05/17	**1,300**	<1.0	<1.0	8.4
BH48	07/27/17	**300**	<1.0	<1.0	<2.0

TABLE 1
GROUNDWATER ANALYTICAL DATA
NOBLE ENERGY, INC. - FEATHER 31-15 PRODUCED WATER TANK RELEASE

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	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
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
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
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
BH51	01/25/18	<1.0	<1.0	<1.0	<2.0
BH51	04/19/18	<1.0	<1.0	<1.0	<2.0
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
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
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

TABLE 1

GROUNDWATER ANALYTICAL DATA

NOBLE ENERGY, INC. - FEATHER 31-15 PRODUCED WATER TANK RELEASE

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**
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

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 2
GROUNDWATER ELEVATION DATA
NOBLE ENERGY, INC. - FEATHER 31-15
PRODUCED WATER TANK RELEASE

Monitoring Well ID	Date	Top of Casing Elevation (ft. AMSL)	Total Depth (ft. BTOC)	Depth to Water (ft. BTOC)	Depth to LNAPL (ft. BTOC)	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
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
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
BH12	09/01/16	4960.63	18.90	7.05	ND	ND	4953.58
BH12	11/03/16	4960.63	18.81	7.71	ND	ND	4952.92
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
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

TABLE 2
GROUNDWATER ELEVATION DATA
NOBLE ENERGY, INC. - FEATHER 31-15
PRODUCED WATER TANK RELEASE

Monitoring Well ID	Date	Top of Casing Elevation (ft. AMSL)	Total Depth (ft. BTOC)	Depth to Water (ft. BTOC)	Depth to LNAPL (ft. BTOC)	LNAPL Thickness (ft.)	Groundwater Elevation* (ft. AMSL)
BH13	01/25/18	4959.84	16.36	8.87	ND	ND	4950.97
BH13	04/19/18	4963.84	16.29	9.28	ND	ND	4954.56
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
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
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
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
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	4961.27	22.30	12.34	ND	ND	4948.93
BH18	07/27/17	4961.27	22.18	12.06	ND	ND	4949.21
BH18	10/30/17	4961.27	22.29	12.51	ND	ND	4948.76
BH18	01/25/18	4961.27	22.25	12.85	ND	ND	4948.42

TABLE 2
GROUNDWATER ELEVATION DATA
NOBLE ENERGY, INC. - FEATHER 31-15
PRODUCED WATER TANK RELEASE

Monitoring Well ID	Date	Top of Casing Elevation (ft. AMSL)	Total Depth (ft. BTOC)	Depth to Water (ft. BTOC)	Depth to LNAPL (ft. BTOC)	LNAPL Thickness (ft.)	Groundwater Elevation* (ft. AMSL)
BH18	04/19/18	4961.27	22.21	13.22	ND	ND	4948.05
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
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
BH20	04/19/18	4959.06	18.95	10.27	ND	ND	4948.79
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
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
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					
BH23R	10/30/17	4960.74	22.91	12.65	ND	ND	4948.09
BH23R	01/25/18	Well Damaged - Elevation Control Lost			NM	NM	NM

TABLE 2
GROUNDWATER ELEVATION DATA
NOBLE ENERGY, INC. - FEATHER 31-15
PRODUCED WATER TANK RELEASE

Monitoring Well ID	Date	Top of Casing Elevation (ft. AMSL)	Total Depth (ft. BTOC)	Depth to Water (ft. BTOC)	Depth to LNAPL (ft. BTOC)	LNAPL Thickness (ft.)	Groundwater Elevation* (ft. AMSL)
BH23R2	04/19/18	4960.72	22.59	13.08	ND	ND	4947.64
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
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	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
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
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
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
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

TABLE 2
GROUNDWATER ELEVATION DATA
NOBLE ENERGY, INC. - FEATHER 31-15
PRODUCED WATER TANK RELEASE

Monitoring Well ID	Date	Top of Casing Elevation (ft. AMSL)	Total Depth (ft. BTOC)	Depth to Water (ft. BTOC)	Depth to LNAPL (ft. BTOC)	LNAPL Thickness (ft.)	Groundwater Elevation* (ft. AMSL)
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
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
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
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
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
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
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

TABLE 2
GROUNDWATER ELEVATION DATA
NOBLE ENERGY, INC. - FEATHER 31-15
PRODUCED WATER TANK RELEASE

Monitoring Well ID	Date	Top of Casing Elevation (ft. AMSL)	Total Depth (ft. BTOC)	Depth to Water (ft. BTOC)	Depth to LNAPL (ft. BTOC)	LNAPL Thickness (ft.)	Groundwater Elevation* (ft. AMSL)
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
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
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
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
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
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
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
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

TABLE 2
GROUNDWATER ELEVATION DATA
NOBLE ENERGY, INC. - FEATHER 31-15
PRODUCED WATER TANK RELEASE

Monitoring Well ID	Date	Top of Casing Elevation (ft. AMSL)	Total Depth (ft. BTOC)	Depth to Water (ft. BTOC)	Depth to LNAPL (ft. BTOC)	LNAPL Thickness (ft.)	Groundwater Elevation* (ft. AMSL)
BH39	04/19/18	4955.85	22.23	13.96	ND	ND	4941.89
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
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
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
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
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
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
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
BH45	11/03/16	4954.87	22.21	21.08	ND	ND	4933.79

TABLE 2
GROUNDWATER ELEVATION DATA
NOBLE ENERGY, INC. - FEATHER 31-15
PRODUCED WATER TANK RELEASE

Monitoring Well ID	Date	Top of Casing Elevation (ft. AMSL)	Total Depth (ft. BTOC)	Depth to Water (ft. BTOC)	Depth to LNAPL (ft. BTOC)	LNAPL Thickness (ft.)	Groundwater Elevation* (ft. AMSL)
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
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
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
BH47	04/19/18	4954.63	22.40	17.86	ND	ND	4936.77
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
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
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
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

TABLE 2
GROUNDWATER ELEVATION DATA
NOBLE ENERGY, INC. - FEATHER 31-15
PRODUCED WATER TANK RELEASE

Monitoring Well ID	Date	Top of Casing Elevation (ft. AMSL)	Total Depth (ft. BTOC)	Depth to Water (ft. BTOC)	Depth to LNAPL (ft. BTOC)	LNAPL Thickness (ft.)	Groundwater Elevation* (ft. AMSL)
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
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
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
BH54[2]	07/27/17	Well Damaged - Elevation Control Lost			ND	ND	DRY
BH54	07/27/17	Broken Casing - Monitoring Well Destroyed					
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					
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

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.
2. Cattle damaged monitoring well prior to the 3Q2017 sampling event, resulting in lost casing elevation.

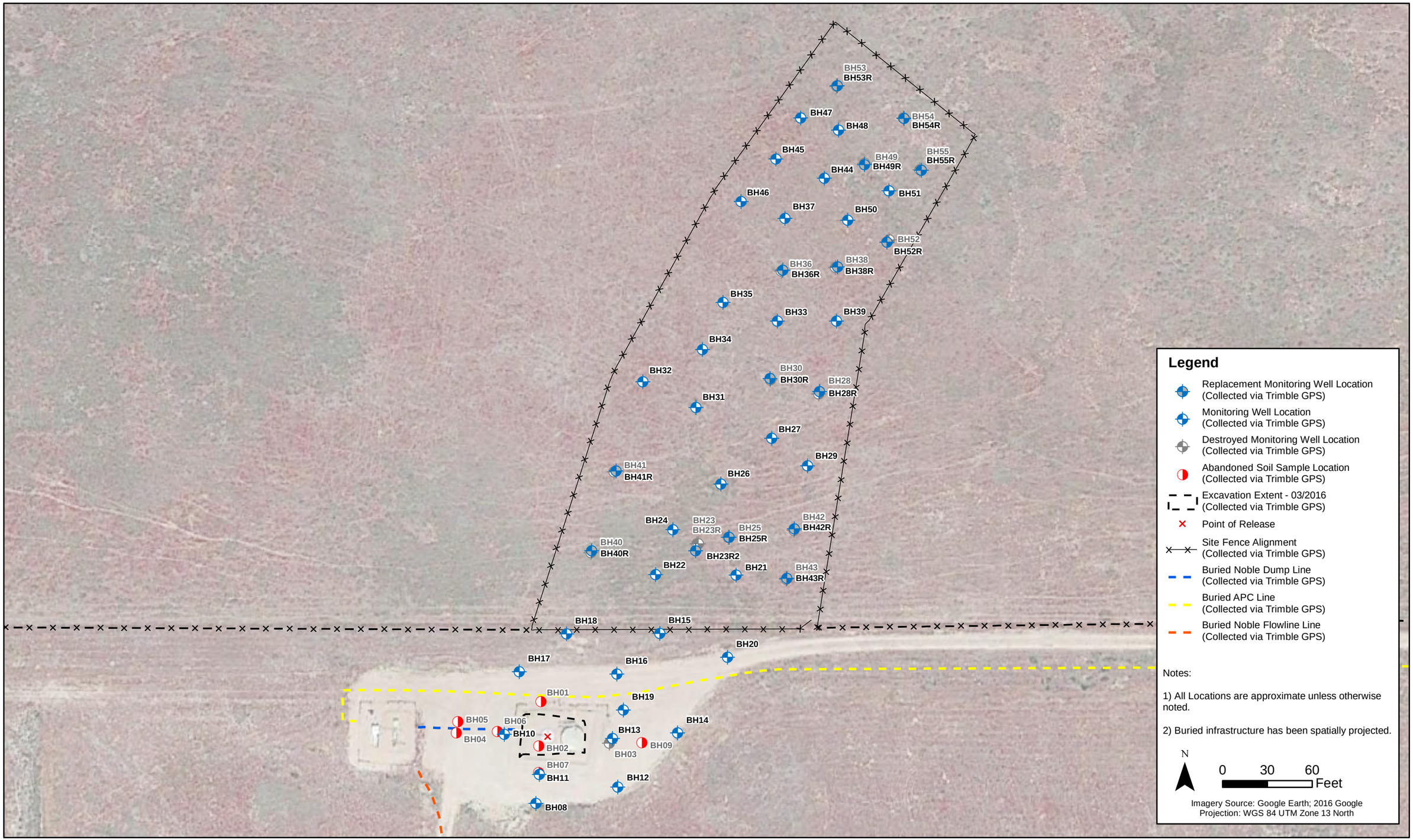
TABLE 3
REMEDIATION SYSTEM AIR EMISSION DATA SUMMARY
NOBLE ENERGY, INC. FEATHER 31-15 PRODUCED WATER TANK RELEASE

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	896.1	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	845.4	0	6.8	0.00000	0.0000	0.00000	0.00	0.00	0.16

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
No remediation system air emission laboratory analytical sample was collected on this date. Analytical data and mass extracted calculations from the previous sample date are used for this date.

