

SITE ASSESSMENT REPORT
KASTNER 41-03 FLOWLINE
COGCC SPILL TRACKING # 479965
COGCC REMEDIATION # 17229

Prepared for:



2115 117th Avenue
Greeley, CO 80631

Prepared by:



6855 W. 119th Ave
Broomfield, CO 80020



March 30, 2022

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

**Re: Site Assessment Report
Kastner 41-03 Flowline**
Spill/Release Point ID: 479965
Remediation #: 17229
NWNE S3 T6N R65W
Weld County, Colorado

Dear Mr. Evans:

Below please find a copy of the above referenced Site Assessment Report for the Kastner 41-03 flowline (Site) in Weld County, Colorado. The text below describes decommissioning, assessment, and associated soil sampling conducted by Tasman, Inc. (Tasman), on behalf of Noble Energy, Inc. (Noble) between April 28, 2021 and August 12, 2021.

Introduction

This document describes the results of soil sampling at the Site to evaluate potential subsurface impacts. The activities described below were performed in response to the discovery of impacted material below the flowline riser, at the separator, during decommissioning activities on April 28, 2021.

Facility Background

The Site is located approximately 3.3 miles east of Eaton in Weld County, Colorado. The Site legal description is the northwest quarter of the northeast quarter of Section 3, Township 6 North, Range 65 West, 6th Principal Meridian (Figure 1). The Site is located on terrain that slopes gradually to the west and is approximately 450 feet south of county road 74 at coordinates 40.5218742°, -104.6491212° [North American Datum of 1983(NAD83)].

Tasman was retained by Noble on April 28, 2021, to complete soil sampling and documentation during decommissioning and abandonment activities. As reported in the initial Form 19, historical impacts were confirmed below the Kastner 41-03 flowline riser at the separator on May 10, 2021. The Form 19 was submitted to the Colorado Oil and Gas Conservation Commission (COGCC) on May 10, 2021. The COGCC subsequently issued Spill/Release Point ID Number 479965 for this event. The COGCC assigned Remediation Number 17229 for the project.

Site Decommissioning Activities

On April 28, 2021, Tasman completed decommissioning soil sampling and documentation for the Kastner 41-03 flowline. Excavation soil samples were collected from the hole around the plugged flowline along the excavation floor (FL01-B@4'). The soil sample collected was field screened for volatile organic compounds (VOC) using a photoionization detector (PID) and standard headspace sampling techniques. Soil sample FL01-B@4' was submitted to Summit Scientific (Summit) in Golden, Colorado for laboratory analysis of COGCC Table 915-1 list of organics in soil using United States Environmental Protection Agency (USEPA) Method 8260B and USEPA Method 8270D, and total petroleum hydrocarbons (TPH) using USEPA Methods 8260B and 8015. The sample was also analyzed for pH, electrical conductivity (EC), and sodium absorption ratio (SAR) using USEPA saturated paste extraction method, and boron using hot water soluble soil extract method. Decommissioning soil analytical results are summarized in Table 1 and illustrated on Figure 2. Laboratory soil analytical reports are included in Attachment A.

Site Assessment Activities

Tasman completed site assessment activities on August 12, 2021 to delineate subsurface soil impacts previously identified at the Site. Tasman advanced five boreholes (BH01 through BH05) to 12 feet below ground surface (ft bgs) using a hand auger and an AMS Power Probe via direct push in the area of the previous flowline riser decommissioning excavation. During soil boring operations, soil samples were collected and field screened for VOCs using a PID and standard headspace sampling techniques. The following soil samples were collected at depths corresponding to initial observed impacts and the terminal depth of the borings:

BH01@4'	BH02@4'	BH03@4'	BH04@4'	BH05@4'
BH01@12'	BH02@12'	BH03@12'	BH04@12'	BH05@12'

A background soil sample, BG01@4', was also collected from adjacent native soil using a hand auger. All soil boring samples were submitted to Summit for laboratory analysis of COGCC Table 915-1 list of organics in soil using USEPA Method 8260B and USEPA Method 8270D, TPH using USEPA Methods 8260B and 8015. The above listed samples were also analyzed for pH, EC, and SAR using USEPA saturated paste extraction method, and boron using hot water soluble soil extract method. Soil sample BH01@4' was also submitted for analysis of COGCC Table 915-1 metals in soil using USEPA Method 6020B. Background soil sample BG01@4' was submitted to Summit for analysis of pH using USEPA saturated paste extraction method and COGCC Table 915-1 metals in soil using USEPA Method 6020B. Groundwater was not encountered during soil boring activities. Site assessment soil analytical results are summarized in Table 1 and illustrated on Figure 2. Laboratory soil analytical reports are included in Attachment A and the borings logs are included in Attachment B.

Results

Laboratory analytical results for soil samples collected during initial decommissioning and subsequent site assessment activities indicate soil impacts above COGCC Table 915-1 standards for 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, naphthalene, 1-methylnaphthalene and 2-methylnaphthalene are present at the Site. These soil impacts were identified at location FL01-B@4'

as well as a naphthalene exceedance at BH04@12'. Soil sample results for inorganic analytes pH, SAR, EC, and boron were compliant with COGCC Table 915-1 standards except for pH at FL01-B@4' and BH05@12'. Soil sample results for metals were compliant with COGCC Table 915-1 standards except for arsenic and selenium at BH01@4'. Background soil sample results for arsenic, and selenium indicated elevated levels are present in adjacent native soil.

Conclusions

Soil hydrocarbon impacts observed at FL01-B@4' have been delineated vertically and horizontally by the August 2021 borehole samples, except for at the BH04 location. Additional soil sampling will be required to delineate the naphthalene exceedance detected at 12 ft bgs. Once these impacts have been successfully delineated, if no pathway to groundwater is discovered, closure will be requested utilizing residential soil screening standards. If groundwater is encountered during the additional soil sampling efforts, monitoring wells will be installed to evaluate potential dissolved phase petroleum hydrocarbon impacts.

Remarks

The discussion and conclusions contained in this report represent the professional opinions of Tasman, 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) 616-8383 or at jwhritenour@tasman-geo.com if you require additional information.

Sincerely,
Tasman, Inc.



Jake Whritenour, Program Manager

Attachments:

Table 1 – Soil Analytical Data

Figure 1 – Site Location Map

Figure 2 – Decommissioning & Site Assessment Soil Analytical Results Map (4/28/2021, 8/12/2021)

Attachment A – Laboratory Soil Analytical Data Reports

Attachment B – Boring Logs

TABLES

TABLE 1
SOIL ANALYTICAL DATA
NOBLE ENERGY, INC. - KASTNER 41-03

Soil Sample ID	Date	¹ Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	1,2,4 - TMB (mg/kg)	1,3,5 - TMB (mg/kg)	Naphthalene (mg/kg)	TPH-GRO (mg/kg)	TPH-DRO (mg/kg)	TPH-ORO (mg/kg)	Acenaphthene (mg/kg)	Anthracene (mg/kg)	Benz(a) (mg/kg)	Benzo(a) (mg/kg)	Benzo(b) (mg/kg)	Benzo(k) (mg/kg)	Chrysene (mg/kg)	A,H (mg/kg)	Fluoranthene (mg/kg)	Fluorene (mg/kg)	1,2,3-CD (mg/kg)	Pyrene (mg/kg)	1-M (mg/kg)	2-M (mg/kg)
Residential SSL ²		1.2	490	5.8	58	30	27	2	500			360	1,800	1.1	0.11	1.1	11	110	0.11	240	240	1.1	180	18	24
Protection of Groundwater SSL ^{2,3}		0.0026	0.69	0.78	9.9	0.0081	0.0087	0.0038	500			0.55	6	0.011	0.24	0.3	2.9	9	0.096	8.9	0.54	0.98	1.3	0.006	0.019
FL01-B@4'	04/28/21	<0.0020	0.0063	0.0085	0.15	0.013	0.26	0.0049	21	96	<50	<0.00500	0.0273	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00559	0.0112	<0.00500	0.00506	0.0286	0.0600
BH01@4'	08/12/21	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
BH01@12'	08/12/21	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
BH02@4'	08/12/21	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
BH02@12'	08/12/21	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
BH03@4'	08/12/21	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
BH03@12'	08/12/21	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
BH04@4'	08/12/21	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
BH04@12'	08/12/21	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	0.0056	<0.50	<50	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
BH05@4'	08/12/21	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
BH05@12'	08/12/21	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500

Soil Sample ID	Date	pH	SAR	EC (mmhos/cm)	Boron (mg/L)
Residential SSL ²		6 - 8.3	<6	<4mmhos/cm	2
FL01-B@4'	04/28/21	8.38	0.297	0.576	0.0683
BH01@4'	08/12/21	8.09	0.851	0.321	0.0919
BH01@12'	08/12/21	8.15	0.958	0.728	0.0429
BH02@4'	08/12/21	8.04	0.622	0.495	0.0544
BH02@12'	08/12/21	7.98	0.747	0.968	0.0819
BH03@4'	08/12/21	8.04	0.567	0.930	0.0605
BH03@12'	08/12/21	8.02	0.565	0.645	0.0452
BH04@4'	08/12/21	8.15	0.390	0.472	0.0668
BH04@12'	08/12/21	8.09	0.649	0.477	0.0881
BH05@4'	08/12/21	7.94	0.227	0.826	0.128
BH05@12'	08/12/21	8.31	0.363	0.342	0.0421
BG01@4'	08/12/21	7.50	N/A	N/A	N/A

Soil Sample ID	Date	Arsenic (mg/kg)	Barium (mg/kg)	Cadmium (mg/kg)	Chromium (VI) (mg/kg)	Copper (mg/kg)	Lead (mg/kg)	Nickel (mg/kg)	Selenium (mg/kg)	Silver (mg/kg)	Zinc (mg/kg)
Residential SSL ²		0.68	15,000	71	0.3	3,100	400	1,500	390	390	23,000
Protection of Groundwater		0.29	82	0.38	0.00067	46	14	26	0.26	0.8	370
BH01@4'	08/12/21	2.86	63.5	<0.223	<0.30	5.07	7.09	5.13	0.631	0.0252	24.4
BG01@4'	08/12/21	2.86	64.4	<0.207	<0.30	4.74	5.08	5.09	0.682	0.0252	23.0

Notes:

- Compounds referenced from 2 CCR 404-1, Table 915-1, effective January 15, 2021.
- Soil Screening Levels (SSL) referenced from EPA Regional Screening Levels (EPA RSLs) for Chemical Contaminants at Superfund Sites, effective November 2020.
- SSLs are applicable if a pathway for communication with groundwater is present.

Definitions:

COGCC = Colorado Oil and Gas Conservation Commission

TPH-GRO = Total petroleum hydrocarbons - gasoline range organics

TPH-DRO = Total petroleum hydrocarbons - diesel range organics

TPH-ORO = Total petroleum hydrocarbons - oil range organics

mg/kg = Milligrams per kilogram

SAR = Sodium Adsorption Ratio

EC = Electrical Conductivity

mmhos/cm = Millimhos per centimeter

mg/L = Milligrams per liter

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

Highlighted results are equal to or exceed the COGCC Table 915-1 standard

1,2,4 - TMB = 1,2,4 Trimethylbenzene

1,3,5 - TMB = 1,3,5 Trimethylbenzene

Benz(a) = Benzanthracene

Benzo(b) = Benzofluoranthene

Benzo(k) = Benzofluoranthene

Benzo(a) = Benzopyrene

A,H = Dibenzoanthracene

1,2,3-CD = Indenopyrene

1-M = 1-methylnaphthalene

2-M = 2-methylnaphthalene

N/A = Not analyzed

FIGURES

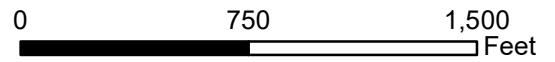
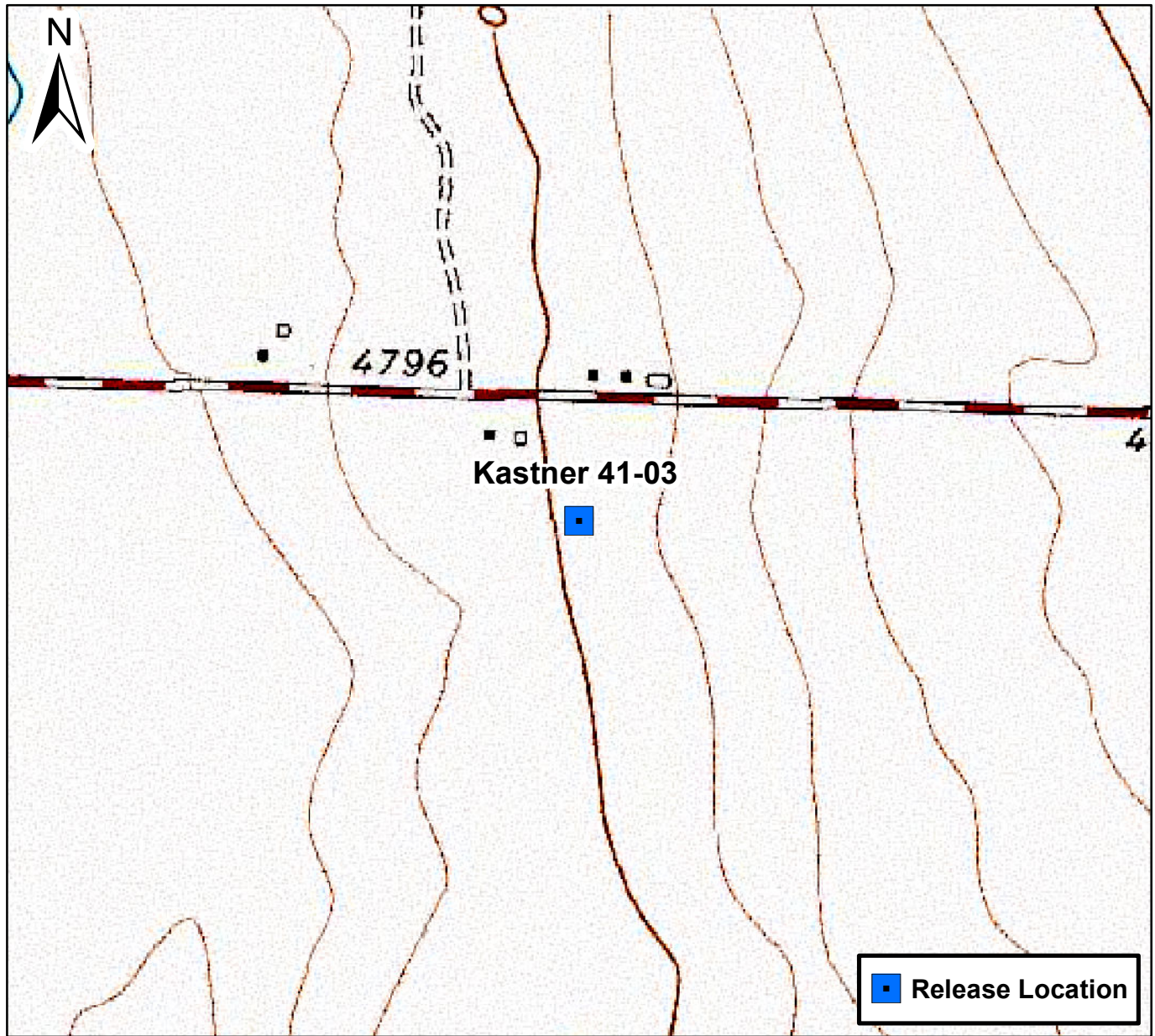
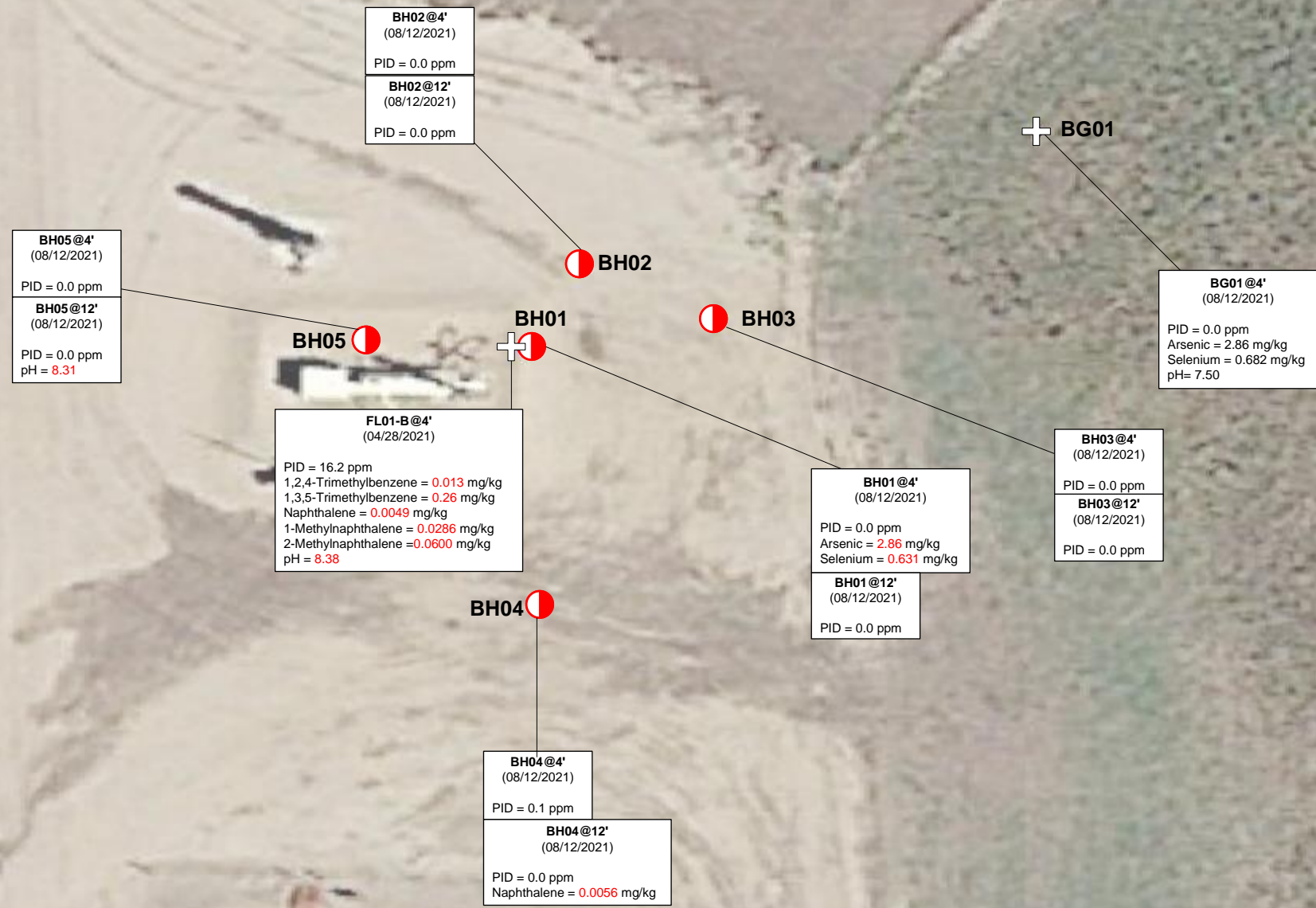


Figure 1

Site Location Map
 Kastner 41-03
 NWNE S3 T6N R65W
 Weld County, Colorado





Legend

- Soil Boring Location (Collected via Trimble GPS)
- Excavation Extent (Collected via Trimble GPS)
- Soil Sample Location – Lab Analyzed (Collected via Trimble GPS)

Notes

- 1) All locations are approximate unless otherwise noted.
- 2) Buried infrastructure has been spatially projected.
- 3) Analytical results below laboratory detection limits or within compliance of COGCC Table 915-1 not shown.
- 4) Concentration in exceedance of COGCC table 915-1 soil standards indicated in **RED**.

1-M – 1-methylnaphthalene
 2-M – 2-methylnaphthalene
 1,2,4-TMB – 1,2,4-Trimethylbenzene
 1,3,5-TMB – 1,3,5-Trimethylbenzene
 GPS – Global Positioning System
 mg/kg – Milligrams per kilogram
 PID – Photoionization detector
 PPM – Parts per million

0 ft. 20 ft. 40 ft.

Image Source: Google Earth; Google 2020

DATE:	10/20/2021
DESIGNED BY:	JW
DRAWN BY:	DQ

Tasman Geosciences, Inc.
 6855 W 199th Ave
 Broomfield, CO 80020

Noble Energy, Inc. – DJ Basin
Kastner 41-03 Flowline
 NWNE, Section 3, Township 6 North, Range 65 West
 Weld County, Colorado

Decommissioning & Site Assessment
 Soil Analytical Results Map
 (04/28/2021, 08/12/2021)

FIGURE
2

ATTACHMENT A
LABORATORY SOIL ANALYTICAL DATA REPORTS

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

May 10, 2021

Brandon Bruns

Tasman Geosciences

6855 W. 119th Ave.

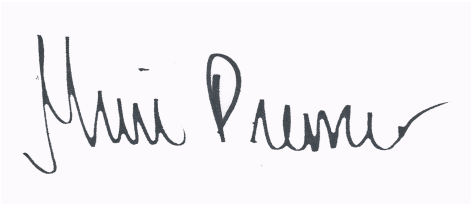
Broomfield, CO 80020

RE: Noble - Kastner 41-03

Work Order # 2104476

Enclosed are the results of analyses for samples received by Summit Scientific on 04/29/21 16:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Muri Premer". The signature is written in a cursive style with a large initial "M" and a long, sweeping underline.

Muri Premer For Paul Shrewsbury

President



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

Project: Noble - Kastner 41-03

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
05/10/21 12:50

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FL01-B@4'	2104476-01	Soil	04/28/21 09:35	04/29/21 16:00

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

2104476

S₂

4653 Table Mountain Drive ♦ Golden, Colorado 80403
303-277-9310

Page 1 of 1

Client: Noble / Tasman Geosciences Project Manager: Brandon Bruns, Invoice: Wade Firmin
Address: 6855 W. 119th Ave. E-Mail: Bbruns@tasman-geo.com
City/State/Zip: Broomfield / CO/ 80020
Phone: 303-487-1228 Project Name: Kastner 41-03
Sampler Name: Hunter Merlo Project Number:

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested						Special Instructions		
					HCl	HNO3	None	Other	Water	Soil	Air-Canister #	Other	\$260 BTEX	VOC - 915	TPH - 915	PAH - 915	SAR, EC, pH	Boron - HWS		HOLD	
1	FL01-B @ 4'	4/28/21	0935	2			X			X				X	X	X	X	X			pH, EC, SAR by saturated Paste
2	B601 @ 4'	4/28/21	0940	1			X			X								X			
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					

Relinquished by: <i>Hunter Merlo</i> Date/Time: 4/28/21 1645	Received by: Tasman's Lock Box Date/Time: 4/29/21 1600	Turn Around Time (Check) <input type="checkbox"/> Same Day 72 hours <input checked="" type="checkbox"/> 24 hours Standard <input type="checkbox"/> 48 hours Sample Integrity: Temperature Upon Receipt: 3 Samples Intact: <input checked="" type="radio"/> Yes No	Notes:
Relinquished by: Tasman's Lock Box Date/Time: 4/29/21 1600	Received by: <i>Josh Brun</i> Date/Time: 4/29/21 1600		
Relinquished by:	Received by:		

Sample Receipt Checklist

S2 Work Order 2104476
 Client: Noble / Tasman Client Project ID Kastner 41-03

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

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

Temp (°C)	<u>3</u>
-----------	----------

Thermometer ID: 61857155-K

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature at 4°C +/- 2°C ⁽¹⁾ ? NOTE: If samples are delivered the same day of sampling, this requirement is met provided that there is evidence that cooling has begun.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>On ice.</u>
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 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.

JB
 Custodian Printed Name or Initials

[Signature]
 Signature of Custodian

4/29/21 1600
 Date/Time



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

Project: Noble - Kastner 41-03

Project Number: [none]
Project Manager: Brandon Brun

Reported:
05/10/21 12:50

FL01-B@4'
2104476-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/28/21 09:35**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	0.0020		mg/kg	1	BEE0065	05/05/21	05/06/21	EPA 8260B	
Toluene	0.0063	0.0050		"	"	"	"	"	"	
Ethylbenzene	0.0085	0.0050		"	"	"	"	"	"	
Xylenes (total)	0.15	0.010		"	"	"	"	"	"	
1,2,4-Trimethylbenzene	0.013	0.0050		"	"	"	"	"	"	
1,3,5-Trimethylbenzene	0.26	0.0050		"	"	"	"	"	"	
Naphthalene	0.0049	0.0038		"	"	"	"	"	"	
Gasoline Range Hydrocarbons	21	0.50		"	"	"	"	"	"	

Date Sampled: **04/28/21 09:35**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		80.2 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		111 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		190 %		21-167		"	"	"	"	S-02

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **04/28/21 09:35**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
C10-C28 (DRO)	96	50		mg/kg	1	BEE0047	05/04/21	05/05/21	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **04/28/21 09:35**

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

PAH by EPA Method 8270D SIM

Summit Scientific

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

Project: Noble - Kastner 41-03

Project Number: [none]
Project Manager: Brandon Brun

Reported:
05/10/21 12:50

FL01-B@4'
2104476-01 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **04/28/21 09:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEE0078	05/05/21	05/07/21	EPA 8270D SIM	
Anthracene	0.0273	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	0.00559	0.00500	"	"	"	"	"	"	
Fluorene	0.0112	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	0.00506	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	0.0286	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	0.0600	0.00500	"	"	"	"	"	"	

Date Sampled: **04/28/21 09:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		66.6 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		99.1 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **04/28/21 09:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.0683	0.0100	mg/L	1	BEE0042	05/04/21	05/04/21	EPA 6020B	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **04/28/21 09:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Kastner 41-03

Project Number: [none]
Project Manager: Brandon Brun

Reported:
05/10/21 12:50

FL01-B@4'
2104476-01 (Soil)

Summit Scientific

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	55.0	0.0601	mg/L dry	1	BEE0044	05/04/21	05/06/21	EPA 6020B	
Magnesium	11.3	0.0601	"	"	"	"	"	"	
Sodium	9.25	0.0601	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **04/28/21 09:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.297	0.00100	units	1	BEE0101	05/06/21	05/06/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **04/28/21 09:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	83.2		%	1	BEE0040	05/04/21	05/04/21	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **04/28/21 09:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.576	0.0100	mmhos/cm	1	BEE0079	05/05/21	05/05/21	EPA 120.1	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **04/28/21 09:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.38		pH Units	1	BEE0080	05/05/21	05/05/21	EPA 9045D	

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6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Kastner 41-03

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
05/10/21 12:50

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

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

Batch BEE0065 - EPA 5030 Soil MS

Blank (BEE0065-BLK1)

Prepared & Analyzed: 05/05/21

Benzene	ND	0.0020	mg/kg							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
1,2,4-Trimethylbenzene	ND	0.0050	"							
1,3,5-Trimethylbenzene	ND	0.0050	"							
Naphthalene	ND	0.0038	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0319		"	0.0400		79.7	23-173			
<i>Surrogate: Toluene-d8</i>	0.0400		"	0.0400		100	20-170			
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0459		"	0.0400		115	21-167			

