

**REMEDIAL EXCAVATION, SITE
MONITORING REPORT, AND NO
FURTHER ACTION REQUEST**

BATES 20-22

COGCC SPILL TRACKING # 445185
COGCC REMEDIATION # 9872

Prepared for:



2115 117th Avenue
Greeley, CO 80631

Prepared by:



6855 W 119th Ave.
Broomfield, CO 80020

January 3, 2019

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

Subject: **Remedial Excavation, Site Monitoring Report, and No Further Action Request
Bates 20-22**
Spill/Release Point ID #: 445185
Remediation Project #: 9872
NWNW S20 T6N R66W
Weld County, Colorado

Dear Mr. Evans:

Below please find a copy of the above referenced Remedial Excavation, Site Monitoring Report and No Further Action Request (Report) for the Bates 20-22 site (Site) in Weld County, Colorado. The text below describes the remedial excavation and associated soil sampling activities (Excavation) conducted by Tasman Geosciences, Inc. (Tasman), on behalf of Noble Energy, Inc. (Noble), on December 4, 2019 and December 6, 2019. This Report presents the results of groundwater sampling activities completed from March 22, 2016 through July 3, 2018.

Introduction

The purpose of this document is to describe the results of excavation and soil sampling activities at the Site on December 4, 2019 and December 6, 2019. The activities described below were performed to remove remaining impacted soil identified during drilling activities on June 20, 2018. In addition, a summary of the groundwater monitoring activities conducted between March 22, 2016 and July 3, 2018 are included.

Facility Background

The Site is located approximately 6.4 miles northwest of the town of Greeley in Weld County, Colorado, as shown on Figure 1. The Site is surrounded by crop land, and the legal description is the northwest ¼ of the northwest ¼ of Section 20, Township 6 North, Range 66 West, of the 6th Principal Meridian. The Site is approximately 450 feet south of Weld County Road 68, approximately 162 feet east of the Greeley Number 2 Canal and has coordinates of 40.479416, -104.808300.

On March 14, 2016, the flowline release was discovered, initial site assessment activities are documented in Spill/Release Report Document number 401007416 (Initial) and number 401014611 (Supplemental) and includes soil boring sampling and monitoring well installation. The COGCC issued spill tracking number 445185 for this release. The Form 27 Document number 200440424 (Initial) was submitted 10/10/2016 and remediation number 9872 was assigned. The soil boring samples identified two areas of impacted soil and groundwater at the site. Confirmation soil borings BH03R and BH07R were installed on June 20, 2018, in the locations of previously identified soil

impacts. Soil sample results from BH03R and BH07R identified that soil impacts above COGCC Table 910-1 soil standards remained at these locations. Soil boring sample analytical results are summarized in Table 1 and locations illustrated on Figure 2.

Surface Water and Groundwater Sampling

Surface water samples were collected from the Greeley Number 2 Canal downgradient (SW01), cross-gradient (SW02) and upgradient (SW03) of the site on March 22, 2016. A total of 12 soil borings were completed and groundwater monitoring wells installed at 9 of the locations in 2016 as part of the Site Assessment. Quarterly groundwater sampling was conducted between March 22, 2016 and July 3, 2018. Third Quarter 2018 laboratory groundwater analytical results indicated groundwater concentrations were below applicable COGCC Table 910-1 groundwater standards for four consecutive quarters. Surface water sampling was discontinued after first quarter 2016 based on sample analytical results that were below the COGCC Table 910-1 groundwater standards. Surface water sample analytical results are summarized in Table 2 and locations are illustrated on Figure 2. Groundwater analytical results are summarized in Table 2 and illustrated on Figure 3. Groundwater elevation data is summarized in table 3 and illustrated on Figure 4. The laboratory analytical report is included as Attachment A.

Remedial Excavation

On December 4, 2019, Tasman guided 4X Industrial to complete a remedial excavation to remove impacted soil in the area of BH03 and BH07. The excavation was guided in the field using a photoionization-detector (PID) and standard headspace sampling techniques. A total of 18 soil samples were collected from the sidewalls of the excavation, and a total of three soil samples were collected from the base of the excavation. All 21 samples were submitted to Summit Scientific Laboratory in Golden, Colorado (Summit) for laboratory analysis of benzene, toluene, ethylbenzene, and total xylenes (BTEX), naphthalene, and total petroleum hydrocarbons-gasoline range organics (TPH-GRO) using United States Environmental Protection Agency (USEPA) Method 8260B, as well as total petroleum hydrocarbons-diesel range organics (TPH-DRO) using USEPA Method 8015. During excavation activities groundwater was not observed infiltrating the excavation. Soil analytical data is summarized in Table 1, and the remedial excavation extent and sample locations are illustrated in Figure 5. The laboratory analytical report is included as Attachment B.

Approximately 200 cubic yards of material were removed from the Site and disposed at the Waste Management facility in Ault, Colorado under Noble signed waste manifests. The final excavation area measured approximately 40 ft. by 20 ft. by 7 ft. bgs.

Results

Laboratory analytical results for the soil samples collected from the sidewalls and base of the remedial excavation indicate residual petroleum hydrocarbon impacts have been successfully removed from the area. Laboratory results for the surface water samples were below reporting limits and four consecutive quarters of compliant groundwater analytical results has been achieved.

No Further Action Request

Based on field and laboratory data collected during remedial activities presented herein, a No Further Action (NFA) designation is being requested from the COGCC for this project.

Remarks

The discussion and conclusions contained in this report represent the professional opinions of Tasman Geosciences, Inc. These opinions are based on currently available information and are arrived at in accordance with currently accepted geologic and engineering practices.

Please contact me at (720) 431-1190 if you require additional information.

Sincerely,
Tasman Geosciences, Inc.



Brandon Bruns, PE
Project Manager

Attached:

Table 1 – Soil Analytical Data

Table 2 – Groundwater Analytical Data

Figure 1 – Site Location Map

Figure 2 – Site Overview Map

Figure 3 – Groundwater Potentiometric Surface Contour Map (July 3, 2018)

Figure 4 – Groundwater Analytical Results Map (July 3, 2018)

Figure 5 – Remedial Excavation Soil Analytical Results Map (12/04/19)

Attachment A – Groundwater Laboratory Analytical Data Reports

Attachment B – Remedial Excavation Laboratory Analytical Data Report

TABLES

TABLE 1
SOIL ANALYTICAL DATA
NOBLE ENERGY, INC. - BATES 20-22

Soil Sample ID	Date	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	Naphthalene (mg/kg)	TPH-GRO (mg/kg)	TPH-DRO (mg/kg)
COGCC Soil Standard (mg/kg)		0.17	85	100	175	23	500	
BH01@2-4'	03/22/16	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	<50
BH02@1-2.5'	03/22/16	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	<50
BH03@1-2'	03/22/16	0.11	1.6	0.68	4.5	0.22	170	420
BH04@1-3'	03/22/16	<0.0020	<0.0050	<0.0050	<0.010	0.015	<50	<50
BH05@0-2'	03/22/16	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	<50
BH06@1-2.5'	03/22/16	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	<50
BH07@2-3'	03/22/16	0.16	2.3	2.0	14	0.23	720	1,200
BH08@0-1.5'	03/22/16	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	<50
BH10@6-7'	03/22/16	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	<50
BH11@4-5'	03/22/16	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	<50
BH12@1-2'	07/15/16	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	<50
BH03R@1-2'	06/20/18	0.014	0.25	0.29	14	0.12	800	1,600
BH07R@2-3'	06/20/18	0.27	14	9.5	69	3.7	2,200	2,800
SS01@2'	12/04/19	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	<50
SS01@4'	12/04/19	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	<50
SS01@6'	12/04/19	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	<50
SS02@2'	12/04/19	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	<50
SS02@4'	12/04/19	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	<50
SS02@6'	12/04/19	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	<50
SS03@2'	12/04/19	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	<50
SS03@4'	12/04/19	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	<50
SS03@6'	12/04/19	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	<50
SS04@2'	12/04/19	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	<50
SS04@4'	12/04/19	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	<50
SS04@6'	12/04/19	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	<50
SS05@2'	12/04/19	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	<50
SS05@4'	12/04/19	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	<50
SS05@6'	12/04/19	<0.0020	<0.0050	<0.0050	0.012	<0.010	<50	<50
SS06@2'	12/04/19	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	<50
SS06@4'	12/04/19	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	<50
SS06@6'	12/04/19	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	<50
FS01@7'	12/04/19	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	<50
FS02@7'	12/04/19	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	<50
FS03@7'	12/04/19	<0.0020	<0.0050	<0.0050	0.016	<0.010	<50	<50