Total Pounds Emitted Since Startup	0.16
Total Tons Emitted Since Startup	0.00008
Total Pounds Emitted in 2018	0.16
Total Tons Emitted in 2018	0.00008

FIGURES



DATE: April 2018 DESIGNED BY: B.Bruns DRAWN BY: D. Arnold	TASMAN GEOSCIENCES **Tasman Geosciences, Inc.** **6899 Pecos Street - Unit C** **Denver, CO 80221**	**Noble Energy - DJ Basin** **Feather 31-15 Produced Water Tank Release** NWNE Section 15, Township 2 North, Range 64 West Weld County, Colorado	Site Overview Map	Figure 2

BH53R
4935.24

BH54R
NM

BH47
4936.77

BH48
4935.85

BH49R
4935.86

BH55R
4934.97

BH45
4938.34

BH46
4939.90

BH44
4938.15

BH51
4940.47

BH50
4939.01

4936.00

BH37
4937.96

BH52R
4939.26

4938.00

BH38R
4940.63

BH36R
4940.62

BH35
4942.28

BH33
4941.38

BH39
4941.89

4940.00

BH34
4943.70

BH32
4944.93

BH30R
4943.35

BH28R
4943.49

4942.00

BH31
4944.67

BH27
4944.59

BH29
4944.90

4944.00

BH41R
4946.94

BH26
4944.36

BH24
4947.15

BH25R
4947.07

BH42R
4946.21

4946.00

BH40R
4948.36

BH23R2
4947.64

BH21
4947.67

BH22
4948.04

BH43R
4947.28

BH18
4948.05

BH15
4948.77

BH20
4948.79

4948.00

BH16
4949.17

BH17
4950.60

BH19
4950.11

BH10
4951.67

BH13
4954.56

BH14
4950.02

4950.00

BH11
4951.39

BH12
4951.03

BH08
4951.76

4952.00

4954.00

Imagery Source: 2016 Google

Legend

- Replacement Monitoring Well Location (Collected via Trimble GPS)
- Monitoring Well Location (Collected via Trimble GPS)
- Site Fence Alignment (Collected via Trimble GPS)
- Excavation Extent - 03/2016 (Collected via Trimble GPS)
- Point of Release
- Groundwater Elevation Contour (Dashed where inferred)
- 4947.07 Measured Groundwater Elevation (ft AMSL)
- NM Not Measured - Obstruction in Well
- Groundwater Flow Direction

Notes:

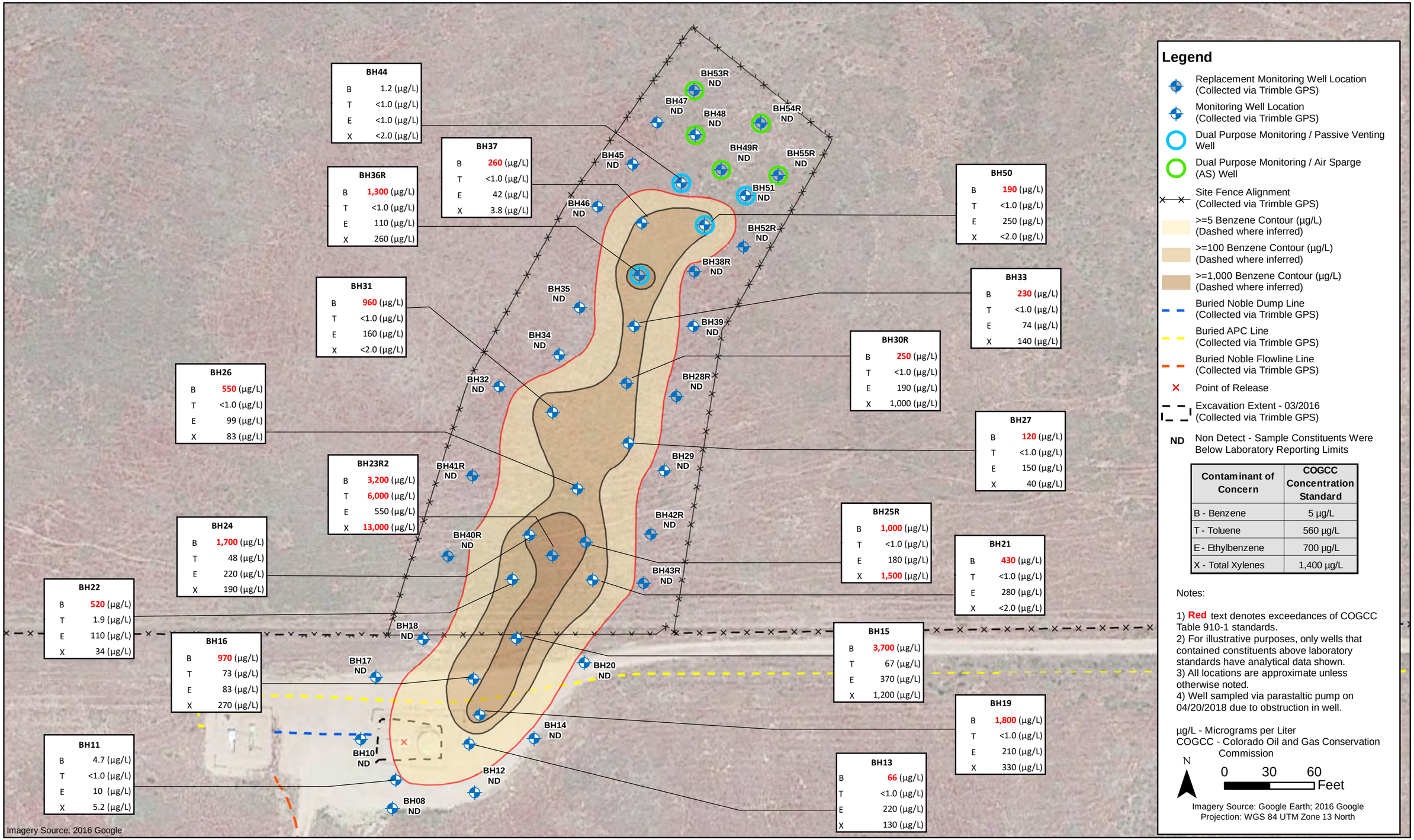
AMSL - Above Mean Sea Level (feet)

GPS - Global Positioning System

N

0 30 60 Feet

DATE: May 2018 DESIGNED BY: B.Bruns DRAWN BY: D. Arnold	TASMAN GEOSCIENCES **Tasman Geosciences, Inc.** **6899 Pecos Street - Unit C** **Denver, CO 80221**	**Noble Energy - DJ Basin** **Feather 31-15 Produced Water Tank Release** NWNE Section 15, Township 2 North, Range 64 West Weld County, Colorado	Groundwater Potentiometric Surface Map (04/19/18)	Figure 3



Legend

- Replacement Monitoring Well Location (Collected via Trimble GPS)
- Monitoring Well Location (Collected via Trimble GPS)
- Dual Purpose Monitoring / Passive Venting Well
- Dual Purpose Monitoring / Air Sparge (AS) Well
- Site Fence Alignment (Collected via Trimble GPS)
- >=5 Benzene Contour (µg/L) (Dashed where inferred)
- >=100 Benzene Contour (µg/L) (Dashed where inferred)
- >=1,000 Benzene Contour (µg/L) (Dashed where inferred)
- Buried Noble Dump Line (Collected via Trimble GPS)
- Buried APC Line (Collected via Trimble GPS)
- Buried Noble Flowline Line (Collected via Trimble GPS)
- Point of Release
- Excavation Extent - 03/2016 (Collected via Trimble GPS)
- ND Non Detect - Sample Constituents Were Below Laboratory Reporting Limits

Contaminant of Concern	COGCC Concentration Standard
B - Benzene	5 µg/L
T - Toluene	560 µg/L
E - Ethylbenzene	700 µg/L
X - Total Xylenes	1,400 µg/L

Notes:

1) **Red** text denotes exceedances of COGCC Table 910-1 standards.
2) For illustrative purposes, only wells that contained constituents above laboratory standards have analytical data shown.
3) All locations are approximate unless otherwise noted.
4) Well sampled via parastaltic pump on 04/20/2018 due to obstruction in well.

µg/L - Micrograms per Liter
COGCC - Colorado Oil and Gas Conservation Commission

N

0 30 60 Feet

Imagery Source: Google Earth; 2016 Google
Projection: WGS 84 UTM Zone 13 North

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

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

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

Groundwater Analytical Results Map
(04/19/18 & 04/20/18)

Figure 4

ATTACHMENT A

LABORATORY ANALYTICAL DATA REPORT

Summit Scientific

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

April 28, 2018

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

RE: Noble - Feather 31-15

Enclosed are the results of analyses for samples received by Summit Scientific on 04/19/18 17:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Ben Shrewsbury
Laboratory Manager

Tasman Geosciences 6899 Pecos St, Unit C Denver CO, 80221	Project: Noble - Feather 31-15 Project Number: [none] Project Manager: Brandon Bruns	**Reported:** 04/28/18 12:46

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH08	1804109-01	Water	04/19/18 11:45	04/19/18 17:00
BH10	1804109-02	Water	04/19/18 11:30	04/19/18 17:00
BH11	1804109-03	Water	04/19/18 12:00	04/19/18 17:00
BH12	1804109-04	Water	04/19/18 12:10	04/19/18 17:00
BH13	1804109-05	Water	04/19/18 12:20	04/19/18 17:00
BH14	1804109-06	Water	04/19/18 13:00	04/19/18 17:00
BH15	1804109-07	Water	04/19/18 13:35	04/19/18 17:00
BH16	1804109-08	Water	04/19/18 13:16	04/19/18 17:00
BH17	1804109-09	Water	04/19/18 11:40	04/19/18 17:00
BH18	1804109-10	Water	04/19/18 11:46	04/19/18 17:00
BH19	1804109-11	Water	04/19/18 13:10	04/19/18 17:00
BH20	1804109-12	Water	04/19/18 13:50	04/19/18 17:00
BH21	1804109-13	Water	04/19/18 13:30	04/19/18 17:00
BH22	1804109-14	Water	04/19/18 12:00	04/19/18 17:00
BH23R2	1804109-15	Water	04/19/18 12:28	04/19/18 17:00
BH24	1804109-16	Water	04/19/18 12:20	04/19/18 17:00
BH25R	1804109-17	Water	04/19/18 12:42	04/19/18 17:00
BH26	1804109-18	Water	04/19/18 13:42	04/19/18 17:00
BH27	1804109-19	Water	04/19/18 13:55	04/19/18 17:00
BH28R	1804109-20	Water	04/19/18 11:45	04/19/18 17:00
BH29	1804109-21	Water	04/19/18 11:35	04/19/18 17:00
BH30R	1804109-22	Water	04/19/18 13:35	04/19/18 17:00
BH31	1804109-23	Water	04/19/18 14:00	04/19/18 17:00
BH32	1804109-24	Water	04/19/18 13:45	04/19/18 17:00
BH33	1804109-25	Water	04/19/18 13:55	04/19/18 17:00
BH34	1804109-26	Water	04/19/18 13:25	04/19/18 17:00
BH35	1804109-27	Water	04/19/18 12:55	04/19/18 17:00

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
6899 Pecos St, Unit C
Denver CO, 80221

