

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

August 29, 2024

Jacob Whritenour
Tasman Geosciences
6855 W. 119th Ave.
Broomfield, CO 80020
RE: Noble - Long C20-17
Work Order #2408276

Enclosed are the results of analyses for samples received by Summit Scientific on 08/22/24 17:37. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "Natalie Tessier". The signature is written in a cursive, flowing style.

Natalie Tessier For Paul Shrewsbury
President



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

Project: Noble - Long C20-17

Project Number: UWRWE-A1876-ABN

Project Manager: Jacob Whritenour

Reported:
 08/29/24 11:02

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FL01R-S@3'	2408276-01	Soil	08/22/24 09:37	08/22/24 17:37
FL01R-W@2.5'	2408276-02	Soil	08/22/24 12:32	08/22/24 17:37
FL01-01@2.5'	2408276-03	Soil	08/22/24 12:37	08/22/24 17:37
FL01-03@2.5'	2408276-04	Soil	08/22/24 12:45	08/22/24 17:37
FL01-04@3'	2408276-05	Soil	08/22/24 13:06	08/22/24 17:37
FL01-06@3'	2408276-06	Soil	08/22/24 13:27	08/22/24 17:37
BKG01@0-6"	2408276-07	Soil	08/22/24 12:30	08/22/24 17:37
BKG01@2.5'	2408276-08	Soil	08/22/24 12:35	08/22/24 17:37
BKG01@3'	2408276-09	Soil	08/22/24 12:40	08/22/24 17:37
BKG01@5'	2408276-10	Soil	08/22/24 12:45	08/22/24 17:37

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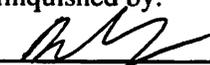


4653 Table Mountain Drive
 Golden, CO 80403
 303-277-9310

Lab ID	Page 1 of 1
2408276	

Send Data To:		Send Invoice To:
Client: Noble/Tasman	Project Manager: Jake Whritenour	Company: Noble
Address: 6855 W. 119th Ave.	E-Mail: Jwhritenour@tasman-geo.com	Project Name/Location: Long C20-17
City/State/Zip: Broomfield/CO/ 80020		AFE#: UWRWE-A 1876-ABN
Phone:	Project Name: Long C20-17	PO/Billing Codes:
Sampler Name: Ryan Yavinsky	Project Number:	Contact: Miguel Barron

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix		Air-Canister #	Other	Analysis Requested							Special Instructions
					HCl	HNO3	None	Other	Water	Soil			VOC - 915	TPH - 915	PAH - 915	Metals - 915	pH, EC, SAR	Boron - HWS	HOLD	
1	FL01R-5@2.5'	8/22/24	0937	3			X			X		X	X	X	X	X	X			
2	FL01R-W@2.5'		1232																	
3	FL01-01@2.5'		1237																	
4	FL01-03@2.5'		1245																	
5	FL01-04@3'		1306																	
6	FL01-06@3'		1327	1																
7	BK601@0-6"		1230	2																
8	BK601@2.5'		1235	1																
9	BK601@3'		1240	1																
10	BK601@5'		1245	1																
11																				
12																				
13																				
14																				
15																				

Relinquished by: 	Date/Time: 8/22/24 1600	Received by: Tasman Lock Box	Date/Time: 8/22/24 1600	TAT Business Days	Field DO	Notes:
				Same Day	Field EC	
Relinquished by: Tasman Lock Box	Date/Time: 8/22/24 1737	Received by: 	Date/Time: 8/22/24 1737	1 Day	Field ORP	
				2 Days	Field pH	
Relinquished by:	Date/Time:	Received by:	Date/Time:	3 Days	Field Temp.	
				Standard	X Field Turb.	
Temperature Upon Receipt: 14.9	Corrected Temperature: 0	IR gun #: 1	HNO3 lot #:			

S₂

Sample Receipt Checklist

S2 Work Order# 2408214

Client: Noble Casman Client Project ID: Long C20-17

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

Matrix (Check all that apply) Air Soil/Solid Water Other

Temp (°C)

Thermometer #

	Yes	No	N/A	Comments (if any)
If samples require cooling, is the temperature < 6°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"/>	
If custody seals are present, are they intact? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are samples due within 48 hours present?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Are water samples with short hold times present? Note the short hold analysis in the comments column - pH, Nitrate/Nitrite, Ferrous Iron (Fe ²⁺), Hexavalent Chromium (Cr ⁶⁺ , Cr VI), COD/BOD, Total Coliform, E. Coli, Total Residual Chlorine (TRC), Dissolved Oxygen	<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"/>	
Is the COC properly relinquished by the client w/ date and time recorded? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all samples received intact? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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"/>	
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.				