Notes:

COGCC = Colorado Oil and Gas Conservation Commission

TPH-GRO = Total petroleum hydrocarbons - gasoline range organics

TPH-DRO = Total petroleum hydrocarbons - diesel range organics

mg/kg = Milligrams per kilogram

TABLE 1
SOIL ANALYTICAL DATA
NOBLE ENERGY, INC. - BATES 20-22



Soil Sample ID	Date	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	Naphthalene (mg/kg)	TPH-GRO (mg/kg)	TPH-DRO (mg/kg)
COGCC Soil Standard (mg/kg)		0.17	85	100	175	23	500	

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

Soil standards referenced from COGCC Table 910-1

Highlighted results exceed the COGCC Table 910-1 standard

TABLE 2
GROUNDWATER ANALYTICAL DATA
NOBLE ENERGY, INC. - BATES 20-22



Sampling Location or Monitoring Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
COGCC Groundwater Standard (µg/L)		5	560	700	1,400
SW01	3/22/2016	<1.0	<1.0	<1.0	<1.0
SW02	3/22/2016	<1.0	<1.0	<1.0	<1.0
SW03	3/22/2016	<1.0	<1.0	<1.0	<1.0
BH01	03/22/16	<1.0	<1.0	<1.0	<1.0
BH01	07/13/16	<1.0	<1.0	<1.0	<1.0
BH01	10/03/16	<1.0	<1.0	<1.0	<1.0
BH01	01/03/17	<1.0	<1.0	<1.0	<1.0
BH01	04/06/17	<1.0	<1.0	<1.0	<2.0
BH01	07/05/17	<1.0	<1.0	<1.0	<2.0
BH01	10/12/17	<1.0	<1.0	<1.0	<2.0
BH01	01/05/18	<1.0	<1.0	<1.0	<2.0
BH01	04/16/18	<1.0	<1.0	<1.0	<2.0
BH01	07/03/18	<1.0	<1.0	<1.0	<2.0
BH02	03/22/16	<1.0	<1.0	<1.0	<1.0
BH02	07/13/16	<1.0	<1.0	<1.0	<1.0
BH02	10/03/16	<1.0	<1.0	<1.0	<1.0
BH02	01/03/17	<1.0	<1.0	<1.0	<1.0
BH02	04/06/17	<1.0	<1.0	<1.0	<2.0
BH02	07/05/17	<1.0	<1.0	<1.0	<2.0
BH02	10/12/17	<1.0	<1.0	<1.0	<2.0
BH02	01/05/18	<1.0	<1.0	<1.0	<2.0
BH02	04/16/18	<1.0	<1.0	<1.0	<2.0
BH02	07/03/18	<1.0	<1.0	<1.0	<2.0
BH03	03/22/16	92	210	66	470
BH03	07/13/16	<1.0	<1.0	<1.0	<1.0
BH03	10/03/16	<1.0	<1.0	<1.0	<1.0
BH03	01/03/17	<1.0	<1.0	<1.0	<1.0
BH03	04/06/17	<1.0	<1.0	<1.0	<2.0
BH03	07/05/17	<1.0	<1.0	<1.0	<2.0
BH03	10/12/17	<1.0	<1.0	<1.0	<2.0
BH03	01/05/18	<1.0	<1.0	<1.0	<2.0
BH03	04/16/18	<1.0	<1.0	<1.0	<2.0
BH03	07/03/18	<1.0	<1.0	<1.0	<2.0
BH04	03/22/16	<1.0	<1.0	<1.0	<1.0
BH04	07/13/16	<1.0	<1.0	<1.0	<1.0
BH04	10/03/16	<1.0	<1.0	<1.0	<1.0
BH04	01/03/17	<1.0	<1.0	<1.0	<1.0
BH04 ¹	04/06/17	<1.0	<1.0	<1.0	<2.0
BH04	07/05/17	<1.0	<1.0	<1.0	<2.0
BH04	10/12/17	<1.0	<1.0	<1.0	<2.0

TABLE 2
GROUNDWATER ANALYTICAL DATA
NOBLE ENERGY, INC. - BATES 20-22



Sampling Location or Monitoring Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
COGCC Groundwater Standard (µg/L)		5	560	700	1,400
BH04	01/05/18	<1.0	<1.0	<1.0	<2.0
BH04	04/16/18	<1.0	<1.0	<1.0	<2.0
BH04	07/03/18	<1.0	<1.0	<1.0	<2.0
BH05	03/22/16	<1.0	<1.0	<1.0	<1.0
BH05	07/13/16	<1.0	<1.0	<1.0	<1.0
BH05	10/03/16	<1.0	<1.0	<1.0	<1.0
BH05	01/03/17	<1.0	<1.0	<1.0	<1.0
BH05	04/06/17	<1.0	<1.0	<1.0	<2.0
BH05	07/05/17	<1.0	<1.0	<1.0	<2.0
BH05	10/12/17	<1.0	<1.0	<1.0	<2.0
BH05	01/05/18	<1.0	<1.0	<1.0	<2.0
BH05	04/16/18	<1.0	<1.0	<1.0	<2.0
BH05	07/03/18	<1.0	<1.0	<1.0	<2.0
BH06	03/22/16	<1.0	<1.0	<1.0	<1.0
BH06	07/13/16	<1.0	<1.0	<1.0	<1.0
BH06	10/03/16	<1.0	<1.0	<1.0	<1.0
BH06	01/03/17	<1.0	<1.0	<1.0	<1.0
BH06 ¹	04/06/17	<1.0	<1.0	<1.0	<2.0
BH06	07/05/17	<1.0	<1.0	<1.0	<2.0
BH06	10/12/17	<1.0	<1.0	<1.0	<2.0
BH06	01/05/18	<1.0	<1.0	<1.0	<2.0
BH06	04/16/18	<1.0	<1.0	<1.0	<2.0
BH06	07/03/18	<1.0	<1.0	<1.0	<2.0
BH07	03/22/16	62	170	24	150
BH07	07/13/16	Not Sampled - LNAPL Present			
BH07	10/03/16	<1.0	<1.0	<1.0	<1.0
BH07	01/03/17	<1.0	<1.0	<1.0	<1.0
BH07	04/06/17	<1.0	<1.0	<1.0	<2.0
BH07	07/05/17	10	9.8	14	130
BH07	10/12/17	<1.0	<1.0	<1.0	<2.0
BH07	01/05/18	<1.0	<1.0	<1.0	<2.0
BH07	04/16/18	<1.0	<1.0	<1.0	<2.0
BH07	07/03/18	<1.0	<1.0	<1.0	<2.0
BH08	03/22/16	<1.0	<1.0	<1.0	<1.0
BH08	07/13/16	<1.0	<1.0	<1.0	<1.0
BH08	10/03/16	<1.0	<1.0	<1.0	<1.0
BH08	01/03/17	<1.0	<1.0	<1.0	<1.0
BH08 ¹	04/06/17	<1.0	<1.0	<1.0	<2.0
BH08	07/05/17	<1.0	<1.0	<1.0	<2.0
BH08	10/12/17	<1.0	<1.0	<1.0	<2.0

TABLE 2
GROUNDWATER ANALYTICAL DATA
NOBLE ENERGY, INC. - BATES 20-22



Sampling Location or Monitoring Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
COGCC Groundwater Standard (µg/L)		5	560	700	1,400
BH08	01/05/18	<1.0	<1.0	<1.0	<2.0
BH08	04/16/18	<1.0	<1.0	<1.0	<2.0
BH08	07/03/18	<1.0	<1.0	<1.0	<2.0
BH12	07/15/16	<1.0	<1.0	<1.0	<1.0
BH12	10/03/16	<1.0	<1.0	<1.0	<1.0
BH12	01/03/17		Well Dry - Not Sampled		
BH12	04/06/17		Well Dry - Not Sampled		
BH12	07/05/17	<1.0	<1.0	<1.0	<2.0
BH12	10/12/17	<1.0	<1.0	<1.0	<2.0
BH12	01/05/18		Well Dry - Not Sampled		
BH12	04/16/18		Well Dry - Not Sampled		
BH12	07/03/18	<1.0	<1.0	<1.0	<2.0

Notes:

1) Grab sample, insufficient water to purge well.