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

Reported:
04/28/18 12:46

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH36R	1804109-28	Water	04/19/18 13:10	04/19/18 17:00
BH37	1804109-29	Water	04/19/18 12:40	04/19/18 17:00
BH38R	1804109-30	Water	04/19/18 12:20	04/19/18 17:00
BH39	1804109-31	Water	04/19/18 12:00	04/19/18 17:00
BH40R	1804109-32	Water	04/19/18 11:00	04/19/18 17:00
BH41R	1804109-33	Water	04/19/18 10:50	04/19/18 17:00
BH42R	1804109-34	Water	04/19/18 11:25	04/19/18 17:00
BH43R	1804109-35	Water	04/19/18 11:15	04/19/18 17:00
BH44	1804109-36	Water	04/19/18 11:55	04/19/18 17:00
BH45	1804109-37	Water	04/19/18 12:25	04/19/18 17:00
BH46	1804109-38	Water	04/19/18 12:35	04/19/18 17:00
BH47	1804109-39	Water	04/19/18 11:45	04/19/18 17:00
BH48	1804109-40	Water	04/19/18 11:00	04/19/18 17:00
BH49R	1804109-41	Water	04/19/18 11:35	04/19/18 17:00
BH50	1804109-42	Water	04/19/18 12:15	04/19/18 17:00
BH51	1804109-43	Water	04/19/18 12:05	04/19/18 17:00
BH52R	1804109-44	Water	04/19/18 12:10	04/19/18 17:00
BH53R	1804109-45	Water	04/19/18 11:10	04/19/18 17:00
BH55R	1804109-46	Water	04/19/18 11:20	04/19/18 17:00

Summit Scientific

1804109.5

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

Client:	Noble/Tasman	Project Manager:	Brandon Bruns, Invoice: Jacob Evans
Address:	-	E-Mail:	Bbruns@tasman-geo.com
City/State/Zip:	-	Project Name:	Feather 31-15
Phone:	303-487-1228 Fax: -	Project Number:	—
Sampler Name:	GB, MG, MD, TL		

				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)	8260 BTEX								Special Instructions
BH49R	4/19/2018	1135	3			X		X				X								
BH50	"	1215	"			X		"				"								
BH51	"	1205	"			X		"				"								
BH52R	"	1210	"	X				"				"								
BH53R	"	1110	"			X		"				"								
BH55R	"	1120	"			X		"				"								

Relinquished by:	Date/Time: 4-19-18 17:00	Received by:	Date/Time: 4-19-18 17:00
Relinquished by:	Date/Time:	Received by:	Date/Time:
Relinquished by:	Date/Time:	Received in Lab by:	Date/Time:

Turn Around Time (Check)

Same Day		72 Hours	
24 Hours		Standard	X
48 Hours			

Sample Integrity:
Temperature Upon Receipt: 2.0
Intact: Yes X No

Notes:

Sample Receipt Checklist

S2 Work Order: 1804109

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

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

Matrix (check all that apply): ____Air ____Soil/Solid __X__Water ____Other: _____
(Describe)

Temp (°C)	2.0

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.	X			
Were all samples received intact (1)?	X			
Was adequate sample volume provided (1)?	X			
If custody seals are present, are they intact (1)?			X	
Are short holding time analytes or samples due within 48 hours present?			X	
Is a chain-of-custody (COC) form present and filled out completely (1)?	X			
Does the COC agree with the number and type of sample bottles received (1)?	X			
Do the sample IDs on the bottle labels match the COC (1)?	X			
Is the COC properly relinquished by the client with date and time recorded (1)?	X			
For volatiles in water – is there headspace present? **If yes, contact client and note in narrative.**		X		
Are samples preserved that require preservation **(excluding cooling)** (1)? Note the type of preservative in the Comments column – HCL, H2SO4, NaOH, HNO3, etc.	X			HCL
If samples are acid preserved for metals, is the pH ≤ 2(1)? Record the pH in Comments.			X	
If dissolved metals are requested, were samples field filtered?			X	
Additional Comments (if any):				

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

MWi MA 4-19-18 18:00

Custodian Printed Name or Initials **Signature of Custodian** **Date/Time**

Tasman Geosciences 6899 Pecos St, Unit C Denver CO, 80221	Project: Noble - Feather 31-15 Project Number: [none] Project Manager: Brandon Bruns	**Reported:** 04/28/18 12:46

BH08

1804109-01 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/19/18 11:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1804249	04/24/18	04/25/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **04/19/18 11:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		*100 %*	*70-130*		"	"	"	"	
Surrogate: Toluene-d8		*87.8 %*	*70-130*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*103 %*	*70-130*		"	"	"	"	

Tasman Geosciences 6899 Pecos St, Unit C Denver CO, 80221	Project: Noble - Feather 31-15 Project Number: [none] Project Manager: Brandon Bruns	**Reported:** 04/28/18 12:46

BH10
1804109-02 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/19/18 11:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1804249	04/24/18	04/25/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **04/19/18 11:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		*96.6 %*	*70-130*		"	"	"	"	
Surrogate: Toluene-d8		*90.0 %*	*70-130*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*106 %*	*70-130*		"	"	"	"	

Tasman Geosciences 6899 Pecos St, Unit C Denver CO, 80221	Project: Noble - Feather 31-15 Project Number: [none] Project Manager: Brandon Bruns	**Reported:** 04/28/18 12:46

BH11
1804109-03 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/19/18 12:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	**4.7**	1.0	ug/l	1	1804249	04/24/18	04/25/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	**10**	1.0	"	"	"	"	"	"	
Xylenes (total)	**5.2**	2.0	"	"	"	"	"	"	

Date Sampled: **04/19/18 12:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		*111 %*	*70-130*		"	"	"	"	
Surrogate: Toluene-d8		*90.5 %*	*70-130*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*98.7 %*	*70-130*		"	"	"	"	

Tasman Geosciences 6899 Pecos St, Unit C Denver CO, 80221	Project: Noble - Feather 31-15 Project Number: [none] Project Manager: Brandon Bruns	**Reported:** 04/28/18 12:46

BH12
1804109-04 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/19/18 12:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1804249	04/24/18	04/25/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **04/19/18 12:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		*102 %*	*70-130*		"	"	"	"	
Surrogate: Toluene-d8		*88.7 %*	*70-130*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*105 %*	*70-130*		"	"	"	"	

Tasman Geosciences 6899 Pecos St, Unit C Denver CO, 80221	Project: Noble - Feather 31-15 Project Number: [none] Project Manager: Brandon Bruns	**Reported:** 04/28/18 12:46

BH13
1804109-05 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/19/18 12:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	**66**	1.0	ug/l	1	1804249	04/24/18	04/25/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	**220**	1.0	"	"	"	"	"	"	
Xylenes (total)	**130**	2.0	"	"	"	"	"	"	

Date Sampled: **04/19/18 12:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		*97.8 %*	*70-130*		"	"	"	"	
Surrogate: Toluene-d8		*95.7 %*	*70-130*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*97.7 %*	*70-130*		"	"	"	"	

Tasman Geosciences 6899 Pecos St, Unit C Denver CO, 80221	Project: Noble - Feather 31-15 Project Number: [none] Project Manager: Brandon Bruns	**Reported:** 04/28/18 12:46

BH14
1804109-06 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/19/18 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1804249	04/24/18	04/25/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **04/19/18 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		*107 %*	*70-130*		"	"	"	"	
Surrogate: Toluene-d8		*89.6 %*	*70-130*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*102 %*	*70-130*		"	"	"	"	

Tasman Geosciences 6899 Pecos St, Unit C Denver CO, 80221	Project: Noble - Feather 31-15 Project Number: [none] Project Manager: Brandon Bruns	**Reported:** 04/28/18 12:46

BH15
1804109-07 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/19/18 13:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	**3700**	100	ug/l	100	1804249	04/24/18	04/25/18	EPA 8260B	
Toluene	**67**	1.0	"	1	"	"	"	"	
Ethylbenzene	**370**	1.0	"	"	"	"	"	"	
Xylenes (total)	**1200**	200	"	100	"	"	"	"	

Date Sampled: **04/19/18 13:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		*95.0 %*	*70-130*		"	"	"	"	
Surrogate: Toluene-d8		*96.5 %*	*70-130*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*100 %*	*70-130*		"	"	"	"	

Tasman Geosciences 6899 Pecos St, Unit C Denver CO, 80221	Project: Noble - Feather 31-15 Project Number: [none] Project Manager: Brandon Bruns	**Reported:** 04/28/18 12:46

BH16
1804109-08 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/19/18 13:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	**970**	100	ug/l	100	1804249	04/24/18	04/25/18	EPA 8260B	
Toluene	**73**	1.0	"	1	"	"	"	"	
Ethylbenzene	**83**	1.0	"	"	"	"	"	"	
Xylenes (total)	**270**	2.0	"	"	"	"	"	"	

Date Sampled: **04/19/18 13:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		*108 %*	*70-130*		"	"	"	"	
Surrogate: Toluene-d8		*93.6 %*	*70-130*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*96.7 %*	*70-130*		"	"	"	"	

Tasman Geosciences 6899 Pecos St, Unit C Denver CO, 80221	Project: Noble - Feather 31-15 Project Number: [none] Project Manager: Brandon Bruns	**Reported:** 04/28/18 12:46

BH17
1804109-09 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/19/18 11:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1804249	04/24/18	04/25/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **04/19/18 11:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		*107 %*	*70-130*		"	"	"	"	
Surrogate: Toluene-d8		*92.0 %*	*70-130*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*105 %*	*70-130*		"	"	"	"	

Tasman Geosciences 6899 Pecos St, Unit C Denver CO, 80221	Project: Noble - Feather 31-15 Project Number: [none] Project Manager: Brandon Bruns	**Reported:** 04/28/18 12:46

BH18
1804109-10 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/19/18 11:46**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1804249	04/24/18	04/25/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **04/19/18 11:46**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		*95.5 %*	*70-130*		"	"	"	"	
Surrogate: Toluene-d8		*90.2 %*	*70-130*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*101 %*	*70-130*		"	"	"	"	

Tasman Geosciences 6899 Pecos St, Unit C Denver CO, 80221	Project: Noble - Feather 31-15 Project Number: [none] Project Manager: Brandon Bruns	**Reported:** 04/28/18 12:46

BH19
1804109-11 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/19/18 13:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	**1800**	100	ug/l	100	1804249	04/24/18	04/25/18	EPA 8260B	
Toluene	ND	1.0	"	1	"	"	"	"	
Ethylbenzene	**210**	1.0	"	"	"	"	"	"	
Xylenes (total)	**330**	2.0	"	"	"	"	"	"	

Date Sampled: **04/19/18 13:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		*101 %*	*70-130*		"	"	"	"	
Surrogate: Toluene-d8		*96.5 %*	*70-130*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*99.8 %*	*70-130*		"	"	"	"	

Tasman Geosciences 6899 Pecos St, Unit C Denver CO, 80221	Project: Noble - Feather 31-15 Project Number: [none] Project Manager: Brandon Bruns	**Reported:** 04/28/18 12:46

BH20
1804109-12 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/19/18 13:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1804249	04/24/18	04/25/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **04/19/18 13:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		*100 %*	*70-130*		"	"	"	"	
Surrogate: Toluene-d8		*106 %*	*70-130*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*102 %*	*70-130*		"	"	"	"	

Tasman Geosciences 6899 Pecos St, Unit C Denver CO, 80221	Project: Noble - Feather 31-15 Project Number: [none] Project Manager: Brandon Bruns	**Reported:** 04/28/18 12:46

BH21
1804109-13 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/19/18 13:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	**430**	10	ug/l	10	1804249	04/24/18	04/25/18	EPA 8260B	
Toluene	ND	1.0	"	1	"	"	"	"	
Ethylbenzene	**280**	10	"	10	"	"	"	"	
Xylenes (total)	ND	2.0	"	1	"	"	"	"	