LCS (BEE0065-BS1)

Prepared: 05/05/21 Analyzed: 05/06/21

Benzene	0.0826	0.0020	mg/kg	0.100		82.6	70-130			
Toluene	0.107	0.0050	"	0.100		107	70-130			
Ethylbenzene	0.0930	0.0050	"	0.100		93.0	70-130			
m,p-Xylene	0.189	0.010	"	0.200		94.5	70-130			
o-Xylene	0.0964	0.0050	"	0.100		96.4	70-130			
1,2,4-Trimethylbenzene	0.0974	0.0050	"	0.100		97.4	70-130			
1,3,5-Trimethylbenzene	0.0952	0.0050	"	0.100		95.2	70-130			
Naphthalene	0.0972	0.0038	"	0.100		97.2	70-130			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0316		"	0.0400		79.1	23-173			
<i>Surrogate: Toluene-d8</i>	0.0480		"	0.0400		120	20-170			
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0482		"	0.0400		121	21-167			

Matrix Spike (BEE0065-MS1)

Source: 2104473-02

Prepared: 05/05/21 Analyzed: 05/06/21

Benzene	0.0844	0.0020	mg/kg	0.100	ND	84.4	70-130			
Toluene	0.0931	0.0050	"	0.100	ND	93.1	70-130			
Ethylbenzene	0.0946	0.0050	"	0.100	ND	94.6	70-130			
m,p-Xylene	0.194	0.010	"	0.200	ND	96.9	70-130			
o-Xylene	0.100	0.0050	"	0.100	ND	100	70-130			
1,2,4-Trimethylbenzene	0.103	0.0050	"	0.100	ND	103	70-130			
1,3,5-Trimethylbenzene	0.101	0.0050	"	0.100	ND	101	70-130			
Naphthalene	0.0825	0.0038	"	0.100	ND	82.5	70-130			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0357		"	0.0400		89.3	23-173			
<i>Surrogate: Toluene-d8</i>	0.0436		"	0.0400		109	20-170			
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0513		"	0.0400		128	21-167			

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6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Kastner 41-03

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
05/10/21 12:50

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

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

Batch BEE0065 - EPA 5030 Soil MS

Matrix Spike Dup (BEE0065-MSD1)	Source: 2104473-02			Prepared: 05/05/21 Analyzed: 05/06/21					
Benzene	0.0853	0.0020	mg/kg	0.100	ND	85.3	70-130	1.02	30
Toluene	0.124	0.0050	"	0.100	ND	124	70-130	28.4	30
Ethylbenzene	0.0950	0.0050	"	0.100	ND	95.0	70-130	0.411	30
m,p-Xylene	0.190	0.010	"	0.200	ND	94.8	70-130	2.22	30
o-Xylene	0.0986	0.0050	"	0.100	ND	98.6	70-130	1.42	30
1,2,4-Trimethylbenzene	0.102	0.0050	"	0.100	ND	102	70-130	1.26	30
1,3,5-Trimethylbenzene	0.0993	0.0050	"	0.100	ND	99.3	70-130	1.77	30
Naphthalene	0.0739	0.0038	"	0.100	ND	73.9	70-130	11.1	30
Surrogate: 1,2-Dichloroethane-d4	0.0351		"	0.0400		87.7	23-173		
Surrogate: Toluene-d8	0.0434		"	0.0400		109	20-170		
Surrogate: 4-Bromofluorobenzene	0.0482		"	0.0400		120	21-167		

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6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Kastner 41-03

Project Number: [none]
Project Manager: Brandon Brun

Reported:
05/10/21 12:50

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

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

Batch BEE0047 - EPA 3550A

Blank (BEE0047-BLK1)

Prepared & Analyzed: 05/04/21

C10-C28 (DRO)	ND	50	mg/kg							
C28-C36 (ORO)	ND	50	"							

LCS (BEE0047-BS1)

Prepared & Analyzed: 05/04/21

C10-C28 (DRO)	510	50	mg/kg	500	102	70-130				
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Matrix Spike (BEE0047-MS1)

Source: 2104443-04

Prepared & Analyzed: 05/04/21

C10-C28 (DRO)	553	50	mg/kg	500	27.1	105	70-130			
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Matrix Spike Dup (BEE0047-MSD1)

Source: 2104443-04

Prepared & Analyzed: 05/04/21

C10-C28 (DRO)	577	50	mg/kg	500	27.1	110	70-130	4.24	20	
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Project: Noble - Kastner 41-03

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
05/10/21 12:50

PAH by EPA Method 8270D SIM - Quality Control
Summit Scientific

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

Batch BEE0078 - EPA 5030 Soil MS

Blank (BEE0078-BLK1)

Prepared & Analyzed: 05/05/21

Acenaphthene	ND	0.00500	mg/kg							
Anthracene	ND	0.00500	"							
Benzo (a) anthracene	ND	0.00500	"							
Benzo (a) pyrene	ND	0.00500	"							
Benzo (b) fluoranthene	ND	0.00500	"							
Benzo (k) fluoranthene	ND	0.00500	"							
Chrysene	ND	0.00500	"							
Dibenz (a,h) anthracene	ND	0.00500	"							
Fluoranthene	ND	0.00500	"							
Fluorene	ND	0.00500	"							
Indeno (1,2,3-cd) pyrene	ND	0.00500	"							
Pyrene	ND	0.00500	"							
1-Methylnaphthalene	ND	0.00500	"							
2-Methylnaphthalene	ND	0.00500	"							
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0264</i>		"	<i>0.0333</i>		<i>79.2</i>	<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0323</i>		"	<i>0.0333</i>		<i>97.0</i>	<i>40-150</i>			

LCS (BEE0078-BS1)

Prepared & Analyzed: 05/05/21

Acenaphthene	0.0279	0.00500	mg/kg	0.0333		83.7	31-137			
Anthracene	0.0281	0.00500	"	0.0333		84.4	30-120			
Benzo (a) anthracene	0.0287	0.00500	"	0.0333		86.1	30-120			
Benzo (a) pyrene	0.0284	0.00500	"	0.0333		85.3	30-120			
Benzo (b) fluoranthene	0.0284	0.00500	"	0.0333		85.3	30-120			
Benzo (k) fluoranthene	0.0265	0.00500	"	0.0333		79.4	30-120			
Chrysene	0.0276	0.00500	"	0.0333		82.7	30-120			
Dibenz (a,h) anthracene	0.0344	0.00500	"	0.0333		103	30-120			
Fluoranthene	0.0220	0.00500	"	0.0333		66.1	30-120			
Fluorene	0.0302	0.00500	"	0.0333		90.6	30-120			
Indeno (1,2,3-cd) pyrene	0.0330	0.00500	"	0.0333		99.0	30-120			
Pyrene	0.0245	0.00500	"	0.0333		73.5	35-142			
1-Methylnaphthalene	0.0322	0.00500	"	0.0333		96.7	35-142			
2-Methylnaphthalene	0.0308	0.00500	"	0.0333		92.4	35-142			
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0290</i>		"	<i>0.0333</i>		<i>86.9</i>	<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0351</i>		"	<i>0.0333</i>		<i>105</i>	<i>40-150</i>			

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

Project: Noble - Kastner 41-03

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
05/10/21 12:50

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

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

Batch BEE0078 - EPA 5030 Soil MS

Matrix Spike (BEE0078-MS1)	Source: 2104375-01			Prepared & Analyzed: 05/05/21						
Acenaphthene	0.0280	0.00500	mg/kg	0.0333	ND	84.0	31-137			
Anthracene	0.0272	0.00500	"	0.0333	ND	81.7	30-120			
Benzo (a) anthracene	0.0291	0.00500	"	0.0333	ND	87.4	30-120			
Benzo (a) pyrene	0.0283	0.00500	"	0.0333	ND	85.0	30-120			
Benzo (b) fluoranthene	0.0288	0.00500	"	0.0333	ND	86.3	30-120			
Benzo (k) fluoranthene	0.0265	0.00500	"	0.0333	ND	79.6	30-120			
Chrysene	0.0276	0.00500	"	0.0333	ND	82.9	30-120			
Dibenz (a,h) anthracene	0.0339	0.00500	"	0.0333	ND	102	30-120			
Fluoranthene	0.0221	0.00500	"	0.0333	ND	66.2	30-120			
Fluorene	0.0305	0.00500	"	0.0333	ND	91.6	30-120			
Indeno (1,2,3-cd) pyrene	0.0323	0.00500	"	0.0333	ND	97.0	30-120			
Pyrene	0.0253	0.00500	"	0.0333	ND	75.8	35-142			
1-Methylnaphthalene	0.0318	0.00500	"	0.0333	ND	95.5	15-130			
2-Methylnaphthalene	0.0309	0.00500	"	0.0333	ND	92.7	15-130			
Surrogate: 2-Methylnaphthalene-d10	0.0267		"	0.0333		80.0	40-150			
Surrogate: Fluoranthene-d10	0.0324		"	0.0333		97.1	40-150			

Matrix Spike Dup (BEE0078-MSD1)	Source: 2104375-01			Prepared & Analyzed: 05/05/21						
Acenaphthene	0.0281	0.00500	mg/kg	0.0333	ND	84.3	31-137	0.374	30	
Anthracene	0.0292	0.00500	"	0.0333	ND	87.5	30-120	6.95	30	
Benzo (a) anthracene	0.0299	0.00500	"	0.0333	ND	89.6	30-120	2.50	30	
Benzo (a) pyrene	0.0288	0.00500	"	0.0333	ND	86.5	30-120	1.75	30	
Benzo (b) fluoranthene	0.0287	0.00500	"	0.0333	ND	86.2	30-120	0.196	30	
Benzo (k) fluoranthene	0.0265	0.00500	"	0.0333	ND	79.4	30-120	0.210	30	
Chrysene	0.0281	0.00500	"	0.0333	ND	84.2	30-120	1.55	30	
Dibenz (a,h) anthracene	0.0345	0.00500	"	0.0333	ND	103	30-120	1.56	30	
Fluoranthene	0.0231	0.00500	"	0.0333	ND	69.3	30-120	4.66	30	
Fluorene	0.0288	0.00500	"	0.0333	ND	86.3	30-120	5.99	30	
Indeno (1,2,3-cd) pyrene	0.0333	0.00500	"	0.0333	ND	99.8	30-120	2.85	30	
Pyrene	0.0250	0.00500	"	0.0333	ND	75.1	35-142	0.883	30	
1-Methylnaphthalene	0.0341	0.00500	"	0.0333	ND	102	15-130	6.81	50	
2-Methylnaphthalene	0.0318	0.00500	"	0.0333	ND	95.3	15-130	2.75	50	
Surrogate: 2-Methylnaphthalene-d10	0.0286		"	0.0333		85.9	40-150			
Surrogate: Fluoranthene-d10	0.0368		"	0.0333		110	40-150			

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

Project: Noble - Kastner 41-03

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
05/10/21 12:50

Total Metals by EPA 6020B Hot Water Soluble Extraction - Quality Control
Summit Scientific

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

Batch BEE0042 - EPA 3050B

Blank (BEE0042-BLK1)

Prepared & Analyzed: 05/04/21

Boron ND 0.0100 mg/L

LCS (BEE0042-BS1)

Prepared & Analyzed: 05/04/21

Boron 5.23 0.0100 mg/L 5.00 105 80-120

Duplicate (BEE0042-DUP1)

Source: 2104471-01

Prepared & Analyzed: 05/04/21

Boron 0.186 0.0100 mg/L 0.219 16.8 20

Matrix Spike (BEE0042-MS1)

Source: 2104471-01

Prepared & Analyzed: 05/04/21

Boron 5.64 0.0100 mg/L 5.00 0.219 108 75-125

Matrix Spike Dup (BEE0042-MSD1)

Source: 2104471-01

Prepared & Analyzed: 05/04/21

Boron 5.31 0.0100 mg/L 5.00 0.219 102 75-125 6.04 25

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

Project: Noble - Kastner 41-03

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
05/10/21 12:50

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction - Quality Control
Summit Scientific

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

Batch BEE0044 - General Preparation

Blank (BEE0044-BLK1)

Prepared: 05/04/21 Analyzed: 05/06/21

Calcium	ND	0.0500	mg/L wet							
Magnesium	ND	0.0500	"							
Sodium	ND	0.0500	"							

LCS (BEE0044-BS1)

Prepared: 05/04/21 Analyzed: 05/06/21

Calcium	5.69	0.0500	mg/L wet	5.00	114	70-130				
Magnesium	5.28	0.0500	"	5.00	106	70-130				
Sodium	5.49	0.0500	"	5.00	110	70-130				

Summit Scientific

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

Project: Noble - Kastner 41-03

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
05/10/21 12:50

Physical Parameters by APHA/ASTM/EPA Methods - Quality Control

Summit Scientific

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

Batch BEE0040 - General Preparation

Duplicate (BEE0040-DUP1)

Source: 2104323-03

Prepared & Analyzed: 05/04/21

% Solids	95.2	%		95.3		0.104	20
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Summit Scientific

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

Project: Noble - Kastner 41-03

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
05/10/21 12:50

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction - Quality Control
Summit Scientific

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

Batch BEE0079 - General Preparation

Blank (BEE0079-BLK1)

Prepared & Analyzed: 05/05/21

Specific Conductance (EC) ND 0.0100 mmhos/cm

LCS (BEE0079-BS1)

Prepared & Analyzed: 05/05/21

Specific Conductance (EC) 0.158 0.0100 mmhos/cm 0.150 105 90-110

Duplicate (BEE0079-DUP1)

Source: 2104473-02

Prepared & Analyzed: 05/05/21

Specific Conductance (EC) 0.970 0.0100 mmhos/cm 0.961 0.860 20

Summit Scientific

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

Project: Noble - Kastner 41-03

Project Number: [none]
 Project Manager: Brandon Bruns

Reported:
 05/10/21 12:50

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction - Quality Control

Summit Scientific

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

Batch BEE0080 - General Preparation

LCS (BEE0080-BS1)

Prepared & Analyzed: 05/05/21

pH	9.25	pH Units	9.21	100	95-105
----	------	----------	------	-----	--------

Duplicate (BEE0080-DUP1)

Source: 2104473-02

Prepared & Analyzed: 05/05/21

pH	9.96	pH Units	9.96	0.00	20
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Summit Scientific

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

Project: Noble - Kastner 41-03

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
05/10/21 12:50

Notes and Definitions

- S-02 The surrogate recovery for this sample cannot be accurately quantified due to interference from coeluting organic compounds present in the sample extract.
- 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

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

August 26, 2021

Jacob Whritenour

Tasman Geosciences

6855 W. 119th Ave.

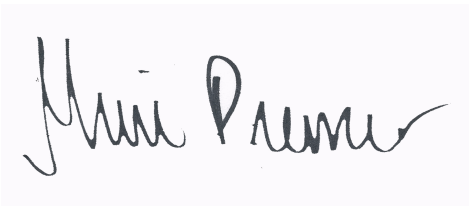
Broomfield, CO 80020

RE: Noble - Kastner 41-03

Work Order #2108197

Enclosed are the results of analyses for samples received by Summit Scientific on 08/12/21 18:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Muri Premer". The signature is written in a cursive style with a large initial "M" and a long, sweeping underline.