COGCC = Colorado Oil and Gas Conservation Commission

LNAPL = Light Non-Aqueous Phase Liquid

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 exceed the COGCC Table 910-1 standard

TABLE 3
GROUNDWATER ELEVATION DATA
NOBLE ENERGY, INC. - BATES 20-22



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)
BH01	03/22/16	4716.21	12.75	8.33	ND	ND	4707.88
BH01	07/13/16	4716.21	12.75	3.69	ND	ND	4712.52
BH01	10/03/16	4716.21	12.75	7.02	ND	ND	4709.19
BH01	01/03/17	4716.21	12.75	8.89	ND	ND	4707.32
BH01	04/06/17	4716.21	12.76	9.10	ND	ND	4707.11
BH01	07/05/17	4716.21	12.74	3.40	ND	ND	4712.81
BH01	10/12/17	4716.21	12.78	7.43	ND	ND	4708.78
BH01	01/05/18	4716.21	12.74	8.18	ND	ND	4708.03
BH01	04/16/18	4716.21	12.60	8.42	ND	ND	4707.79
BH01	07/03/18	4716.21	12.57	5.51	ND	ND	4710.70
BH02	03/22/16	4715.15	10.95	7.18	ND	ND	4707.97
BH02	07/13/16	4715.15	10.95	2.67	ND	ND	4712.48
BH02	10/03/16	4715.15	10.95	5.71	ND	ND	4709.44
BH02	01/03/17	4715.15	10.95	7.81	ND	ND	4707.34
BH02	04/06/17	4715.15	11.38	7.92	ND	ND	4707.23
BH02	07/05/17	4715.15	11.25	2.23	ND	ND	4712.92
BH02	10/12/17	4715.15	11.31	6.27	ND	ND	4708.88
BH02	01/05/18	4715.15	11.28	7.00	ND	ND	4708.15
BH02	04/16/18	4715.15	11.19	7.24	ND	ND	4707.91
BH02	07/03/18	4715.15	10.95	4.09	ND	ND	4711.06
BH03	03/22/16	4714.36	12.13	8.03	ND	ND	4706.33
BH03	07/13/16	4714.36	12.13	4.32	ND	ND	4710.04
BH03	10/03/16	4714.36	12.13	7.11	ND	ND	4707.25
BH03	01/03/17	4714.36	12.13	8.74	ND ¹	ND ¹	4705.62
BH03	04/06/17	4714.36	12.14	8.83	ND	ND	4705.53
BH03	07/05/17	4714.36	12.14	4.14	ND	ND	4710.22
BH03	10/12/17	4714.36	12.18	7.16	ND	ND	4707.20
BH03	01/05/18	4715.36	12.13	7.91	ND	ND	4707.45
BH03	04/16/18	4715.36	12.17	8.11	ND	ND	4707.25
BH03	07/03/18	4715.36	12.15	6.19	ND	ND	4709.17
BH04	03/22/16	4714.35	9.85	7.50	ND	ND	4706.85
BH04	07/13/16	4714.35	9.85	4.56	ND	ND	4709.79
BH04	10/03/16	4714.35	9.85	6.88	ND	ND	4707.47
BH04	01/03/17	4714.35	9.85	8.24	ND	ND	4706.11
BH04	04/06/17	4714.35	9.86	8.37	ND	ND	4705.98
BH04	07/05/17	4714.35	9.71	4.13	ND	ND	4710.22
BH04	10/12/17	4714.35	9.75	6.73	ND	ND	4707.62
BH04	01/05/18	4714.35	9.70	7.50	ND	ND	4706.85
BH04	04/16/18	4714.35	9.71	7.64	ND	ND	4706.71
BH04	07/03/18	4714.35	9.68	5.07	ND	ND	4709.28
BH05	03/22/16	4714.40	10.17	7.13	ND	ND	4707.27

TABLE 3
GROUNDWATER ELEVATION DATA
NOBLE ENERGY, INC. - BATES 20-22



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)
BH05	07/13/16	4714.40	10.17	4.11	ND	ND	4710.29
BH05	10/03/16	4714.40	10.17	6.48	ND	ND	4707.92
BH05	01/03/17	4714.40	10.17	7.92	ND	ND	4706.48
BH05	04/06/17	4714.40	10.20	8.13	ND	ND	4706.27
BH05	07/05/17	4714.40	10.11	3.74	ND	ND	4710.66
BH05	10/12/17	4714.40	10.22	6.45	ND	ND	4707.95
BH05	01/05/18	4714.40	10.18	7.20	ND	ND	4707.20
BH05	04/16/18	4714.40	10.18	7.35	ND	ND	4707.05
BH05	07/03/18	4714.40	10.04	4.88	ND	ND	4709.52
BH06	03/22/16	4714.67	17.00	7.24	ND	ND	4707.43
BH06	07/13/16	4714.67	9.83	3.70	ND	ND	4710.97
BH06	10/03/16	4714.67	9.83	6.39	ND	ND	4708.28
BH06	01/03/17	4714.67	9.83	7.93	ND	ND	4706.74
BH06	04/06/17	4714.67	9.84	8.06	ND	ND	4706.61
BH06	07/05/17	4714.67	9.80	3.49	ND	ND	4711.18
BH06	10/12/17	4714.67	9.83	6.44	ND	ND	4708.23
BH06	01/05/18	4714.67	9.79	7.19	ND	ND	4707.48
BH06	04/16/18	4714.67	9.83	7.34	ND	ND	4707.33
BH06	07/03/18	4714.67	9.80	5.14	ND	ND	4709.53
BH07	03/22/16	4716.10	12.60	8.85	ND	ND	4707.25
BH07	07/13/16	4716.10	12.60	5.45	5.35	0.10	4710.73
BH07	10/03/16	4716.10	12.60	8.02	ND ¹	ND ¹	4708.08
BH07	01/03/17	4716.10	12.60	9.51	ND	ND	4706.59
BH07	04/06/17	4716.10	12.61	9.62	ND	ND	4706.48
BH07	07/05/17	4716.10	12.60	5.03	ND	ND	4711.07
BH07	10/12/17	4716.10	12.63	8.01	ND	ND	4708.09
BH07	01/05/18	4716.10	12.60	8.77	ND	ND	4707.33
BH07	04/16/18	4716.10	12.63	8.94	ND	ND	4707.16
BH07	07/03/18	4716.10	12.62	7.35	ND	ND	4708.75
BH08	03/22/16	4714.24	9.63	7.80	ND	ND	4706.44
BH08	07/13/16	4714.24	9.63	3.83	ND	ND	4710.41
BH08	10/03/16	4714.24	9.63	6.53	ND	ND	4707.71
BH08	01/03/17	4714.24	9.63	7.94	ND	ND	4706.30
BH08	04/06/17	4714.24	9.60	8.10	ND	ND	4706.14
BH08	07/05/17	4714.24	9.52	3.62	ND	ND	4710.62
BH08	10/12/17	4714.24	9.66	6.42	ND	ND	4707.82
BH08	01/05/18	4714.24	9.63	7.17	ND	ND	4707.07
BH08	04/16/18	4714.24	9.66	7.33	ND	ND	4706.91
BH08	07/03/18	4714.24	9.66	5.47	ND	ND	4708.77
BH12	07/15/16	4715.58	9.88	4.92	ND	ND	4710.66