Date Sampled: **04/19/18 13:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		*106 %*	*70-130*		"	"	"	"	
Surrogate: Toluene-d8		*90.3 %*	*70-130*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*97.5 %*	*70-130*		"	"	"	"	

Tasman Geosciences 6899 Pecos St, Unit C Denver CO, 80221	Project: Noble - Feather 31-15 Project Number: [none] Project Manager: Brandon Bruns	**Reported:** 04/28/18 12:46

BH22

1804109-14 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/19/18 12:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	**520**	10	ug/l	10	1804250	04/24/18	04/26/18	EPA 8260B	
Toluene	**1.9**	1.0	"	1	"	"	"	"	
Ethylbenzene	**110**	1.0	"	"	"	"	"	"	
Xylenes (total)	**34**	2.0	"	"	"	"	"	"	

Date Sampled: **04/19/18 12:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		*111 %*	*70-130*		"	"	"	"	
Surrogate: Toluene-d8		*94.2 %*	*70-130*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*97.4 %*	*70-130*		"	"	"	"	

Tasman Geosciences 6899 Pecos St, Unit C Denver CO, 80221	Project: Noble - Feather 31-15 Project Number: [none] Project Manager: Brandon Bruns	**Reported:** 04/28/18 12:46

BH23R2

1804109-15 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/19/18 12:28**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	**3200**	100	ug/l	100	1804250	04/24/18	04/27/18	EPA 8260B	
Toluene	**6000**	100	"	"	"	"	"	"	
Ethylbenzene	**550**	100	"	"	"	"	"	"	
Xylenes (total)	**13000**	200	"	"	"	"	"	"	

Date Sampled: **04/19/18 12:28**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		*98.6 %*	*70-130*		"	"	"	"	
Surrogate: Toluene-d8		*94.4 %*	*70-130*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*94.9 %*	*70-130*		"	"	"	"	

Tasman Geosciences 6899 Pecos St, Unit C Denver CO, 80221	Project: Noble - Feather 31-15 Project Number: [none] Project Manager: Brandon Bruns	**Reported:** 04/28/18 12:46

BH24
1804109-16 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/19/18 12:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	**1700**	100	ug/l	100	1804250	04/24/18	04/26/18	EPA 8260B	
Toluene	**48**	1.0	"	1	"	"	"	"	
Ethylbenzene	**220**	1.0	"	"	"	"	"	"	
Xylenes (total)	**190**	2.0	"	"	"	"	"	"	

Date Sampled: **04/19/18 12:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		*111 %*	*70-130*		"	"	"	"	
Surrogate: Toluene-d8		*115 %*	*70-130*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*97.9 %*	*70-130*		"	"	"	"	

Tasman Geosciences 6899 Pecos St, Unit C Denver CO, 80221	Project: Noble - Feather 31-15 Project Number: [none] Project Manager: Brandon Bruns	**Reported:** 04/28/18 12:46

BH25R
1804109-17 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/19/18 12:42**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	**1000**	10	ug/l	10	1804250	04/24/18	04/25/18	EPA 8260B	
Toluene	ND	1.0	"	1	"	"	"	"	
Ethylbenzene	**180**	1.0	"	"	"	"	"	"	
Xylenes (total)	**1500**	20	"	10	"	"	"	"	

Date Sampled: **04/19/18 12:42**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		*101 %*	*70-130*		"	"	"	"	
Surrogate: Toluene-d8		*96.5 %*	*70-130*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*106 %*	*70-130*		"	"	"	"	

Tasman Geosciences 6899 Pecos St, Unit C Denver CO, 80221	Project: Noble - Feather 31-15 Project Number: [none] Project Manager: Brandon Bruns	**Reported:** 04/28/18 12:46

BH26
1804109-18 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/19/18 13:42**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	**550**	10	ug/l	10	1804250	04/24/18	04/25/18	EPA 8260B	
Toluene	ND	1.0	"	1	"	"	"	"	
Ethylbenzene	**99**	1.0	"	"	"	"	"	"	
Xylenes (total)	**83**	2.0	"	"	"	"	"	"	

Date Sampled: **04/19/18 13:42**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		*96.7 %*	*70-130*		"	"	"	"	
Surrogate: Toluene-d8		*97.6 %*	*70-130*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*99.2 %*	*70-130*		"	"	"	"	

Tasman Geosciences 6899 Pecos St, Unit C Denver CO, 80221	Project: Noble - Feather 31-15 Project Number: [none] Project Manager: Brandon Bruns	**Reported:** 04/28/18 12:46

BH27
1804109-19 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/19/18 13:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	**120**	1.0	ug/l	1	1804250	04/24/18	04/25/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	**150**	1.0	"	"	"	"	"	"	
Xylenes (total)	**40**	2.0	"	"	"	"	"	"	

Date Sampled: **04/19/18 13:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		*99.5 %*	*70-130*		"	"	"	"	
Surrogate: Toluene-d8		*100 %*	*70-130*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*104 %*	*70-130*		"	"	"	"	

Tasman Geosciences 6899 Pecos St, Unit C Denver CO, 80221	Project: Noble - Feather 31-15 Project Number: [none] Project Manager: Brandon Bruns	**Reported:** 04/28/18 12:46

BH28R
1804109-20 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/19/18 11:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1804250	04/24/18	04/25/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **04/19/18 11:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		*101 %*	*70-130*		"	"	"	"	
Surrogate: Toluene-d8		*94.5 %*	*70-130*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*99.9 %*	*70-130*		"	"	"	"	

Tasman Geosciences 6899 Pecos St, Unit C Denver CO, 80221	Project: Noble - Feather 31-15 Project Number: [none] Project Manager: Brandon Bruns	**Reported:** 04/28/18 12:46

BH29
1804109-21 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/19/18 11:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1804250	04/24/18	04/25/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **04/19/18 11:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		*102 %*	*70-130*		"	"	"	"	
Surrogate: Toluene-d8		*94.2 %*	*70-130*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*97.5 %*	*70-130*		"	"	"	"	

Tasman Geosciences 6899 Pecos St, Unit C Denver CO, 80221	Project: Noble - Feather 31-15 Project Number: [none] Project Manager: Brandon Bruns	**Reported:** 04/28/18 12:46

BH30R

1804109-22 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/19/18 13:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	**250**	1.0	ug/l	1	1804250	04/24/18	04/25/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	**190**	1.0	"	"	"	"	"	"	
Xylenes (total)	**1000**	20	"	10	"	"	"	"	

Date Sampled: **04/19/18 13:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		*103 %*	*70-130*		"	"	"	"	
Surrogate: Toluene-d8		*95.8 %*	*70-130*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*114 %*	*70-130*		"	"	"	"	

Tasman Geosciences 6899 Pecos St, Unit C Denver CO, 80221	Project: Noble - Feather 31-15 Project Number: [none] Project Manager: Brandon Bruns	**Reported:** 04/28/18 12:46

BH31
1804109-23 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/19/18 14:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	**960**	10	ug/l	10	1804250	04/24/18	04/25/18	EPA 8260B	
Toluene	ND	1.0	"	1	"	"	"	"	
Ethylbenzene	**160**	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **04/19/18 14:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		*101 %*	*70-130*		"	"	"	"	
Surrogate: Toluene-d8		*95.6 %*	*70-130*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*110 %*	*70-130*		"	"	"	"	

Tasman Geosciences 6899 Pecos St, Unit C Denver CO, 80221	Project: Noble - Feather 31-15 Project Number: [none] Project Manager: Brandon Bruns	**Reported:** 04/28/18 12:46

BH32

1804109-24 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/19/18 13:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1804250	04/24/18	04/25/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **04/19/18 13:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		*103 %*	*70-130*		"	"	"	"	
Surrogate: Toluene-d8		*96.2 %*	*70-130*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*98.4 %*	*70-130*		"	"	"	"	

Tasman Geosciences 6899 Pecos St, Unit C Denver CO, 80221	Project: Noble - Feather 31-15 Project Number: [none] Project Manager: Brandon Bruns	**Reported:** 04/28/18 12:46

BH33
1804109-25 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/19/18 13:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	**230**	1.0	ug/l	1	1804250	04/24/18	04/25/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	**74**	1.0	"	"	"	"	"	"	
Xylenes (total)	**140**	2.0	"	"	"	"	"	"	

Date Sampled: **04/19/18 13:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		*101 %*	*70-130*		"	"	"	"	
Surrogate: Toluene-d8		*97.7 %*	*70-130*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*99.3 %*	*70-130*		"	"	"	"	

Tasman Geosciences 6899 Pecos St, Unit C Denver CO, 80221	Project: Noble - Feather 31-15 Project Number: [none] Project Manager: Brandon Bruns	**Reported:** 04/28/18 12:46

BH34

1804109-26 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/19/18 13:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1804250	04/24/18	04/25/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **04/19/18 13:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		*104 %*	*70-130*		"	"	"	"	
Surrogate: Toluene-d8		*95.3 %*	*70-130*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*100 %*	*70-130*		"	"	"	"	

Tasman Geosciences 6899 Pecos St, Unit C Denver CO, 80221	Project: Noble - Feather 31-15 Project Number: [none] Project Manager: Brandon Bruns	**Reported:** 04/28/18 12:46

BH35
1804109-27 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/19/18 12:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1804250	04/24/18	04/25/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **04/19/18 12:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		*104 %*	*70-130*		"	"	"	"	
Surrogate: Toluene-d8		*96.3 %*	*70-130*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*99.1 %*	*70-130*		"	"	"	"	

Tasman Geosciences 6899 Pecos St, Unit C Denver CO, 80221	Project: Noble - Feather 31-15 Project Number: [none] Project Manager: Brandon Bruns	**Reported:** 04/28/18 12:46

BH36R
1804109-28 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/19/18 13:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	**1300**	10	ug/l	10	1804250	04/24/18	04/25/18	EPA 8260B	
Toluene	ND	1.0	"	1	"	"	"	"	
Ethylbenzene	**110**	1.0	"	"	"	"	"	"	
Xylenes (total)	**260**	2.0	"	"	"	"	"	"	

Date Sampled: **04/19/18 13:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		*101 %*	*70-130*		"	"	"	"	
Surrogate: Toluene-d8		*96.9 %*	*70-130*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*105 %*	*70-130*		"	"	"	"	

Tasman Geosciences 6899 Pecos St, Unit C Denver CO, 80221	Project: Noble - Feather 31-15 Project Number: [none] Project Manager: Brandon Bruns	**Reported:** 04/28/18 12:46

BH37
1804109-29 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/19/18 12:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	**260**	1.0	ug/l	1	1804250	04/24/18	04/25/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	**42**	1.0	"	"	"	"	"	"	
Xylenes (total)	**3.8**	2.0	"	"	"	"	"	"	

Date Sampled: **04/19/18 12:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		*100 %*	*70-130*		"	"	"	"	
Surrogate: Toluene-d8		*97.1 %*	*70-130*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*97.8 %*	*70-130*		"	"	"	"	

Tasman Geosciences 6899 Pecos St, Unit C Denver CO, 80221	Project: Noble - Feather 31-15 Project Number: [none] Project Manager: Brandon Bruns	**Reported:** 04/28/18 12:46

BH38R

1804109-30 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/19/18 12:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1804250	04/24/18	04/25/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **04/19/18 12:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		*106 %*	*70-130*		"	"	"	"	
Surrogate: Toluene-d8		*94.1 %*	*70-130*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*98.2 %*	*70-130*		"	"	"	"	

