

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

July 14, 2022

Ms Erica Zuniga
Environmental Specialist, Chevron Rockies Business Unit
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 Ms Zuniga:

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 assessment activities conducted by Tasman, Inc. (Tasman), on behalf of Noble Energy, Inc. (Noble) on December 21, 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 Kastner 41-03 flowline riser at the separator during decommissioning activities on May 10, 2021. An initial site assessment was completed by Tasman on August 12, 2021, and results are described in the Site Assessment Report submitted to the Colorado Oil and Gas Conservation Commission (COGCC) on March 30, 2022 (Document #: 403015720).

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 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 Assessment Activities

Tasman completed initial site assessment activities on August 12, 2021, to delineate subsurface soil impacts previously identified at the Site. Soil analytical results from soil sample BH04@12' indicated naphthalene was in exceedance of COGCC Table 915-1 standards, as stated in the initial Site Assessment Report. On December 21, 2021, Tasman completed a secondary site assessment to vertically and laterally delineate naphthalene at borehole BH04.

Tasman advanced four boreholes (BH04R, BH06, BH07 and BH08) to 14 feet below ground surface (ft bgs) using a hand auger and an AMS Power Probe via direct push in the area of borehole BH04. 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:

BH04R@4'	BH06@4'	BH07@4'	BH08@4'
BH04R@13-14'	BH06@13-14'	BH07@13-14'	BH08@13-14'

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 using USEPA saturated paste extraction method. Groundwater was not encountered during soil boring activities. Site assessment soil analytical results from both the initial and secondary site assessments 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 secondary site assessment activities indicate all organics in soil are compliant with COGCC Table 915-1 standards, and seven out of the eight soil samples collected contained pH levels that exceeded COGCC Table 915-1 Soil Suitability for Reclamation (SSR) standards.

Conclusions

Soil hydrocarbon impacts observed at BH04 have been delineated vertically and laterally by the December 2021 borehole samples. Groundwater was not encountered during site assessment activities, and moisture was not observed within 14 feet of the ground surface in all borings. Additional soil sampling will be completed to characterize potential metal or inorganic exceedances at the Site. In addition, ten background soil samples will be collected from native soil adjacent to the Site at five locations.

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.

A handwritten signature in blue ink, appearing to read "Jake Whritenour".

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, 12/21/2021)

Attachment A – Laboratory Soil Analytical Data Reports

Attachment B – Boring Logs

TABLES

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

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	
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	
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	
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	
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	
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	
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	
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	
BH04R@4'	12/21/21	<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	
BH04R@13-14	12/21/21	<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	
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	
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	
BH06@4'	12/21/21	<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	
BH06@13-14'	12/21/21	<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	
BH07@4'	12/21/21	<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	
BH07@13-14'	12/21/21	<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	
BH08@4'	12/21/21	<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	
BH08@13-14'	12/21/21	<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	

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
BH04R@4'	12/21/21	8.79	NA	NA	NA
BH04R@13-14	12/21/21	8.44	NA	NA	NA
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
BH06@4'	12/21/21	7.94	NA	NA	NA
BH06@13-14'	12/21/21	8.48	NA	NA	NA
BH07@4'	12/21/21	8.51	NA	NA	NA
BH07@13-14'	12/21/21	8.35	NA	NA	NA
BH08@4'	12/21/21	8.69	NA	NA	NA
BH08@13-14'	12/21/21	8.57	NA	NA	NA
BG01@4'	08/12/21	7.50	NA	NA	NA

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:

1. Compounds referenced from 2 CCR 404-1, Table 915-1, effective January 15, 2021.
2. Soil Screening Levels (SSL) referenced from EPA Regional Screening Levels (EPA RSLs) for Chemical Contaminants at Superfund Sites, effective November 2020.
3. 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

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

NA = Not Analyzed

mmhos/cm = Millmhos 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

FIGURES

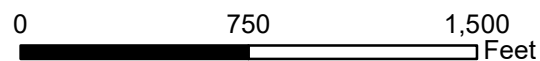
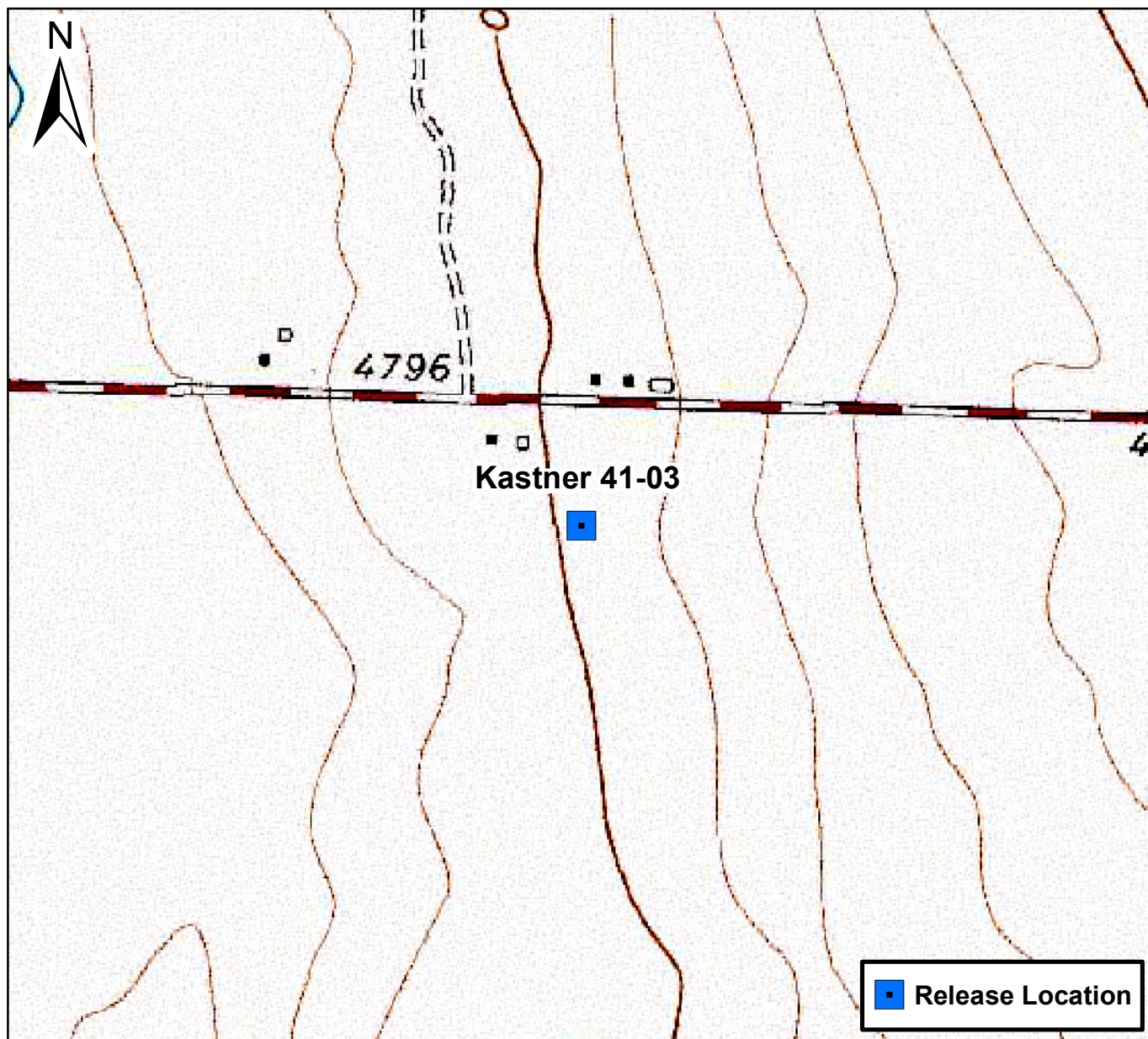
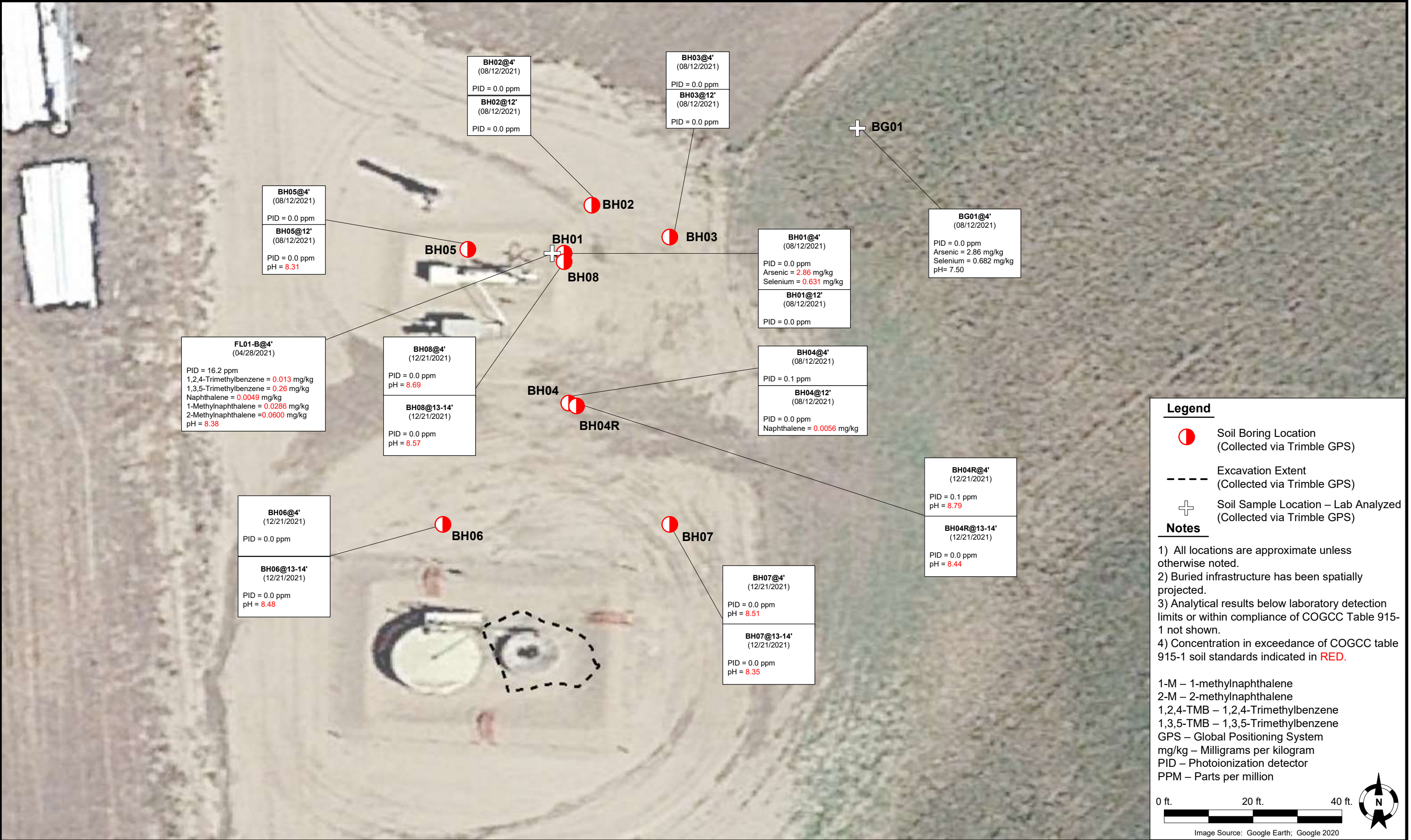



Figure 1

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





DATE:	10/20/2021	 TASMAN Tasman, Inc. 6855 W 199 th 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	Facility Decommissioning & Site Assessment Soil Analytical Results Map (04/28/2021, 08/12/2021, 12/21/2021)	Figure 2
DESIGNED BY:	JW				
DRAWN BY:	DQ				

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.

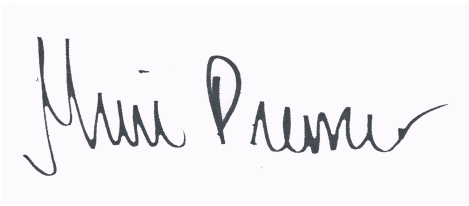
Broomfield, CO 80020

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 on a light purple background. The signature is written in a cursive style and reads "Muri Premier".