AS
Custodian Printed Name

8/22/24
Date/Time



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

Project: Noble - Long C20-17
Project Number: UWRWE-A1876-ABN
Project Manager: Jacob Whritenour

Reported:
08/29/24 11:02

FL01R-S@3'
2408276-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/22/24 09:37**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BHH0782	08/26/24	08/27/24	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: **08/22/24 09:37**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	0.0426	106 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0406	101 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0385	96.2 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/22/24 09:37**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BHH0779	08/26/24	08/28/24	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/22/24 09:37**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	10.4	83.3 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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PAH by EPA Method 8270D SIM

Date Sampled: **08/22/24 09:37**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BHH0688	08/23/24	08/24/24	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: **08/22/24 09:37**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0177	53.2 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0194	58.1 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **08/22/24 09:37**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BHH0766	08/26/24	08/29/24	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **08/22/24 09:37**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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2408276-01 (Soil)

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Total Metals by EPA 6020B

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	0.746	0.200	mg/kg dry	1	BHH0691	08/23/24	08/28/24	EPA 6020B	
Barium	79.9	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Copper	1.68	0.400	"	"	"	"	"	"	
Lead	5.72	0.200	"	"	"	"	"	"	
Nickel	1.88	0.400	"	"	"	"	"	"	
Silver	0.0211	0.0200	"	"	"	"	"	"	
Zinc	6.76	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **08/22/24 09:37**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHH0810	08/27/24	08/27/24	EPA 7196A	

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

Date Sampled: **08/22/24 09:37**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	191	0.0500	mg/L dry	1	BHH0789	08/26/24	08/29/24	EPA 6020B	
Magnesium	53.1	0.0500	"	"	"	"	"	"	
Sodium	65.3	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **08/22/24 09:37**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	1.08	0.00100	units	1	BHH0899	08/29/24	08/29/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

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08/29/24 11:02

FL01R-S@3'
2408276-01 (Soil)

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Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **08/22/24 09:37**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
% Solids	90.7			%	1	BHH0754	08/26/24	08/26/24	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **08/22/24 09:37**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Specific Conductance (EC)	1.16	0.0100		mmhos/cm	1	BHH0791	08/26/24	08/28/24	EPA 120.1	

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

Date Sampled: **08/22/24 09:37**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	8.03			pH Units	1	BHH0793	08/26/24	08/28/24	EPA 9045D	

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FL01R-W@2.5'
2408276-02 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/22/24 12:32**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BHH0782	08/26/24	08/27/24	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: **08/22/24 12:32**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	0.0398	99.5 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0401	100 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0383	95.8 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/22/24 12:32**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BHH0779	08/26/24	08/28/24	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/22/24 12:32**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	9.77	78.2 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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PAH by EPA Method 8270D SIM

Date Sampled: **08/22/24 12:32**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BHH0688	08/23/24	08/24/24	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	0.00650	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	0.00804	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	0.0163	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	0.0158	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **08/22/24 12:32**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0155	46.4 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0167	50.1 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **08/22/24 12:32**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BHH0766	08/26/24	08/29/24	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **08/22/24 12:32**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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FL01R-W@2.5'
2408276-02 (Soil)

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Total Metals by EPA 6020B

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	1.12	0.200	mg/kg dry	1	BHH0691	08/23/24	08/28/24	EPA 6020B	
Barium	79.9	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Copper	2.11	0.400	"	"	"	"	"	"	
Lead	12.7	0.200	"	"	"	"	"	"	
Nickel	2.36	0.400	"	"	"	"	"	"	
Silver	0.0251	0.0200	"	"	"	"	"	"	
Zinc	7.19	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **08/22/24 12:32**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHH0810	08/27/24	08/27/24	EPA 7196A	

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

Date Sampled: **08/22/24 12:32**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	306	0.0500	mg/L dry	1	BHH0789	08/26/24	08/29/24	EPA 6020B	
Magnesium	124	0.0500	"	"	"	"	"	"	
Sodium	295	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **08/22/24 12:32**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	3.60	0.00100	units	1	BHH0899	08/29/24	08/29/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

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FL01R-W@2.5'
2408276-02 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **08/22/24 12:32**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	88.4		%	1	BHH0754	08/26/24	08/26/24	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **08/22/24 12:32**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	3.58	0.0100	mmhos/cm	1	BHH0791	08/26/24	08/28/24	EPA 120.1	

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

Date Sampled: **08/22/24 12:32**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.94		pH Units	1	BHH0793	08/26/24	08/28/24	EPA 9045D	

Summit Scientific

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

Project: Noble - Long C20-17
Project Number: UWRWE-A1876-ABN
Project Manager: Jacob Whritenour