TABLE 3
GROUNDWATER ELEVATION DATA
NOBLE ENERGY, INC. - BATES 20-22



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)
BH12	10/03/16	4715.58	8.86	7.76	ND	ND	4707.82
BH12	01/03/17	4715.58	8.80	ND	ND	ND	DRY
BH12	04/06/17	4715.58	8.82	ND	ND	ND	DRY
BH12	07/05/17	4715.58	8.80	4.72	ND	ND	4710.86
BH12	10/12/17	4715.58	8.81	7.63	ND	ND	4707.95
BH12	01/05/18	4715.58	8.82	8.41	ND	ND	4707.17
BH12	04/16/18	4715.58	8.89	8.95	ND	ND	4706.63
BH12	07/03/18	4715.58	8.95	7.06	ND	ND	4708.52

Notes:

ft. = Feet

ND = Not Detected

LNAPL = Light non-aqueous phase liquid

DRY = No measurable water present

AMSL = Above mean sea level

BTOC = Below top of casing

1. Sheen present on groundwater

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

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

LNAPL relative density was estimated to be approximately 0.75

FIGURES

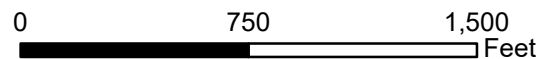
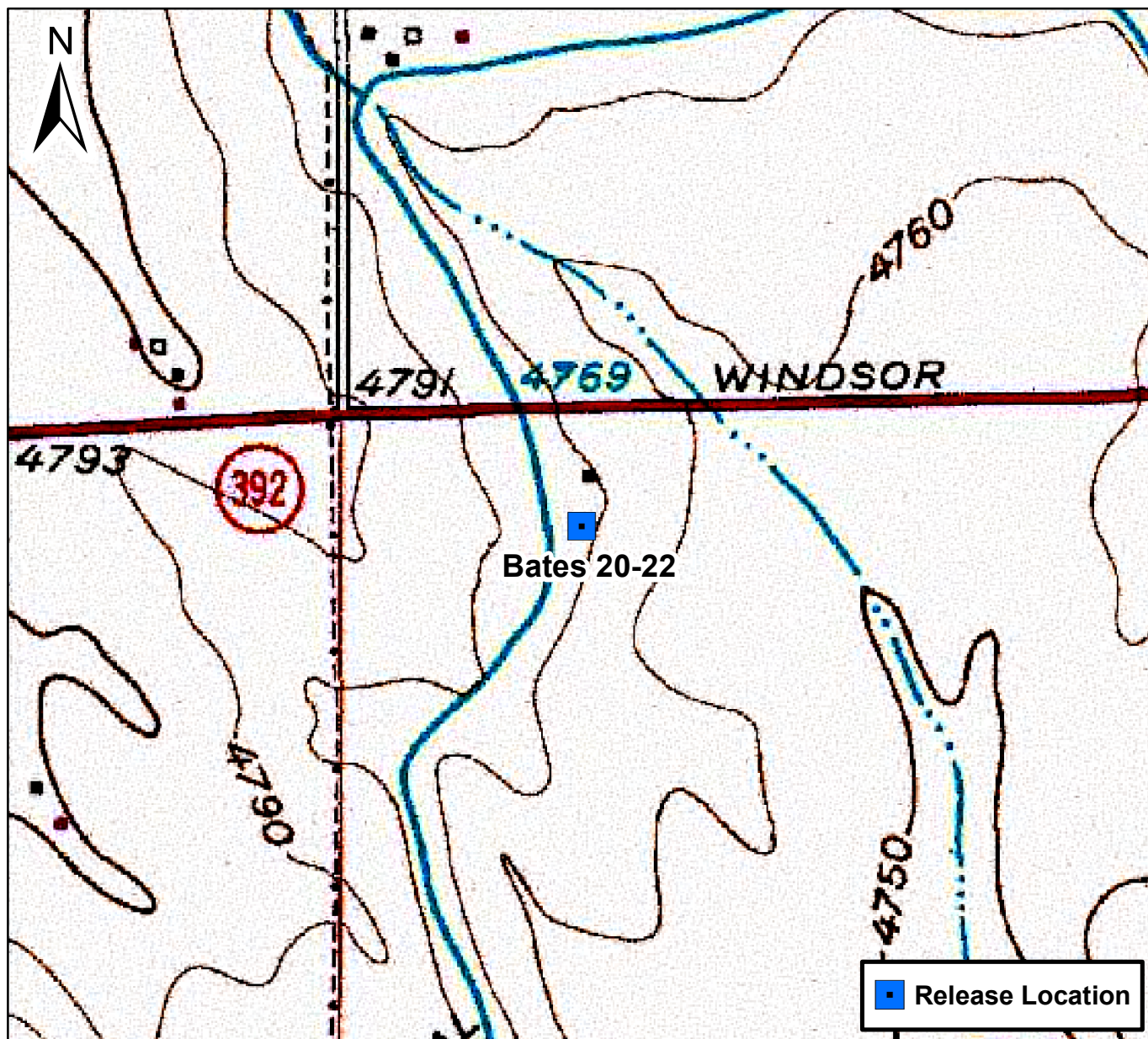