Muri Premier For Paul Shrewsbury

President



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

Project: Noble - 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

S₂

2104476

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

Page 1 of 1

Client: Noble / Tasman Geosciences Project Manager: Brandon Bruns, Invoice: Wade Finsterlin
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	HNO ₃	None	Other	Water	Soil	Air-Canister #	Other	\$260 BTEX	VOC - 915	TPH - 915	PAH - 915	SAR, EC, pH	Boron - HWS	HOLD		
1	FLO1-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>[Signature]</i>	Date/Time: 4/28/21 1645	Received by: Tasman's Lock Box	Date/Time: 4/29/21 1600	Turn Around Time (Check) ___ Same Day ___ 72 hours ___ 24 hours <input checked="" type="checkbox"/> Standard ___ 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>[Signature]</i>	Date/Time: 4/29/21 1600		
Relinquished by:	Date/Time:	Received by:	Date/Time:		

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 Bruns

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 Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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 Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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 Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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 Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		110 %	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: Brandon Bruns

Reported:
05/10/21 12:50

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

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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 Bruns

Reported:
05/10/21 12:50

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

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

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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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	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

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	"							
Surrogate: 1,2-Dichloroethane-d4	0.0319		"	0.0400		79.7	23-173			
Surrogate: Toluene-d8	0.0400		"	0.0400		100	20-170			
Surrogate: 4-Bromofluorobenzene	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			
Surrogate: 1,2-Dichloroethane-d4	0.0316		"	0.0400		79.1	23-173			
Surrogate: Toluene-d8	0.0480		"	0.0400		120	20-170			
Surrogate: 4-Bromofluorobenzene	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			
Surrogate: 1,2-Dichloroethane-d4	0.0357		"	0.0400		89.3	23-173			
Surrogate: Toluene-d8	0.0436		"	0.0400		109	20-170			
Surrogate: 4-Bromofluorobenzene	0.0513		"	0.0400		128	21-167			

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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	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

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	
<hr/>										
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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Broomfield CO, 80020

Project: Noble - Kastner 41-03

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
05/10/21 12:50

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

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

Batch 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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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

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

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

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	"							
Surrogate: 2-Methylnaphthalene-d10	0.0264		"	0.0333		79.2	40-150			
Surrogate: Fluoranthene-d10	0.0323		"	0.0333		97.0	40-150			

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			
Surrogate: 2-Methylnaphthalene-d10	0.0290		"	0.0333		86.9	40-150			
Surrogate: Fluoranthene-d10	0.0351		"	0.0333		105	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 Brun

Reported:
05/10/21 12:50

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

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

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

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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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	Limit	Notes
		Limit	Units			%REC	Limits			

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

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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 Level	Source		%REC		RPD	
		Limit	Units		Result	%REC	Limits	RPD	Limit	Notes

Batch BEE0040 - General Preparation

Duplicate (BEE0040-DUP1)		Source: 2104323-03			Prepared & Analyzed: 05/04/21					
% Solids	95.2		%		95.3		0.104		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 Brun

Reported:
05/10/21 12:50

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

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

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

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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 Level	Source Result	%REC		RPD		Notes
		Limit	Units			%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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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.

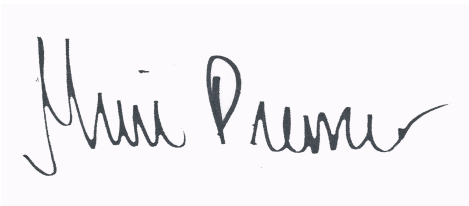
Broomfield, CO 80020

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, reading "Muri Premier", is displayed on a light purple rectangular background.

Muri Premier 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

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Summit Scientific

2108197.1

S₂

4653 Table Mountain Drive ♦ Golden, Colorado 80403

303-277-9310

Page 1 of 2

Client:	Noble / Tasman Geosciences	Project Manager:	Jake Whritenour, Invoice: <u>Jacob Evans</u>
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:	<u>Kastner 41-03</u>
Sampler Name:	Hunter Merlo	Project Number:	

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested							Special Instructions	
					HCl	HNO ₃	None	Other	Water	Soil	Air-Canister #	Other	\$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		pH, EC, SAR by saturated Paste
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:	Date/Time:	Received by:	Date/Time:	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:
<u>Auke Nole</u>	8/12/21 1530	Tasman's Lock Box	8/12/21 1530		
Relinquished by:	Date/Time:	Received by:	Date/Time:		
Tasman's Lock Box	8/12/21 1800	<u>Will Galt</u>	8/12/21 1800		
Relinquished by:	Date/Time:	Received by:	Date/Time:		

S_2

303-277-9310

Project Number:

www.s2scientific.com

Sample Receipt Checklist

2108197

S2 Work Order _____

Client: Noble/Tasman Client Project ID: Kastner 41-03Shipped 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⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	on ice
NOTE: If samples are delivered the same day of sampling, this requirement is met provided that there is evidence that cooling has begun.				
Were all samples received intact ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
If custody seals are present, are they intact ⁽¹⁾ ?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples with holding times due within 48 hours sample due within 48 hours present?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Is a chain-of-custody (COC) form present and filled out completely ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client w/ date and time recorded ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples preserved that require preservation (excluding cooling) ⁽¹⁾ ?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Note the type of preservative in the Comments column – HCl, H ₂ SO ₄ , NaOH, HNO ₃ , ect				
If samples are acid preserved for metals, is the pH ≤ 2 ⁽¹⁾ ?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Record the pH in Comments.				
If dissolved metals are requested, were samples field filtered?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

Additional Comments (if any):

⁽¹⁾ If NO, then contact the client before proceeding with analysis and note in case narrative.WG
Custodian Printed Name or InitialsWill Salin
Signature of Custodian8/12/21
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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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

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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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	

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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

BH01@12'
2108197-02 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

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

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

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

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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

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

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	

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

BH02@4'
2108197-03 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

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

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

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

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	

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

BH02@12'
2108197-04 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

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

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

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

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	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
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	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
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	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
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	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		73.6 %	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

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

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	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
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	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
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	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
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	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
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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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

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

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	

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

Volatile Organic Compounds by EPA Method 8260B

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

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

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

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	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
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	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
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	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
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	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		75.5 %	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

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

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	

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

Volatile Organic Compounds by EPA Method 8260B

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

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

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

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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Broomfield CO, 80020

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	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
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	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
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	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
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	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
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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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@12'
2108197-10 (Soil)

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

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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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	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

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	"							
Surrogate: 1,2-Dichloroethane-d4	0.0457		"	0.0400		114	23-173			
Surrogate: Toluene-d8	0.0363		"	0.0400		90.8	20-170			
Surrogate: 4-Bromofluorobenzene	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			
Surrogate: 1,2-Dichloroethane-d4	0.0479		"	0.0400		120	23-173			
Surrogate: Toluene-d8	0.0366		"	0.0400		91.6	20-170			
Surrogate: 4-Bromofluorobenzene	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			
Surrogate: 1,2-Dichloroethane-d4	0.0463		"	0.0400		116	23-173			
Surrogate: Toluene-d8	0.0368		"	0.0400		92.0	20-170			
Surrogate: 4-Bromofluorobenzene	0.0342		"	0.0400		85.5	21-167			

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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

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

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

Batch 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	
Surrogate: 1,2-Dichloroethane-d4	0.0484		"	0.0400		121	23-173			
Surrogate: Toluene-d8	0.0370		"	0.0400		92.6	20-170			
Surrogate: 4-Bromofluorobenzene	0.0344		"	0.0400		86.0	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

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

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

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

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

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	"							
Surrogate: 2-Methylnaphthalene-d10	0.0296		"	0.0333		88.8	40-150			
Surrogate: Fluoranthene-d10	0.0246		"	0.0333		73.9	40-150			

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			
Surrogate: 2-Methylnaphthalene-d10	0.0341		"	0.0333		102	40-150			
Surrogate: Fluoranthene-d10	0.0268		"	0.0333		80.5	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: Jacob Whritenour

Reported:
08/26/21 16:25

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

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

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		
Surrogate: 2-Methylnaphthalene-d10	0.0250		"	0.0333		74.9	40-150		
Surrogate: Fluoranthene-d10	0.0204		"	0.0333		61.2	40-150		

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
Surrogate: 2-Methylnaphthalene-d10	0.0265		"	0.0333		79.4	40-150		
Surrogate: Fluoranthene-d10	0.0219		"	0.0333		65.7	40-150		

Summit Scientific

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



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

Project: Noble - 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	Reporting			Spike	Source	%REC		RPD		
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

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	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

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	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

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

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
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

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

Summit Scientific

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

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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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 - Quality Control

Summit Scientific

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

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		%REC		RPD	
		Limit	Units		Result	%REC	Limits	RPD	Limit	Notes

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

Batch BEH0235 - General Preparation

LCS (BEH0235-BS1)

Prepared & Analyzed: 08/16/21

pH	9.20		pH Units	9.21		99.9	95-105		
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Duplicate (BEH0235-DUP1)

Source: 2108195-03

Prepared & Analyzed: 08/16/21

pH	8.13		pH Units	8.12		0.123	20		
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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		
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Duplicate (BEH0301-DUP1)

Source: 2108032-01

Prepared: 08/18/21 Analyzed: 08/20/21

pH	7.88		pH Units	7.86		0.254	20		
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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

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

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

January 03, 2022

Jacob Whritenour

Tasman Geosciences

6855 W. 119th Ave.

Broomfield, CO 80020

RE: Noble - Kastner 31-03, 41-03

Work Order #2112391

Enclosed are the results of analyses for samples received by Summit Scientific on 12/21/21 15:30. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

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

Paul Shrewsbury

President



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

Project: Noble - Kastner 31-03, 41-03

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
01/03/22 14:26

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH04R@4'	2112391-01	Soil	12/21/21 09:45	12/21/21 15:30
BH04R@13-14'	2112391-02	Soil	12/21/21 11:40	12/21/21 15:30
BH06@4'	2112391-03	Soil	12/21/21 10:00	12/21/21 15:30
BH06@13-14'	2112391-04	Soil	12/21/21 12:00	12/21/21 15:30
BH07@4'	2112391-05	Soil	12/21/21 10:15	12/21/21 15:30
BH07@13-14'	2112391-06	Soil	12/21/21 12:30	12/21/21 15:30
BH08@4'	2112391-07	Soil	12/21/21 10:30	12/21/21 15:30
BH08@13-14'	2112391-08	Soil	12/21/21 12:50	12/21/21 15:30

Summit Scientific

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

Summit Scientific

S₂

2112391

4653 Table Mountain Drive ♦ Golden, Colorado 80403

303-277-9310

Page 1 of 1

Client: Noble / Tasman Geosciences

Project Manager: Jake Whritenour, Invoice: Jacob Evans

Address: 6855 W. 119th Ave.

E-Mail: Jwhritenour@tasman-geo.com

City/State/Zip: Broomfield / CO/ 80020

Phone: 303-487-1228 , 631 902 9308

Project Name: Kastner 31-03, 41-03

Sampler Name: Daniel Qua

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	8260 BTEX	VOC - 915	TPH - 915	PAH - 915	SAR, EC, pH	Boron - HWS	HOLD	pH	
1	BH04R041	12/21/21	945	2			X			X				X	X	X					pH by saturated paste
2	BH04R013-14'		1140																		
3	BH06041		1000																		
4	BH06013-14'		1200																		
5	BH07041		1015																		
6	BH07013-14'		1230																		
7	BH08041		1030																		
8	BH08013-14'	↓	1250	↓			↓			↓				↓	↓	↓					↓
9																					
10																					

Relinquished by: <u>[Signature]</u>	Date/Time: <u>12/21/21 1530</u>	Received by: <u>Tasman's Lock Box</u>	Date/Time: <u>12/21/21 1530</u>	Turn Around Time (Check) ___ Same Day ___ 24 hours <input checked="" type="checkbox"/> 72 hours Standard ___ 48 hours Sample Integrity: Temperature Upon Receipt: <u>11.3</u> Samples Intact: <input checked="" type="radio"/> Yes <input type="radio"/> No	Notes:
Relinquished by: <u>Tasman's Lock Box</u>	Date/Time:	Received by: <u>[Signature]</u>	Date/Time: <u>12-21-21 1230</u>		
Relinquished by:	Date/Time:	Received by:	Date/Time:		

S₂

Sample Receipt Checklist

S2 Work Order# 2112391Client: Noble/TasmanClient Project ID: Kaster 31-03; 41-03Shipped Via: H.D./P.U./FedEx/UPS/USPS/Other

Airbill #: _____

Matrix (check all that apply):

☐

Air

☒

Soil/Solid

☐

Water

☐

Other: _____

(Describe)

Temp (°C)

11.3

Thermometer ID: G86A9201901378

	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 if 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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are samples with holding times due within 48 hours sample due within 48 hours present?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Is a chain-of-custody (COC) form present and filled out completely ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client w/ date and time recorded ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples preserved that require preservation (excluding cooling) ⁽¹⁾ ? Note the type of preservative in the Comments column – HCl, H ₂ SO ₄ , NaOH, HNO ₃ , etc.	<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.