Reported:
08/29/24 11:02

FL01-01@2.5'
2408276-03 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/22/24 12:37**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BHH0782	08/26/24	08/27/24	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	0.095	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **08/22/24 12:37**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	0.0379	94.6 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0389	97.2 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0391	97.7 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/22/24 12:37**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	500	50	mg/kg	1	BHH0779	08/26/24	08/28/24	EPA 8015M	
C28-C36 (ORO)	190	50	"	"	"	"	"	"	

Date Sampled: **08/22/24 12:37**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	11.4	91.4 %	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 - Long C20-17
Project Number: UWRWE-A1876-ABN
Project Manager: Jacob Whritenour

Reported:
08/29/24 11:02

FL01-01@2.5'
2408276-03 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **08/22/24 12:37**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	2.89	0.250	mg/kg	50	BHH0688	08/23/24	08/26/24	EPA 8270D SIM	
Anthracene	8.15	0.250	"	"	"	"	"	"	
Benzo (a) anthracene	23.4	0.250	"	"	"	"	"	"	E
Benzo (a) pyrene	8.72	0.250	"	"	"	"	"	"	
Benzo (b) fluoranthene	13.5	0.250	"	"	"	"	"	"	E
Benzo (k) fluoranthene	7.96	0.250	"	"	"	"	"	"	
Chrysene	14.1	0.250	"	"	"	"	"	"	E
Dibenz (a,h) anthracene	0.774	0.250	"	"	"	"	"	"	
Fluoranthene	26.5	0.250	"	"	"	"	"	"	E
Fluorene	3.66	0.250	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	4.74	0.250	"	"	"	"	"	"	
Pyrene	34.7	0.250	"	"	"	"	"	"	E
1-Methylnaphthalene	0.182	0.00500	"	1	"	"	08/24/24	"	
2-Methylnaphthalene	0.281	0.00500	"	"	"	"	"	"	E

Date Sampled: **08/22/24 12:37**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0223	67.0 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0403	121 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **08/22/24 12:37**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BHH0766	08/26/24	08/29/24	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **08/22/24 12:37**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	0.658	0.200	mg/kg dry	1	BHH0691	08/23/24	08/28/24	EPA 6020B	

Summit Scientific

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

Project: Noble - Long C20-17
Project Number: UWRWE-A1876-ABN
Project Manager: Jacob Whritenour

Reported:
08/29/24 11:02

FL01-01@2.5'
2408276-03 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Barium	65.6	0.400	mg/kg dry	1	BHH0691	08/23/24	08/28/24	EPA 6020B	
Cadmium	ND	0.200	"	"	"	"	"	"	
Copper	1.60	0.400	"	"	"	"	"	"	
Lead	6.10	0.200	"	"	"	"	"	"	
Nickel	1.63	0.400	"	"	"	"	"	"	
Silver	0.0291	0.0200	"	"	"	"	"	"	
Zinc	6.25	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **08/22/24 12:37**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHH0810	08/27/24	08/27/24	EPA 7196A	

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

Date Sampled: **08/22/24 12:37**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	209	0.0500	mg/L dry	1	BHH0789	08/26/24	08/29/24	EPA 6020B	
Magnesium	70.4	0.0500	"	"	"	"	"	"	
Sodium	250	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **08/22/24 12:37**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	3.82	0.00100	units	1	BHH0899	08/29/24	08/29/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **08/22/24 12:37**

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 - Long C20-17
Project Number: UWRWE-A1876-ABN
Project Manager: Jacob Whritenour

Reported:
08/29/24 11:02

FL01-01@2.5'
2408276-03 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

% Solids	96.6	%	1	BHH0754	08/26/24	08/26/24	Calculation
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Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **08/22/24 12:37**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	3.08	0.0100	mmhos/cm	1	BHH0791	08/26/24	08/28/24	EPA 120.1	

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

Date Sampled: **08/22/24 12:37**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.55		pH Units	1	BHH0793	08/26/24	08/28/24	EPA 9045D	

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6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Long C20-17
Project Number: UWRWE-A1876-ABN
Project Manager: Jacob Whritenour

Reported:
08/29/24 11:02

FL01-03@2.5'
2408276-04 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/22/24 12:45**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	0.0020	mg/kg	1	BHH0782	08/26/24	08/27/24	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: **08/22/24 12:45**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4	0.0433	108 %	50-150	"	"	"	"	"	
Surrogate: Toluene-d8	0.0395	98.8 %	50-150	"	"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0398	99.4 %	50-150	"	"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/22/24 12:45**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
C10-C28 (DRO)	ND	50	mg/kg	1	BHH0779	08/26/24	08/28/24	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/22/24 12:45**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: o-Terphenyl	12.7	102 %	30-150	"	"	"	"	"	