Muri Premer For Paul Shrewsbury
President



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

Project: Noble - Kastner 41-03

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
08/26/21 16:25

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH01@4'	2108197-01	Soil	08/12/21 09:10	08/12/21 18:00
BH01@12'	2108197-02	Soil	08/12/21 10:40	08/12/21 18:00
BH02@4'	2108197-03	Soil	08/12/21 09:00	08/12/21 18:00
BH02@12'	2108197-04	Soil	08/12/21 10:10	08/12/21 18:00
BH03@4'	2108197-05	Soil	08/12/21 09:15	08/12/21 18:00
BH03@12'	2108197-06	Soil	08/12/21 10:25	08/12/21 18:00
BH04@4'	2108197-07	Soil	08/12/21 08:35	08/12/21 18:00
BH04@12'	2108197-08	Soil	08/12/21 09:40	08/12/21 18:00
BH05@4'	2108197-09	Soil	08/12/21 08:50	08/12/21 18:00
BH05@12'	2108197-10	Soil	08/12/21 10:00	08/12/21 18:00
BG01@4'	2108197-11	Soil	08/12/21 11:00	08/12/21 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

2108197.1

S₂

4653 Table Mountain Drive ♦ Golden, Colorado 80403
303-277-9310

Client: Noble / Tasman Geosciences Project Manager: Jake Whritenour, Invoice: Jacob Evans
 Address: 6855 W. 119th Ave. E-Mail: jwhritenour@tasman-geo.com/ Noble Group
 City/State/Zip: Broomfield / CO/ 80020
 Phone: 303-487-1228 Project Name: Kastner 41-03
 Sampler Name: Hunter Merlo Project Number:

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested						Special Instructions	
					HCl	HNO3	None	Other	Water	Soil	Air-Canister #	Other	\$260 BTEX	VOC - 915	TPH - 915	PAH - 915	SAR, EC, pH	Boron - HWS		Metals - 915
1	BH01 @ 4'	8/12/21	0910	2			X			X				X	X	X	X	X	X	
2	BH01 @ 12'		1040	2																
3	BH02 @ 4'		0900	2																
4	BH02 @ 12'		1010	2																
5	BH03 @ 4'		0915	2																
6	BH03 @ 12'		1025	2																
7	BH04 @ 4'		0835	2																
8	BH04 @ 12'		0940	2																
9	BH05 @ 4'		0850	2																
10	BH05 @ 12'		1000	2																

Relinquished by: <u>Hunter Merlo</u> Date/Time: <u>8/12/21 1530</u>	Received by: <u>Tasman's Lock Box</u> Date/Time: <u>8/12/21 1530</u>	Turn Around Time (Check) ___ Same Day 72 hours ___ 24 hours <input checked="" type="checkbox"/> Standard ___ 48 hours Sample Integrity: Temperature Upon Receipt: <u>5.6</u> Samples Intact: <input checked="" type="checkbox"/> Yes No	Notes:
Relinquished by: <u>Tasman's Lock Box</u> Date/Time: <u>8/12/21 1800</u>	Received by: <u>Will Baker</u> Date/Time: <u>8/12/21 1800</u>		
Relinquished by:	Received by:		

Summit Scientific

S₂

2108197.2

4653 Table Mountain Drive ♦ Golden, Colorado 80403
303-277-9310

Page 2 of 2

Client: Noble / Tasman Geosciences Project Manager: Jake Whritenour, Invoice: Jacob Evans
Address: 6855 W. 119th Ave. E-Mail: jwhritenour@tasman-geo.com/ Noble Group
City/State/Zip: Broomfield / CO/ 80020
Phone: 303-487-1228 Project Name: Kastner 41-03
Sampler Name: Hunter Merlo Project Number:

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested							Special Instructions	
					HCl	HNO3	None	Other	Water	Soil	Air-Canister #	Other	\$260 BTEX	VOC - 915	TPH - 915	PAH - 915	SAR, EC, pH	Boron - HWS	pH		Metals - 915
1	BG01@4'	8/12/21	1100	1			X			X											pH, EC, SAR by saturated Paste
2																					
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					

Relinquished by: <i>[Signature]</i> Tasman's Lock Box	Date/Time: 8/12/21 1530	Received by: <i>[Signature]</i> Tasman's Lock Box	Date/Time: 8/12/21 1530
Relinquished by: <i>[Signature]</i> Tasman's Lock Box	Date/Time: 8/12/21 1800	Received by: <i>[Signature]</i>	Date/Time: 8/12/21 1800
Relinquished by:	Date/Time:	Received by:	Date/Time:

Turn Around Time (Check)

Same Day 72 hours
 24 hours Standard
 48 hours

Sample Integrity:

Temperature Upon Receipt: 12

Samples Intact: Yes No

Notes:

Sample Receipt Checklist

2108197

S2 Work Order _____

Client: Noble/Tasman Client Project ID: Kastner 41-03

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

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

Temp (°C)	5.6
-----------	-----

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"/>	on ice
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 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.

NG
Custodian Printed Name or Initials

Will Galin
Signature of Custodian

8/12/21
Date/Time



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

Project: Noble - Kastner 41-03

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
08/26/21 16:25

BH01@4'
2108197-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/12/21 09:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BEH0252	08/16/21	08/17/21	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **08/12/21 09:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		82.6 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		126 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		102 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/12/21 09:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BEH0254	08/16/21	08/17/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/12/21 09:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		82.5 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

Summit Scientific

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

Project: Noble - Kastner 41-03

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
08/26/21 16:25

BH01@4'
2108197-01 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **08/12/21 09:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEH0234	08/16/21	08/17/21	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **08/12/21 09:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		76.6 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		62.7 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **08/12/21 09:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.0919	0.0100	mg/L	1	BEH0273	08/17/21	08/20/21	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **08/12/21 09:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Summit Scientific

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

Project: Noble - Kastner 41-03

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
08/26/21 16:25

BH01@4'
2108197-01 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	2.86	0.223	mg/kg dry	1	BEH0212	08/13/21	08/18/21	EPA 6020B	
Barium	63.5	0.446	"	"	"	"	"	"	
Cadmium	ND	0.223	"	"	"	"	"	"	
Copper	5.07	0.446	"	"	"	"	"	"	
Lead	7.09	0.223	"	"	"	"	"	"	
Nickel	5.13	0.446	"	"	"	"	"	"	
Selenium	0.631	0.290	"	"	"	"	"	"	
Silver	0.0252	0.0223	"	"	"	"	"	"	
Zinc	24.4	0.446	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **08/12/21 09:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BEH0305	08/18/21	08/19/21	EPA 7196A	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **08/12/21 09:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	35.2	0.0558	mg/L dry	1	BEH0214	08/13/21	08/18/21	EPA 6020B	
Magnesium	8.84	0.0558	"	"	"	"	"	"	
Sodium	21.8	0.0558	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **08/12/21 09:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.851	0.00100	units	1	BEH0359	08/20/21	08/20/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **08/12/21 09:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Summit Scientific

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

Project: Noble - Kastner 41-03

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
08/26/21 16:25

BH01@4'
2108197-01 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

% Solids	89.6	%	1	BEH0318	08/19/21	08/19/21	Calculation
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Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **08/12/21 09:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.321	0.0100	mmhos/cm	1	BEH0236	08/16/21	08/16/21	EPA 120.1	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **08/12/21 09:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.09		pH Units	1	BEH0235	08/16/21	08/16/21	EPA 9045D	

Summit Scientific

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

Project: Noble - Kastner 41-03

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
08/26/21 16:25

BH01@12'
2108197-02 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/12/21 10:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BEH0252	08/16/21	08/17/21	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **08/12/21 10:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		71.2 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		126 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		106 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/12/21 10:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BEH0254	08/16/21	08/17/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/12/21 10:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		80.5 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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 - Kastner 41-03

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
08/26/21 16:25

BH01@12'
2108197-02 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **08/12/21 10:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEH0234	08/16/21	08/17/21	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **08/12/21 10:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		88.4 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		67.1 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **08/12/21 10:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.0429	0.0100	mg/L	1	BEH0273	08/17/21	08/20/21	EPA 6020B	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **08/12/21 10:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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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 - Kastner 41-03

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
08/26/21 16:25

BH01@12'
2108197-02 (Soil)

Summit Scientific

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	65.1	0.0557	mg/L dry	1	BEH0214	08/13/21	08/18/21	EPA 6020B	
Magnesium	27.6	0.0557	"	"	"	"	"	"	
Sodium	36.6	0.0557	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **08/12/21 10:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.958	0.00100	units	1	BEH0359	08/20/21	08/20/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **08/12/21 10:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	89.7		%	1	BEH0318	08/19/21	08/19/21	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **08/12/21 10:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.728	0.0100	mmhos/cm	1	BEH0236	08/16/21	08/16/21	EPA 120.1	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **08/12/21 10:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.15		pH Units	1	BEH0235	08/16/21	08/16/21	EPA 9045D	

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

Project: Noble - Kastner 41-03

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
08/26/21 16:25

BH02@4'
2108197-03 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/12/21 09:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BEH0252	08/16/21	08/17/21	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **08/12/21 09:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		68.0 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		125 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		105 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/12/21 09:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BEH0254	08/16/21	08/17/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/12/21 09:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		72.0 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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

Project: Noble - Kastner 41-03

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
08/26/21 16:25

BH02@4'
2108197-03 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **08/12/21 09:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEH0234	08/16/21	08/17/21	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **08/12/21 09:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		78.2 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		60.4 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **08/12/21 09:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.0544	0.0100	mg/L	1	BEH0273	08/17/21	08/20/21	EPA 6020B	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **08/12/21 09:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Kastner 41-03

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
08/26/21 16:25

BH02@4'
2108197-03 (Soil)

Summit Scientific

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	57.3	0.0573	mg/L dry	1	BEH0214	08/13/21	08/18/21	EPA 6020B	
Magnesium	14.7	0.0573	"	"	"	"	"	"	
Sodium	20.4	0.0573	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **08/12/21 09:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.622	0.00100	units	1	BEH0359	08/20/21	08/20/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **08/12/21 09:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	87.3		%	1	BEH0318	08/19/21	08/19/21	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **08/12/21 09:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.495	0.0100	mmhos/cm	1	BEH0236	08/16/21	08/16/21	EPA 120.1	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **08/12/21 09:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.04		pH Units	1	BEH0235	08/16/21	08/16/21	EPA 9045D	

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

Project: Noble - Kastner 41-03

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
08/26/21 16:25

BH02@12'
2108197-04 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/12/21 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BEH0252	08/16/21	08/17/21	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **08/12/21 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		90.3 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		124 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		104 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/12/21 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BEH0254	08/16/21	08/17/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/12/21 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		82.7 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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

Project: Noble - Kastner 41-03

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
08/26/21 16:25

BH02@12'
2108197-04 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **08/12/21 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEH0234	08/16/21	08/17/21	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **08/12/21 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		90.6 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		67.6 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **08/12/21 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.0819	0.0100	mg/L	1	BEH0273	08/17/21	08/20/21	EPA 6020B	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **08/12/21 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Kastner 41-03

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
08/26/21 16:25

BH02@12'
2108197-04 (Soil)

Summit Scientific

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	89.8	0.0563	mg/L dry	1	BEH0214	08/13/21	08/18/21	EPA 6020B	
Magnesium	40.7	0.0563	"	"	"	"	"	"	
Sodium	34.0	0.0563	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **08/12/21 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.747	0.00100	units	1	BEH0359	08/20/21	08/20/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **08/12/21 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	88.7		%	1	BEH0318	08/19/21	08/19/21	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **08/12/21 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.968	0.0100	mmhos/cm	1	BEH0236	08/16/21	08/16/21	EPA 120.1	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **08/12/21 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.98		pH Units	1	BEH0235	08/16/21	08/16/21	EPA 9045D	

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

Project: Noble - Kastner 41-03

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
08/26/21 16:25

BH03@4'
2108197-05 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/12/21 09:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BEH0252	08/16/21	08/17/21	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **08/12/21 09:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		80.7 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		129 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		107 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/12/21 09:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BEH0254	08/16/21	08/17/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/12/21 09:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		73.6 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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