Custodian Printed Name or Initials

Date/Time

12-21-21



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

Project: Noble - Kastner 31-03, 41-03

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
01/03/22 14:26

BH04R@4'
2112391-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **12/21/21 09:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BEL0513	12/22/21	12/23/21	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: **12/21/21 09:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		105 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		108 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		99.7 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **12/21/21 09:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BEL0514	12/22/21	12/24/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **12/21/21 09:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		92.4 %	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 31-03, 41-03

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
01/03/22 14:26

BH04R@4'
2112391-01 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **12/21/21 09:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEL0586	12/27/21	12/28/21	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: **12/21/21 09:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		67.4 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		65.3 %	40-150		"	"	"	"	

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

Date Sampled: **12/21/21 09:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.79		pH Units	1	BEL0538	12/23/21	12/23/21	EPA 9045D	

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

Project: Noble - Kastner 31-03, 41-03

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
01/03/22 14:26

BH04R@13-14'
2112391-02 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **12/21/21 11:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEL0513	12/22/21	12/23/21	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: **12/21/21 11:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		114 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		104 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		99.6 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **12/21/21 11:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEL0514	12/22/21	12/24/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **12/21/21 11:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		98.5 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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

Project: Noble - Kastner 31-03, 41-03

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
01/03/22 14:26

BH04R@13-14'
2112391-02 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **12/21/21 11:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEL0586	12/27/21	12/28/21	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: **12/21/21 11:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		65.2 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		65.4 %	40-150		"	"	"	"	

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

Date Sampled: **12/21/21 11:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.44		pH Units	1	BEL0538	12/23/21	12/23/21	EPA 9045D	

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6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Kastner 31-03, 41-03

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
01/03/22 14:26

BH06@4'
2112391-03 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

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

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEL0513	12/22/21	12/23/21	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: **12/21/21 10:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		102 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		103 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		99.9 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

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

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEL0514	12/22/21	12/24/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

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

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		84.3 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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

Project: Noble - Kastner 31-03, 41-03

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
01/03/22 14:26

BH06@4'
2112391-03 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEL0586	12/27/21	12/28/21	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: **12/21/21 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		51.4 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		52.8 %	40-150		"	"	"	"	

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

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.94		pH Units	1	BEL0538	12/23/21	12/23/21	EPA 9045D	

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

Project: Noble - Kastner 31-03, 41-03

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
01/03/22 14:26

BH06@13-14'
2112391-04 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

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

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEL0513	12/22/21	12/23/21	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: **12/21/21 12:00**

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

Extractable Petroleum Hydrocarbons by 8015

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

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEL0514	12/22/21	12/24/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

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

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		88.6 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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

Project: Noble - Kastner 31-03, 41-03

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
01/03/22 14:26

BH06@13-14'
2112391-04 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEL0586	12/27/21	12/28/21	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: **12/21/21 12:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		65.0 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		59.5 %	40-150		"	"	"	"	

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

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.48		pH Units	1	BEL0538	12/23/21	12/23/21	EPA 9045D	

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

Project: Noble - Kastner 31-03, 41-03

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
01/03/22 14:26

BH07@4'
2112391-05 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **12/21/21 10:15**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEL0513	12/22/21	12/23/21	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: **12/21/21 10:15**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		103 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		104 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		100 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **12/21/21 10:15**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEL0514	12/22/21	12/24/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **12/21/21 10:15**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		89.5 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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

Project: Noble - Kastner 31-03, 41-03

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
01/03/22 14:26

BH07@4'
2112391-05 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **12/21/21 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEL0586	12/27/21	12/28/21	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: **12/21/21 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		60.3 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		51.5 %	40-150		"	"	"	"	

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

Date Sampled: **12/21/21 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.51		pH Units	1	BEL0538	12/23/21	12/23/21	EPA 9045D	

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

Project: Noble - Kastner 31-03, 41-03

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
01/03/22 14:26

BH07@13-14'
2112391-06 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **12/21/21 12:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEL0513	12/22/21	12/23/21	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: **12/21/21 12:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		100 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		102 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		98.1 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **12/21/21 12:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEL0514	12/22/21	12/24/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **12/21/21 12:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		88.2 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Kastner 31-03, 41-03

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
01/03/22 14:26

BH07@13-14'
2112391-06 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **12/21/21 12:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEL0586	12/27/21	12/28/21	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: **12/21/21 12:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		49.4 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		57.0 %	40-150		"	"	"	"	

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

Date Sampled: **12/21/21 12:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.35		pH Units	1	BEL0538	12/23/21	12/23/21	EPA 9045D	

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6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Kastner 31-03, 41-03

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
01/03/22 14:26

BH08@4'
2112391-07 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **12/21/21 10:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEL0513	12/22/21	12/23/21	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: **12/21/21 10:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		97.8 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		101 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		97.9 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **12/21/21 10:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEL0514	12/22/21	12/24/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **12/21/21 10:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		78.2 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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Tasman Geosciences
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Project: Noble - Kastner 31-03, 41-03

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
01/03/22 14:26

BH08@4'
2112391-07 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **12/21/21 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEL0586	12/27/21	12/28/21	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: **12/21/21 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		53.0 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		50.4 %	40-150		"	"	"	"	

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

Date Sampled: **12/21/21 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.69		pH Units	1	BEL0538	12/23/21	12/23/21	EPA 9045D	

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Project: Noble - Kastner 31-03, 41-03

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
01/03/22 14:26

BH08@13-14'
2112391-08 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

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

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEL0513	12/22/21	12/23/21	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: **12/21/21 12:50**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		109 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		100 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		102 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

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

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEL0514	12/22/21	12/24/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

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

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		52.8 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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Tasman Geosciences
6855 W. 119th Ave.
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Project: Noble - Kastner 31-03, 41-03

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
01/03/22 14:26

BH08@13-14'
2112391-08 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEL0586	12/27/21	12/28/21	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: **12/21/21 12:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		62.9 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		60.7 %	40-150		"	"	"	"	

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

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.57		pH Units	1	BEL0538	12/23/21	12/23/21	EPA 9045D	

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

Project: Noble - Kastner 31-03, 41-03

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
01/03/22 14:26

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

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

Batch BEL0513 - EPA 5030 Soil MS

Blank (BEL0513-BLK1)

Prepared: 12/22/21 Analyzed: 12/23/21

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	"							
Surrogate: 1,2-Dichloroethane-d4	0.0578		"	0.0400		144	23-173			
Surrogate: Toluene-d8	0.0499		"	0.0400		125	20-170			
Surrogate: 4-Bromofluorobenzene	0.0454		"	0.0400		113	21-167			

LCS (BEL0513-BS1)

Prepared: 12/22/21 Analyzed: 12/23/21

Benzene	0.0639	0.0020	mg/kg	0.0750		85.2	70-130			
Toluene	0.0779	0.0050	"	0.0750		104	70-130			
Ethylbenzene	0.0645	0.0050	"	0.0750		86.0	70-130			
m,p-Xylene	0.138	0.010	"	0.150		92.0	70-130			
o-Xylene	0.0703	0.0050	"	0.0750		93.8	70-130			
1,2,4-Trimethylbenzene	0.0766	0.0050	"	0.0750		102	70-130			
1,3,5-Trimethylbenzene	0.0742	0.0050	"	0.0750		98.9	70-130			
Naphthalene	0.0680	0.0038	"	0.0750		90.7	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0525		"	0.0400		131	23-173			
Surrogate: Toluene-d8	0.0460		"	0.0400		115	20-170			
Surrogate: 4-Bromofluorobenzene	0.0434		"	0.0400		109	21-167			

Matrix Spike (BEL0513-MS1)

Source: 2112383-01

Prepared: 12/22/21 Analyzed: 12/23/21

Benzene	0.0632	0.0020	mg/kg	0.0750	ND	84.2	70-130			
Toluene	0.0718	0.0050	"	0.0750	ND	95.8	70-130			
Ethylbenzene	0.0638	0.0050	"	0.0750	ND	85.0	70-130			
m,p-Xylene	0.133	0.010	"	0.150	ND	88.7	70-130			
o-Xylene	0.0687	0.0050	"	0.0750	ND	91.6	70-130			
1,2,4-Trimethylbenzene	0.0718	0.0050	"	0.0750	ND	95.7	70-130			
1,3,5-Trimethylbenzene	0.0695	0.0050	"	0.0750	ND	92.7	70-130			
Naphthalene	0.0760	0.0038	"	0.0750	ND	101	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0493		"	0.0400		123	23-173			
Surrogate: Toluene-d8	0.0414		"	0.0400		104	20-170			
Surrogate: 4-Bromofluorobenzene	0.0421		"	0.0400		105	21-167			

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6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Kastner 31-03, 41-03

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
01/03/22 14:26

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

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

Batch BEL0513 - EPA 5030 Soil MS

Matrix Spike Dup (BEL0513-MSD1)		Source: 2112383-01			Prepared: 12/22/21 Analyzed: 12/23/21					
Benzene	0.0646	0.0020	mg/kg	0.0750	ND	86.2	70-130	2.30	30	
Toluene	0.0715	0.0050	"	0.0750	ND	95.3	70-130	0.502	30	
Ethylbenzene	0.0634	0.0050	"	0.0750	ND	84.5	70-130	0.614	30	
m,p-Xylene	0.133	0.010	"	0.150	ND	88.5	70-130	0.316	30	
o-Xylene	0.0672	0.0050	"	0.0750	ND	89.6	70-130	2.16	30	
1,2,4-Trimethylbenzene	0.0720	0.0050	"	0.0750	ND	96.0	70-130	0.334	30	
1,3,5-Trimethylbenzene	0.0689	0.0050	"	0.0750	ND	91.9	70-130	0.867	30	
Naphthalene	0.0837	0.0038	"	0.0750	ND	112	70-130	9.70	30	
Surrogate: 1,2-Dichloroethane-d4		0.0496	"	0.0400		124	23-173			
Surrogate: Toluene-d8		0.0415	"	0.0400		104	20-170			
Surrogate: 4-Bromofluorobenzene		0.0419	"	0.0400		105	21-167			

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Project: Noble - Kastner 31-03, 41-03

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
01/03/22 14:26

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

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

Batch BEL0514 - EPA 3550A

Blank (BEL0514-BLK1)

Prepared: 12/22/21 Analyzed: 12/24/21

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

LCS (BEL0514-BS1)

Prepared: 12/22/21 Analyzed: 12/24/21

C10-C28 (DRO)	466	50	mg/kg	500	93.2	70-130
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Matrix Spike (BEL0514-MS1)

Source: 2112383-01

Prepared: 12/22/21 Analyzed: 12/24/21

C10-C28 (DRO)	444	50	mg/kg	500	ND	88.8	70-130
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Matrix Spike Dup (BEL0514-MSD1)

Source: 2112383-01

Prepared: 12/22/21 Analyzed: 12/24/21

C10-C28 (DRO)	424	50	mg/kg	500	ND	84.7	70-130	4.73	20
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Project: Noble - Kastner 31-03, 41-03

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
01/03/22 14:26

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

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

Batch BEL0586 - EPA 5030 Soil MS

Blank (BEL0586-BLK1)

Prepared & Analyzed: 12/27/21

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	"							
Surrogate: 2-Methylnaphthalene-d10	0.0275		"	0.0333		82.5	40-150			
Surrogate: Fluoranthene-d10	0.0309		"	0.0333		92.6	40-150			

LCS (BEL0586-BS1)

Prepared & Analyzed: 12/27/21

Acenaphthene	0.0224	0.00500	mg/kg	0.0333		67.3	31-137			
Anthracene	0.0222	0.00500	"	0.0333		66.5	30-120			
Benzo (a) anthracene	0.0256	0.00500	"	0.0333		76.9	30-120			
Benzo (a) pyrene	0.0242	0.00500	"	0.0333		72.5	30-120			
Benzo (b) fluoranthene	0.0242	0.00500	"	0.0333		72.5	30-120			
Benzo (k) fluoranthene	0.0245	0.00500	"	0.0333		73.4	30-120			
Chrysene	0.0251	0.00500	"	0.0333		75.4	30-120			
Dibenz (a,h) anthracene	0.0227	0.00500	"	0.0333		68.0	30-120			
Fluoranthene	0.0228	0.00500	"	0.0333		68.4	30-120			
Fluorene	0.0237	0.00500	"	0.0333		71.1	30-120			
Indeno (1,2,3-cd) pyrene	0.0224	0.00500	"	0.0333		67.3	30-120			
Pyrene	0.0226	0.00500	"	0.0333		67.7	35-142			
1-Methylnaphthalene	0.0210	0.00500	"	0.0333		63.1	35-142			
2-Methylnaphthalene	0.0215	0.00500	"	0.0333		64.6	35-142			
Surrogate: 2-Methylnaphthalene-d10	0.0222		"	0.0333		66.5	40-150			
Surrogate: Fluoranthene-d10	0.0245		"	0.0333		73.5	40-150			