PAH by EPA Method 8270D SIM

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Project: Noble - Long C20-17
Project Number: UWRWE-A1876-ABN
Project Manager: Jacob Whritenour

Reported:
08/29/24 11:02

FL01-03@2.5'
2408276-04 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **08/22/24 12:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BHH0688	08/23/24	08/24/24	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	"
Benzo (a) anthracene	0.00604	0.00500	"	"	"	"	"	"	"
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	"
Benzo (b) fluoranthene	0.00858	0.00500	"	"	"	"	"	"	"
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	"
Chrysene	0.00641	0.00500	"	"	"	"	"	"	"
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	"
Fluoranthene	0.0117	0.00500	"	"	"	"	"	"	"
Fluorene	ND	0.00500	"	"	"	"	"	"	"
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	"
Pyrene	0.00782	0.00500	"	"	"	"	"	"	"
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	"
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	"

Date Sampled: **08/22/24 12:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0224	67.1 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0254	76.1 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **08/22/24 12:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BHH0766	08/26/24	08/29/24	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **08/22/24 12:45**

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 - Long C20-17

Project Number: UWRWE-A1876-ABN
Project Manager: Jacob Whritenour

Reported:
08/29/24 11:02

FL01-03@2.5'
2408276-04 (Soil)

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Total Metals by EPA 6020B

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	0.485	0.180	mg/kg dry	1	BHH0691	08/23/24	08/28/24	EPA 6020B	
Barium	51.3	0.360	"	"	"	"	"	"	
Cadmium	ND	0.180	"	"	"	"	"	"	
Copper	1.37	0.360	"	"	"	"	"	"	
Lead	5.55	0.180	"	"	"	"	"	"	
Nickel	1.27	0.360	"	"	"	"	"	"	
Silver	0.0187	0.0180	"	"	"	"	"	"	
Zinc	5.38	0.360	"	"	"	"	"	"	
Selenium	ND	0.234	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **08/22/24 12:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHH0810	08/27/24	08/27/24	EPA 7196A	

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

Date Sampled: **08/22/24 12:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	28.5	0.0500	mg/L dry	1	BHH0789	08/26/24	08/29/24	EPA 6020B	
Magnesium	19.7	0.0500	"	"	"	"	"	"	
Sodium	50.1	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **08/22/24 12:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	1.77	0.00100	units	1	BHH0899	08/29/24	08/29/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

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Project: Noble - Long C20-17
Project Number: UWRWE-A1876-ABN
Project Manager: Jacob Whritenour

Reported:
08/29/24 11:02

FL01-03@2.5'
2408276-04 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **08/22/24 12:45**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
% Solids	98.0			%	1	BHH0754	08/26/24	08/26/24	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **08/22/24 12:45**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Specific Conductance (EC)	2.54	0.0100		mmhos/cm	1	BHH0791	08/26/24	08/28/24	EPA 120.1	

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

Date Sampled: **08/22/24 12:45**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	8.63			pH Units	1	BHH0793	08/26/24	08/28/24	EPA 9045D	

Summit Scientific

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

Project: Noble - Long C20-17
Project Number: UWRWE-A1876-ABN
Project Manager: Jacob Whritenour

Reported:
08/29/24 11:02

FL01-04@3'
2408276-05 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/22/24 13:06**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	0.0020	mg/kg	1	BHH0782	08/26/24	08/27/24	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: **08/22/24 13:06**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4	0.0402	101 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0402	101 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0380	95.0 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/22/24 13:06**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
C10-C28 (DRO)	ND	50	mg/kg	1	BHH0779	08/26/24	08/28/24	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/22/24 13:06**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: o-Terphenyl	12.4	99.0 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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Project: Noble - Long C20-17
Project Number: UWRWE-A1876-ABN
Project Manager: Jacob Whritenour

Reported:
08/29/24 11:02

FL01-04@3'
2408276-05 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **08/22/24 13:06**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BHH0688	08/23/24	08/24/24	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: **08/22/24 13:06**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0232	69.5 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0260	77.9 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **08/22/24 13:06**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BHH0766	08/26/24	08/29/24	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **08/22/24 13:06**

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 - Long C20-17
Project Number: UWRWE-A1876-ABN
Project Manager: Jacob Whritenour

Reported:
08/29/24 11:02

FL01-04@3'
2408276-05 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	0.506	0.200	mg/kg dry	1	BHH0691	08/23/24	08/28/24	EPA 6020B	
Barium	49.6	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Copper	1.35	0.400	"	"	"	"	"	"	
Lead	4.48	0.200	"	"	"	"	"	"	
Nickel	1.37	0.400	"	"	"	"	"	"	
Silver	ND	0.0200	"	"	"	"	"	"	
Zinc	5.22	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **08/22/24 13:06**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHH0810	08/27/24	08/27/24	EPA 7196A	