Tasman Geosciences 6899 Pecos St, Unit C Denver CO, 80221	Project: Noble - Feather 31-15 Project Number: [none] Project Manager: Brandon Bruns	**Reported:** 04/28/18 12:46

BH39

1804109-31 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/19/18 12:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1804250	04/24/18	04/25/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **04/19/18 12:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		*117 %*	*70-130*		"	"	"	"	
Surrogate: Toluene-d8		*94.5 %*	*70-130*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*102 %*	*70-130*		"	"	"	"	

Tasman Geosciences 6899 Pecos St, Unit C Denver CO, 80221	Project: Noble - Feather 31-15 Project Number: [none] Project Manager: Brandon Bruns	**Reported:** 04/28/18 12:46

BH40R

1804109-32 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/19/18 11:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1804250	04/24/18	04/25/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **04/19/18 11:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		*104 %*	*70-130*		"	"	"	"	
Surrogate: Toluene-d8		*95.0 %*	*70-130*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*99.7 %*	*70-130*		"	"	"	"	

Tasman Geosciences 6899 Pecos St, Unit C Denver CO, 80221	Project: Noble - Feather 31-15 Project Number: [none] Project Manager: Brandon Bruns	**Reported:** 04/28/18 12:46

BH41R
1804109-33 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/19/18 10:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1804250	04/24/18	04/25/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **04/19/18 10:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		*108 %*	*70-130*		"	"	"	"	
Surrogate: Toluene-d8		*96.1 %*	*70-130*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*102 %*	*70-130*		"	"	"	"	

Tasman Geosciences 6899 Pecos St, Unit C Denver CO, 80221	Project: Noble - Feather 31-15 Project Number: [none] Project Manager: Brandon Bruns	**Reported:** 04/28/18 12:46

BH42R
1804109-34 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/19/18 11:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1804268	04/25/18	04/26/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **04/19/18 11:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		*97.3 %*	*70-130*		"	"	"	"	
Surrogate: Toluene-d8		*94.6 %*	*70-130*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*97.6 %*	*70-130*		"	"	"	"	

Tasman Geosciences 6899 Pecos St, Unit C Denver CO, 80221	Project: Noble - Feather 31-15 Project Number: [none] Project Manager: Brandon Bruns	**Reported:** 04/28/18 12:46

BH43R

1804109-35 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/19/18 11:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1804268	04/25/18	04/26/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **04/19/18 11:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		*108 %*	*70-130*		"	"	"	"	
Surrogate: Toluene-d8		*97.5 %*	*70-130*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*99.2 %*	*70-130*		"	"	"	"	

Tasman Geosciences 6899 Pecos St, Unit C Denver CO, 80221	Project: Noble - Feather 31-15 Project Number: [none] Project Manager: Brandon Bruns	**Reported:** 04/28/18 12:46

BH44

1804109-36 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/19/18 11:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	**1.2**	1.0	ug/l	1	1804268	04/25/18	04/26/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **04/19/18 11:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		*99.5 %*	*70-130*		"	"	"	"	
Surrogate: Toluene-d8		*96.2 %*	*70-130*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*99.4 %*	*70-130*		"	"	"	"	

Tasman Geosciences 6899 Pecos St, Unit C Denver CO, 80221	Project: Noble - Feather 31-15 Project Number: [none] Project Manager: Brandon Bruns	**Reported:** 04/28/18 12:46

BH45
1804109-37 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/19/18 12:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1804268	04/25/18	04/26/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **04/19/18 12:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		*98.8 %*	*70-130*		"	"	"	"	
Surrogate: Toluene-d8		*90.0 %*	*70-130*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*97.5 %*	*70-130*		"	"	"	"	

Tasman Geosciences 6899 Pecos St, Unit C Denver CO, 80221	Project: Noble - Feather 31-15 Project Number: [none] Project Manager: Brandon Bruns	**Reported:** 04/28/18 12:46

BH46
1804109-38 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/19/18 12:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1804268	04/25/18	04/26/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **04/19/18 12:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		*110 %*	*70-130*		"	"	"	"	
Surrogate: Toluene-d8		*100 %*	*70-130*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*100 %*	*70-130*		"	"	"	"	

Tasman Geosciences 6899 Pecos St, Unit C Denver CO, 80221	Project: Noble - Feather 31-15 Project Number: [none] Project Manager: Brandon Bruns	**Reported:** 04/28/18 12:46

BH47

1804109-39 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/19/18 11:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1804268	04/25/18	04/26/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **04/19/18 11:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		*106 %*	*70-130*		"	"	"	"	
Surrogate: Toluene-d8		*112 %*	*70-130*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*95.6 %*	*70-130*		"	"	"	"	

Tasman Geosciences 6899 Pecos St, Unit C Denver CO, 80221	Project: Noble - Feather 31-15 Project Number: [none] Project Manager: Brandon Bruns	**Reported:** 04/28/18 12:46

BH48

1804109-40 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/19/18 11:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1804268	04/25/18	04/26/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **04/19/18 11:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		*98.6 %*	*70-130*		"	"	"	"	
Surrogate: Toluene-d8		*89.1 %*	*70-130*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*102 %*	*70-130*		"	"	"	"	

Tasman Geosciences 6899 Pecos St, Unit C Denver CO, 80221	Project: Noble - Feather 31-15 Project Number: [none] Project Manager: Brandon Bruns	**Reported:** 04/28/18 12:46

BH49R
1804109-41 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/19/18 11:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1804268	04/25/18	04/26/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **04/19/18 11:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		*97.8 %*	*70-130*		"	"	"	"	
Surrogate: Toluene-d8		*97.5 %*	*70-130*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*102 %*	*70-130*		"	"	"	"	

Tasman Geosciences 6899 Pecos St, Unit C Denver CO, 80221	Project: Noble - Feather 31-15 Project Number: [none] Project Manager: Brandon Bruns	**Reported:** 04/28/18 12:46

BH50

1804109-42 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/19/18 12:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	**190**	1.0	ug/l	1	1804268	04/25/18	04/26/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	**250**	10	"	10	"	"	"	"	
Xylenes (total)	ND	2.0	"	1	"	"	"	"	

Date Sampled: **04/19/18 12:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		*123 %*	*70-130*		"	"	"	"	
Surrogate: Toluene-d8		*120 %*	*70-130*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*96.8 %*	*70-130*		"	"	"	"	

Tasman Geosciences 6899 Pecos St, Unit C Denver CO, 80221	Project: Noble - Feather 31-15 Project Number: [none] Project Manager: Brandon Bruns	**Reported:** 04/28/18 12:46

BH51
1804109-43 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/19/18 12:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1804268	04/25/18	04/26/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **04/19/18 12:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		*98.0 %*	*70-130*		"	"	"	"	
Surrogate: Toluene-d8		*102 %*	*70-130*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*101 %*	*70-130*		"	"	"	"	

Tasman Geosciences 6899 Pecos St, Unit C Denver CO, 80221	Project: Noble - Feather 31-15 Project Number: [none] Project Manager: Brandon Bruns	**Reported:** 04/28/18 12:46

BH52R
1804109-44 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/19/18 12:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1804268	04/25/18	04/26/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **04/19/18 12:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		*103 %*	*70-130*		"	"	"	"	
Surrogate: Toluene-d8		*100 %*	*70-130*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*98.9 %*	*70-130*		"	"	"	"	

Tasman Geosciences 6899 Pecos St, Unit C Denver CO, 80221	Project: Noble - Feather 31-15 Project Number: [none] Project Manager: Brandon Bruns	**Reported:** 04/28/18 12:46

BH53R
1804109-45 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/19/18 11:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1804268	04/25/18	04/26/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **04/19/18 11:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		*94.8 %*	*70-130*		"	"	"	"	
Surrogate: Toluene-d8		*93.5 %*	*70-130*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*100 %*	*70-130*		"	"	"	"	

Tasman Geosciences 6899 Pecos St, Unit C Denver CO, 80221	Project: Noble - Feather 31-15 Project Number: [none] Project Manager: Brandon Bruns	**Reported:** 04/28/18 12:46

BH55R

1804109-46 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/19/18 11:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1804268	04/25/18	04/26/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **04/19/18 11:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		*99.1 %*	*70-130*		"	"	"	"	
Surrogate: Toluene-d8		*95.4 %*	*70-130*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*99.7 %*	*70-130*		"	"	"	"	

Tasman Geosciences 6899 Pecos St, Unit C Denver CO, 80221	Project: Noble - Feather 31-15 Project Number: [none] Project Manager: Brandon Bruns	**Reported:** 04/28/18 12:46

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1804249 - EPA 5030 Water MS										
Blank (1804249-BLK1)				Prepared: 04/24/18 Analyzed: 04/25/18						
Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes (total)	ND	2.0	"							
Surrogate: 1,2-Dichloroethane-d4	*13.5*		*"*	*13.2*		*102*	*70-130*			
Surrogate: Toluene-d8	*14.4*		*"*	*13.3*		*108*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*13.7*		*"*	*13.3*		*103*	*70-130*			
LCS (1804249-BS1)				Prepared: 04/24/18 Analyzed: 04/25/18						
Benzene	28.7	1.0	ug/l	33.3		86.2	70-130			
Toluene	37.0	1.0	"	33.3		111	70-130			
Ethylbenzene	39.2	1.0	"	33.3		118	70-130			
m,p-Xylene	78.8	2.0	"	66.7		118	70-130			
o-Xylene	36.7	1.0	"	33.3		110	70-130			
Xylenes (total)	116	2.0	"				63-131			
Surrogate: 1,2-Dichloroethane-d4	*12.7*		*"*	*13.2*		*96.1*	*70-130*			
Surrogate: Toluene-d8	*13.6*		*"*	*13.3*		*102*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*13.2*		*"*	*13.3*		*98.8*	*70-130*			
Matrix Spike (1804249-MS1)	**Source: 1804109-01**			Prepared: 04/24/18 Analyzed: 04/25/18						
Benzene	29.8	1.0	ug/l	33.3	ND	89.5	70-130			
Toluene	33.9	1.0	"	33.3	ND	102	70-130			
Ethylbenzene	40.3	1.0	"	33.3	ND	121	70-130			
m,p-Xylene	80.0	2.0	"	66.7	ND	120	70-130			
o-Xylene	38.3	1.0	"	33.3	ND	115	70-130			
Xylenes (total)	118	2.0	"		ND		63-131			
Surrogate: 1,2-Dichloroethane-d4	*12.7*		*"*	*13.2*		*96.4*	*70-130*			
Surrogate: Toluene-d8	*12.3*		*"*	*13.3*		*92.5*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*13.3*		*"*	*13.3*		*99.8*	*70-130*			