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

Project: Noble - Kastner 31-03, 41-03

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
01/03/22 14:26

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

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

Batch BEL0586 - EPA 5030 Soil MS

Matrix Spike (BEL0586-MS1)

Source: 2112369-01

Prepared & Analyzed: 12/27/21

Acenaphthene	0.0187	0.00500	mg/kg	0.0333	ND	56.2	31-137			
Anthracene	0.0196	0.00500	"	0.0333	ND	58.9	30-120			
Benzo (a) anthracene	0.0225	0.00500	"	0.0333	ND	67.5	30-120			
Benzo (a) pyrene	0.0198	0.00500	"	0.0333	ND	59.5	30-120			
Benzo (b) fluoranthene	0.0200	0.00500	"	0.0333	ND	59.9	30-120			
Benzo (k) fluoranthene	0.0199	0.00500	"	0.0333	ND	59.7	30-120			
Chrysene	0.0208	0.00500	"	0.0333	ND	62.5	30-120			
Dibenz (a,h) anthracene	0.0170	0.00500	"	0.0333	ND	51.1	30-120			
Fluoranthene	0.0189	0.00500	"	0.0333	ND	56.8	30-120			
Fluorene	0.0193	0.00500	"	0.0333	ND	58.0	30-120			
Indeno (1,2,3-cd) pyrene	0.0170	0.00500	"	0.0333	ND	50.9	30-120			
Pyrene	0.0179	0.00500	"	0.0333	ND	53.6	35-142			
1-Methylnaphthalene	0.0182	0.00500	"	0.0333	ND	54.7	15-130			
2-Methylnaphthalene	0.0181	0.00500	"	0.0333	ND	54.2	15-130			
Surrogate: 2-Methylnaphthalene-d10	0.0186		"	0.0333		55.8	40-150			
Surrogate: Fluoranthene-d10	0.0212		"	0.0333		63.7	40-150			

Matrix Spike Dup (BEL0586-MSD1)

Source: 2112369-01

Prepared: 12/27/21 Analyzed: 12/28/21

Acenaphthene	0.0212	0.00500	mg/kg	0.0333	ND	63.5	31-137	12.2	30	
Anthracene	0.0219	0.00500	"	0.0333	ND	65.7	30-120	10.9	30	
Benzo (a) anthracene	0.0243	0.00500	"	0.0333	ND	72.8	30-120	7.54	30	
Benzo (a) pyrene	0.0212	0.00500	"	0.0333	ND	63.5	30-120	6.50	30	
Benzo (b) fluoranthene	0.0212	0.00500	"	0.0333	ND	63.7	30-120	6.11	30	
Benzo (k) fluoranthene	0.0210	0.00500	"	0.0333	ND	63.1	30-120	5.54	30	
Chrysene	0.0225	0.00500	"	0.0333	ND	67.4	30-120	7.55	30	
Dibenz (a,h) anthracene	0.0202	0.00500	"	0.0333	ND	60.6	30-120	17.1	30	
Fluoranthene	0.0215	0.00500	"	0.0333	ND	64.4	30-120	12.6	30	
Fluorene	0.0220	0.00500	"	0.0333	ND	65.9	30-120	12.8	30	
Indeno (1,2,3-cd) pyrene	0.0202	0.00500	"	0.0333	ND	60.5	30-120	17.4	30	
Pyrene	0.0211	0.00500	"	0.0333	ND	63.2	35-142	16.3	30	
1-Methylnaphthalene	0.0204	0.00500	"	0.0333	ND	61.2	15-130	11.3	50	
2-Methylnaphthalene	0.0211	0.00500	"	0.0333	ND	63.3	15-130	15.6	50	
Surrogate: 2-Methylnaphthalene-d10	0.0213		"	0.0333		63.9	40-150			
Surrogate: Fluoranthene-d10	0.0239		"	0.0333		71.8	40-150			

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

Project: Noble - Kastner 31-03, 41-03

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
01/03/22 14:26

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

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

Batch BEL0538 - General Preparation

LCS (BEL0538-BS1)

Prepared & Analyzed: 12/23/21

pH	9.12	pH Units	9.18	99.3	95-105
----	------	----------	------	------	--------

Duplicate (BEL0538-DUP1)

Source: 2112028-02

Prepared & Analyzed: 12/23/21

pH	8.31	pH Units	8.29	0.241	20
----	------	----------	------	-------	----

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

Project: Noble - Kastner 31-03, 41-03

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
01/03/22 14:26

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

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

May 05, 2021

Brandon Bruns

Tasman Geosciences

6855 W. 119th Ave.

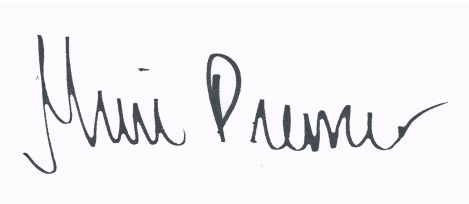
Broomfield, CO 80020

RE: Noble - Kastner 41-03

Work Order #2104369

Enclosed are the results of analyses for samples received by Summit Scientific on 04/23/21 17:06. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink on a light purple background. The signature is written in a cursive style and appears to read "Muri Premier".

Muri Premier 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:
05/05/21 16:29

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FS01@5'	2104369-02	Soil	04/23/21 14:45	04/23/21 17:06
FL01-A@4'	2104369-03	Soil	04/23/21 14:50	04/23/21 17:06

Summit Scientific

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Summit Scientific
S₂

2104369

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

Page 1 of 2

Client: Noble / Tashan Geosciences

Project Manager: Brandon Bruns, Invoice: Wade Finestien

Address: 6855 W. 119th Ave.

E-Mail: Bbruns@fasman-geo.com

City/State/Zip: Broomfield / CO / 80020

Phone: 303-487-1228

Project Name: Kastner 41-03

Sampler Name: Hunter Merlo

Project Number:

					Preservative				Matrix				Analysis Requested								Special Instructions	
ID	Sample Description	Date Sampled	Time Sampled	# of containers	HCl	HNO3	None	Other	Water	Soil	Air-Canister #	Other		VOC - 915	TPH - 915	PAH - 915	SAR, EC, PH	Boron - HWS	HOLD			
1	SS04 @ 2.5'	4/23/21	1440	2			X			X										X		
2	FS01 @ 5'	↓	1445	2			X			X				X	X	X	X	X				
3	FL01-A @ 4'	↓	1450	2			X			X				X	X	X	X	X				
4																						
5																						
6																						
7																						
8																						
9																						
10																						
Relinquished by: <i>John Melo</i>		Date/Time: <i>4/23/21 1643</i>		Received by: <i>John Melo</i>		Date/Time: <i>4/23/21 1706</i>		Turn Around Time (Check)						Notes:								
								Same Day _____ 72 hours _____														
								24 hours _____ Standard <i>X</i>														
								48 hours _____														
								Sample Integrity:														
								Temperature Upon Receipt: <i>5</i>														
								Samples Intact: <i>Yes</i> No														

2104369

Sample Receipt Checklist

S2 Work Order _____

Client: Noble / Tasman Client Project ID: Kastner 41-03Shipped Via: ☒ H.D./P.U./FedEx/UPS/USPS/Other _____ Airbill #: _____Matrix (check all that apply): ☐ Air ☒ Soil/Solid ☐ Water ☐ Other: _____
(Describe)Temp (°C) 5

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, H ₂ SO ₄ , NaOH, HNO ₃ , 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

John B...
Signature of Custodian

4/23/21 1830
Date/Time



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

Project: Noble - Kastner 41-03

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
05/05/21 16:29

FS01@5'
2104369-02 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/23/21 14:45**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BED0444	04/26/21	04/28/21	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: **04/23/21 14:45**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		172 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		108 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		104 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **04/23/21 14:45**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BED0429	04/26/21	04/27/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **04/23/21 14:45**

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

Reported:
05/05/21 16:29

FS01@5'
2104369-02 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **04/23/21 14:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEE0003	05/01/21	05/04/21	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	"	"	"	"	"	"	
Naphthalene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **04/23/21 14:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		69.0 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		86.3 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **04/23/21 14:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.124	0.0100	mg/L	1	BED0467	04/27/21	04/28/21	EPA 6020B	

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

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:
05/05/21 16:29

FS01@5'
2104369-02 (Soil)

Summit Scientific

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

Date Sampled: **04/23/21 14:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	83.8	0.0575	mg/L dry	1	BED0502	04/29/21	05/01/21	EPA 6020B	
Magnesium	19.8	0.0575	"	"	"	"	"	"	
Sodium	24.1	0.0575	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **04/23/21 14:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.615	0.00100	units	1	BEE0016	05/03/21	05/03/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **04/23/21 14:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	86.9		%	1	BED0487	04/29/21	04/29/21	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **04/23/21 14:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.936	0.0100	mmhos/cm	1	BED0525	04/30/21	04/30/21	EPA 120.1	

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

Date Sampled: **04/23/21 14:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.28		pH Units	1	BED0526	04/30/21	04/30/21	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: Brandon Brun

Reported:
05/05/21 16:29

FL01-A@4'
2104369-03 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/23/21 14:50**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BED0444	04/26/21	04/28/21	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: **04/23/21 14:50**

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

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **04/23/21 14:50**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BED0429	04/26/21	04/27/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **04/23/21 14:50**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		99.2 %	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: Brandon Bruns

Reported:
05/05/21 16:29

FL01-A@4'
2104369-03 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **04/23/21 14:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEE0003	05/01/21	05/04/21	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	"	"	"	"	"	"	
Naphthalene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **04/23/21 14:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		66.4 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		83.6 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **04/23/21 14:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.0665	0.0100	mg/L	1	BED0467	04/27/21	04/28/21	EPA 6020B	

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

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:
05/05/21 16:29

FL01-A@4'
2104369-03 (Soil)

Summit Scientific

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

Date Sampled: **04/23/21 14:50**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	84.2	0.0561	mg/L dry	1	BED0502	04/29/21	05/01/21	EPA 6020B	
Magnesium	20.0	0.0561	"	"	"	"	"	"	
Sodium	23.0	0.0561	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **04/23/21 14:50**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	0.585	0.00100	units	1	BEE0016	05/03/21	05/03/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **04/23/21 14:50**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	89.1		%	1	BED0487	04/29/21	04/29/21	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **04/23/21 14:50**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Specific Conductance (EC)	0.940	0.0100	mmhos/cm	1	BED0525	04/30/21	04/30/21	EPA 120.1	

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

Date Sampled: **04/23/21 14:50**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
pH	8.34		pH Units	1	BED0526	04/30/21	04/30/21	EPA 9045D	

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: Brandon Brunns

Reported:
05/05/21 16:29

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

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

Batch BED0444 - EPA 5030 Soil MS

Blank (BED0444-BLK1)

Prepared: 04/26/21 Analyzed: 04/28/21

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	"							
Surrogate: 1,2-Dichloroethane-d4	0.0361		"	0.0400		90.2	23-173			
Surrogate: Toluene-d8	0.0509		"	0.0400		127	20-170			
Surrogate: 4-Bromofluorobenzene	0.0417		"	0.0400		104	21-167			

LCS (BED0444-BS1)

Prepared: 04/26/21 Analyzed: 04/28/21

Benzene	0.155	0.0020	mg/kg	0.150		104	70-130			
Toluene	0.151	0.0050	"	0.150		101	70-130			
Ethylbenzene	0.158	0.0050	"	0.150		105	70-130			
m,p-Xylene	0.315	0.010	"	0.300		105	70-130			
o-Xylene	0.160	0.0050	"	0.150		107	70-130			
1,2,4-Trimethylbenzene	0.157	0.0050	"	0.150		105	70-130			
1,3,5-Trimethylbenzene	0.157	0.0050	"	0.150		104	70-130			
Naphthalene	0.160	0.0038	"	0.150		107	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0386		"	0.0400		96.5	23-173			
Surrogate: Toluene-d8	0.0393		"	0.0400		98.2	20-170			
Surrogate: 4-Bromofluorobenzene	0.0411		"	0.0400		103	21-167			

Matrix Spike (BED0444-MS1)

Source: 2104315-01

Prepared: 04/26/21 Analyzed: 04/28/21

Benzene	0.147	0.0020	mg/kg	0.150	ND	97.9	70-130			
Toluene	0.148	0.0050	"	0.150	ND	98.9	70-130			
Ethylbenzene	0.158	0.0050	"	0.150	ND	105	70-130			
m,p-Xylene	0.316	0.010	"	0.300	ND	105	70-130			
o-Xylene	0.160	0.0050	"	0.150	ND	106	70-130			
1,2,4-Trimethylbenzene	0.154	0.0050	"	0.150	ND	103	70-130			
1,3,5-Trimethylbenzene	0.152	0.0050	"	0.150	ND	101	70-130			
Naphthalene	0.169	0.0038	"	0.150	ND	113	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0429		"	0.0400		107	23-173			
Surrogate: Toluene-d8	0.0406		"	0.0400		101	20-170			
Surrogate: 4-Bromofluorobenzene	0.0420		"	0.0400		105	21-167			