Figure 1

Site Location Map

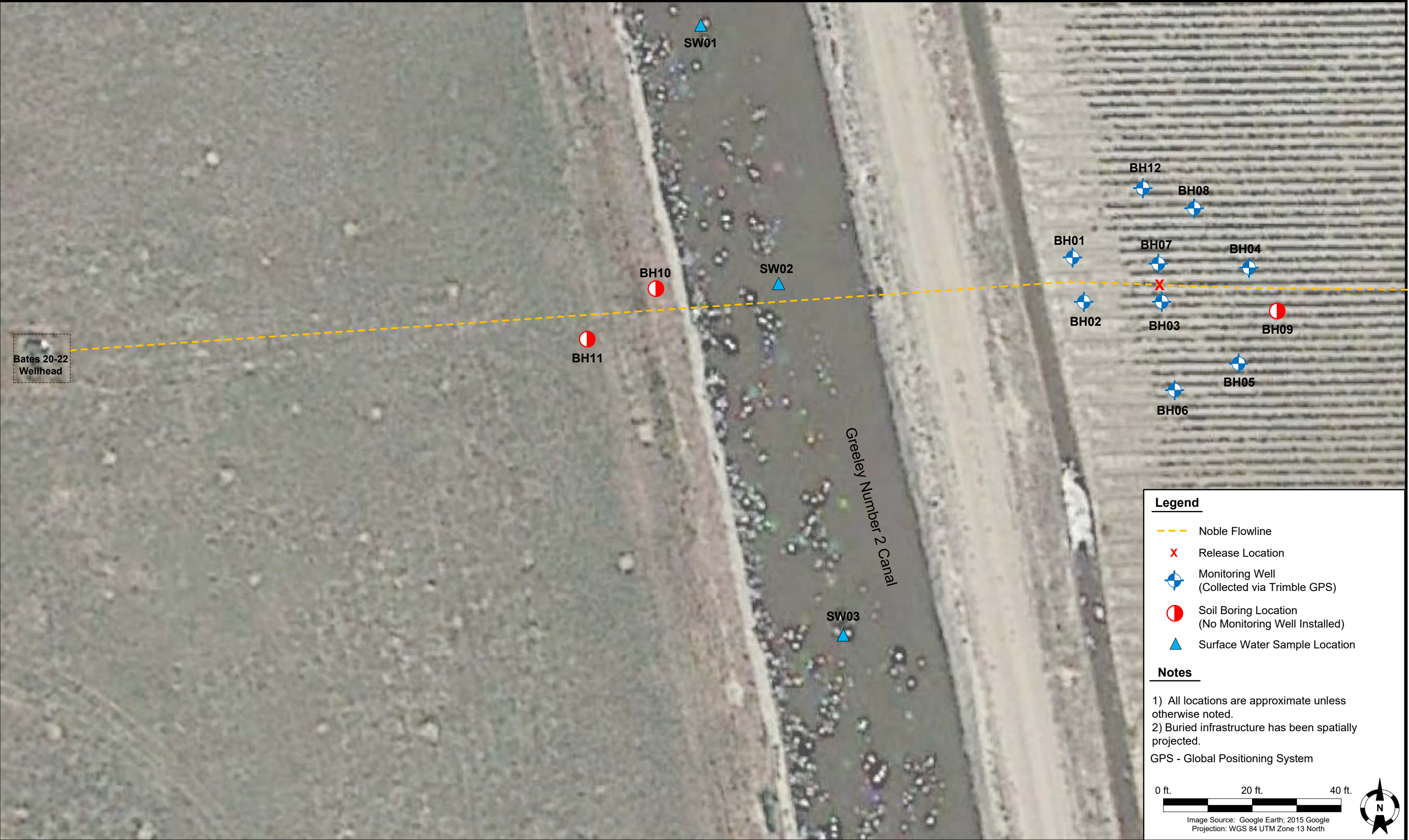
Bates 20-22


Flowline Release

NWNW S20 T6N R66W

Weld County, Colorado





DATE:	07/03/18	<div><div>TASMAN GEOSCIENCES</div><div>Tasman Geosciences, Inc. 6855 W 119th Ave. Broomfield, CO 80020</div></div>	<div>Noble Energy, Inc. – DJ Basin Bates 20-22 Flowline Release NWNW, Section 20, Township 6 North, Range 66 West Weld County, Colorado</div>	Site Overview Map	FIGURE 2
DESIGNED BY:	DA				
DRAWN BY:	MG				







ATTACHMENT A

Groundwater Laboratory Analytical Data Reports

Summit Scientific

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

July 10, 2018

Brandon Bruns
Tasman Geosciences
6899 Pecos St, Unit C
Denver, CO 80221
RE: Noble - Bates 20-22

Enclosed are the results of analyses for samples received by Summit Scientific on 07/03/18 18:45. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to be 'P. Shrewsbury', written in a cursive style.

Paul Shrewsbury For Ben Shrewsbury
Laboratory Manager



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

Project: Noble - Bates 20-22

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
07/10/18 08:06

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH01	1807031-01	Water	07/03/18 10:40	07/03/18 18:45
BH02	1807031-02	Water	07/03/18 10:30	07/03/18 18:45
BH03	1807031-03	Water	07/03/18 10:20	07/03/18 18:45
BH04	1807031-04	Water	07/03/18 10:20	07/03/18 18:45
BH05	1807031-05	Water	07/03/18 10:25	07/03/18 18:45
BH06	1807031-06	Water	07/03/18 10:35	07/03/18 18:45
BH07	1807031-07	Water	07/03/18 10:32	07/03/18 18:45
BH08	1807031-08	Water	07/03/18 10:15	07/03/18 18:45
BH12	1807031-09	Water	07/03/18 10:05	07/03/18 18:45

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

Page 4 of 4

Sampler Name: Max Dahlgren

Project Number: —

Sample Description	Date Sampled	Time Sampled	Number of Containers	Preservative				Matrix			Analyze For:								Special Instructions				
				HCl	HNO ₃	None	Other (Specify)	Groundwater	Soil	Air - Canister Serial #	Other (Specify)												
BH01	7/3/18	1640	3	X				X				X	BTEX										
BH02		1030																					
BH03		1020																					
BH04		1020																					
BH05		1015																					
BH06		1035																					
BH07		1032																					
BH08		1015	1																				
BH12		1005	2																				
Relinquished by: [Signature] Date/Time: 7/3/18 1845				Received by: [Signature]				Date/Time: 7.3.18 1845				Turn Around Time (Check) Same Day <input type="checkbox"/> 72 Hours <input type="checkbox"/> 24 Hours <input type="checkbox"/> Standard <input checked="" type="checkbox"/> 48 Hours <input type="checkbox"/>								Notes:			
Relinquished by:				Date/Time:				Received by:				Date/Time:											
Relinquished by:				Date/Time:				Received in Lab by:				Date/Time:				Sample Integrity: Temperature Upon Receipt: 9.0 Intact: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>							

Sample Receipt Checklist

S2 Work Order: 1807031

Client: Noble/Tasman Client Project ID: Bates 20-22

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

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

Temp (°C) 9.0

Thermometer ID: 61857155-K

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

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

UP
Custodian Printed Name or Initials

L3B5
Signature or Initials of Custodian

7:318 1845
Date/Time



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

Project: Noble - Bates 20-22

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
07/10/18 08:06

BH01
1807031-01 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **07/03/18 10:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1807054	07/06/18	07/07/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **07/03/18 10:40**

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

Summit Scientific

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



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

Project: Noble - Bates 20-22

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
07/10/18 08:06

BH02
1807031-02 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **07/03/18 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1807054	07/06/18	07/07/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **07/03/18 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		99.0 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		101 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		100 %	21-167		"	"	"	"	

Summit Scientific

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



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

Project: Noble - Bates 20-22

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
07/10/18 08:06

BH03
1807031-03 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **07/03/18 10:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1807054	07/06/18	07/07/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **07/03/18 10:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		95.7 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		99.5 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		101 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Noble - Bates 20-22

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
07/10/18 08:06

BH04
1807031-04 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **07/03/18 10:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1807054	07/06/18	07/07/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **07/03/18 10:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		98.0 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		102 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		105 %	21-167		"	"	"	"	

Summit Scientific

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



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

Project: Noble - Bates 20-22

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
07/10/18 08:06

BH05
1807031-05 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **07/03/18 10:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1807054	07/06/18	07/07/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **07/03/18 10:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		101 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		104 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		103 %	21-167		"	"	"	"	

Summit Scientific

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



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

Project: Noble - Bates 20-22

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
07/10/18 08:06

BH06
1807031-06 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **07/03/18 10:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1807054	07/06/18	07/07/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **07/03/18 10:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		101 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		103 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		105 %	21-167		"	"	"	"	

Summit Scientific

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



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

Project: Noble - Bates 20-22

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
07/10/18 08:06

BH07
1807031-07 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **07/03/18 10:32**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1807054	07/06/18	07/07/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **07/03/18 10:32**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		98.4 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		100 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		102 %	21-167		"	"	"	"	

Summit Scientific

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



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

Project: Noble - Bates 20-22

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
07/10/18 08:06

BH08
1807031-08 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **07/03/18 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1807054	07/06/18	07/07/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **07/03/18 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		99.8 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		103 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		98.6 %	21-167		"	"	"	"	

Summit Scientific

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



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

Project: Noble - Bates 20-22

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
07/10/18 08:06

BH12
1807031-09 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **07/03/18 10:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1807054	07/06/18	07/07/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **07/03/18 10:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		103 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		99.8 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		104 %	21-167		"	"	"	"	

Summit Scientific

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



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

Project: Noble - Bates 20-22

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
07/10/18 08:06

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

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

Batch 1807054 - EPA 5030 Water MS

Blank (1807054-BLK1)

Prepared: 07/06/18 Analyzed: 07/07/18

Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes (total)	ND	2.0	"							
Surrogate: 1,2-Dichloroethane-d4	12.4		"	13.2		93.6	23-173			
Surrogate: Toluene-d8	14.0		"	13.3		105	20-170			
Surrogate: 4-Bromofluorobenzene	13.3		"	13.3		100	21-167			

LCS (1807054-BS1)