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

Date Sampled: **08/22/24 13:06**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	20.6	0.0500	mg/L dry	1	BHH0789	08/26/24	08/29/24	EPA 6020B	
Magnesium	15.7	0.0500	"	"	"	"	"	"	
Sodium	2.47	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **08/22/24 13:06**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.0998	0.00100	units	1	BHH0899	08/29/24	08/29/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

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

Project: Noble - Long C20-17
Project Number: UWRWE-A1876-ABN
Project Manager: Jacob Whritenour

Reported:
08/29/24 11:02

FL01-04@3'
2408276-05 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **08/22/24 13:06**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
% Solids	98.0			%	1	BHH0754	08/26/24	08/26/24	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **08/22/24 13:06**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Specific Conductance (EC)	0.368	0.0100		mmhos/cm	1	BHH0791	08/26/24	08/28/24	EPA 120.1	

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

Date Sampled: **08/22/24 13:06**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	7.89			pH Units	1	BHH0793	08/26/24	08/28/24	EPA 9045D	

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

Project: Noble - Long C20-17
Project Number: UWRWE-A1876-ABN
Project Manager: Jacob Whritenour

Reported:
08/29/24 11:02

FL01-06@3'
2408276-06 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/22/24 13:27**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BHH0782	08/26/24	08/27/24	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: **08/22/24 13:27**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	0.0422	105 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0395	98.7 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0386	96.5 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/22/24 13:27**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BHH0779	08/26/24	08/28/24	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/22/24 13:27**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	10.7	85.3 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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Tasman Geosciences
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Broomfield CO, 80020

Project: Noble - Long C20-17
Project Number: UWRWE-A1876-ABN
Project Manager: Jacob Whritenour

Reported:
08/29/24 11:02

FL01-06@3'
2408276-06 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **08/22/24 13:27**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	0.0305	0.00500	mg/kg	1	BHH0688	08/23/24	08/24/24	EPA 8270D SIM	
Anthracene	0.0692	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	0.174	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	0.0691	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	0.0514	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	0.0353	0.00500	"	"	"	"	"	"	
Chrysene	0.155	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	0.0151	0.00500	"	"	"	"	"	"	
Fluoranthene	0.323	0.00500	"	"	"	"	"	"	E
Fluorene	0.0335	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	0.110	0.00500	"	"	"	"	"	"	
Pyrene	0.333	0.00500	"	"	"	"	"	"	E
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **08/22/24 13:27**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0200	60.0 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0223	66.9 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **08/22/24 13:27**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BHH0766	08/26/24	08/29/24	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **08/22/24 13:27**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	0.609	0.200	mg/kg dry	1	BHH0691	08/23/24	08/28/24	EPA 6020B	

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

Project: Noble - Long C20-17
Project Number: UWRWE-A1876-ABN
Project Manager: Jacob Whritenour

Reported:
08/29/24 11:02

FL01-06@3'
2408276-06 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Barium	43.2	0.400	mg/kg dry	1	BHH0691	08/23/24	08/28/24	EPA 6020B	
Cadmium	ND	0.200	"	"	"	"	"	"	
Copper	1.33	0.400	"	"	"	"	"	"	
Lead	4.14	0.200	"	"	"	"	"	"	
Nickel	1.55	0.400	"	"	"	"	"	"	
Silver	0.0221	0.0200	"	"	"	"	"	"	
Zinc	5.37	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **08/22/24 13:27**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHH0810	08/27/24	08/27/24	EPA 7196A	

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

Date Sampled: **08/22/24 13:27**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	194	0.0500	mg/L dry	1	BHH0789	08/26/24	08/29/24	EPA 6020B	
Magnesium	141	0.0500	"	"	"	"	"	"	
Sodium	424	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **08/22/24 13:27**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	5.65	0.00100	units	1	BHH0899	08/29/24	08/29/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **08/22/24 13:27**

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 - Long C20-17
Project Number: UWRWE-A1876-ABN
Project Manager: Jacob Whritenour

Reported:
08/29/24 11:02

FL01-06@3'
2408276-06 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

% Solids	93.3	%	1	BHH0754	08/26/24	08/26/24	Calculation
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Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **08/22/24 13:27**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	4.20	0.0100	mmhos/cm	1	BHH0791	08/26/24	08/28/24	EPA 120.1	

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

Date Sampled: **08/22/24 13:27**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.49		pH Units	1	BHH0793	08/26/24	08/28/24	EPA 9045D	