Project: Noble - Kastner 41-03

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
08/26/21 16:25

BH03@4'
2108197-05 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **08/12/21 09:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEH0234	08/16/21	08/18/21	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **08/12/21 09:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		84.2 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		66.3 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **08/12/21 09:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.0605	0.0100	mg/L	1	BEH0273	08/17/21	08/20/21	EPA 6020B	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **08/12/21 09:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Kastner 41-03

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
08/26/21 16:25

BH03@4'
2108197-05 (Soil)

Summit Scientific

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	118	0.0590	mg/L dry	1	BEH0214	08/13/21	08/18/21	EPA 6020B	
Magnesium	28.2	0.0590	"	"	"	"	"	"	
Sodium	26.4	0.0590	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **08/12/21 09:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.567	0.00100	units	1	BEH0359	08/20/21	08/20/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **08/12/21 09:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	84.7		%	1	BEH0318	08/19/21	08/19/21	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **08/12/21 09:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.930	0.0100	mmhos/cm	1	BEH0236	08/16/21	08/16/21	EPA 120.1	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **08/12/21 09:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.04		pH Units	1	BEH0235	08/16/21	08/16/21	EPA 9045D	

Summit Scientific

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

Project: Noble - Kastner 41-03

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
08/26/21 16:25

BH03@12'
2108197-06 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/12/21 10:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BEH0252	08/16/21	08/17/21	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **08/12/21 10:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		60.6 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		116 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		99.9 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/12/21 10:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BEH0254	08/16/21	08/17/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/12/21 10:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		76.4 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

Summit Scientific

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

Project: Noble - Kastner 41-03

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
08/26/21 16:25

BH03@12'
2108197-06 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **08/12/21 10:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEH0234	08/16/21	08/18/21	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **08/12/21 10:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		84.2 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		66.1 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **08/12/21 10:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.0452	0.0100	mg/L	1	BEH0273	08/17/21	08/20/21	EPA 6020B	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **08/12/21 10:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Kastner 41-03

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
08/26/21 16:25

BH03@12'
2108197-06 (Soil)

Summit Scientific

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	57.2	0.0553	mg/L dry	1	BEH0214	08/13/21	08/18/21	EPA 6020B	
Magnesium	28.9	0.0553	"	"	"	"	"	"	
Sodium	21.0	0.0553	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **08/12/21 10:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.565	0.00100	units	1	BEH0359	08/20/21	08/20/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **08/12/21 10:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	90.4		%	1	BEH0318	08/19/21	08/19/21	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **08/12/21 10:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.645	0.0100	mmhos/cm	1	BEH0236	08/16/21	08/16/21	EPA 120.1	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **08/12/21 10:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.02		pH Units	1	BEH0235	08/16/21	08/16/21	EPA 9045D	

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

Project: Noble - Kastner 41-03

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
08/26/21 16:25

BH04@4'
2108197-07 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/12/21 08:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BEH0252	08/16/21	08/17/21	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **08/12/21 08:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		70.1 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		127 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		107 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/12/21 08:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BEH0254	08/16/21	08/17/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/12/21 08:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		82.6 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

Summit Scientific

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

Project: Noble - Kastner 41-03

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
08/26/21 16:25

BH04@4'
2108197-07 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **08/12/21 08:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEH0234	08/16/21	08/18/21	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **08/12/21 08:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		74.8 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		53.2 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **08/12/21 08:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.0668	0.0100	mg/L	1	BEH0273	08/17/21	08/20/21	EPA 6020B	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **08/12/21 08:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Kastner 41-03

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
08/26/21 16:25

BH04@4'
2108197-07 (Soil)

Summit Scientific

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	57.2	0.0559	mg/L dry	1	BEH0214	08/13/21	08/18/21	EPA 6020B	
Magnesium	14.0	0.0559	"	"	"	"	"	"	
Sodium	12.7	0.0559	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **08/12/21 08:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.390	0.00100	units	1	BEH0359	08/20/21	08/20/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **08/12/21 08:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	89.4		%	1	BEH0318	08/19/21	08/19/21	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **08/12/21 08:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.472	0.0100	mmhos/cm	1	BEH0236	08/16/21	08/16/21	EPA 120.1	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **08/12/21 08:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.15		pH Units	1	BEH0235	08/16/21	08/16/21	EPA 9045D	

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

Project: Noble - Kastner 41-03

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
08/26/21 16:25

BH04@12'
2108197-08 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/12/21 09:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BEH0252	08/16/21	08/17/21	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	0.0056	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **08/12/21 09:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		74.1 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		131 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		108 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/12/21 09:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BEH0254	08/16/21	08/17/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/12/21 09:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		75.5 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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

Project: Noble - Kastner 41-03

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
08/26/21 16:25

BH04@12'
2108197-08 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **08/12/21 09:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEH0234	08/16/21	08/18/21	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **08/12/21 09:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		94.3 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		73.2 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **08/12/21 09:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.0881	0.0100	mg/L	1	BEH0273	08/17/21	08/20/21	EPA 6020B	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **08/12/21 09:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Kastner 41-03

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
08/26/21 16:25

BH04@12'
2108197-08 (Soil)

Summit Scientific

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	43.0	0.0601	mg/L dry	1	BEH0214	08/13/21	08/18/21	EPA 6020B	
Magnesium	21.2	0.0601	"	"	"	"	"	"	
Sodium	20.8	0.0601	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **08/12/21 09:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.649	0.00100	units	1	BEH0359	08/20/21	08/20/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **08/12/21 09:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	83.2		%	1	BEH0318	08/19/21	08/19/21	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **08/12/21 09:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.477	0.0100	mmhos/cm	1	BEH0236	08/16/21	08/16/21	EPA 120.1	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **08/12/21 09:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.09		pH Units	1	BEH0235	08/16/21	08/16/21	EPA 9045D	

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

Project: Noble - Kastner 41-03

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
08/26/21 16:25

BH05@4'
2108197-09 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/12/21 08:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BEH0252	08/16/21	08/17/21	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **08/12/21 08:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		77.9 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		129 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		109 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/12/21 08:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BEH0254	08/16/21	08/17/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/12/21 08:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		73.8 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

Summit Scientific

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

Project: Noble - Kastner 41-03

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
08/26/21 16:25

BH05@4'
2108197-09 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **08/12/21 08:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEH0234	08/16/21	08/18/21	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **08/12/21 08:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		82.0 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		60.6 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **08/12/21 08:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.128	0.0100	mg/L	1	BEH0273	08/17/21	08/20/21	EPA 6020B	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **08/12/21 08:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Kastner 41-03

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
08/26/21 16:25

BH05@4'
2108197-09 (Soil)

Summit Scientific

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	98.6	0.0563	mg/L dry	1	BEH0214	08/13/21	08/18/21	EPA 6020B	
Magnesium	22.9	0.0563	"	"	"	"	"	"	
Sodium	9.61	0.0563	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **08/12/21 08:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.227	0.00100	units	1	BEH0359	08/20/21	08/20/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **08/12/21 08:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	88.8		%	1	BEH0318	08/19/21	08/19/21	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **08/12/21 08:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.826	0.0100	mmhos/cm	1	BEH0236	08/16/21	08/16/21	EPA 120.1	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **08/12/21 08:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.94		pH Units	1	BEH0235	08/16/21	08/16/21	EPA 9045D	

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Project: Noble - Kastner 41-03

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
08/26/21 16:25

BH05@12'
2108197-10 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/12/21 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BEH0252	08/16/21	08/17/21	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **08/12/21 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		71.4 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		125 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		102 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/12/21 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BEH0254	08/16/21	08/17/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/12/21 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		74.4 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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Project: Noble - Kastner 41-03

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
08/26/21 16:25

BH05@12'
2108197-10 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **08/12/21 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEH0234	08/16/21	08/18/21	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **08/12/21 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		87.0 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		68.5 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **08/12/21 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.0421	0.0100	mg/L	1	BEH0273	08/17/21	08/20/21	EPA 6020B	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **08/12/21 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Project: Noble - Kastner 41-03

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
08/26/21 16:25

BH05@12'
2108197-10 (Soil)

Summit Scientific

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	45.3	0.0553	mg/L dry	1	BEH0214	08/13/21	08/18/21	EPA 6020B	
Magnesium	11.7	0.0553	"	"	"	"	"	"	
Sodium	10.6	0.0553	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **08/12/21 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.363	0.00100	units	1	BEH0359	08/20/21	08/20/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **08/12/21 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	90.4		%	1	BEH0318	08/19/21	08/19/21	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **08/12/21 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.342	0.0100	mmhos/cm	1	BEH0236	08/16/21	08/16/21	EPA 120.1	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **08/12/21 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.31		pH Units	1	BEH0235	08/16/21	08/16/21	EPA 9045D	

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Broomfield CO, 80020

Project: Noble - Kastner 41-03

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
08/26/21 16:25

BG01@4'
2108197-11 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Date Sampled: **08/12/21 11:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	2.86	0.207	mg/kg dry	1	BEH0212	08/13/21	08/18/21	EPA 6020B	
Barium	64.4	0.414	"	"	"	"	"	"	
Cadmium	ND	0.207	"	"	"	"	"	"	
Copper	4.74	0.414	"	"	"	"	"	"	
Lead	5.08	0.207	"	"	"	"	"	"	
Nickel	5.09	0.414	"	"	"	"	"	"	
Selenium	0.682	0.269	"	"	"	"	"	"	
Silver	0.0252	0.0207	"	"	"	"	"	"	
Zinc	23.0	0.414	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **08/12/21 11:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BEH0305	08/18/21	08/19/21	EPA 7196A	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **08/12/21 11:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	96.5		%	1	BEH0318	08/19/21	08/19/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **08/12/21 11:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
pH	7.50		pH Units	1	BEH0301	08/18/21	08/20/21	EPA 9045D	

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Project: Noble - Kastner 41-03

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
08/26/21 16:25

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

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

Batch BEH0252 - EPA 5030 Soil MS

Blank (BEH0252-BLK1)

Prepared: 08/16/21 Analyzed: 08/17/21

Benzene	ND	0.0020	mg/kg							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
1,2,4-Trimethylbenzene	ND	0.0050	"							
1,3,5-Trimethylbenzene	ND	0.0050	"							
Naphthalene	ND	0.0038	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0457		"	0.0400		114	23-173			
<i>Surrogate: Toluene-d8</i>	0.0363		"	0.0400		90.8	20-170			
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0343		"	0.0400		85.8	21-167			

LCS (BEH0252-BS1)

Prepared: 08/16/21 Analyzed: 08/17/21

Benzene	0.0934	0.0020	mg/kg	0.100		93.4	70-130			
Toluene	0.0921	0.0050	"	0.100		92.1	70-130			
Ethylbenzene	0.103	0.0050	"	0.100		103	70-130			
m,p-Xylene	0.204	0.010	"	0.200		102	70-130			
o-Xylene	0.0998	0.0050	"	0.100		99.8	70-130			
1,2,4-Trimethylbenzene	0.128	0.0050	"	0.100		128	70-130			
1,3,5-Trimethylbenzene	0.129	0.0050	"	0.100		129	70-130			
Naphthalene	0.0987	0.0038	"	0.100		98.7	70-130			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0479		"	0.0400		120	23-173			
<i>Surrogate: Toluene-d8</i>	0.0366		"	0.0400		91.6	20-170			
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0346		"	0.0400		86.4	21-167			

Matrix Spike (BEH0252-MS1)

Source: 2108161-01

Prepared: 08/16/21 Analyzed: 08/17/21

Benzene	0.116	0.0020	mg/kg	0.100	ND	116	70-130			
Toluene	0.112	0.0050	"	0.100	ND	112	70-130			
Ethylbenzene	0.0777	0.0050	"	0.100	ND	77.7	70-130			
m,p-Xylene	0.150	0.010	"	0.200	ND	75.2	70-130			
o-Xylene	0.0753	0.0050	"	0.100	ND	75.3	70-130			
1,2,4-Trimethylbenzene	0.0794	0.0050	"	0.100	ND	79.4	70-130			
1,3,5-Trimethylbenzene	0.0859	0.0050	"	0.100	ND	85.9	70-130			
Naphthalene	0.0935	0.0038	"	0.100	ND	93.5	70-130			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0463		"	0.0400		116	23-173			
<i>Surrogate: Toluene-d8</i>	0.0368		"	0.0400		92.0	20-170			
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0342		"	0.0400		85.5	21-167			

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Broomfield CO, 80020

Project: Noble - Kastner 41-03

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
08/26/21 16:25

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

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

Batch BEH0252 - EPA 5030 Soil MS

Matrix Spike Dup (BEH0252-MSD1)	Source: 2108161-01			Prepared: 08/16/21 Analyzed: 08/17/21						
Benzene	0.119	0.0020	mg/kg	0.100	ND	119	70-130	3.01	30	
Toluene	0.118	0.0050	"	0.100	ND	118	70-130	4.70	30	
Ethylbenzene	0.0902	0.0050	"	0.100	ND	90.2	70-130	14.9	30	
m,p-Xylene	0.176	0.010	"	0.200	ND	88.1	70-130	15.8	30	
o-Xylene	0.0857	0.0050	"	0.100	ND	85.7	70-130	13.0	30	
1,2,4-Trimethylbenzene	0.106	0.0050	"	0.100	ND	106	70-130	28.3	30	
1,3,5-Trimethylbenzene	0.111	0.0050	"	0.100	ND	111	70-130	25.2	30	
Naphthalene	0.102	0.0038	"	0.100	ND	102	70-130	8.60	30	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0484</i>		<i>"</i>	<i>0.0400</i>		<i>121</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0370</i>		<i>"</i>	<i>0.0400</i>		<i>92.6</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0344</i>		<i>"</i>	<i>0.0400</i>		<i>86.0</i>	<i>21-167</i>			

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Project: Noble - Kastner 41-03

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
08/26/21 16:25

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

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

Batch BEH0254 - EPA 3550A

Blank (BEH0254-BLK1)