Prepared: 07/06/18 Analyzed: 07/07/18

Benzene	33.3	1.0	ug/l	33.3		99.8	70-130			
Toluene	33.2	1.0	"	33.3		99.5	70-130			
Ethylbenzene	38.2	1.0	"	33.3		114	70-130			
m,p-Xylene	65.6	2.0	"	66.7		98.4	70-130			
o-Xylene	33.1	1.0	"	33.3		99.4	70-130			
Surrogate: 1,2-Dichloroethane-d4	12.8		"	13.2		97.1	23-173			
Surrogate: Toluene-d8	13.6		"	13.3		102	20-170			
Surrogate: 4-Bromofluorobenzene	13.7		"	13.3		103	21-167			

Matrix Spike (1807054-MS1)

Source: 1807031-01

Prepared: 07/06/18 Analyzed: 07/07/18

Benzene	33.1	1.0	ug/l	33.3	ND	99.4	70-130			
Toluene	33.4	1.0	"	33.3	ND	100	70-130			
Ethylbenzene	38.4	1.0	"	33.3	ND	115	70-130			
m,p-Xylene	66.4	2.0	"	66.7	ND	99.5	70-130			
o-Xylene	33.8	1.0	"	33.3	ND	101	70-130			
Surrogate: 1,2-Dichloroethane-d4	12.6		"	13.2		95.8	23-173			
Surrogate: Toluene-d8	13.7		"	13.3		103	20-170			
Surrogate: 4-Bromofluorobenzene	14.0		"	13.3		105	21-167			

Summit Scientific

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



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

Project: Noble - Bates 20-22

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
07/10/18 08:06

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

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

Batch 1807054 - EPA 5030 Water MS

Matrix Spike Dup (1807054-MSD1)	Source: 1807031-01			Prepared: 07/06/18 Analyzed: 07/07/18						
Benzene	33.9	1.0	ug/l	33.3	ND	102	70-130	2.21	30	
Toluene	33.8	1.0	"	33.3	ND	101	70-130	1.22	30	
Ethylbenzene	38.3	1.0	"	33.3	ND	115	70-130	0.261	30	
m,p-Xylene	66.2	2.0	"	66.7	ND	99.3	70-130	0.257	30	
o-Xylene	33.3	1.0	"	33.3	ND	99.8	70-130	1.61	30	
Surrogate: 1,2-Dichloroethane-d4	14.0		"	13.2		106	23-173			
Surrogate: Toluene-d8	13.7		"	13.3		103	20-170			
Surrogate: 4-Bromofluorobenzene	14.3		"	13.3		107	21-167			

Summit Scientific

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



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

Project: Noble - Bates 20-22

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
07/10/18 08:06

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

ATTACHMENT B

Remedial Excavation Laboratory Analytical Data Report

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

December 05, 2019

Brandon Bruns

Tasman Geosciences

6855 W. 119th Ave.

Broomfield, CO 80020

RE: Noble - Bates 20-22

Enclosed are the results of analyses for samples received by Summit Scientific on 12/04/19 17:59. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

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

Paul Shrewsbury

President



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

Project: Noble - Bates 20-22

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
12/05/19 06:49

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS03@4'	1912053-01	Soil	12/04/19 11:50	12/04/19 17:59
SS03@6'	1912053-02	Soil	12/04/19 11:55	12/04/19 17:59
SS04@2'	1912053-03	Soil	12/04/19 12:00	12/04/19 17:59
SS04@4'	1912053-04	Soil	12/04/19 12:05	12/04/19 17:59
SS04@6'	1912053-05	Soil	12/04/19 12:10	12/04/19 17:59
SS05@2'	1912053-06	Soil	12/04/19 12:15	12/04/19 17:59
SS05@4'	1912053-07	Soil	12/04/19 12:20	12/04/19 17:59
SS05@6'	1912053-08	Soil	12/04/19 12:25	12/04/19 17:59
SS06@2'	1912053-09	Soil	12/04/19 12:30	12/04/19 17:59
SS06@4'	1912053-10	Soil	12/04/19 12:35	12/04/19 17:59
FS01@7'	1912053-11	Soil	12/04/19 11:00	12/04/19 17:59
SS01@2'	1912053-12	Soil	12/04/19 11:05	12/04/19 17:59
SS01@4'	1912053-13	Soil	12/04/19 11:10	12/04/19 17:59
SS01@6'	1912053-14	Soil	12/04/19 11:15	12/04/19 17:59
FS02@7'	1912053-15	Soil	12/04/19 11:20	12/04/19 17:59
SS02@2'	1912053-16	Soil	12/04/19 11:25	12/04/19 17:59
SS02@4'	1912053-17	Soil	12/04/19 11:30	12/04/19 17:59
SS02@6'	1912053-18	Soil	12/04/19 11:35	12/04/19 17:59
FS03@7'	1912053-19	Soil	12/04/19 11:40	12/04/19 17:59
SS03@2'	1912053-20	Soil	12/04/19 11:45	12/04/19 17:59
SS06@6'	1912053-21	Soil	12/04/19 12:40	12/04/19 17:59

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

S₂

4653 Table Mountain Drive ♦ Golden, Colorado 80403

303-277-9310

1912253.1

Page 1 of 3

Client: Noble / Tasman Geosciences Project Manager: Brandon Bruns, Invoice: Jacob Evans
 Address: 6855 119th St. E-Mail: Bbruns@tasman-geo.com
 City/State/Zip: Broomfield / CO/ 80020
 Phone: 303-487-1228 Project Name: Bates 20-22
 Sampler Name: Tanner Cook Project Number:

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested				Special Instructions	
					HCl	HNO ₃	None	Other	Water	Soil	Air-Canister #	Other	8260 BTEX	8260B GBTEXN	8015 DRO	pH, EC, SAR		
1	SS03 @ 4'	12/4/19	1150	1			X			X				X	X			
2	SS03 @ 6'		1255															
3	SS04 @ 2'		1200															
4	SS04 @ 4'		1205															
5	SS04 @ 6'		1210															
6	SS05 @ 2'		1215															
7	SS05 @ 4'		1220															
8	SS05 @ 6'		1225															
9	SS06 @ 2'		1230															
10	SS06 @ 4'		1235															

Relinquished by: <u>Tanner Cook</u>	Date/Time: <u>12/4/19 1700</u>	Received by: <u>Tasman's Lock Box</u>	Date/Time: <u>12/4/19 1700</u>	Turn Around Time (Check) Same Day <u>X</u> 72 hours <u> </u> 24 hours <u> </u> Standard <u> </u> 48 hours <u> </u> Sample Integrity: Temperature Upon Receipt: <u>4.1</u> Samples Intact: <u>Yes</u> No <u> </u>	Notes:
Relinquished by: <u>Tasman's Lock Box</u>	Date/Time: <u>12/04/19 1730</u>	Received by: <u>[Signature]</u>	Date/Time: <u>12/04/19 1730</u>		
Relinquished by: <u> </u>	Date/Time: <u> </u>	Received by: <u> </u>	Date/Time: <u> </u>		

Summit Scientific

S₂

4653 Table Mountain Drive ♦ Golden, Colorado 80403

303-277-9310

1912253.2

Page 2 of 3

Client: Noble / Tasman Geosciences

Project Manager: Brandon Bruns, Invoice: Jacob Evans

Address: 6855 119th St.