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Broomfield CO, 80020

Project: Noble - Long C20-17
Project Number: UWRWE-A1876-ABN
Project Manager: Jacob Whritenour

Reported:
08/29/24 11:02

BKG01@0-6"
2408276-07 (Soil)

Summit Scientific

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **08/22/24 12:30**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Boron	ND	2.00	mg/L	1	BHH0766	08/26/24	08/29/24	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **08/22/24 12:30**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	0.662	0.200	mg/kg dry	1	BHH0691	08/23/24	08/28/24	EPA 6020B	
Barium	62.5	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Copper	1.66	0.400	"	"	"	"	"	"	
Lead	7.80	0.200	"	"	"	"	"	"	
Nickel	1.57	0.400	"	"	"	"	"	"	
Silver	0.0256	0.0200	"	"	"	"	"	"	
Zinc	6.28	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **08/22/24 12:30**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHH0810	08/27/24	08/27/24	EPA 7196A	

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

Date Sampled: **08/22/24 12:30**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	137	0.0500	mg/L dry	1	BHH0789	08/26/24	08/29/24	EPA 6020B	
Magnesium	35.4	0.0500	"	"	"	"	"	"	
Sodium	70.5	0.0500	"	"	"	"	"	"	

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

Project: Noble - Long C20-17
Project Number: UWRWE-A1876-ABN
Project Manager: Jacob Whritenour

Reported:
08/29/24 11:02

BKG01@0-6''
2408276-07 (Soil)

Summit Scientific

Calculated Analysis

Date Sampled: **08/22/24 12:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	1.39	0.00100	units	1	BHH0899	08/29/24	08/29/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **08/22/24 12:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	96.7		%	1	BHH0754	08/26/24	08/26/24	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **08/22/24 12:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	1.69	0.0100	mmhos/cm	1	BHH0791	08/26/24	08/28/24	EPA 120.1	

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

Date Sampled: **08/22/24 12:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.74		pH Units	1	BHH0793	08/26/24	08/28/24	EPA 9045D	

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

Project: Noble - Long C20-17
Project Number: UWRWE-A1876-ABN
Project Manager: Jacob Whritenour

Reported:
08/29/24 11:02

BKG01@2.5'
2408276-08 (Soil)

Summit Scientific

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **08/22/24 12:35**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Boron	ND	2.00	mg/L	1	BHH0766	08/26/24	08/29/24	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **08/22/24 12:35**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	0.965	0.200	mg/kg dry	1	BHH0691	08/23/24	08/28/24	EPA 6020B	
Barium	122	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Copper	1.87	0.400	"	"	"	"	"	"	
Lead	16.9	0.200	"	"	"	"	"	"	
Nickel	1.91	0.400	"	"	"	"	"	"	
Silver	0.0284	0.0200	"	"	"	"	"	"	
Zinc	7.00	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **08/22/24 12:35**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHH0810	08/27/24	08/27/24	EPA 7196A	

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

Date Sampled: **08/22/24 12:35**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	593	0.0500	mg/L dry	1	BHH0789	08/26/24	08/29/24	EPA 6020B	
Magnesium	411	0.0500	"	"	"	"	"	"	
Sodium	1580	0.0500	"	"	"	"	"	"	

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Broomfield CO, 80020

Project: Noble - Long C20-17
Project Number: UWRWE-A1876-ABN
Project Manager: Jacob Whritenour

Reported:
08/29/24 11:02

BKG01@2.5'
2408276-08 (Soil)

Summit Scientific

Calculated Analysis

Date Sampled: **08/22/24 12:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	12.2	0.00100	units	1	BHH0899	08/29/24	08/29/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **08/22/24 12:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	94.2		%	1	BHH0754	08/26/24	08/26/24	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **08/22/24 12:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	13.6	0.0100	mmhos/cm	1	BHH0791	08/26/24	08/28/24	EPA 120.1	

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

Date Sampled: **08/22/24 12:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.79		pH Units	1	BHH0793	08/26/24	08/28/24	EPA 9045D	

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Broomfield CO, 80020

Project: Noble - Long C20-17
Project Number: UWRWE-A1876-ABN
Project Manager: Jacob Whritenour

Reported:
08/29/24 11:02

BKG01@3'
2408276-09 (Soil)

Summit Scientific

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **08/22/24 12:40**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Boron	ND	2.00	mg/L	1	BHH0766	08/26/24	08/29/24	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **08/22/24 12:40**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	0.668	0.200	mg/kg dry	1	BHH0691	08/23/24	08/28/24	EPA 6020B	
Barium	64.7	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Copper	1.73	0.400	"	"	"	"	"	"	
Lead	59.1	0.200	"	"	"	"	"	"	
Nickel	1.62	0.400	"	"	"	"	"	"	
Silver	0.0240	0.0200	"	"	"	"	"	"	
Zinc	6.46	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **08/22/24 12:40**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHH0810	08/27/24	08/27/24	EPA 7196A	