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:
05/05/21 16:29

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

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

Batch BED0444 - EPA 5030 Soil MS

Matrix Spike Dup (BED0444-MSD1)

Source: 2104315-01

Prepared: 04/26/21 Analyzed: 04/28/21

Benzene	0.165	0.0020	mg/kg	0.150	ND	110	70-130	11.6	30	
Toluene	0.166	0.0050	"	0.150	ND	111	70-130	11.3	30	
Ethylbenzene	0.161	0.0050	"	0.150	ND	108	70-130	2.37	30	
m,p-Xylene	0.325	0.010	"	0.300	ND	108	70-130	2.82	30	
o-Xylene	0.164	0.0050	"	0.150	ND	109	70-130	2.63	30	
1,2,4-Trimethylbenzene	0.156	0.0050	"	0.150	ND	104	70-130	1.51	30	
1,3,5-Trimethylbenzene	0.154	0.0050	"	0.150	ND	103	70-130	1.55	30	
Naphthalene	0.179	0.0038	"	0.150	ND	119	70-130	5.56	30	
Surrogate: 1,2-Dichloroethane-d4	0.0464		"	0.0400		116	23-173			
Surrogate: Toluene-d8	0.0410		"	0.0400		102	20-170			
Surrogate: 4-Bromofluorobenzene	0.0427		"	0.0400		107	21-167			

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:
05/05/21 16:29

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

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

Batch BED0429 - EPA 3550A

Blank (BED0429-BLK1)

Prepared & Analyzed: 04/26/21

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

LCS (BED0429-BS1)

Prepared: 04/26/21 Analyzed: 04/27/21

C10-C28 (DRO)	562	50	mg/kg	500	112	70-130
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Matrix Spike (BED0429-MS1)

Source: 2104315-01

Prepared: 04/26/21 Analyzed: 04/27/21

C10-C28 (DRO)	369	50	mg/kg	500	12.0	71.4	70-130
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Matrix Spike Dup (BED0429-MSD1)

Source: 2104315-01

Prepared: 04/26/21 Analyzed: 04/27/21

C10-C28 (DRO)	416	50	mg/kg	500	12.0	80.9	70-130	12.1	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 Brunns

Reported:
05/05/21 16:29

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

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

Batch BEE0003 - EPA 5030 Soil MS

Blank (BEE0003-BLK1)

Prepared: 05/01/21 Analyzed: 05/03/21

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	"							
Naphthalene	ND	0.00500	"							
Pyrene	ND	0.00500	"							
1-Methylnaphthalene	ND	0.00500	"							
2-Methylnaphthalene	ND	0.00500	"							
Surrogate: 2-Methylnaphthalene-d10	0.0270		"	0.0333		81.0	40-150			
Surrogate: Fluoranthene-d10	0.0335		"	0.0333		100	40-150			

LCS (BEE0003-BS1)

Prepared: 05/01/21 Analyzed: 05/03/21

Acenaphthene	0.0280	0.00500	mg/kg	0.0333		84.1	31-137			
Anthracene	0.0278	0.00500	"	0.0333		83.5	30-120			
Benzo (a) anthracene	0.0285	0.00500	"	0.0333		85.4	30-120			
Benzo (a) pyrene	0.0279	0.00500	"	0.0333		83.8	30-120			
Benzo (b) fluoranthene	0.0253	0.00500	"	0.0333		75.8	30-120			
Benzo (k) fluoranthene	0.0269	0.00500	"	0.0333		80.7	30-120			
Chrysene	0.0275	0.00500	"	0.0333		82.6	30-120			
Dibenz (a,h) anthracene	0.0331	0.00500	"	0.0333		99.4	30-120			
Fluoranthene	0.0228	0.00500	"	0.0333		68.4	30-120			
Fluorene	0.0297	0.00500	"	0.0333		89.0	30-120			
Indeno (1,2,3-cd) pyrene	0.0317	0.00500	"	0.0333		95.1	30-120			
Naphthalene	0.0281	0.00500	"	0.0333		84.3	30-120			
Pyrene	0.0235	0.00500	"	0.0333		70.6	35-142			
1-Methylnaphthalene	0.0307	0.00500	"	0.0333		92.1	35-142			
2-Methylnaphthalene	0.0295	0.00500	"	0.0333		88.4	35-142			
Surrogate: 2-Methylnaphthalene-d10	0.0283		"	0.0333		85.0	40-150			
Surrogate: Fluoranthene-d10	0.0374		"	0.0333		112	40-150			

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:
05/05/21 16:29

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

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

Batch BEE0003 - EPA 5030 Soil MS

Matrix Spike (BEE0003-MS1)

Source: 2104361-02

Prepared: 05/01/21 Analyzed: 05/03/21

Acenaphthene	0.0280	0.00500	mg/kg	0.0333	ND	84.0	31-137			
Anthracene	0.0285	0.00500	"	0.0333	ND	85.6	30-120			
Benzo (a) anthracene	0.0283	0.00500	"	0.0333	ND	85.0	30-120			
Benzo (a) pyrene	0.0281	0.00500	"	0.0333	ND	84.4	30-120			
Benzo (b) fluoranthene	0.0248	0.00500	"	0.0333	ND	74.4	30-120			
Benzo (k) fluoranthene	0.0271	0.00500	"	0.0333	ND	81.4	30-120			
Chrysene	0.0273	0.00500	"	0.0333	ND	81.8	30-120			
Dibenz (a,h) anthracene	0.0331	0.00500	"	0.0333	ND	99.4	30-120			
Fluoranthene	0.0231	0.00500	"	0.0333	ND	69.3	30-120			
Fluorene	0.0307	0.00500	"	0.0333	ND	92.0	30-120			
Indeno (1,2,3-cd) pyrene	0.0315	0.00500	"	0.0333	ND	94.5	30-120			
Naphthalene	0.0293	0.00500	"	0.0333	ND	88.0	30-120			
Pyrene	0.0238	0.00500	"	0.0333	ND	71.5	35-142			
1-Methylnaphthalene	0.0338	0.00500	"	0.0333	ND	101	15-130			
2-Methylnaphthalene	0.0323	0.00500	"	0.0333	ND	96.9	15-130			
Surrogate: 2-Methylnaphthalene-d10	0.0268		"	0.0333		80.4	40-150			
Surrogate: Fluoranthene-d10	0.0339		"	0.0333		102	40-150			

Matrix Spike Dup (BEE0003-MSD1)

Source: 2104361-02

Prepared: 05/01/21 Analyzed: 05/03/21

Acenaphthene	0.0284	0.00500	mg/kg	0.0333	ND	85.3	31-137	1.64	30	
Anthracene	0.0295	0.00500	"	0.0333	ND	88.4	30-120	3.20	30	
Benzo (a) anthracene	0.0290	0.00500	"	0.0333	ND	86.9	30-120	2.13	30	
Benzo (a) pyrene	0.0284	0.00500	"	0.0333	ND	85.3	30-120	0.998	30	
Benzo (b) fluoranthene	0.0267	0.00500	"	0.0333	ND	80.1	30-120	7.45	30	
Benzo (k) fluoranthene	0.0270	0.00500	"	0.0333	ND	81.1	30-120	0.362	30	
Chrysene	0.0281	0.00500	"	0.0333	ND	84.3	30-120	3.05	30	
Dibenz (a,h) anthracene	0.0329	0.00500	"	0.0333	ND	98.8	30-120	0.598	30	
Fluoranthene	0.0229	0.00500	"	0.0333	ND	68.6	30-120	1.02	30	
Fluorene	0.0288	0.00500	"	0.0333	ND	86.4	30-120	6.31	30	
Indeno (1,2,3-cd) pyrene	0.0317	0.00500	"	0.0333	ND	95.1	30-120	0.712	30	
Naphthalene	0.0288	0.00500	"	0.0333	ND	86.4	30-120	1.90	30	
Pyrene	0.0237	0.00500	"	0.0333	ND	71.0	35-142	0.731	30	
1-Methylnaphthalene	0.0322	0.00500	"	0.0333	ND	96.6	15-130	4.74	50	
2-Methylnaphthalene	0.0314	0.00500	"	0.0333	ND	94.2	15-130	2.87	50	
Surrogate: 2-Methylnaphthalene-d10	0.0278		"	0.0333		83.3	40-150			
Surrogate: Fluoranthene-d10	0.0362		"	0.0333		109	40-150			

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:
05/05/21 16:29

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

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

Batch BED0467 - EPA 3050B

Blank (BED0467-BLK1)

Prepared: 04/27/21 Analyzed: 04/28/21

Boron ND 0.0100 mg/L

LCS (BED0467-BS1)

Prepared: 04/27/21 Analyzed: 04/28/21

Boron 5.29 0.0100 mg/L 5.00 106 80-120

Duplicate (BED0467-DUP1)

Source: 2104327-02

Prepared: 04/27/21 Analyzed: 04/28/21

Boron 0.111 0.0100 mg/L 0.118 5.93 20

Matrix Spike (BED0467-MS1)

Source: 2104327-02

Prepared: 04/27/21 Analyzed: 04/28/21

Boron 5.14 0.0100 mg/L 5.00 0.118 100 75-125

Matrix Spike Dup (BED0467-MSD1)

Source: 2104327-02

Prepared: 04/27/21 Analyzed: 04/28/21

Boron 5.40 0.0100 mg/L 5.00 0.118 106 75-125 4.98 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: Brandon Bruns

Reported:
05/05/21 16:29

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

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

Batch BED0502 - General Preparation

Blank (BED0502-BLK1)

Prepared: 04/29/21 Analyzed: 05/01/21

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

LCS (BED0502-BS1)

Prepared: 04/29/21 Analyzed: 05/01/21

Calcium	5.63	0.0500	mg/L wet	5.00	113	70-130
Magnesium	5.69	0.0500	"	5.00	114	70-130
Sodium	5.71	0.0500	"	5.00	114	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 Brun

Reported:
05/05/21 16:29

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

Summit Scientific

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

Batch BED0487 - General Preparation

Duplicate (BED0487-DUP1)

Source: 2104204-01

Prepared & Analyzed: 04/29/21

% Solids	80.9	%		81.0		0.240	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:
05/05/21 16:29

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

Summit Scientific

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

Batch BED0525 - General Preparation

Blank (BED0525-BLK1)

Prepared & Analyzed: 04/30/21

Specific Conductance (EC) ND 0.0100 mmhos/cm

LCS (BED0525-BS1)

Prepared & Analyzed: 04/30/21

Specific Conductance (EC) 0.152 0.0100 mmhos/cm 0.150 102 90-110

Duplicate (BED0525-DUP1)

Source: 2103057-02

Prepared & Analyzed: 04/30/21

Specific Conductance (EC) 0.838 0.0100 mmhos/cm 0.837 0.0119 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:
05/05/21 16:29

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

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

Batch BED0526 - General Preparation

LCS (BED0526-BS1)

Prepared & Analyzed: 04/30/21

pH	9.27	pH Units	9.21	101	95-105
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Duplicate (BED0526-DUP1)

Source: 2103057-02

Prepared & Analyzed: 04/30/21

pH	8.31	pH Units	8.30	0.120	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:
05/05/21 16:29

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



TASMAN

6855 W. 119th Ave.
Broomfield, CO 80020

CLIENT: Tasman

LOGGED BY: Hunter Merlo

PROJECT MANAGER: Jake Whritenour

DRILLING CONTRACTOR: Tasman

DRILLING EQUIPMENT: Hand Auger/ Power Probe

DRILL BIT SIZE (INCHES): 2.375"