Prepared: 08/16/21 Analyzed: 08/17/21

C10-C28 (DRO)	ND	50	mg/kg							
C28-C36 (ORO)	ND	50	"							

LCS (BEH0254-BS1)

Prepared: 08/16/21 Analyzed: 08/17/21

C10-C28 (DRO)	538	50	mg/kg	500	108	70-130				
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Matrix Spike (BEH0254-MS1)

Source: 2108161-01

Prepared: 08/16/21 Analyzed: 08/17/21

C10-C28 (DRO)	508	50	mg/kg	500	13.9	98.8	70-130			
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Matrix Spike Dup (BEH0254-MSD1)

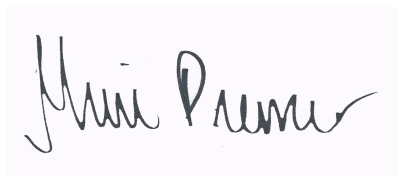
Source: 2108161-01

Prepared: 08/16/21 Analyzed: 08/17/21

C10-C28 (DRO)	482	50	mg/kg	500	13.9	93.7	70-130	5.22	20	
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Project: Noble - Kastner 41-03

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
08/26/21 16:25

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

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

Batch BEH0234 - EPA 5030 Soil MS

Blank (BEH0234-BLK1)

Prepared: 08/16/21 Analyzed: 08/17/21

Acenaphthene	ND	0.00500	mg/kg							
Anthracene	ND	0.00500	"							
Benzo (a) anthracene	ND	0.00500	"							
Benzo (a) pyrene	ND	0.00500	"							
Benzo (b) fluoranthene	ND	0.00500	"							
Benzo (k) fluoranthene	ND	0.00500	"							
Chrysene	ND	0.00500	"							
Dibenz (a,h) anthracene	ND	0.00500	"							
Fluoranthene	ND	0.00500	"							
Fluorene	ND	0.00500	"							
Indeno (1,2,3-cd) pyrene	ND	0.00500	"							
Pyrene	ND	0.00500	"							
1-Methylnaphthalene	ND	0.00500	"							
2-Methylnaphthalene	ND	0.00500	"							
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0296</i>		"	<i>0.0333</i>		<i>88.8</i>	<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0246</i>		"	<i>0.0333</i>		<i>73.9</i>	<i>40-150</i>			

LCS (BEH0234-BS1)

Prepared: 08/16/21 Analyzed: 08/17/21

Acenaphthene	0.0273	0.00500	mg/kg	0.0333		81.9	31-137			
Anthracene	0.0243	0.00500	"	0.0333		72.8	30-120			
Benzo (a) anthracene	0.0253	0.00500	"	0.0333		75.8	30-120			
Benzo (a) pyrene	0.0262	0.00500	"	0.0333		78.5	30-120			
Benzo (b) fluoranthene	0.0293	0.00500	"	0.0333		88.0	30-120			
Benzo (k) fluoranthene	0.0298	0.00500	"	0.0333		89.5	30-120			
Chrysene	0.0247	0.00500	"	0.0333		74.1	30-120			
Dibenz (a,h) anthracene	0.0279	0.00500	"	0.0333		83.8	30-120			
Fluoranthene	0.0233	0.00500	"	0.0333		69.9	30-120			
Fluorene	0.0281	0.00500	"	0.0333		84.3	30-120			
Indeno (1,2,3-cd) pyrene	0.0281	0.00500	"	0.0333		84.3	30-120			
Pyrene	0.0229	0.00500	"	0.0333		68.6	35-142			
1-Methylnaphthalene	0.0264	0.00500	"	0.0333		79.3	35-142			
2-Methylnaphthalene	0.0228	0.00500	"	0.0333		68.5	35-142			
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0341</i>		"	<i>0.0333</i>		<i>102</i>	<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0268</i>		"	<i>0.0333</i>		<i>80.5</i>	<i>40-150</i>			

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

Project: Noble - Kastner 41-03

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
08/26/21 16:25

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

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

Batch BEH0234 - EPA 5030 Soil MS

Matrix Spike (BEH0234-MS1)	Source: 2108161-01			Prepared: 08/16/21 Analyzed: 08/17/21					
Acenaphthene	0.0198	0.00500	mg/kg	0.0333	ND	59.4	31-137		
Anthracene	0.0186	0.00500	"	0.0333	ND	55.9	30-120		
Benzo (a) anthracene	0.0199	0.00500	"	0.0333	ND	59.8	30-120		
Benzo (a) pyrene	0.0201	0.00500	"	0.0333	ND	60.3	30-120		
Benzo (b) fluoranthene	0.0223	0.00500	"	0.0333	ND	67.0	30-120		
Benzo (k) fluoranthene	0.0229	0.00500	"	0.0333	ND	68.8	30-120		
Chrysene	0.0195	0.00500	"	0.0333	ND	58.5	30-120		
Dibenz (a,h) anthracene	0.0203	0.00500	"	0.0333	ND	61.0	30-120		
Fluoranthene	0.0181	0.00500	"	0.0333	ND	54.4	30-120		
Fluorene	0.0211	0.00500	"	0.0333	ND	63.3	30-120		
Indeno (1,2,3-cd) pyrene	0.0208	0.00500	"	0.0333	ND	62.5	30-120		
Pyrene	0.0185	0.00500	"	0.0333	ND	55.5	35-142		
1-Methylnaphthalene	0.0184	0.00500	"	0.0333	ND	55.1	15-130		
2-Methylnaphthalene	0.0160	0.00500	"	0.0333	ND	48.0	15-130		
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0250</i>		<i>"</i>	<i>0.0333</i>		<i>74.9</i>	<i>40-150</i>		
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0204</i>		<i>"</i>	<i>0.0333</i>		<i>61.2</i>	<i>40-150</i>		

Matrix Spike Dup (BEH0234-MSD1)	Source: 2108161-01			Prepared: 08/16/21 Analyzed: 08/17/21					
Acenaphthene	0.0204	0.00500	mg/kg	0.0333	ND	61.2	31-137	2.96	30
Anthracene	0.0196	0.00500	"	0.0333	ND	58.7	30-120	4.82	30
Benzo (a) anthracene	0.0206	0.00500	"	0.0333	ND	61.8	30-120	3.17	30
Benzo (a) pyrene	0.0209	0.00500	"	0.0333	ND	62.6	30-120	3.75	30
Benzo (b) fluoranthene	0.0233	0.00500	"	0.0333	ND	69.9	30-120	4.31	30
Benzo (k) fluoranthene	0.0239	0.00500	"	0.0333	ND	71.6	30-120	4.03	30
Chrysene	0.0201	0.00500	"	0.0333	ND	60.4	30-120	3.09	30
Dibenz (a,h) anthracene	0.0217	0.00500	"	0.0333	ND	65.2	30-120	6.71	30
Fluoranthene	0.0196	0.00500	"	0.0333	ND	58.8	30-120	7.85	30
Fluorene	0.0216	0.00500	"	0.0333	ND	64.8	30-120	2.38	30
Indeno (1,2,3-cd) pyrene	0.0220	0.00500	"	0.0333	ND	65.9	30-120	5.40	30
Pyrene	0.0188	0.00500	"	0.0333	ND	56.3	35-142	1.60	30
1-Methylnaphthalene	0.0200	0.00500	"	0.0333	ND	60.0	15-130	8.52	50
2-Methylnaphthalene	0.0173	0.00500	"	0.0333	ND	51.8	15-130	7.63	50
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0265</i>		<i>"</i>	<i>0.0333</i>		<i>79.4</i>	<i>40-150</i>		
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0219</i>		<i>"</i>	<i>0.0333</i>		<i>65.7</i>	<i>40-150</i>		

Summit Scientific

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

Project: Noble - Kastner 41-03

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
08/26/21 16:25

Total Metals by EPA 6020B Hot Water Soluble Extraction - Quality Control
Summit Scientific

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

Batch BEH0273 - EPA 3050B

Blank (BEH0273-BLK1)

Prepared: 08/17/21 Analyzed: 08/20/21

Boron ND 0.0100 mg/L

LCS (BEH0273-BS1)

Prepared: 08/17/21 Analyzed: 08/20/21

Boron 4.82 0.0100 mg/L 5.00 96.4 80-120

Duplicate (BEH0273-DUP1)

Source: 2108197-01

Prepared: 08/17/21 Analyzed: 08/20/21

Boron 0.0931 0.0100 mg/L 0.0919 1.34 20

Matrix Spike (BEH0273-MS1)

Source: 2108197-01

Prepared: 08/17/21 Analyzed: 08/20/21

Boron 4.91 0.0100 mg/L 5.00 0.0919 96.4 75-125

Matrix Spike Dup (BEH0273-MSD1)

Source: 2108197-01

Prepared: 08/17/21 Analyzed: 08/20/21

Boron 4.78 0.0100 mg/L 5.00 0.0919 93.7 75-125 2.75 25

Summit Scientific

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

Project: Noble - Kastner 41-03

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
08/26/21 16:25

Total Metals by EPA 6020B - Quality Control
Summit Scientific

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

Batch BEH0212 - EPA 3050B

Blank (BEH0212-BLK1)

Prepared: 08/13/21 Analyzed: 08/18/21

Arsenic	ND	0.200	mg/kg wet						
Barium	ND	0.400	"						
Cadmium	ND	0.200	"						
Copper	ND	0.400	"						
Lead	ND	0.200	"						
Nickel	ND	0.400	"						
Selenium	ND	0.260	"						
Silver	ND	0.0200	"						
Zinc	ND	0.400	"						

LCS (BEH0212-BS1)

Prepared: 08/13/21 Analyzed: 08/18/21

Arsenic	47.7	0.200	mg/kg wet	40.0		119	80-120
Barium	42.2	0.400	"	40.0		105	80-120
Cadmium	2.24	0.200	"	2.00		112	80-120
Copper	43.9	0.400	"	40.0		110	80-120
Lead	19.2	0.200	"	20.0		95.9	80-120
Nickel	43.2	0.400	"	40.0		108	80-120
Selenium	4.03	0.260	"	4.00		101	80-120
Silver	1.98	0.0200	"	2.00		98.8	80-120
Zinc	48.0	0.400	"	40.0		120	80-120

Duplicate (BEH0212-DUP1)

Source: 2107372-22

Prepared: 08/13/21 Analyzed: 08/18/21

Arsenic	7.43	0.241	mg/kg dry		7.89		5.97	20
Barium	109	0.481	"		98.8		9.42	20
Cadmium	0.191	0.241	"		0.161		16.8	20
Copper	11.7	0.481	"		10.6		9.56	20
Lead	10.4	0.241	"		10.3		0.784	20
Nickel	12.6	0.481	"		11.4		10.3	20
Selenium	0.969	0.313	"		1.01		4.10	20
Silver	0.0499	0.0241	"		0.0470		6.01	20
Zinc	54.2	0.481	"		50.4		7.29	20

Summit Scientific

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

Project: Noble - Kastner 41-03

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
08/26/21 16:25

Total Metals by EPA 6020B - Quality Control
Summit Scientific

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

Batch BEH0212 - EPA 3050B

Matrix Spike (BEH0212-MS1)

Source: 2107372-22

Prepared: 08/13/21 Analyzed: 08/18/21

Arsenic	67.6	0.241	mg/kg dry	48.1	7.89	124	75-125			
Barium	137	0.481	"	48.1	98.8	79.5	75-125			
Cadmium	2.85	0.241	"	2.41	0.161	112	75-125			
Copper	64.1	0.481	"	48.1	10.6	111	75-125			
Lead	32.0	0.241	"	24.1	10.3	90.4	75-125			
Nickel	67.6	0.481	"	48.1	11.4	117	75-125			
Selenium	4.81	0.313	"	4.81	1.01	79.1	75-125			
Silver	2.33	0.0241	"	2.41	0.0470	95.1	75-125			
Zinc	96.4	0.481	"	48.1	50.4	95.7	75-125			

Matrix Spike Dup (BEH0212-MSD1)

Source: 2107372-22

Prepared: 08/13/21 Analyzed: 08/18/21

Arsenic	62.4	0.241	mg/kg dry	48.1	7.89	113	75-125	7.88	25
Barium	140	0.481	"	48.1	98.8	84.6	75-125	1.78	25
Cadmium	2.58	0.241	"	2.41	0.161	101	75-125	9.94	25
Copper	56.5	0.481	"	48.1	10.6	95.3	75-125	12.7	25
Lead	36.7	0.241	"	24.1	10.3	110	75-125	13.6	25
Nickel	58.8	0.481	"	48.1	11.4	98.5	75-125	13.9	25
Selenium	4.64	0.313	"	4.81	1.01	75.5	75-125	3.64	25
Silver	2.12	0.0241	"	2.41	0.0470	86.3	75-125	9.51	25
Zinc	96.6	0.481	"	48.1	50.4	96.1	75-125	0.197	25

Summit Scientific

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

Project: Noble - Kastner 41-03

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
08/26/21 16:25

Hexavalent Chromium by EPA Method 7196 - Quality Control
Summit Scientific

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

Batch BEH0305 - 3060A Mod

Blank (BEH0305-BLK1)

Prepared: 08/18/21 Analyzed: 08/19/21

Chromium, Hexavalent ND 0.30 mg/kg wet

LCS (BEH0305-BS1)

Prepared: 08/18/21 Analyzed: 08/19/21

Chromium, Hexavalent 23.4 0.30 mg/kg wet 25.0 93.8 80-120

Duplicate (BEH0305-DUP1)

Source: 2108197-01

Prepared: 08/18/21 Analyzed: 08/19/21

Chromium, Hexavalent ND 0.30 mg/kg dry ND 20

Matrix Spike (BEH0305-MS1)