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1804249 - EPA 5030 Water MS										
Matrix Spike Dup (1804249-MSD1)	**Source: 1804109-01**			Prepared: 04/24/18 Analyzed: 04/25/18						
Benzene	30.1	1.0	ug/l	33.3	ND	90.4	70-130	1.03	30	
Toluene	35.0	1.0	"	33.3	ND	105	70-130	3.16	30	
Ethylbenzene	42.1	1.0	"	33.3	ND	126	70-130	4.35	30	
m,p-Xylene	85.5	2.0	"	66.7	ND	128	70-130	6.72	30	
o-Xylene	39.5	1.0	"	33.3	ND	119	70-130	3.21	30	
Xylenes (total)	125	2.0	"		ND		63-131	5.60	20	
Surrogate: 1,2-Dichloroethane-d4	*12.7*		*"*	*13.2*		*96.4*	*70-130*			
Surrogate: Toluene-d8	*12.3*		*"*	*13.3*		*92.1*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*13.2*		*"*	*13.3*		*98.9*	*70-130*			
Batch 1804250 - EPA 5030 Water MS										
Blank (1804250-BLK1)				Prepared: 04/24/18 Analyzed: 04/25/18						
Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes (total)	ND	2.0	"							
Surrogate: 1,2-Dichloroethane-d4	*13.0*		*"*	*13.2*		*98.1*	*70-130*			
Surrogate: Toluene-d8	*11.9*		*"*	*13.3*		*89.4*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*13.4*		*"*	*13.3*		*100*	*70-130*			
LCS (1804250-BS1)				Prepared: 04/24/18 Analyzed: 04/25/18						
Benzene	31.7	1.0	ug/l	33.3		95.0	70-130			
Toluene	35.9	1.0	"	33.3		108	70-130			
Ethylbenzene	41.4	1.0	"	33.3		124	70-130			
m,p-Xylene	82.3	2.0	"	66.7		123	70-130			
o-Xylene	39.9	1.0	"	33.3		120	70-130			
Xylenes (total)	122	2.0	"				63-131			
Surrogate: 1,2-Dichloroethane-d4	*13.0*		*"*	*13.2*		*98.3*	*70-130*			
Surrogate: Toluene-d8	*12.5*		*"*	*13.3*		*94.0*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*13.0*		*"*	*13.3*		*97.5*	*70-130*			

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1804250 - EPA 5030 Water MS										
Matrix Spike (1804250-MS1)	**Source: 1804109-14**			Prepared: 04/24/18	Analyzed: 04/25/18					
Benzene	563	1.0	ug/l	33.3	523	119	70-130			E
Toluene	38.8	1.0	"	33.3	1.87	111	70-130			
Ethylbenzene	124	1.0	"	33.3	111	40.6	70-130			E
m,p-Xylene	115	2.0	"	66.7	33.8	121	70-130			
o-Xylene	39.8	1.0	"	33.3	ND	119	70-130			
Xylenes (total)	155	2.0	"		33.8		63-131			
Surrogate: 1,2-Dichloroethane-d4	*13.8*		*"*	*13.2*		*105*	*70-130*			
Surrogate: Toluene-d8	*12.9*		*"*	*13.3*		*96.5*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*12.8*		*"*	*13.3*		*95.9*	*70-130*			
Matrix Spike Dup (1804250-MSD1)	**Source: 1804109-14**			Prepared: 04/24/18	Analyzed: 04/25/18					
Benzene	540	1.0	ug/l	33.3	523	51.6	70-130	4.09	30	E
Toluene	38.6	1.0	"	33.3	1.87	110	70-130	0.387	30	
Ethylbenzene	122	1.0	"	33.3	111	35.4	70-130	1.41	30	E
m,p-Xylene	115	2.0	"	66.7	33.8	121	70-130	0.0436	30	
o-Xylene	40.9	1.0	"	33.3	ND	123	70-130	2.80	30	
Xylenes (total)	156	2.0	"		33.8		63-131	0.696	20	
Surrogate: 1,2-Dichloroethane-d4	*13.9*		*"*	*13.2*		*106*	*70-130*			
Surrogate: Toluene-d8	*12.8*		*"*	*13.3*		*95.6*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*12.8*		*"*	*13.3*		*96.3*	*70-130*			
Batch 1804268 - EPA 5030 Water MS										
Blank (1804268-BLK1)				Prepared: 04/25/18	Analyzed: 04/26/18					
Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes (total)	ND	2.0	"							
Surrogate: 1,2-Dichloroethane-d4	*13.1*		*"*	*13.2*		*99.0*	*70-130*			
Surrogate: Toluene-d8	*13.2*		*"*	*13.3*		*98.9*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*13.5*		*"*	*13.3*		*101*	*70-130*			

Tasman Geosciences 6899 Pecos St, Unit C Denver CO, 80221	Project: Noble - Feather 31-15 Project Number: [none] Project Manager: Brandon Bruns	**Reported:** 04/28/18 12:46

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1804268 - EPA 5030 Water MS										
LCS (1804268-BS1)				Prepared: 04/25/18 Analyzed: 04/26/18						
Benzene	29.3	1.0	ug/l	33.3		88.0	70-130			
Toluene	30.9	1.0	"	33.3		92.7	70-130			
Ethylbenzene	35.0	1.0	"	33.3		105	70-130			
m,p-Xylene	67.5	2.0	"	66.7		101	70-130			
o-Xylene	32.1	1.0	"	33.3		96.4	70-130			
Xylenes (total)	99.6	2.0	"				63-131			
Surrogate: 1,2-Dichloroethane-d4	*12.4*		*"*	*13.2*		*93.8*	*70-130*			
Surrogate: Toluene-d8	*12.8*		*"*	*13.3*		*96.3*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*13.0*		*"*	*13.3*		*97.6*	*70-130*			
Matrix Spike (1804268-MS1)		**Source: 1804308-01**		Prepared: 04/25/18 Analyzed: 04/26/18						
Benzene	30.2	1.0	ug/l	33.3	ND	90.7	70-130			
Toluene	31.6	1.0	"	33.3	ND	94.7	70-130			
Ethylbenzene	36.0	1.0	"	33.3	ND	108	70-130			
m,p-Xylene	68.6	2.0	"	66.7	ND	103	70-130			
o-Xylene	32.9	1.0	"	33.3	ND	98.8	70-130			
Xylenes (total)	102	2.0	"		ND		63-131			
Surrogate: 1,2-Dichloroethane-d4	*13.4*		*"*	*13.2*		*102*	*70-130*			
Surrogate: Toluene-d8	*13.2*		*"*	*13.3*		*98.7*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*13.2*		*"*	*13.3*		*98.9*	*70-130*			
Matrix Spike Dup (1804268-MSD1)		**Source: 1804308-01**		Prepared: 04/25/18 Analyzed: 04/26/18						
Benzene	29.6	1.0	ug/l	33.3	ND	88.7	70-130	2.24	30	
Toluene	31.4	1.0	"	33.3	ND	94.3	70-130	0.444	30	
Ethylbenzene	34.8	1.0	"	33.3	ND	104	70-130	3.39	30	
m,p-Xylene	66.8	2.0	"	66.7	ND	100	70-130	2.78	30	
o-Xylene	32.5	1.0	"	33.3	ND	97.4	70-130	1.35	30	
Xylenes (total)	99.2	2.0	"		ND		63-131	2.31	20	
Surrogate: 1,2-Dichloroethane-d4	*14.6*		*"*	*13.2*		*110*	*70-130*			
Surrogate: Toluene-d8	*13.0*		*"*	*13.3*		*97.7*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*13.4*		*"*	*13.3*		*100*	*70-130*			

Tasman Geosciences 6899 Pecos St, Unit C Denver CO, 80221	Project: Noble - Feather 31-15 Project Number: [none] Project Manager: Brandon Bruns	**Reported:** 04/28/18 12:46

Notes and Definitions

E	The concentration indicated for this analyte is an estimated value above the calibration range of the instrument.
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

Summit Scientific

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

April 28, 2018

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

RE: Noble - Feather 31-15

Enclosed are the results of analyses for samples received by Summit Scientific on 04/20/18 18:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Ben Shrewsbury
Laboratory Manager

Tasman Geosciences 6899 Pecos St, Unit C Denver CO, 80221	Project: Noble - Feather 31-15 Project Number: [none] Project Manager: Brandon Bruns	**Reported:** 04/28/18 12:40

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH54R	1804122-01	Water	04/20/18 14:00	04/20/18 18:00

Summit Scientific

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

Summit Scientific

1804122

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

Page 1 of 1

Client:	Noble/Tasman	Project Manager:	Brandon Bruns, Invoice: Jacob Evans
Address:	-	E-Mail:	Bbruns@tasman-geo.com
City/State/Zip:	-	Project Name:	Feather 3H-15
Phone:	303-487-1228 Fax: -	Project Number:	-
Sampler Name:	GB		

				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)	8260 BTEX	8260B GBTEXN	8015 DRO	pH, EC, SAR					Special Instructions
BH54R	4/20/18	1400	3	X				X				X								

Relinquished by: Date/Time: 4/20/18

Received by: Date/Time: 4/20/18 1800

Relinquished by: Date/Time:

Received by: Date/Time:

Relinquished by: Date/Time:

Received in Lab by: Date/Time:

Turn Around Time (Check)

Same Day		72 Hours	
24 Hours		Standard	X
48 Hours			

Sample Integrity:

Temperature Upon Receipt: 4.7

Intact: Yes X No

Notes:

Sample Receipt Checklist

S2 Work Order: 1804122

Client: Nobe/Tasman Client Project ID: Feather 31-15

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

Matrix (check all that apply): ____Air ____Soil/Solid ✓ Water ____Other: (Describe)

Temp (°C)	4.7

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.	✓			
Were all samples received intact [1]?	✓			
Was adequate sample volume provided [1]?	✓			
If custody seals are present, are they intact [1]?			✓	
Are short holding time analytes or samples due within 48 hours present?			✓	
Is a chain-of-custody (COC) form present and filled out completely [1]?	✓			
Does the COC agree with the number and type of sample bottles received [1]?	✓			
Do the sample IDs on the bottle labels match the COC [1]?	✓			
Is the COC properly relinquished by the client with date and time recorded [1]?	✓			
For volatiles in water – is there headspace present? **If yes, contact client and note in narrative.**		✓		
Are samples preserved that require preservation **(excluding cooling)** [1]? Note the type of preservative in the Comments column – HCL, H2SO4, NaOH, HNO3, etc.	✓			HCl
If samples are acid preserved for metals, is the pH ≤ 2[1]? Record the pH in Comments.			✓	
If dissolved metals are requested, were samples field filtered?			✓	
Additional Comments (if any):				

[1] **If NO, then contact the client before proceeding with analysis and note in case narrative.**

Custodian Printed Name or Initials **Signature of Custodian** 4-20-18 18:15 **Date/Time**

Tasman Geosciences 6899 Pecos St, Unit C Denver CO, 80221	Project: Noble - Feather 31-15 Project Number: [none] Project Manager: Brandon Bruns	**Reported:** 04/28/18 12:40

BH54R

1804122-01 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/20/18 14:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1804203	04/21/18	04/26/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **04/20/18 14:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		*98.1 %*	*70-130*		"	"	"	"	
Surrogate: Toluene-d8		*94.7 %*	*70-130*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*98.9 %*	*70-130*		"	"	"	"	

Tasman Geosciences 6899 Pecos St, Unit C Denver CO, 80221	Project: Noble - Feather 31-15 Project Number: [none] Project Manager: Brandon Bruns	**Reported:** 04/28/18 12:40