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

Date Sampled: **08/22/24 12:40**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	443	0.0500	mg/L dry	1	BHH0789	08/26/24	08/29/24	EPA 6020B	
Magnesium	222	0.0500	"	"	"	"	"	"	
Sodium	814	0.0500	"	"	"	"	"	"	

Summit Scientific

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6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Long C20-17
Project Number: UWRWE-A1876-ABN
Project Manager: Jacob Whritenour

Reported:
08/29/24 11:02

BKG01@3'
2408276-09 (Soil)

Summit Scientific

Calculated Analysis

Date Sampled: **08/22/24 12:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	7.88	0.00100	units	1	BHH0899	08/29/24	08/29/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **08/22/24 12:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	96.0		%	1	BHH0754	08/26/24	08/26/24	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **08/22/24 12:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	7.74	0.0100	mmhos/cm	1	BHH0791	08/26/24	08/28/24	EPA 120.1	

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

Date Sampled: **08/22/24 12:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.61		pH Units	1	BHH0793	08/26/24	08/28/24	EPA 9045D	

Summit Scientific

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

Project: Noble - Long C20-17
Project Number: UWRWE-A1876-ABN
Project Manager: Jacob Whritenour

Reported:
08/29/24 11:02

BKG01@5'
2408276-10 (Soil)

Summit Scientific

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **08/22/24 12:45**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Boron	ND	2.00	mg/L	1	BHH0766	08/26/24	08/29/24	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **08/22/24 12:45**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	1.87	0.200	mg/kg dry	1	BHH0693	08/23/24	08/28/24	EPA 6020B	
Barium	50.2	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Copper	3.90	0.400	"	"	"	"	"	"	
Lead	9.00	0.200	"	"	"	"	"	"	
Nickel	3.47	0.400	"	"	"	"	"	"	
Silver	0.0208	0.0200	"	"	"	"	"	"	
Zinc	14.5	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **08/22/24 12:45**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHH0810	08/27/24	08/27/24	EPA 7196A	

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

Date Sampled: **08/22/24 12:45**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	468	0.0500	mg/L dry	1	BHH0789	08/26/24	08/29/24	EPA 6020B	
Magnesium	238	0.0500	"	"	"	"	"	"	
Sodium	782	0.0500	"	"	"	"	"	"	

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Project Manager: Jacob Whritenour

Reported:
08/29/24 11:02

BKG01@5'
2408276-10 (Soil)

Summit Scientific

Calculated Analysis

Date Sampled: **08/22/24 12:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	7.34	0.00100	units	1	BHH0899	08/29/24	08/29/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **08/22/24 12:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	95.6		%	1	BHH0754	08/26/24	08/26/24	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **08/22/24 12:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	7.12	0.0100	mmhos/cm	1	BHH0791	08/26/24	08/28/24	EPA 120.1	

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

Date Sampled: **08/22/24 12:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.60		pH Units	1	BHH0793	08/26/24	08/28/24	EPA 9045D	

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Project: Noble - Long C20-17
Project Number: UWRWE-A1876-ABN
Project Manager: Jacob Whritenour

Reported:
08/29/24 11:02

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

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

Batch BHH0782 - EPA 5030 Soil MS

Blank (BHH0782-BLK1)

Prepared & Analyzed: 08/26/24

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	0.0463		"	0.0400		116	50-150			
Surrogate: Toluene-d8	0.0405		"	0.0400		101	50-150			
Surrogate: 4-Bromofluorobenzene	0.0390		"	0.0400		97.5	50-150			

LCS (BHH0782-BS1)

Prepared & Analyzed: 08/26/24

Benzene	0.101	0.0020	mg/kg	0.100		101	70-130			
Toluene	0.101	0.0050	"	0.100		101	70-130			
Ethylbenzene	0.105	0.0050	"	0.100		105	70-130			
m,p-Xylene	0.204	0.010	"	0.200		102	70-130			
o-Xylene	0.100	0.0050	"	0.100		100	70-130			
1,2,4-Trimethylbenzene	0.100	0.0050	"	0.100		100	70-130			
1,3,5-Trimethylbenzene	0.0998	0.0050	"	0.100		99.8	70-130			
Naphthalene	0.0983	0.0038	"	0.100		98.3	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0416		"	0.0400		104	50-150			
Surrogate: Toluene-d8	0.0392		"	0.0400		98.1	50-150			
Surrogate: 4-Bromofluorobenzene	0.0397		"	0.0400		99.3	50-150			