DATE STARTED - COMPLETED: 8/12/21 - 8/12/21

TOTAL WELL DEPTH (FT. BGS): 12

DEPTH WATER ENCOUNTERED (FT. BGS): NM

Kastner 41-03

BORING ID: BH01

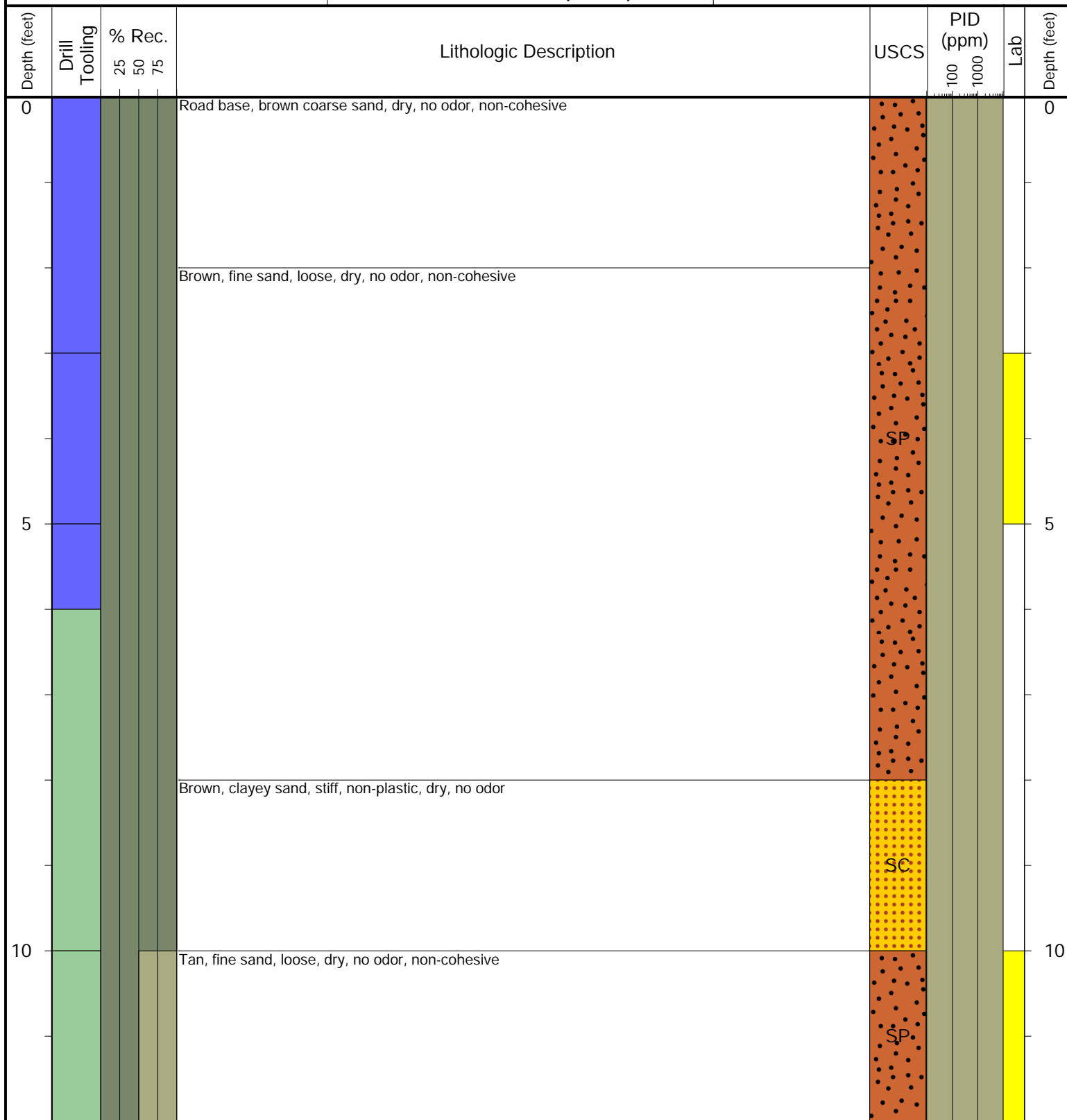
LOCATION: Weld County, Colorado

LATITUDE (WGS 84): 40.521887103159

LONGITUDE (WGS 84): -104.6490796186

GROUND ELEVATION (FT. AMSL): NM

ABANDONMENT METHOD: Bentonite



Drilling / Sample Method:

Macro-Core

Expendable Well Tip

Perforated Injection Tool

Hand Auger

Laboratory Sample Types:

Geotechnical Lab

Analytical Chemistry Lab

Geotechnical & Analytical Chemistry Lab



TASMAN

6855 W. 119th Ave.
Broomfield, CO 80020

CLIENT: Tasman

LOGGED BY: Hunter Merlo

PROJECT MANAGER: Jake Whritenour

DRILLING CONTRACTOR: Tasman

DRILLING EQUIPMENT: Hand Auger/ Power Probe

DRILL BIT SIZE (INCHES): 2.375"

DATE STARTED - COMPLETED: 8/12/21 - 8/12/21

TOTAL WELL DEPTH (FT. BGS): 12

DEPTH WATER ENCOUNTERED (FT. BGS): NM

Kastner 41-03

BORING ID: BH02

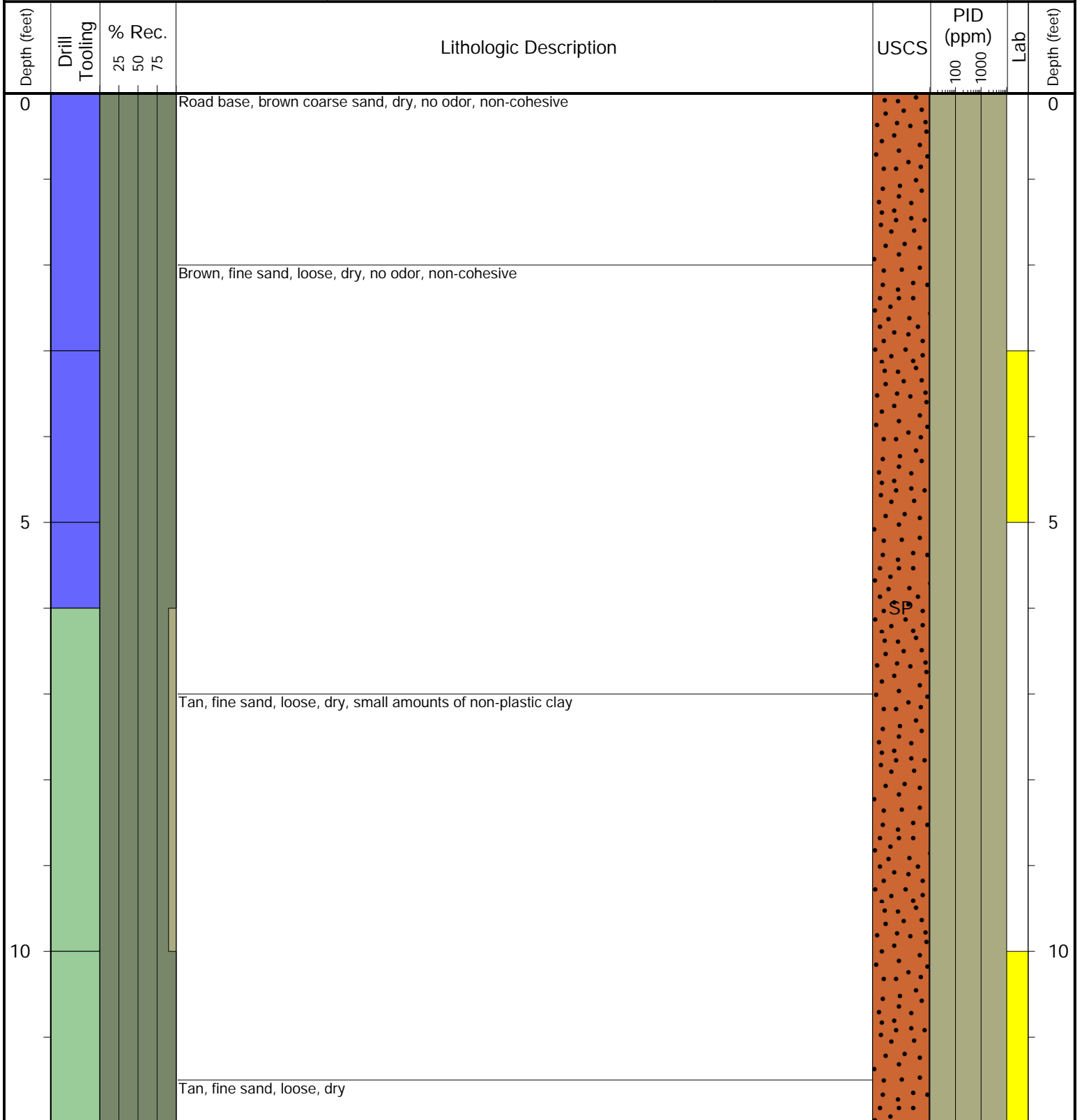
LOCATION: Weld County, Colorado

LATITUDE (WGS 84): 40.521915412175

LONGITUDE (WGS 84): -104.64905926768

GROUND ELEVATION (FT. AMSL): NM

ABANDONMENT METHOD: Bentonite



Drilling / Sample Method:

Macro-Core

Expendable Well Tip

Perforated Injection Tool

Hand Auger

Laboratory Sample Types:

Geotechnical Lab

Analytical Chemistry Lab

Geotechnical & Analytical Chemistry Lab



TASMAN

6855 W. 119th Ave.
Broomfield, CO 80020

CLIENT: Tasman

LOGGED BY: Hunter Merlo

PROJECT MANAGER: Jake Whritenour

DRILLING CONTRACTOR: Tasman

DRILLING EQUIPMENT: Hand Auger/ Power Probe

DRILL BIT SIZE (INCHES): 2.375"

DATE STARTED - COMPLETED: 8/12/21 - 8/12/21

TOTAL WELL DEPTH (FT. BGS): 12

DEPTH WATER ENCOUNTERED (FT. BGS): NM

Kastner 41-03

BORING ID: BH03

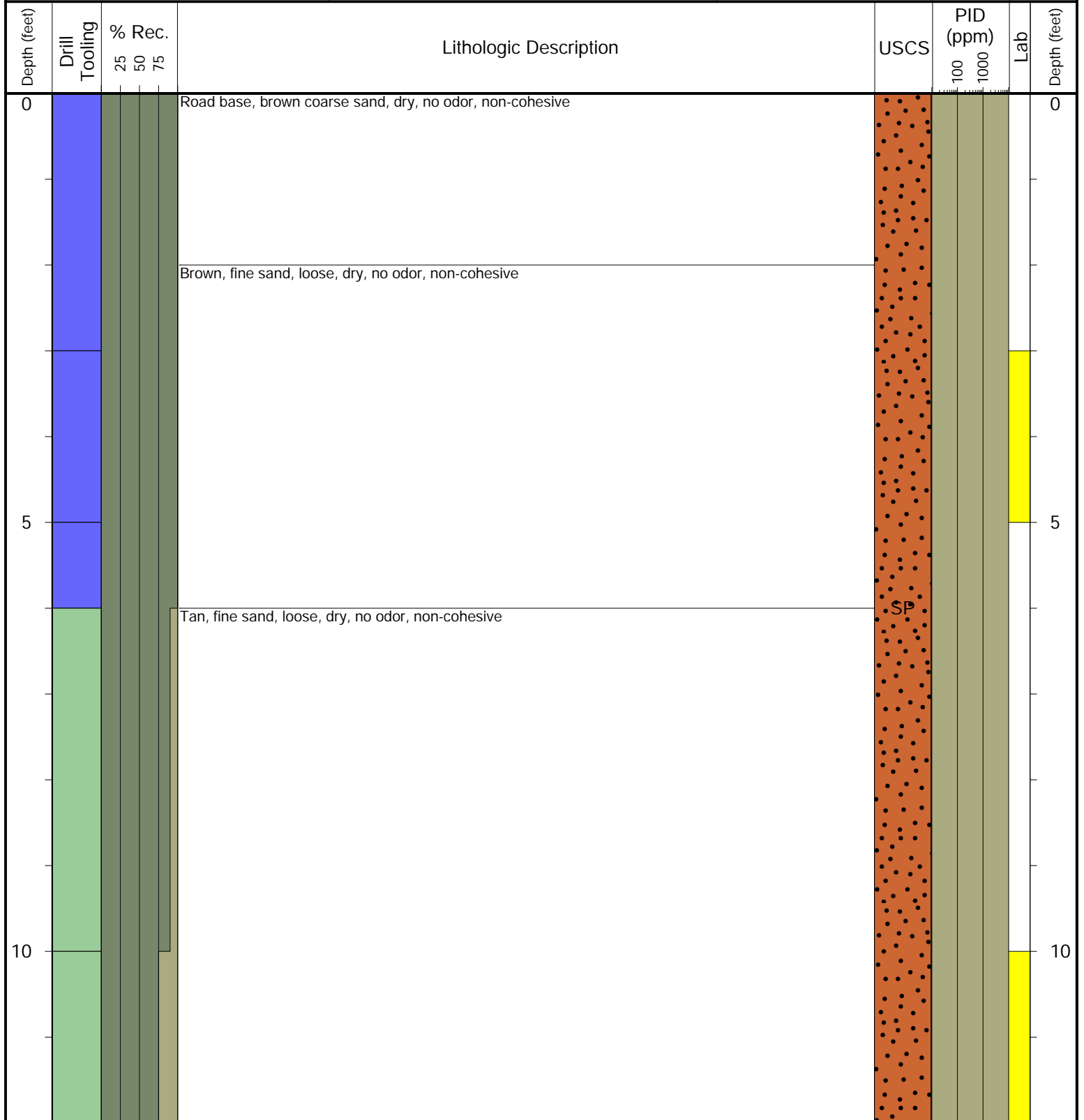
LOCATION: Weld County, Colorado

LATITUDE (WGS 84): 40.521897585116

LONGITUDE (WGS 84): -104.64900951004

GROUND ELEVATION (FT. AMSL): NM

ABANDONMENT METHOD: Bentonite



Drilling / Sample Method:

Macro-Core

Expendable Well Tip

Perforated Injection Tool

Hand Auger

Laboratory Sample Types:

Geotechnical Lab

Analytical Chemistry Lab

Geotechnical & Analytical Chemistry Lab



ABANDONMENT METHOD: Bentonite





TASMAN

6855 W. 119th Ave.
Broomfield, CO 80020

CLIENT: Tasman

LOGGED BY: Hunter Merlo

PROJECT MANAGER: Jake Whritenour

DRILLING CONTRACTOR: Tasman

DRILLING EQUIPMENT: Hand Auger/ Power Probe

DRILL BIT SIZE (INCHES): 2.375"

DATE STARTED - COMPLETED: 8/12/21 - 8/12/21

TOTAL WELL DEPTH (FT. BGS): 12

DEPTH WATER ENCOUNTERED (FT. BGS): NM

Kastner 41-03

BORING ID: BH05

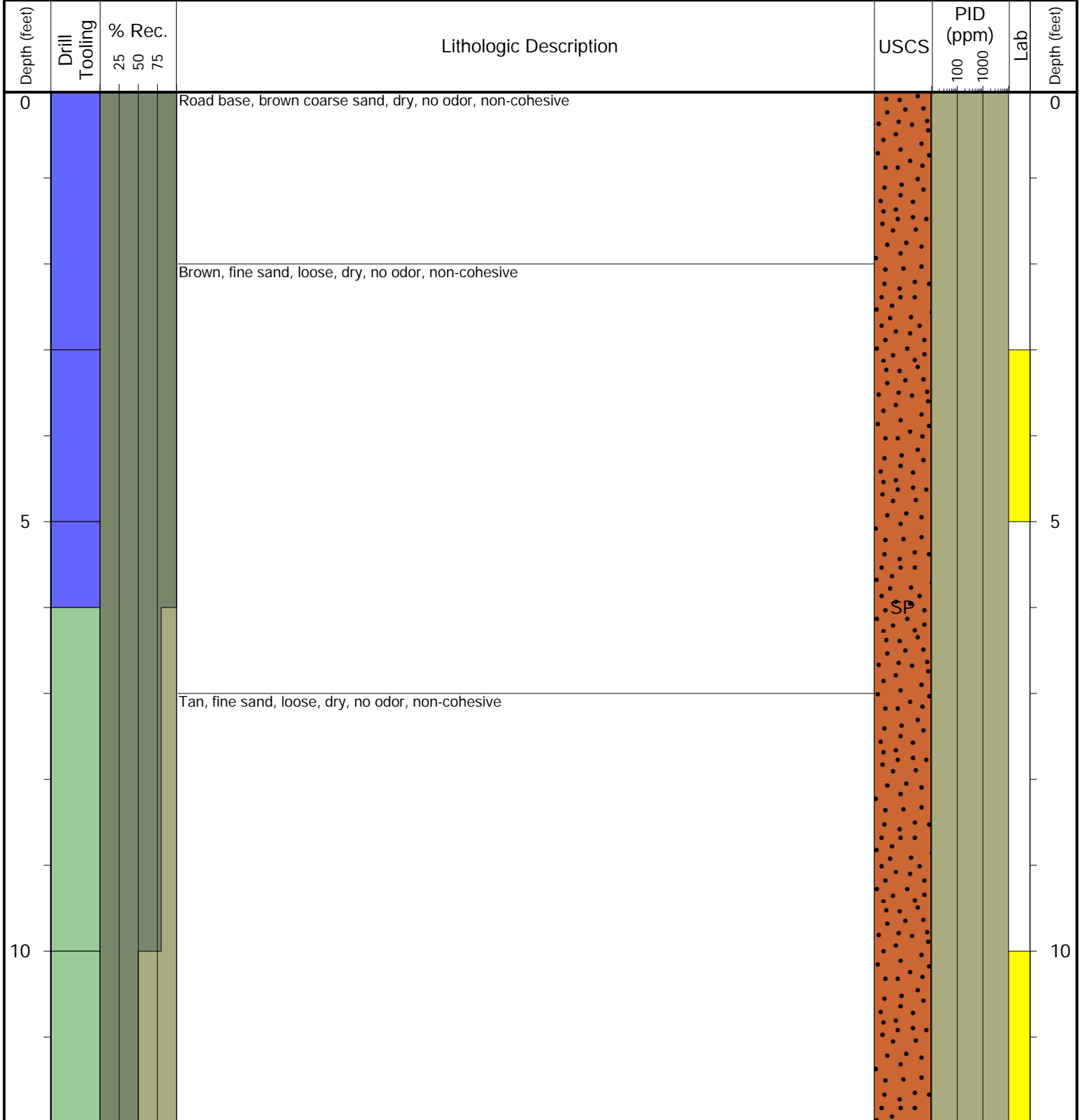
LOCATION: Weld County, Colorado

LATITUDE (WGS 84): 40.521891653995


LONGITUDE (WGS 84): -104.64913376591


GROUND ELEVATION (FT. AMSL): NM

ABANDONMENT METHOD: Bentonite




Drilling / Sample Method:

 Macro-Core


 Expendable Well Tip

 Perforated Injection Tool

 Hand Auger

Laboratory Sample Types:

 Geotechnical Lab

 Analytical Chemistry Lab

 Geotechnical & Analytical Chemistry Lab



TASMAN

6855 W. 119th Ave.
Broomfield, CO 80020

CLIENT: Tasman

LOGGED BY: Daniel Qua

PROJECT MANAGER: Jake Whritenour

DRILLING CONTRACTOR: Tasman

DRILLING EQUIPMENT: Hand Auger/ Power Probe

DRILL BIT SIZE (INCHES): 2.375"

DATE STARTED - COMPLETED: 12/21/21 - 12/21/21

TOTAL WELL DEPTH (FT. BGS): 14

DEPTH WATER ENCOUNTERED (FT. BGS): NM

Kastner 41-03

BORING ID: BH04R

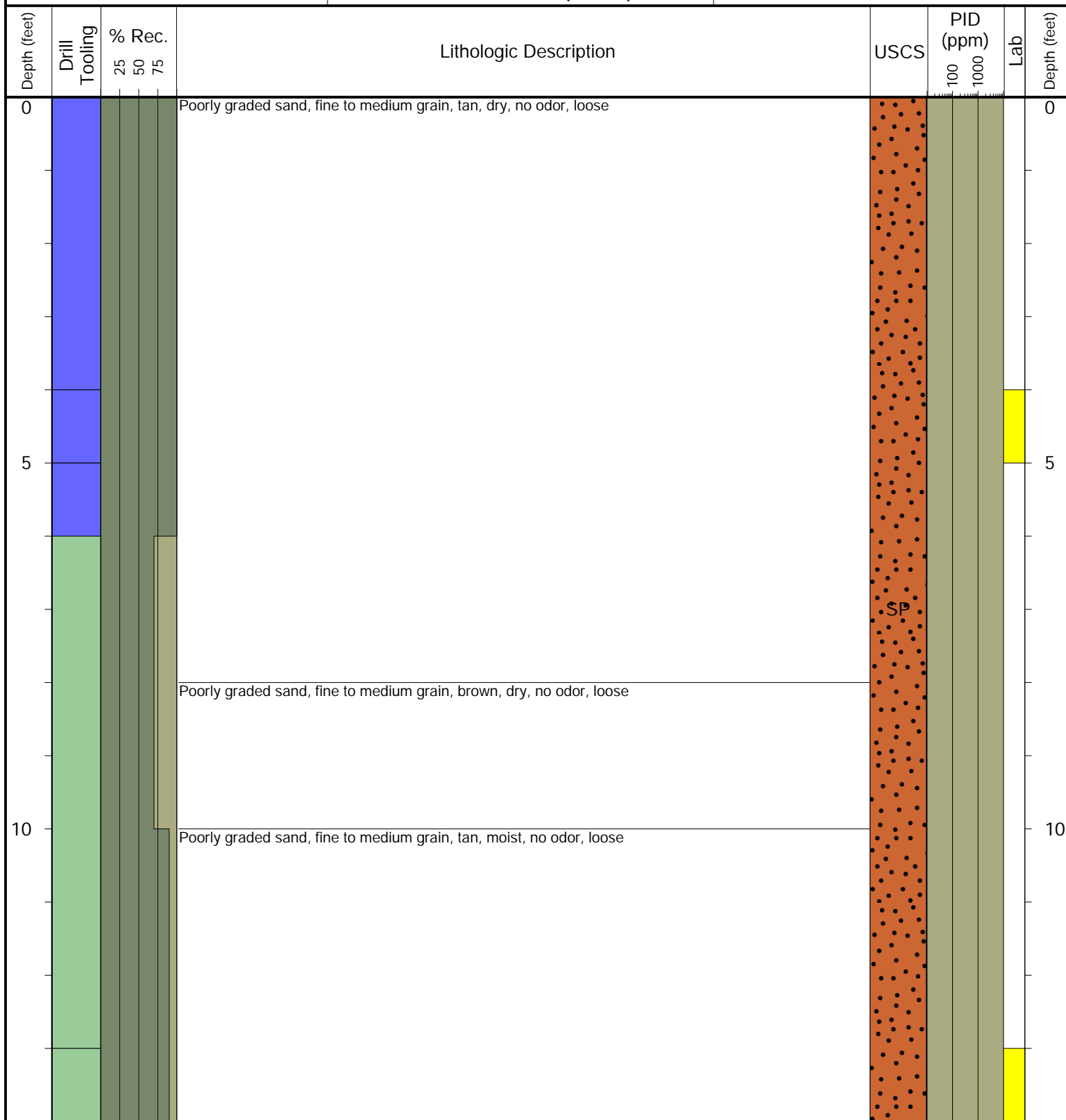
LOCATION: Weld County, Colorado

LATITUDE (WGS 84): 40.521794181

LONGITUDE (WGS 84): -104.649069503

GROUND ELEVATION (FT. AMSL): 4806.97

ABANDONMENT METHOD: Bentonite



Drilling / Sample Method:

Macro-Core

Expendable Well Tip

Perforated Injection Tool

Hand Auger

Laboratory Sample Types:

Geotechnical Lab

Analytical Chemistry Lab

Geotechnical & Analytical Chemistry Lab



TASMAN

6855 W. 119th Ave.
Broomfield, CO 80020

CLIENT: Tasman

LOGGED BY: Daniel Qua

PROJECT MANAGER: Jake Whritenour

DRILLING CONTRACTOR: Tasman

DRILLING EQUIPMENT: Hand Auger/ Power Probe

DRILL BIT SIZE (INCHES): 2.375"