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1804203 - EPA 5030 Water MS										
Blank (1804203-BLK1)				Prepared: 04/21/18 Analyzed: 04/23/18						
Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes (total)	ND	2.0	"							
Surrogate: 1,2-Dichloroethane-d4	*14.1*		*"*	*13.2*		*107*	*70-130*			
Surrogate: Toluene-d8	*12.9*		*"*	*13.3*		*96.8*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*13.6*		*"*	*13.3*		*102*	*70-130*			
LCS (1804203-BS1)				Prepared: 04/21/18 Analyzed: 04/23/18						
Benzene	51.4	1.0	ug/l	50.0		103	70-130			
Toluene	51.9	1.0	"	50.0		104	70-130			
Ethylbenzene	51.5	1.0	"	50.0		103	70-130			
m,p-Xylene	104	2.0	"	100		104	70-130			
o-Xylene	54.5	1.0	"	50.0		109	70-130			
Xylenes (total)	158	2.0	"				63-131			
Surrogate: 1,2-Dichloroethane-d4	*13.8*		*"*	*13.2*		*105*	*70-130*			
Surrogate: Toluene-d8	*12.8*		*"*	*13.3*		*95.9*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*13.2*		*"*	*13.3*		*99.0*	*70-130*			
Matrix Spike (1804203-MS1)	**Source: 1804108-01**			Prepared: 04/21/18 Analyzed: 04/23/18						
Benzene	58.1	1.0	ug/l	50.0	ND	116	70-130			
Toluene	59.4	1.0	"	50.0	ND	119	70-130			
Ethylbenzene	58.0	1.0	"	50.0	ND	116	70-130			
m,p-Xylene	116	2.0	"	100	ND	116	70-130			
o-Xylene	59.6	1.0	"	50.0	ND	119	70-130			
Xylenes (total)	176	2.0	"		ND		63-131			
Surrogate: 1,2-Dichloroethane-d4	*12.7*		*"*	*13.2*		*96.5*	*70-130*			
Surrogate: Toluene-d8	*13.3*		*"*	*13.3*		*100*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*13.2*		*"*	*13.3*		*99.3*	*70-130*			

Tasman Geosciences 6899 Pecos St, Unit C Denver CO, 80221	Project: Noble - Feather 31-15 Project Number: [none] Project Manager: Brandon Bruns	**Reported:** 04/28/18 12:40

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1804203 - EPA 5030 Water MS										
Matrix Spike Dup (1804203-MSD1)	**Source: 1804108-01**			Prepared: 04/21/18 Analyzed: 04/23/18						
Benzene	53.6	1.0	ug/l	50.0	ND	107	70-130	7.97	30	
Toluene	59.6	1.0	"	50.0	ND	119	70-130	0.319	30	
Ethylbenzene	58.5	1.0	"	50.0	ND	117	70-130	0.859	30	
m,p-Xylene	115	2.0	"	100	ND	115	70-130	1.14	30	
o-Xylene	60.1	1.0	"	50.0	ND	120	70-130	0.902	30	
Xylenes (total)	175	2.0	"		ND		63-131	0.444	20	
Surrogate: 1,2-Dichloroethane-d4	*11.9*		*"*	*13.2*		*90.4*	*70-130*			
Surrogate: Toluene-d8	*13.4*		*"*	*13.3*		*101*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*12.8*		*"*	*13.3*		*96.2*	*70-130*			

Tasman Geosciences 6899 Pecos St, Unit C Denver CO, 80221	Project: Noble - Feather 31-15 Project Number: [none] Project Manager: Brandon Bruns	**Reported:** 04/28/18 12:40

Notes and Definitions

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

ORIGINS LABORATORY, INC

April 03, 2018

Tasman Geosciences

Brandon Bruns

6899 Pecos Street, Unit C

Denver CO 80211

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

Attached are your analytical results for Noble - Feather 31-15 received by Origins Laboratory, Inc. March 27, 2018. This project is associated with Origins project number Y803472-01.

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

THE NELAC INSTITUTE

ACCREDITED
TESTING CERT # 3494.01

ORIGINS LABORATORY, INC

Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

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

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
V001 - 032718	Y803472-01	Air	March 27, 2018 10:30	03/27/2018 14:07

Origins Laboratory, Inc.

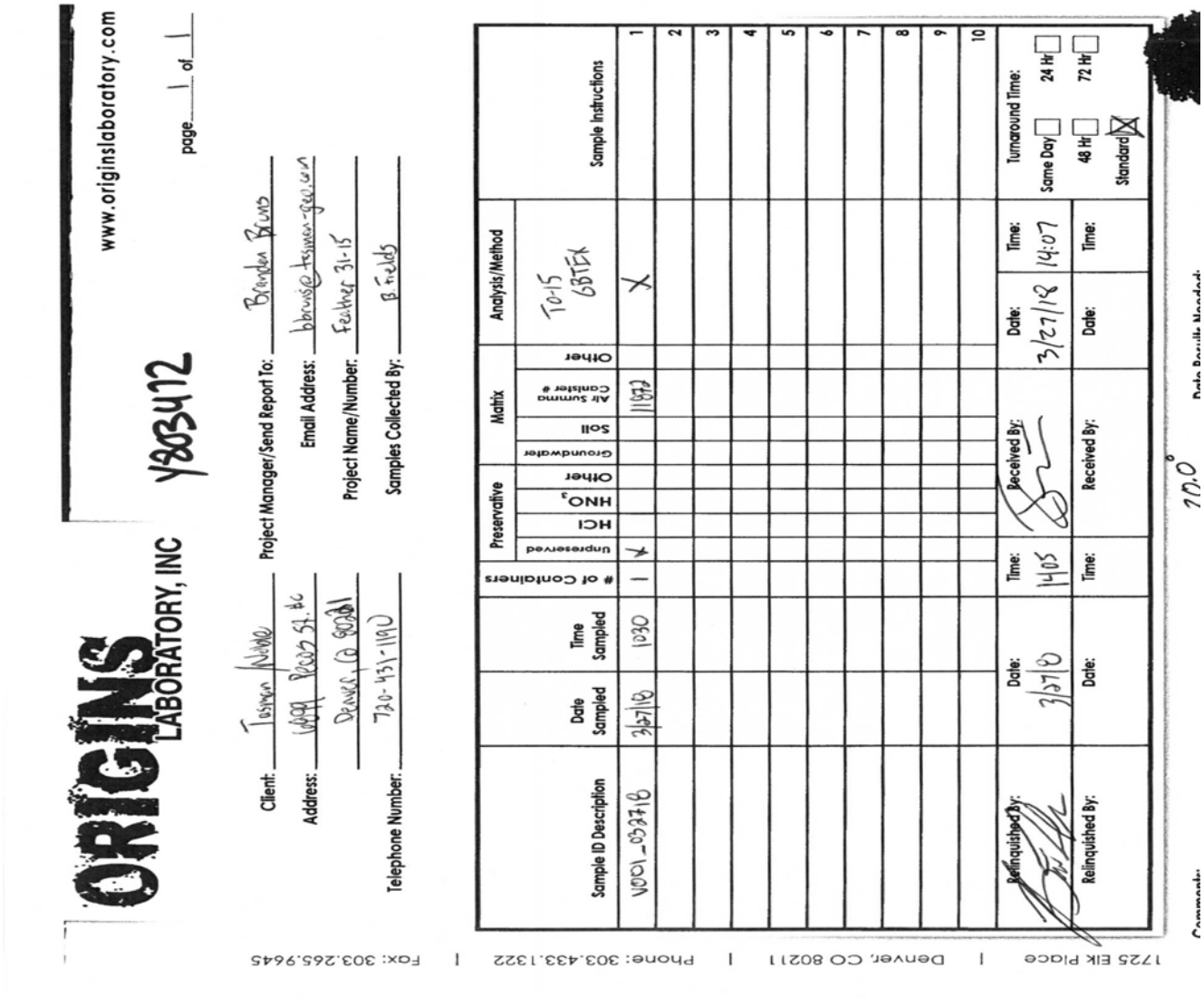
Jen Pellegrini For Noelle Doyle Mathis, President

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.

ORIGINS LABORATORY, INC

Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

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



Origins Laboratory, Inc.

Jen Pellegrini For Noelle Doyle Mathis, President

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.

ORIGINS LABORATORY, INC

Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

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: 1903472 Client: Tasman
Client Project ID: Noble - Feather 31-15

Checklist Completed by: Dan Lee Shipped Via: Hand
(UPS, FedEx, Hand Delivered, Pick-up, etc.)
Date/time completed: 3-29-18 Airbill #: NO

Matrix(s) Received: (Check all that apply): ____Soil/Solid ____Water ✓ Other: P.W.
(Describe)

Cooler Number/Temperature: — / 21.0 °C ____/____ °C ____/____ °C ____/____ °C

Thermometer ID: 003

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C[1]?			✓	
Is there ice present (document if blue ice is used)			✓	
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)		✓		
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)		✓		
Were all samples received intact[1]?	✓			
Was adequate sample volume provided[1]?	✓			
Are short holding time analytes or samples with HTs due within 48 hours present[1]?		✓		
Is a chain-of-custody (COC) present and filled out completely[1]?	✓			
Does the COC agree with the number and type of sample bottles received[1]?	✓			
Do the sample IDs on the bottle labels match the COC[1]?	✓			
Is the COC properly relinquished by the client with date and time recorded[1]?	✓			
For volatiles in water – is there headspace (> ¼ inch bubble) present? **If yes, contact client and note in narrative.**			✓	
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 HNO3, HCL, H2SO4) / (pH >10 for samples preserved with NaAsO2+NaOH, ZnAc+NaOH)*			✓	
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) 3-29-18 Date/Time Reviewed

Origins Laboratory, Inc.

Jen 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.

Jen Pellegrini For Noelle Doyle Mathis, President

Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

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

V001 - 032718
3/27/2018 10:30:00AM

Origins Laboratory, Inc.
Y803472-01 (Air)

GBTEX by TO-15M GC/MS

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
								T
Gasoline Range Hydrocarbons	**2510**	2070	ug/m³ Air	4.61	B8C2806	03/28/2018	03/28/2018	
Benzene	ND	12.9	"	"	"	"	"	U
Toluene	ND	23.0	"	"	"	"	"	U
Ethylbenzene	ND	23.0	"	"	"	"	"	U
m,p-Xylene	ND	87.6	"	"	"	"	"	U
o-Xylene	ND	21.7	"	"	"	"	"	U
Surrogate: 1,2-Dichloroethane-d4	*111 %*	*70-130*			"	"	"	
Surrogate: Toluene-d8	*102 %*	*70-130*			"	"	"	
Surrogate: 4-Bromofluorobenzene	*101 %*	*70-130*			"	"	"	

Origins Laboratory, Inc.