Source: 2108197-01

Prepared: 08/18/21 Analyzed: 08/19/21

Chromium, Hexavalent 26.3 0.30 mg/kg dry 27.9 ND 94.2 75-125

Matrix Spike Dup (BEH0305-MSD1)

Source: 2108197-01

Prepared: 08/18/21 Analyzed: 08/19/21

Chromium, Hexavalent 26.6 0.30 mg/kg dry 27.9 ND 95.2 75-125 1.06 20

Summit Scientific

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Tasman Geosciences
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Broomfield CO, 80020

Project: Noble - Kastner 41-03

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
08/26/21 16:25

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction - Quality Control

Summit Scientific

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

Batch BEH0214 - General Preparation

Blank (BEH0214-BLK1)

Prepared: 08/13/21 Analyzed: 08/18/21

Calcium	ND	0.0500	mg/L wet							
Magnesium	ND	0.0500	"							
Sodium	ND	0.0500	"							

LCS (BEH0214-BS1)

Prepared: 08/13/21 Analyzed: 08/18/21

Calcium	5.82	0.0500	mg/L wet	5.00		116	70-130			
Magnesium	5.01	0.0500	"	5.00		100	70-130			
Sodium	4.97	0.0500	"	5.00		99.5	70-130			

Summit Scientific

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Project: Noble - Kastner 41-03

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
08/26/21 16:25

Physical Parameters by APHA/ASTM/EPA Methods - Quality Control

Summit Scientific

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

Batch BEH0318 - General Preparation

Duplicate (BEH0318-DUP1)		Source: 2108195-03		Prepared & Analyzed: 08/19/21	
% Solids	97.1	%		97.0	0.105 20

Summit Scientific

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

Project: Noble - Kastner 41-03

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
08/26/21 16:25

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction - Quality Control

Summit Scientific

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

Batch BEH0236 - General Preparation

Blank (BEH0236-BLK1)

Prepared & Analyzed: 08/16/21

Specific Conductance (EC) ND 0.0100 mmhos/cm

LCS (BEH0236-BS1)

Prepared & Analyzed: 08/16/21

Specific Conductance (EC) 0.144 0.0100 mmhos/cm 0.150 96.3 90-110

Duplicate (BEH0236-DUP1)

Source: 2108195-03

Prepared & Analyzed: 08/16/21

Specific Conductance (EC) 0.603 0.0100 mmhos/cm 0.603 0.0663 20

Summit Scientific

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

Project: Noble - Kastner 41-03

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
08/26/21 16:25

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction - Quality Control

Summit Scientific

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

Batch BEH0235 - General Preparation

LCS (BEH0235-BS1)		Prepared & Analyzed: 08/16/21								
pH	9.20		pH Units	9.21		99.9	95-105			
Duplicate (BEH0235-DUP1)		Source: 2108195-03		Prepared & Analyzed: 08/16/21						
pH	8.13		pH Units		8.12			0.123	20	

Batch BEH0301 - General Preparation

LCS (BEH0301-BS1)		Prepared: 08/18/21 Analyzed: 08/20/21								
pH	9.18		pH Units	9.21		99.7	95-105			
Duplicate (BEH0301-DUP1)		Source: 2108032-01		Prepared: 08/18/21 Analyzed: 08/20/21						
pH	7.88		pH Units		7.86			0.254	20	

Summit Scientific

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

Project: Noble - Kastner 41-03

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
08/26/21 16:25

Notes and Definitions

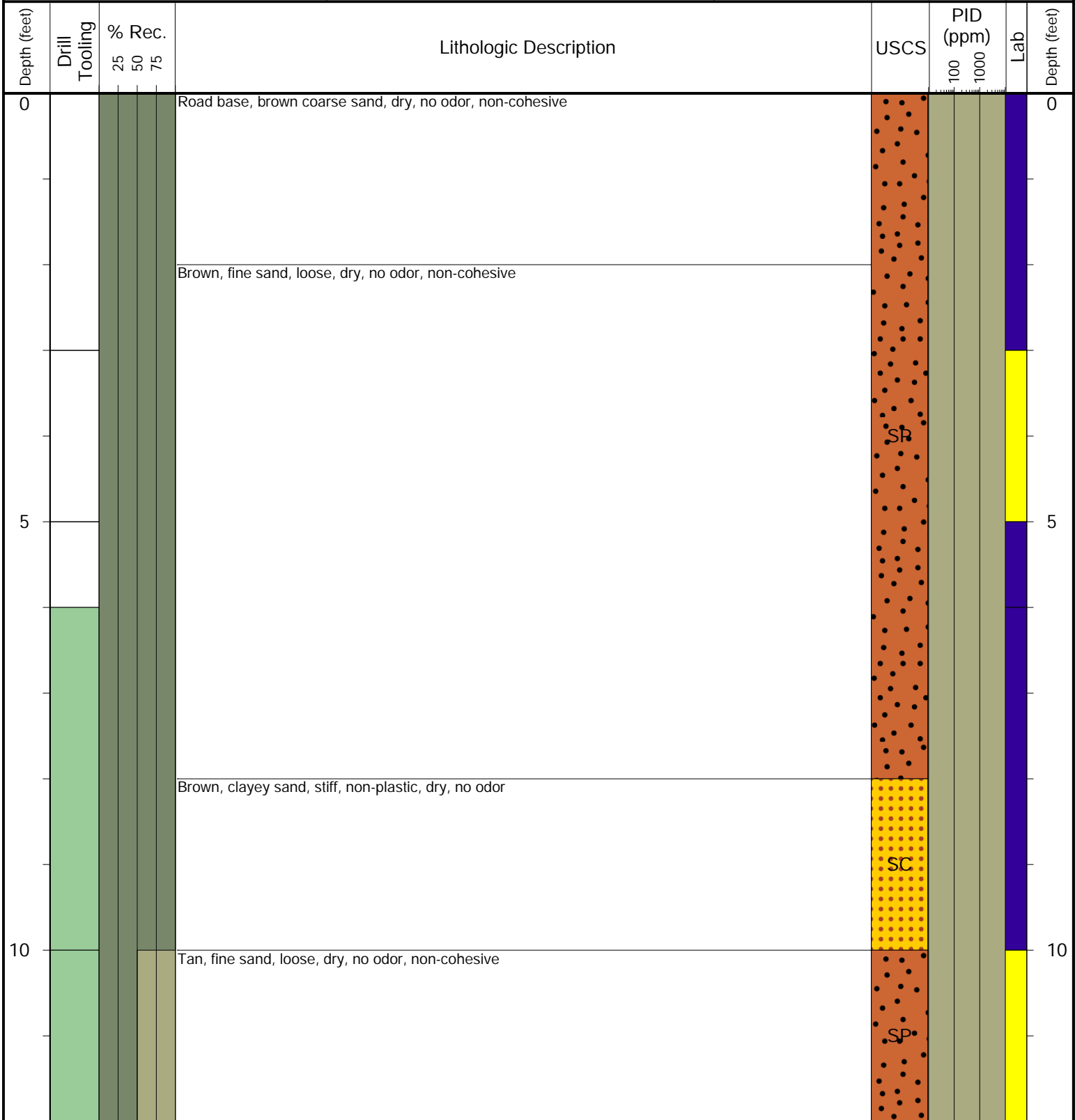
DET Analyte DETECTED
ND Analyte NOT DETECTED at or above the reporting limit
NR Not Reported
dry Sample results reported on a dry weight basis
RPD Relative Percent Difference

ATTACHMENT B
BORING LOGS



6899 Pecos Street, Unit C
Denver, Colorado 80221

CLIENT: Tasman	Kastner 41-03
LOGGED BY: Hunter Merlo	
PROJECT MANAGER: Jake Whritenour	BORING ID: BH01
DRILLING CONTRACTOR: Tasman	
DRILLING EQUIPMENT: Hand Auger/ Power Probe	LOCATION: Weld County, Colorado
DRILL BIT SIZE (INCHES): 2.375"	NORTHING (CO STATE PLANE):
DATE STARTED - COMPLETED: 44420	EASTING (CO STATE PLANE):
TOTAL WELL DEPTH (FT. BGS): 12	GROUND ELEVATION (FT. AMSL): 5280
DEPTH WATER ENCOUNTERED (FT. BGS): >12'	ABANDONMENT METHOD: Bentonite



Drilling / Sample Method:

- Macro-Core
- Expendable Well Tip
- Perforated Injection Tool
- HydroPunch Groundwater Sampler

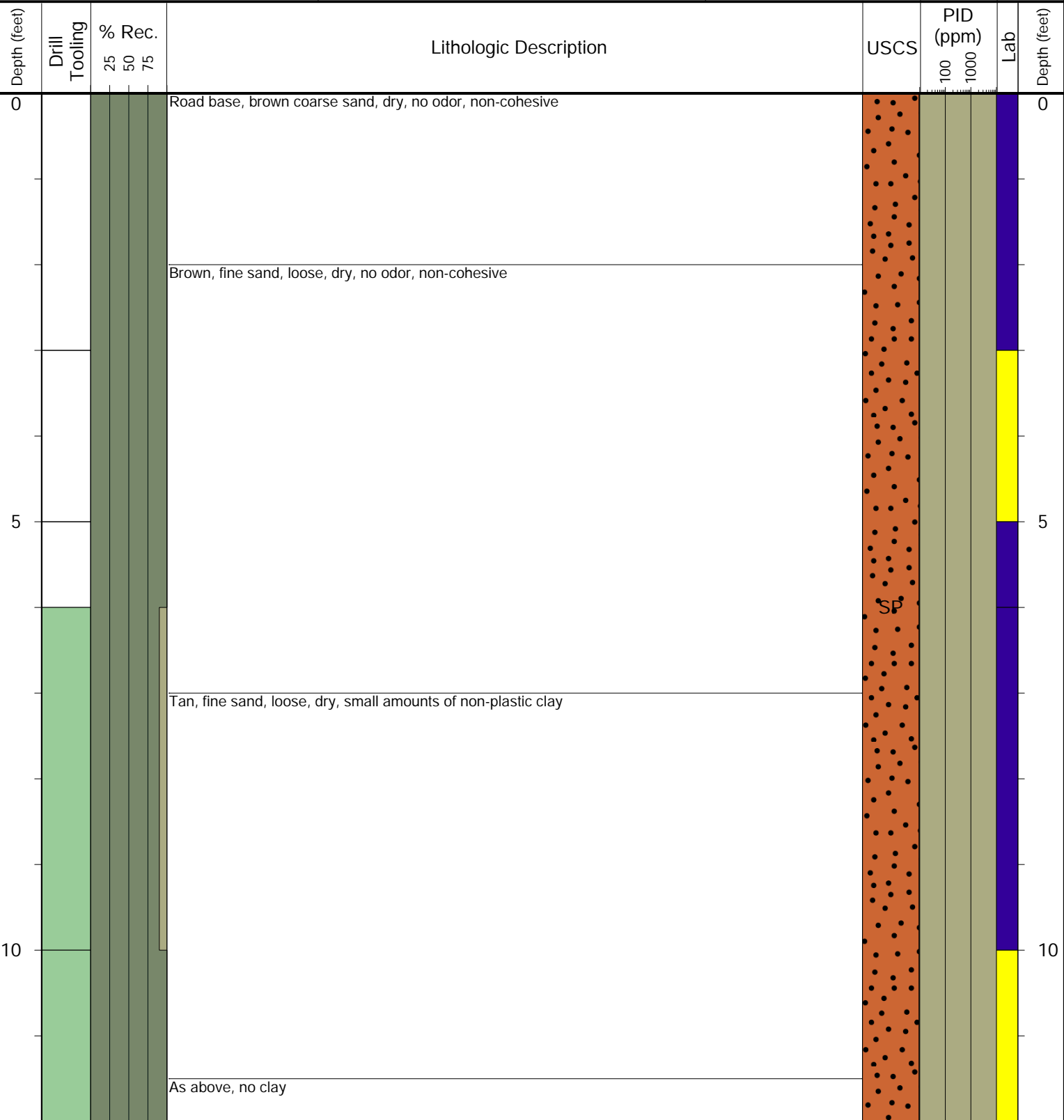
Laboratory Sample Types:

- Grab Sample
- Analyzed Laboratory Sample



6899 Pecos Street, Unit C
Denver, Colorado 80221

CLIENT: Tasman	Kastner 41-03
LOGGED BY: Hunter Merlo	
PROJECT MANAGER: Jake Whritenour	BORING ID: BH02
DRILLING CONTRACTOR: Tasman	
DRILLING EQUIPMENT: Hand Auger/ Power Probe	LOCATION: Weld County, Colorado
DRILL BIT SIZE (INCHES): 2.375"	NORTHING (CO STATE PLANE):
DATE STARTED - COMPLETED: 44420	EASTING (CO STATE PLANE):
TOTAL WELL DEPTH (FT. BGS): 12	GROUND ELEVATION (FT. AMSL): 5280
DEPTH WATER ENCOUNTERED (FT. BGS): >12'	ABANDONMENT METHOD: Bentonite



Drilling / Sample Method:

- Macro-Core
- Expendable Well Tip
- Perforated Injection Tool
- HydroPunch Groundwater Sampler