E-Mail: Bbruns@tasman-geo.com

City/State/Zip: Broomfield / CO/ 80020

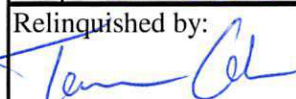

Phone: 303-487-1228

Project Name: Bates 20-22

Sampler Name: Tanner Cook

Project Number:

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested						Special Instructions
					HCl	HNO ₃	None	Other	Water	Soil	Air-Canister #	Other	8260 BTEX	8260B GBTEXN	8015 DRO	pH, EC, SAR			
1	FS01 @ 7'	12/4/19	1100	1			X			X				X	X				
2	SS01 @ 2'		1105																
3	SS01 @ 4'		1110																
4	SS01 @ 6'		1115																
5	FS02 @ 7'		1120																
6	SS02 @ 2'		1125																
7	SS02 @ 4'		1130																
8	SS02 @ 6'		1135																
9	FS03 @ 7'		1140																
10	SS03 @ 2'		1145																

Relinquished by: 	Date/Time: 12/4/19 1700	Received by: Tasman's Lock Box	Date/Time: 12/4/19 1700	Turn Around Time (Check) Same Day <input checked="" type="checkbox"/> 72 hours ___ 24 hours ___ Standard ___ 48 hours ___ Sample Integrity: 4.5 Temperature Upon Receipt: ___ Samples Intact: <input checked="" type="checkbox"/> Yes No	Notes:
Relinquished by: Tasman's Lock Box	Date/Time: 12/04/19 1730	Received by: 	Date/Time: 12/04/19 1730		
Relinquished by:	Date/Time:	Received by:	Date/Time:		

1912253.3

Summit Scientific

S₂

4653 Table Mountain Drive ♦ Golden, Colorado 80403

303-277-9310

Page 3 of 3

Client: Noble / Tasman Geosciences

Project Manager: Brandon Bruns, Invoice: Jacob Evans

Address: 6855 119th St.

E-Mail: Bbruns@tasman-geo.com

City/State/Zip: Broomfield / CO/ 80020

Phone: 303-487-1228

Project Name: Bates 20-22Sampler Name: Tanner CookProject Number:

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested					Special Instructions
					HCl	HNO ₃	None	Other	Water	Soil	Air-Canister #	Other	8260 BTEX	8260B GBTEXN	8015 DRO	pH, EC, SAR		
1	SS06@6'	12/4/19	1240	1			X			X				X	X			
2																		
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		

Relinquished by: <u>Tanner Cook</u>	Date/Time: <u>12/4/19 1700</u>	Received by: <u>Tasman's Lock Box</u>	Date/Time: <u>12/4/19 1700</u>	Turn Around Time (Check) Same Day <input checked="" type="checkbox"/> 72 hours <input type="checkbox"/> 24 hours <input type="checkbox"/> Standard <input type="checkbox"/> 48 hours <input type="checkbox"/> Sample Integrity: Temperature Upon Receipt: <u>4.1</u> Samples Intact: <input checked="" type="radio"/> Yes <input type="radio"/> No	Notes:
Relinquished by: <u>Tasman's Lock Box</u>	Date/Time: <u>12/04/19 1730</u>	Received by: <u>[Signature]</u>	Date/Time: <u>12/04/19 1730</u>		
Relinquished by:	Date/Time:	Received by:	Date/Time:		

Sample Receipt Checklist

S2 Work Order 19/2253

Client: NOBLE / TASMAN

Client Project ID: BATES 20-22

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

☐ ☒ ☐ ☐ ☐

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

Temp (°C)	4.1
-----------	-----

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

Additional Comments (if any):

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

RZ

Custodian Printed Name or Initials

RZ

Signature of Custodian

12/4/19

Date/Time



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

Project: Noble - Bates 20-22

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
12/05/19 06:49

SS03@4'
1912053-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **12/04/19 11:50**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	0.0020	mg/kg	1	1912048	12/04/19	12/04/19	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: **12/04/19 11:50**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4		99.8 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		98.0 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		106 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **12/04/19 11:50**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
C10-C28 (DRO)	ND	50	mg/kg	1	1912049	12/04/19	12/04/19	EPA 8015M	

Date Sampled: **12/04/19 11:50**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: o-Terphenyl		92.2 %	30-150		"	"	"	"	

Summit Scientific

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



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

Project: Noble - Bates 20-22

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
12/05/19 06:49

SS03@6'
1912053-02 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **12/04/19 11:55**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	1912048	12/04/19	12/04/19	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: **12/04/19 11:55**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		121 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		105 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		120 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **12/04/19 11:55**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	1912049	12/04/19	12/04/19	EPA 8015M	

Date Sampled: **12/04/19 11:55**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		93.1 %	30-150		"	"	"	"	

Summit Scientific

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



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

Project: Noble - Bates 20-22

Project Number: [none]
Project Manager: Brandon Brun

Reported:
12/05/19 06:49

SS04@2'
1912053-03 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

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

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	1912048	12/04/19	12/04/19	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

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

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		105 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		102 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		115 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

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

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	1912049	12/04/19	12/04/19	EPA 8015M	

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

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		106 %	30-150		"	"	"	"	

Summit Scientific

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



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

Project: Noble - Bates 20-22

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
12/05/19 06:49

SS04@4'
1912053-04 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

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

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	1912048	12/04/19	12/04/19	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

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

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		103 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		99.9 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		107 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

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

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	1912049	12/04/19	12/04/19	EPA 8015M	

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

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		105 %	30-150		"	"	"	"	

Summit Scientific

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



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

Project: Noble - Bates 20-22

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
12/05/19 06:49

SS04@6'
1912053-05 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

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

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	1912048	12/04/19	12/04/19	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

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

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		98.0 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		99.9 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		110 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

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

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	1912049	12/04/19	12/04/19	EPA 8015M	

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

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		102 %	30-150		"	"	"	"	

Summit Scientific

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



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

Project: Noble - Bates 20-22

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
12/05/19 06:49

SS05@2'
1912053-06 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

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

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	1912048	12/04/19	12/04/19	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

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

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		106 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		102 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		104 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

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

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	1912049	12/04/19	12/04/19	EPA 8015M	

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

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		108 %	30-150		"	"	"	"	

Summit Scientific

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



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

Project: Noble - Bates 20-22

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
12/05/19 06:49

SS05@4'
1912053-07 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

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

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	1912048	12/04/19	12/04/19	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

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

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		113 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		109 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		107 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

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

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	1912049	12/04/19	12/04/19	EPA 8015M	

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

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		118 %	30-150		"	"	"	"	

Summit Scientific

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



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

Project: Noble - Bates 20-22

Project Number: [none]
Project Manager: Brandon Brun

Reported:
12/05/19 06:49

SS05@6'
1912053-08 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

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

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	1912048	12/04/19	12/04/19	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	0.012	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

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

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		102 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		105 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		106 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

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

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	1912049	12/04/19	12/04/19	EPA 8015M	

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

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		112 %	30-150		"	"	"	"	

Summit Scientific

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



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

Project: Noble - Bates 20-22

Project Number: [none]
Project Manager: Brandon Brun

Reported:
12/05/19 06:49

SS06@2'
1912053-09 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **12/04/19 12:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	1912048	12/04/19	12/05/19	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: **12/04/19 12:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		105 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		99.8 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		110 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **12/04/19 12:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	1912049	12/04/19	12/05/19	EPA 8015M	

Date Sampled: **12/04/19 12:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		102 %	30-150		"	"	"	"	

Summit Scientific

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



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

Project: Noble - Bates 20-22

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
12/05/19 06:49

SS06@4'
1912053-10 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

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

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	1912048	12/04/19	12/05/19	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

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

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		90.7 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		92.4 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		106 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

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

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	1912049	12/04/19	12/05/19	EPA 8015M	

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

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		108 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Noble - Bates 20-22

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
12/05/19 06:49

FS01@7'
1912053-11 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **12/04/19 11:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	1912048	12/04/19	12/05/19	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: **12/04/19 11:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		102 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		97.0 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		110 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **12/04/19 11:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	1912049	12/04/19	12/05/19	EPA 8015M	

Date Sampled: **12/04/19 11:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		115 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Noble - Bates 20-22

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
12/05/19 06:49

SS01@2'
1912053-12 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **12/04/19 11:05**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	1912048	12/04/19	12/05/19	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: **12/04/19 11:05**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		99.8 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		99.0 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		114 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **12/04/19 11:05**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	1912049	12/04/19	12/05/19	EPA 8015M	

Date Sampled: **12/04/19 11:05**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		104 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Noble - Bates 20-22