Jen Pellegrini For Noelle Doyle Mathis, President

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
6899 Pecos Street, Unit C
Denver CO 80211

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
Batch B8C2806 - Default Prep - Air										
Blank (B8C2806-BLK1)					Prepared: 03/28/2018 Analyzed: 03/28/2018					T
Gasoline Range Hydrocarbons	ND	448	ug/m³ 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	*19.9*		*ppbv*	*20.0*		*99.6*	*70-130*			
Surrogate: Toluene-d8	*19.6*		*"*	*20.0*		*98.0*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*22.9*		*"*	*20.0*		*115*	*70-130*			
LCS (B8C2806-BS1)					Prepared: 03/28/2018 Analyzed: 03/28/2018					T
Benzene	34.5	2.80	ug/m³ Air	32.6		106	70-130			
Toluene	42.0	5.00	"	39.6		106	70-130			
Ethylbenzene	48.2	5.00	"	45.6		106	70-130			
m,p-Xylene	199	19.0	"	179		111	70-130			
o-Xylene	50.7	4.70	"	46.5		109	70-130			
Surrogate: 1,2-Dichloroethane-d4	*20.6*		*ppbv*	*20.0*		*103*	*70-130*			
Surrogate: Toluene-d8	*19.7*		*"*	*20.0*		*98.4*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*19.9*		*"*	*20.0*		*99.4*	*70-130*			
LCS Dup (B8C2806-BSD1)					Prepared: 03/28/2018 Analyzed: 03/28/2018					T
Benzene	35.3	2.80	ug/m³ Air	32.6		108	70-130	2.29	20	
Toluene	42.5	5.00	"	39.6		107	70-130	1.16	20	
Ethylbenzene	48.7	5.00	"	45.6		107	70-130	1.08	20	
m,p-Xylene	200	19.0	"	179		112	70-130	0.741	20	
o-Xylene	51.3	4.70	"	46.5		110	70-130	1.11	20	
Surrogate: 1,2-Dichloroethane-d4	*20.8*		*ppbv*	*20.0*		*104*	*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
6899 Pecos Street, Unit C
Denver CO 80211

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
Batch B8C2806 - Default Prep - Air										
LCS Dup (B8C2806-BSD1)					Prepared: 03/28/2018 Analyzed: 03/28/2018					**T**
Surrogate: Toluene-d8	*19.8*		*ppbv*	*20.0*		*98.8*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*20.2*		*"*	*20.0*		*101*	*70-130*			

Origins Laboratory, Inc.

Jen Pellegrini For Noelle Doyle Mathis, President

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.

ORIGINS LABORATORY, INC

Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

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.

Jen Pellegrini For Noelle Doyle Mathis, President

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.

ORIGINS LABORATORY, INC

June 06, 2018

Tasman Geosciences

Brandon Bruns

6899 Pecos Street, Unit C

Denver CO 80211

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

Attached are your analytical results for Noble - Feather 31-15 received by Origins Laboratory, Inc. May 31, 2018. This project is associated with Origins project number Y806005-01.

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

THE NELAC INSTITUTE

ACCREDITED
TESTING CERT # 3494.01

ORIGINS LABORATORY, INC

Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

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

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
V001	Y806005-01	Air	May 29, 2018 9:30	05/31/2018 15:20

Origins Laboratory, Inc.

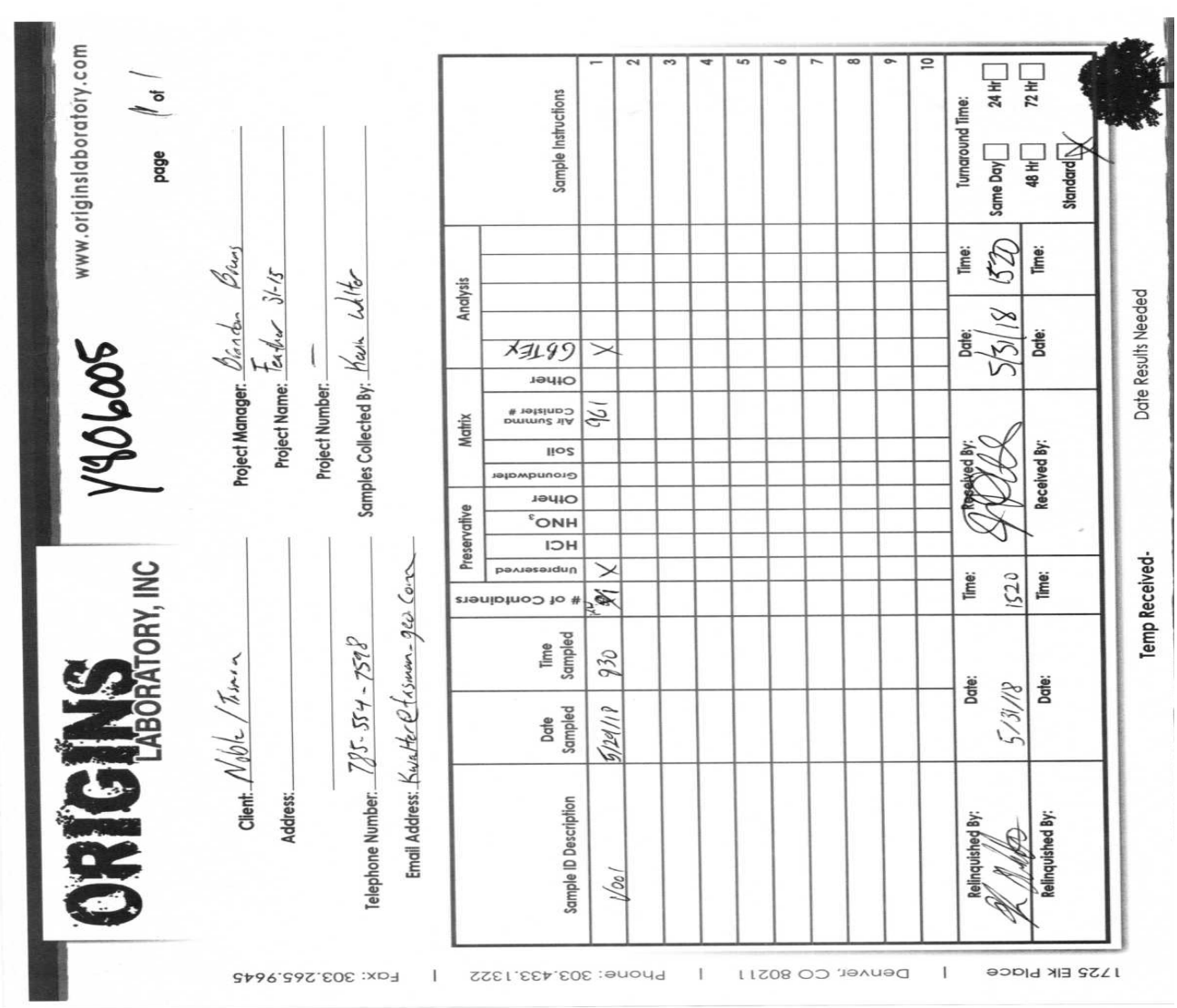
Jen Pellegrini For Noelle Doyle Mathis, President

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.

ORIGINS LABORATORY, INC

Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

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



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.

Jen Pellegrini For Noelle Doyle Mathis, President

Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

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: Y8060005

Client: Tasman
Client Project ID: Noble - Feather 31-15

Checklist Completed by: JG
Date/time completed: 6 / 1 / 2018

Shipped Via: HD (UPS, FedEx, Hand Delivered, Pick-up, etc.)
Airbill #: N/A

Matrix(s) Received: (Check all that apply): ____Soil/Solid ____Water X Other: Air (Describe)

Cooler Number/Temperature: 1 / — °C ____/____ °C ____/____ °C ____/____ °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]?		✓		
Is there ice present (document if blue ice is used)		✓		
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)		✓		
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)		✓		
Were all samples received intact[1]?	✓			
Was adequate sample volume provided[1]?	✓			
Are short holding time analytes or samples with HTs due within 48 hours present[1]?		✓		
Is a chain-of-custody (COC) present and filled out completely[1]?	✓			
Does the COC agree with the number and type of sample bottles received[1]?	✓			
Do the sample IDs on the bottle labels match the COC[1]?	✓			
Is the COC properly relinquished by the client with date and time recorded[1]?	✓			
For volatiles in water – is there headspace (> ¼ inch bubble) present? **If yes, contact client and note in narrative.**			✓	
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 HNO3, HCL, H2SO4) / (pH >10 for samples preserved with NaAsO2+NaOH, ZnAc+NaOH)*		✓		
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)

6/4/18
Date/Time Reviewed

Origins Laboratory, Inc.

Jen 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.

Jen Pellegrini For Noelle Doyle Mathis, President

Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

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

V001
5/29/2018 9:30:00AM

Origins Laboratory, Inc.
Y806005-01 (Air)

GBTEX by TO-15M GC/MS

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
								T
Gasoline Range Hydrocarbons	ND	2200	ug/m³ Air	4.9	B8F0107	06/01/2018	06/02/2018	U
Benzene	ND	13.7	"	"	"	"	"	U
Toluene	ND	24.5	"	"	"	"	"	U
Ethylbenzene	ND	24.5	"	"	"	"	"	U
m,p-Xylene	ND	93.1	"	"	"	"	"	U
o-Xylene	ND	23.0	"	"	"	"	"	U
Surrogate: 1,2-Dichloroethane-d4	*107 %*	*70-130*			"	"	"	
Surrogate: Toluene-d8	*101 %*	*70-130*			"	"	"	
Surrogate: 4-Bromofluorobenzene	*98.2 %*	*70-130*			"	"	"	

Origins Laboratory, Inc.

Jen Pellegrini For Noelle Doyle Mathis, President

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
6899 Pecos Street, Unit C
Denver CO 80211

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
Batch B8F0107 - Default Prep - Air										
Blank (B8F0107-BLK1)					Prepared: 06/01/2018 Analyzed: 06/01/2018					T
Gasoline Range Hydrocarbons	ND	448	ug/m³ 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	*21.0*		*ppbv*	*20.0*		*105*	*70-130*			
Surrogate: Toluene-d8	*20.7*		*"*	*20.0*		*103*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*22.3*		*"*	*20.0*		*112*	*70-130*			
LCS (B8F0107-BS1)					Prepared: 06/01/2018 Analyzed: 06/01/2018					T
Benzene	39.2	2.80	ug/m³ Air	32.6		120	70-130			
Toluene	46.7	5.00	"	39.6		118	70-130			
Ethylbenzene	53.7	5.00	"	45.6		118	70-130			
m,p-Xylene	218	19.0	"	179		122	70-130			
o-Xylene	55.8	4.70	"	46.5		120	70-130			
Surrogate: 1,2-Dichloroethane-d4	*19.6*		*ppbv*	*20.0*		*98.1*	*70-130*			
Surrogate: Toluene-d8	*20.4*		*"*	*20.0*		*102*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*20.5*		*"*	*20.0*		*102*	*70-130*			
LCS Dup (B8F0107-BSD1)					Prepared: 06/01/2018 Analyzed: 06/01/2018					T
Benzene	40.1	2.80	ug/m³ Air	32.6		123	70-130	2.17	20	
Toluene	46.5	5.00	"	39.6		117	70-130	0.566	20	
Ethylbenzene	53.3	5.00	"	45.6		117	70-130	0.649	20	
m,p-Xylene	216	19.0	"	179		121	70-130	0.681	20	
o-Xylene	55.4	4.70	"	46.5		119	70-130	0.703	20	
Surrogate: 1,2-Dichloroethane-d4	*19.9*		*ppbv*	*20.0*		*99.4*	*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
6899 Pecos Street, Unit C
Denver CO 80211

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
Batch B8F0107 - Default Prep - Air										
LCS Dup (B8F0107-BSD1)					Prepared: 06/01/2018 Analyzed: 06/01/2018					**T**
Surrogate: Toluene-d8	*20.5*		*ppbv*	*20.0*		*103*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*19.8*		*"*	*20.0*		*99.2*	*70-130*			

Origins Laboratory, Inc.

Jen Pellegrini For Noelle Doyle Mathis, President

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.

ORIGINS LABORATORY, INC

Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

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.

Jen Pellegrini For Noelle Doyle Mathis, President

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.