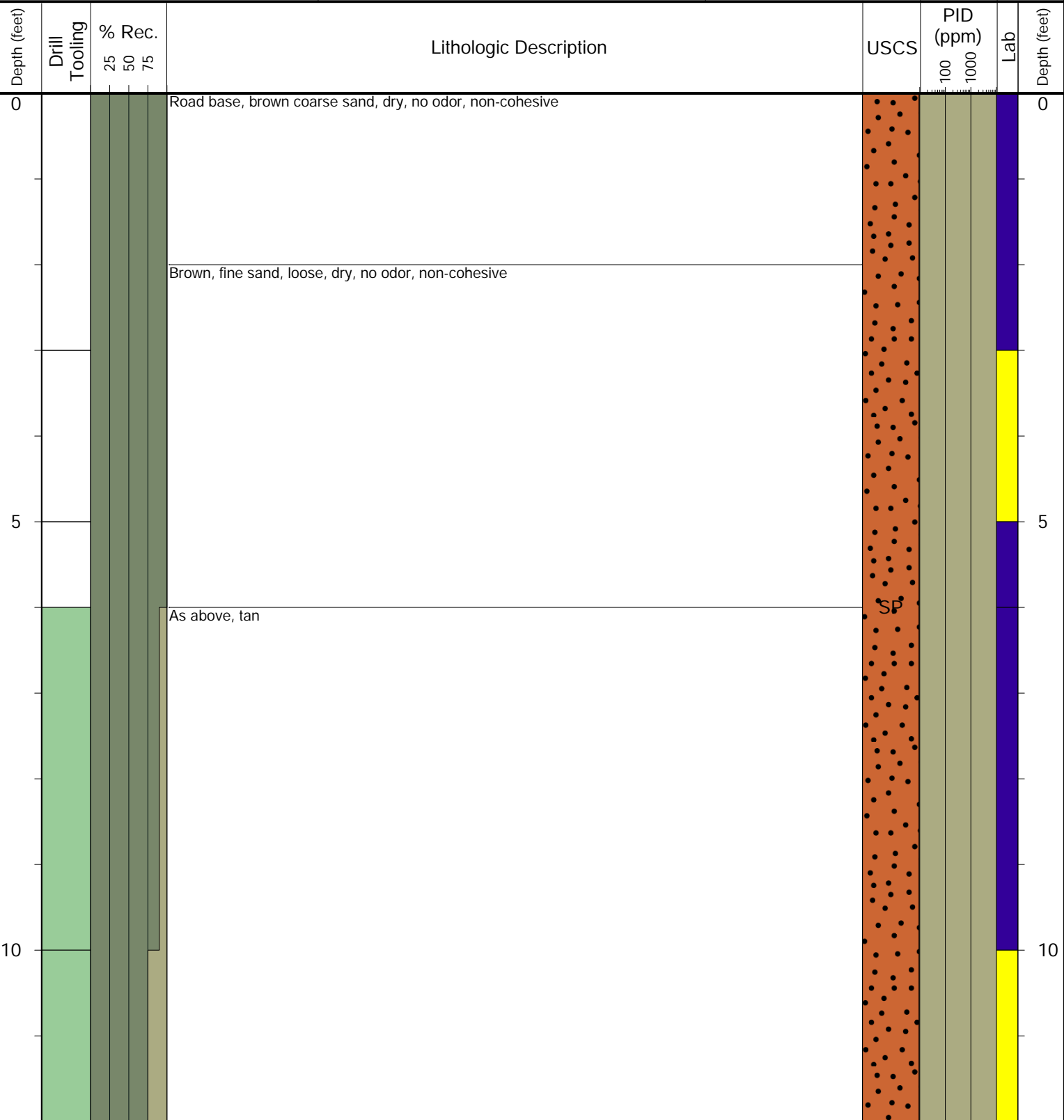
Laboratory Sample Types:

- Grab Sample
- Analyzed Laboratory Sample



6899 Pecos Street, Unit C
Denver, Colorado 80221

CLIENT: Tasman	Kastner 41-03
LOGGED BY: Hunter Merlo	
PROJECT MANAGER: Jake Whritenour	BORING ID: BH03
DRILLING CONTRACTOR: Tasman	
DRILLING EQUIPMENT: Hand Auger/ Power Probe	LOCATION: Weld County, Colorado
DRILL BIT SIZE (INCHES): 2.375"	NORTHING (CO STATE PLANE):
DATE STARTED - COMPLETED: 44420	EASTING (CO STATE PLANE):
TOTAL WELL DEPTH (FT. BGS): 12	GROUND ELEVATION (FT. AMSL): 5280
DEPTH WATER ENCOUNTERED (FT. BGS): >12'	ABANDONMENT METHOD: Bentonite



Drilling / Sample Method:

- Macro-Core
- Expendable Well Tip
- Perforated Injection Tool
- HydroPunch Groundwater Sampler

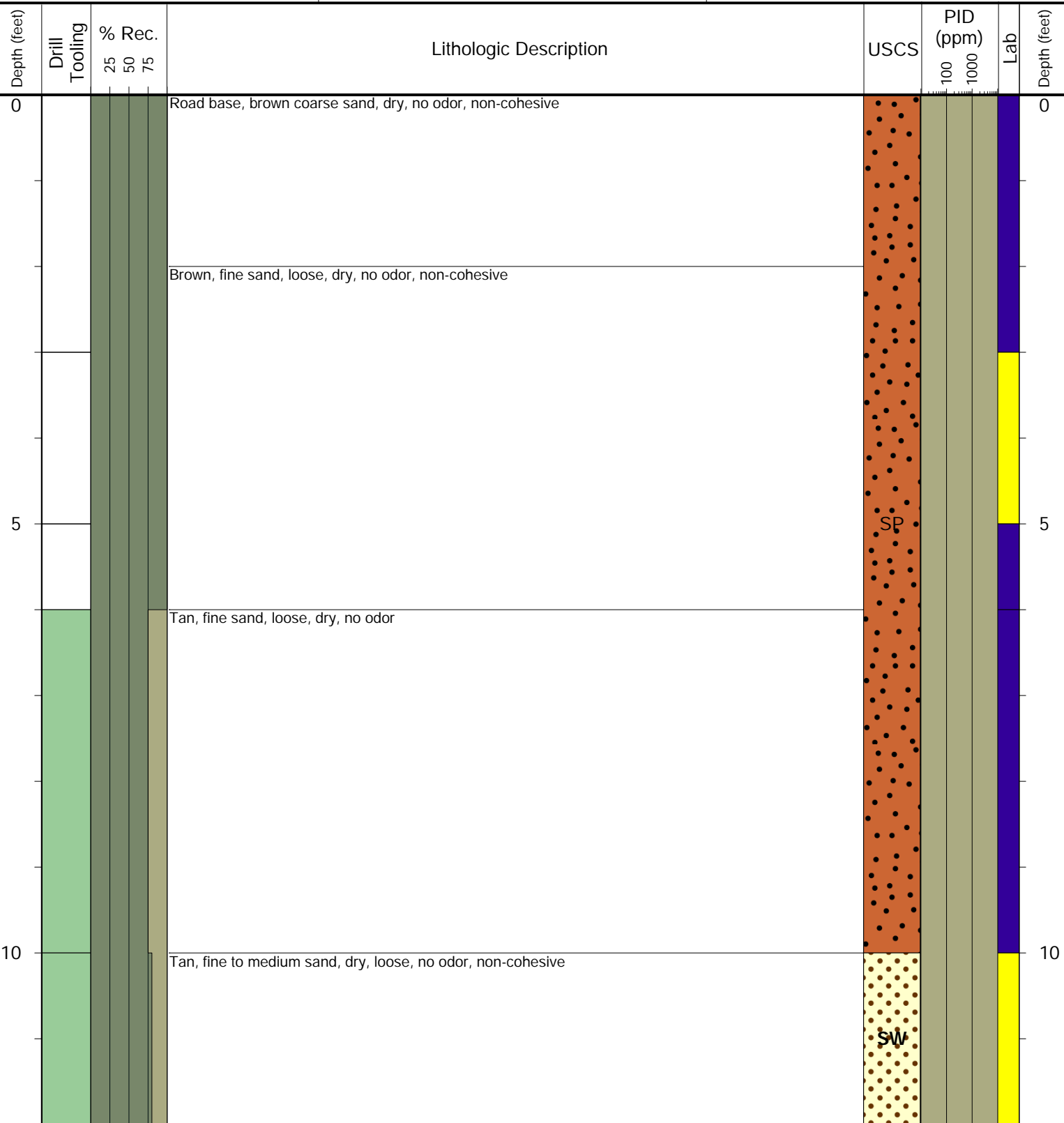
Laboratory Sample Types:

- Grab Sample
- Analyzed Laboratory Sample



6899 Pecos Street, Unit C
Denver, Colorado 80221

CLIENT: Tasman	Kastner 41-03
LOGGED BY: Hunter Merlo	
PROJECT MANAGER: Jake Whritenour	BORING ID: BH04
DRILLING CONTRACTOR: Tasman	
DRILLING EQUIPMENT: Hand Auger/ Power Probe	LOCATION: Weld County, Colorado
DRILL BIT SIZE (INCHES): 2.375"	NORTHING (CO STATE PLANE):
DATE STARTED - COMPLETED: 44420	EASTING (CO STATE PLANE):
TOTAL WELL DEPTH (FT. BGS): 12	GROUND ELEVATION (FT. AMSL): 5280
DEPTH WATER ENCOUNTERED (FT. BGS): >12'	ABANDONMENT METHOD: Bentonite



Drilling / Sample Method:

- Macro-Core
- Expendable Well Tip
- Perforated Injection Tool
- HydroPunch Groundwater Sampler

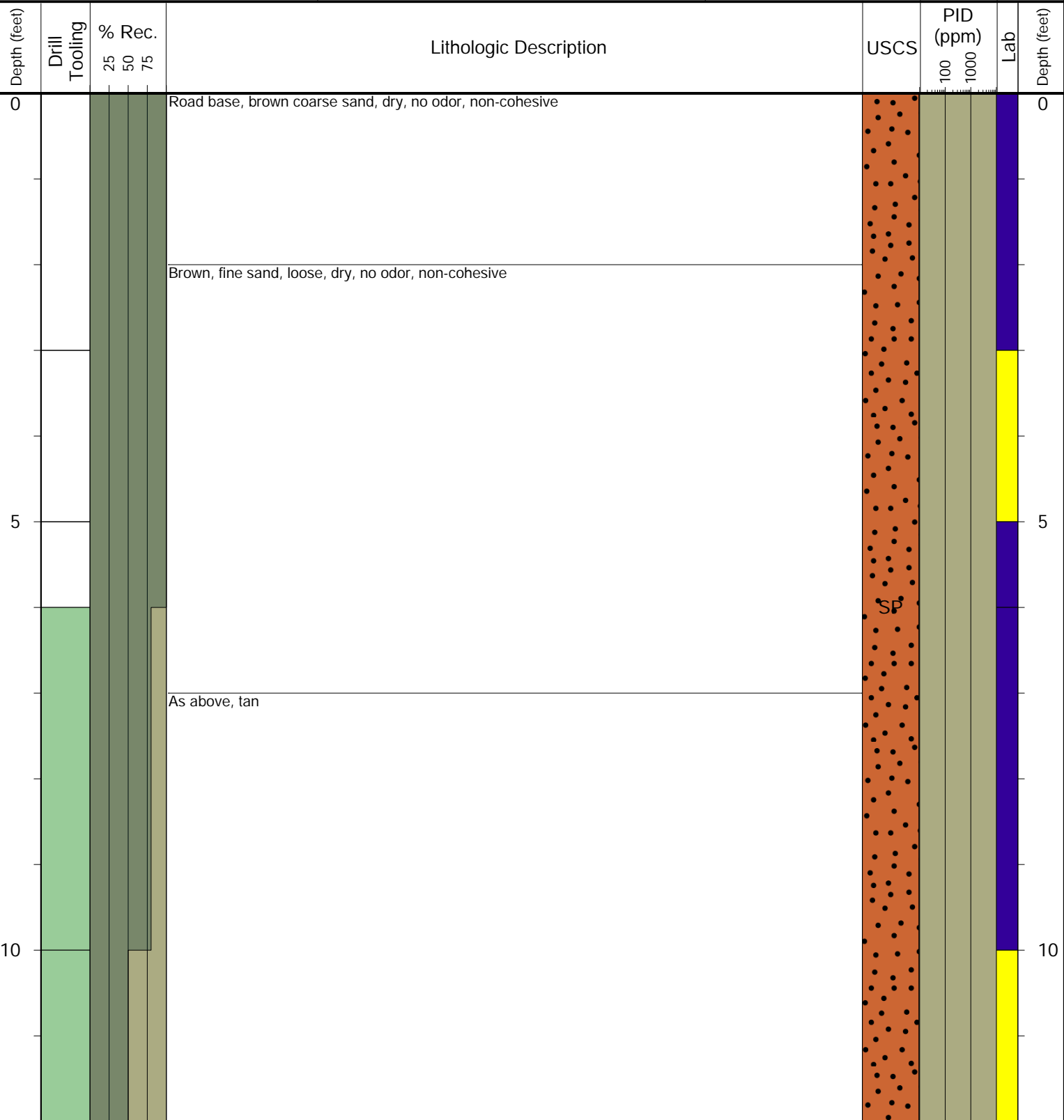
Laboratory Sample Types:

- Grab Sample
- Analyzed Laboratory Sample



6899 Pecos Street, Unit C
Denver, Colorado 80221

CLIENT: Tasman	Kastner 41-03
LOGGED BY: Hunter Merlo	
PROJECT MANAGER: Jake Whritenour	BORING ID: BH05
DRILLING CONTRACTOR: Tasman	
DRILLING EQUIPMENT: Hand Auger/ Power Probe	LOCATION: Weld County, Colorado
DRILL BIT SIZE (INCHES): 2.375"	NORTHING (CO STATE PLANE):
DATE STARTED - COMPLETED: 44420	EASTING (CO STATE PLANE):
TOTAL WELL DEPTH (FT. BGS): 12	GROUND ELEVATION (FT. AMSL): 5280
DEPTH WATER ENCOUNTERED (FT. BGS): >12'	ABANDONMENT METHOD: Bentonite



Drilling / Sample Method:

- Macro-Core
- Expendable Well Tip
- Perforated Injection Tool
- HydroPunch Groundwater Sampler

Laboratory Sample Types:

- Grab Sample
- Analyzed Laboratory Sample