Project Number: [none]
Project Manager: Brandon Brun

Reported:
12/05/19 06:49

SS01@4'
1912053-13 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **12/04/19 11:10**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	1912048	12/04/19	12/05/19	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: **12/04/19 11:10**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		103 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		99.4 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		102 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **12/04/19 11:10**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	1912049	12/04/19	12/05/19	EPA 8015M	

Date Sampled: **12/04/19 11:10**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		110 %	30-150		"	"	"	"	

Summit Scientific

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



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

Project: Noble - Bates 20-22

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
12/05/19 06:49

SS01@6'
1912053-14 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **12/04/19 11:15**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	1912048	12/04/19	12/04/19	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: **12/04/19 11:15**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		132 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		106 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		105 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **12/04/19 11:15**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	1912049	12/04/19	12/05/19	EPA 8015M	

Date Sampled: **12/04/19 11:15**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		116 %	30-150		"	"	"	"	

Summit Scientific

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



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

Project: Noble - Bates 20-22

Project Number: [none]
Project Manager: Brandon Brun

Reported:
12/05/19 06:49

FS02@7'
1912053-15 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **12/04/19 11:20**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	1912048	12/04/19	12/04/19	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: **12/04/19 11:20**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		123 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		101 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		109 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **12/04/19 11:20**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	1912049	12/04/19	12/05/19	EPA 8015M	

Date Sampled: **12/04/19 11:20**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		98.1 %	30-150		"	"	"	"	

Summit Scientific

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



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

Project: Noble - Bates 20-22

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
12/05/19 06:49

SS02@2'
1912053-16 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **12/04/19 11:25**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	1912048	12/04/19	12/05/19	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: **12/04/19 11:25**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		124 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		101 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		107 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **12/04/19 11:25**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	1912049	12/04/19	12/05/19	EPA 8015M	

Date Sampled: **12/04/19 11:25**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		118 %	30-150		"	"	"	"	

Summit Scientific

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



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

Project: Noble - Bates 20-22

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
12/05/19 06:49

SS02@4'
1912053-17 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **12/04/19 11:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	1912048	12/04/19	12/05/19	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: **12/04/19 11:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		130 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		102 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		107 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **12/04/19 11:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	1912049	12/04/19	12/05/19	EPA 8015M	

Date Sampled: **12/04/19 11:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		114 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Noble - Bates 20-22

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
12/05/19 06:49

SS02@6'
1912053-18 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **12/04/19 11:35**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	1912048	12/04/19	12/05/19	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: **12/04/19 11:35**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		132 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		102 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		103 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **12/04/19 11:35**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	1912049	12/04/19	12/05/19	EPA 8015M	

Date Sampled: **12/04/19 11:35**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		94.7 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Noble - Bates 20-22

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
12/05/19 06:49

FS03@7'
1912053-19 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **12/04/19 11:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1912048	12/04/19	12/05/19	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	0.016	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: **12/04/19 11:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		127 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		104 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		108 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **12/04/19 11:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1912049	12/04/19	12/05/19	EPA 8015M	

Date Sampled: **12/04/19 11:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		87.4 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Noble - Bates 20-22

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
12/05/19 06:49

SS03@2'
1912053-20 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **12/04/19 11:45**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	1912048	12/04/19	12/05/19	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: **12/04/19 11:45**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		128 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		103 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		108 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **12/04/19 11:45**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	1912049	12/04/19	12/05/19	EPA 8015M	

Date Sampled: **12/04/19 11:45**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		85.9 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Noble - Bates 20-22

Project Number: [none]
Project Manager: Brandon Brun

Reported:
12/05/19 06:49

SS06@6'
1912053-21 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

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

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	1912048	12/04/19	12/05/19	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

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

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		125 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		102 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		104 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

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

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	1912049	12/04/19	12/05/19	EPA 8015M	

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

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		86.8 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Noble - Bates 20-22

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
12/05/19 06:49

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

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

Batch 1912048 - EPA 5030 Soil MS

Blank (1912048-BLK1)

Prepared: 12/04/19 Analyzed: 12/05/19

Benzene	ND	0.0020	mg/kg							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
Naphthalene	ND	0.010	"							
Gasoline Range Hydrocarbons	ND	50	"							
Surrogate: 1,2-Dichloroethane-d4	0.0473		"	0.0400		118	23-173			
Surrogate: Toluene-d8	0.0430		"	0.0400		108	20-170			
Surrogate: 4-Bromofluorobenzene	0.0385		"	0.0400		96.3	21-167			

LCS (1912048-BS1)

Prepared: 12/04/19 Analyzed: 12/05/19

Benzene	0.110	0.0020	mg/kg	0.100		110	70-130			
Toluene	0.117	0.0050	"	0.100		117	70-130			
Ethylbenzene	0.119	0.0050	"	0.100		119	70-130			
m,p-Xylene	0.229	0.010	"	0.200		114	70-130			
o-Xylene	0.111	0.0050	"	0.100		111	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0455		"	0.0400		114	23-173			
Surrogate: Toluene-d8	0.0420		"	0.0400		105	20-170			
Surrogate: 4-Bromofluorobenzene	0.0386		"	0.0400		96.5	21-167			

Matrix Spike (1912048-MS1)

Source: 1912053-01

Prepared: 12/04/19 Analyzed: 12/05/19

Benzene	0.119	0.0020	mg/kg	0.100	ND	119	70-130			
Toluene	0.126	0.0050	"	0.100	ND	126	70-130			
Ethylbenzene	0.124	0.0050	"	0.100	ND	124	70-130			
m,p-Xylene	0.244	0.010	"	0.200	ND	122	70-130			
o-Xylene	0.116	0.0050	"	0.100	ND	116	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0482		"	0.0400		120	23-173			
Surrogate: Toluene-d8	0.0414		"	0.0400		104	20-170			
Surrogate: 4-Bromofluorobenzene	0.0387		"	0.0400		96.8	21-167			

Summit Scientific

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

Project: Noble - Bates 20-22

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
12/05/19 06:49

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

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

Batch 1912048 - EPA 5030 Soil MS

Matrix Spike Dup (1912048-MSD1)

Source: 1912053-01

Prepared: 12/04/19 Analyzed: 12/05/19

Benzene	0.116	0.0020	mg/kg	0.100	ND	116	70-130	3.07	30	
Toluene	0.123	0.0050	"	0.100	ND	123	70-130	2.46	30	
Ethylbenzene	0.127	0.0050	"	0.100	ND	127	70-130	2.25	30	
m,p-Xylene	0.249	0.010	"	0.200	ND	124	70-130	2.08	30	
o-Xylene	0.121	0.0050	"	0.100	ND	121	70-130	3.94	30	
Surrogate: 1,2-Dichloroethane-d4	0.0450		"	0.0400		113	23-173			
Surrogate: Toluene-d8	0.0406		"	0.0400		102	20-170			
Surrogate: 4-Bromofluorobenzene	0.0397		"	0.0400		99.2	21-167			

Summit Scientific

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

Project: Noble - Bates 20-22

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
12/05/19 06:49

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

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

Batch 1912049 - EPA 3550A

Blank (1912049-BLK1)

Prepared: 12/04/19 Analyzed: 12/05/19

C10-C28 (DRO) ND 50 mg/kg

LCS (1912049-BS1)

Prepared: 12/04/19 Analyzed: 12/05/19

C10-C28 (DRO) 477 50 mg/kg 500 95.4 70-130

Matrix Spike (1912049-MS1)

Source: 1912053-01

Prepared: 12/04/19 Analyzed: 12/05/19

C10-C28 (DRO) 481 50 mg/kg 500 ND 96.3 70-130

Matrix Spike Dup (1912049-MSD1)

Source: 1912053-01

Prepared: 12/04/19 Analyzed: 12/05/19

C10-C28 (DRO) 487 50 mg/kg 500 ND 97.5 70-130 1.23 20

Summit Scientific

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

Project: Noble - Bates 20-22

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
12/05/19 06:49

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