DATE STARTED - COMPLETED: 12/21/21 - 12/21/21

TOTAL WELL DEPTH (FT. BGS): 14

DEPTH WATER ENCOUNTERED (FT. BGS): NM

Kastner 41-03

BORING ID: BH06

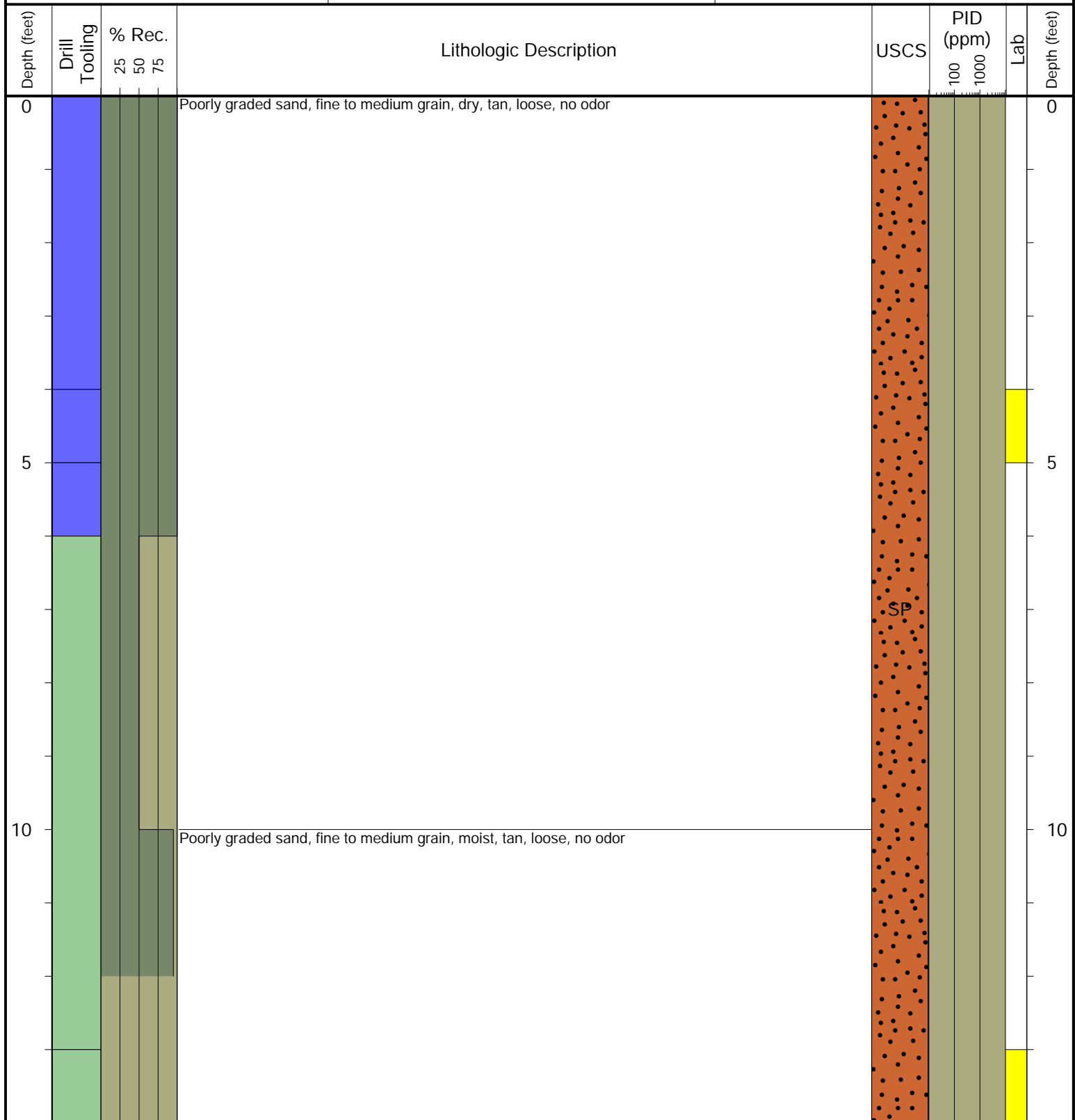
LOCATION: Weld County, Colorado

LATITUDE (WGS 84): 40.521789915

LONGITUDE (WGS 84): -104.649143834

GROUND ELEVATION (FT. AMSL): 4806.433

ABANDONMENT METHOD: Bentonite



Drilling / Sample Method:

Macro-Core

Expendable Well Tip

Perforated Injection Tool

Hand Auger

Laboratory Sample Types:

Geotechnical Lab

Analytical Chemistry Lab

Geotechnical & Analytical Chemistry Lab



TASMAN

6855 W. 119th Ave.
Broomfield, CO 80020

CLIENT: Tasman

LOGGED BY: Daniel Qua

PROJECT MANAGER: Jake Whritenour

DRILLING CONTRACTOR: Tasman

DRILLING EQUIPMENT: Hand Auger/ Power Probe

DRILL BIT SIZE (INCHES): 2.375"

DATE STARTED - COMPLETED: 12/21/21 - 12/21/21

TOTAL WELL DEPTH (FT. BGS): 14

DEPTH WATER ENCOUNTERED (FT. BGS): NM

Kastner 41-03

BORING ID: BH07

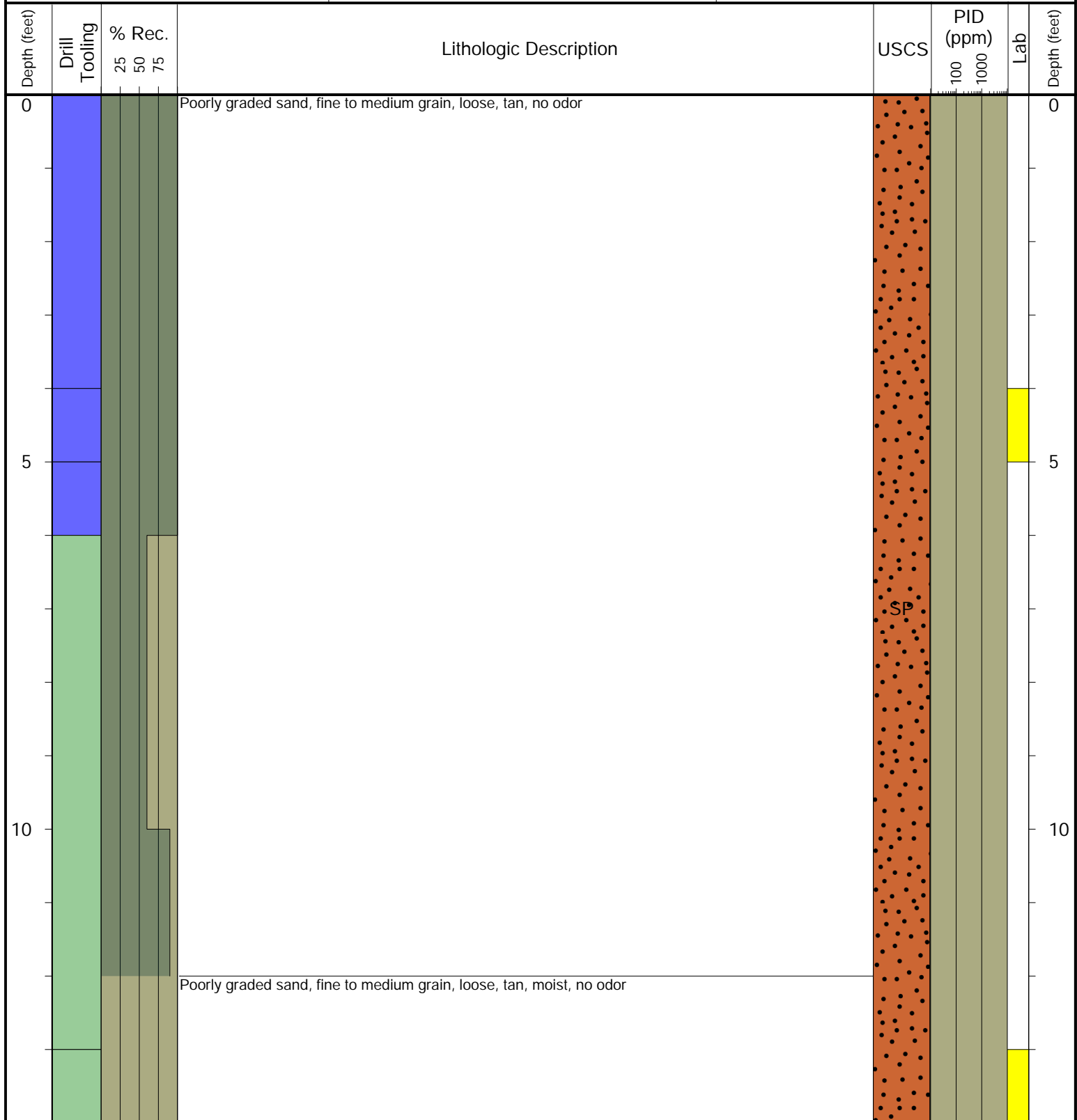
LOCATION: Weld County, Colorado

LATITUDE (WGS 84): 40.521737523

LONGITUDE (WGS 84): -104.649074452

GROUND ELEVATION (FT. AMSL): 4804.345

ABANDONMENT METHOD: Bentonite



Drilling / Sample Method:

Macro-Core

Expendable Well Tip

Perforated Injection Tool

Hand Auger

Laboratory Sample Types:

Geotechnical Lab

Analytical Chemistry Lab

Geotechnical & Analytical Chemistry Lab



TASMAN

6855 W. 119th Ave.
Broomfield, CO 80020

CLIENT: Tasman

LOGGED BY: Daniel Qua

PROJECT MANAGER: Jake Whritenour

DRILLING CONTRACTOR: Tasman

DRILLING EQUIPMENT: Hand Auger/ Power Probe

DRILL BIT SIZE (INCHES): 2.375"

DATE STARTED - COMPLETED: 12/21/21 - 12/21/21

TOTAL WELL DEPTH (FT. BGS): 14

DEPTH WATER ENCOUNTERED (FT. BGS): NM

Kastner 41-03

BORING ID: BH08

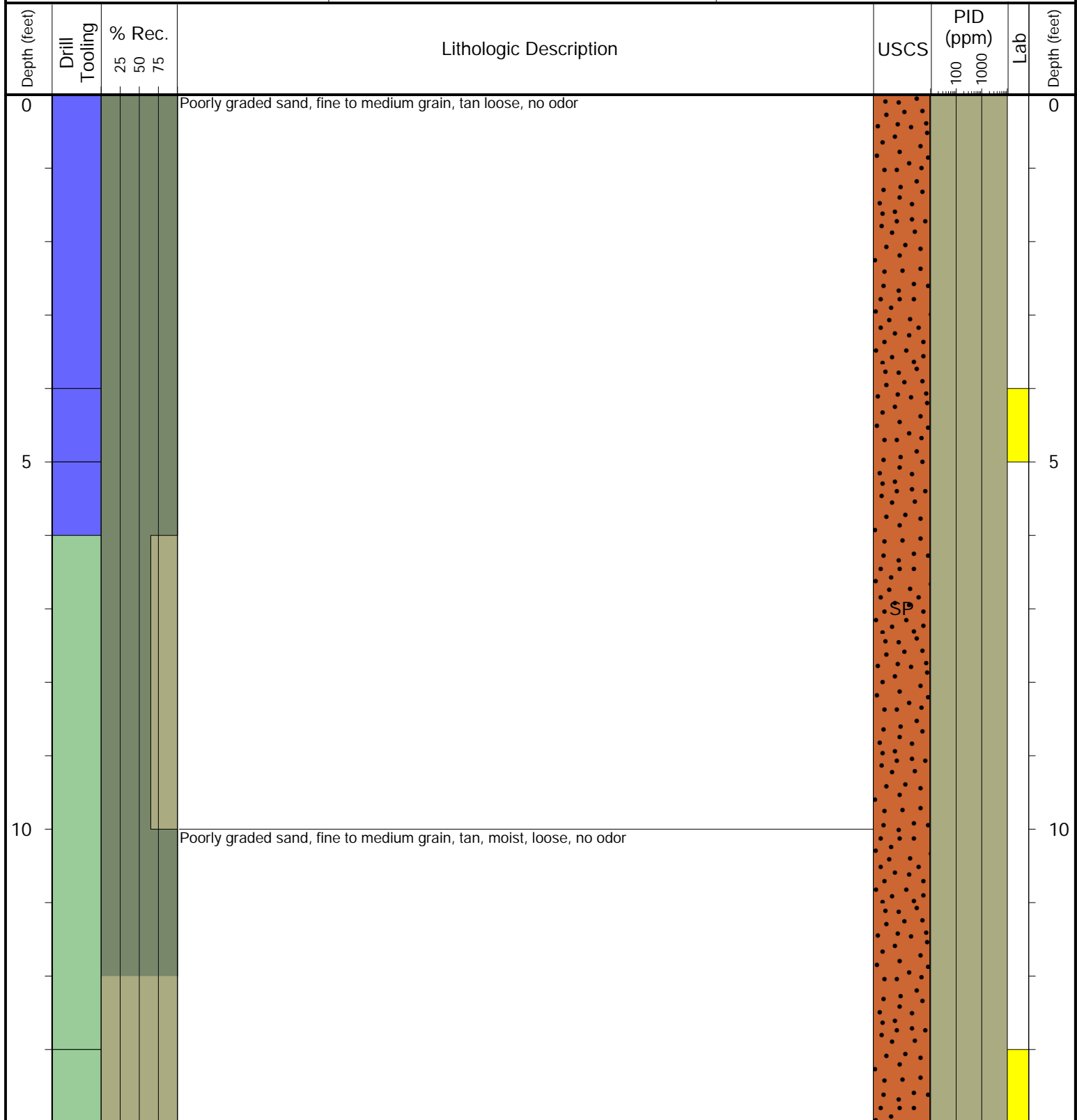
LOCATION: Weld County, Colorado

LATITUDE (WGS 84): 40.521786835

LONGITUDE (WGS 84): -104.64898752

GROUND ELEVATION (FT. AMSL): 4807.28

ABANDONMENT METHOD: Bentonite



Drilling / Sample Method:

Macro-Core

Expendable Well Tip



Perforated Injection Tool



Hand Auger

Laboratory Sample Types:

Geotechnical Lab

Analytical Chemistry Lab



Geotechnical & Analytical Chemistry Lab