Matrix Spike (BHH0782-MS1)

Source: 2408275-01

Prepared & Analyzed: 08/26/24

Benzene	0.102	0.0020	mg/kg	0.100	ND	102	70-130			
Toluene	0.104	0.0050	"	0.100	ND	104	70-130			
Ethylbenzene	0.105	0.0050	"	0.100	ND	105	70-130			
m,p-Xylene	0.204	0.010	"	0.200	ND	102	70-130			
o-Xylene	0.0978	0.0050	"	0.100	ND	97.8	70-130			
1,2,4-Trimethylbenzene	0.0949	0.0050	"	0.100	ND	94.9	70-130			
1,3,5-Trimethylbenzene	0.0966	0.0050	"	0.100	ND	96.6	70-130			
Naphthalene	0.0887	0.0038	"	0.100	ND	88.7	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0433		"	0.0400		108	50-150			
Surrogate: Toluene-d8	0.0399		"	0.0400		99.8	50-150			
Surrogate: 4-Bromofluorobenzene	0.0385		"	0.0400		96.2	50-150			

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Project: Noble - Long C20-17
Project Number: UWRWE-A1876-ABN
Project Manager: Jacob Whritenour

Reported:
08/29/24 11:02

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

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

Batch BHH0782 - EPA 5030 Soil MS

Matrix Spike Dup (BHH0782-MSD1)	Source: 2408275-01			Prepared & Analyzed: 08/26/24						
Benzene	0.0991	0.0020	mg/kg	0.100	ND	99.1	70-130	2.78	30	
Toluene	0.0991	0.0050	"	0.100	ND	99.1	70-130	4.44	30	
Ethylbenzene	0.103	0.0050	"	0.100	ND	103	70-130	2.34	30	
m,p-Xylene	0.202	0.010	"	0.200	ND	101	70-130	0.973	30	
o-Xylene	0.0967	0.0050	"	0.100	ND	96.7	70-130	1.17	30	
1,2,4-Trimethylbenzene	0.0934	0.0050	"	0.100	ND	93.4	70-130	1.56	30	
1,3,5-Trimethylbenzene	0.0947	0.0050	"	0.100	ND	94.7	70-130	2.01	30	
Naphthalene	0.0862	0.0038	"	0.100	ND	86.2	70-130	2.88	30	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0440</i>		<i>"</i>	<i>0.0400</i>		<i>110</i>	<i>50-150</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0405</i>		<i>"</i>	<i>0.0400</i>		<i>101</i>	<i>50-150</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0398</i>		<i>"</i>	<i>0.0400</i>		<i>99.4</i>	<i>50-150</i>			

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Project: Noble - Long C20-17
Project Number: UWRWE-A1876-ABN
Project Manager: Jacob Whritenour

Reported:
08/29/24 11:02

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

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

Batch BHH0779 - EPA 3550A

Blank (BHH0779-BLK1)

Prepared: 08/26/24 Analyzed: 08/28/24

C10-C28 (DRO)	ND	50	mg/kg								
C28-C36 (ORO)	ND	50	"								
Surrogate: <i>o</i> -Terphenyl	11.6		"	12.5		93.2	30-150				

LCS (BHH0779-BS1)

Prepared: 08/26/24 Analyzed: 08/28/24

C10-C28 (DRO)	553	50	mg/kg	500		111	70-130				
Surrogate: <i>o</i> -Terphenyl	13.0		"	12.5		104	30-150				

Matrix Spike (BHH0779-MS1)

Source: 2408275-01

Prepared: 08/26/24 Analyzed: 08/28/24

C10-C28 (DRO)	462	50	mg/kg	500	17.4	88.8	70-130				
Surrogate: <i>o</i> -Terphenyl	9.23		"	12.5		73.9	30-150				

Matrix Spike Dup (BHH0779-MSD1)

Source: 2408275-01

Prepared: 08/26/24 Analyzed: 08/28/24

C10-C28 (DRO)	417	50	mg/kg	500	17.4	79.9	70-130	10.2	20		
Surrogate: <i>o</i> -Terphenyl	9.83		"	12.5		78.7	30-150				

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Project: Noble - Long C20-17
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Project Manager: Jacob Whritenour

Reported:
08/29/24 11:02

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

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

Batch BHH0688 - EPA 5030 Soil MS

Blank (BHH0688-BLK1)

Prepared & Analyzed: 08/23/24

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	0.0192		"	0.0333		57.6	40-150			
Surrogate: Fluoranthene-d10	0.0246		"	0.0333		73.9	40-150			

LCS (BHH0688-BS1)

Prepared & Analyzed: 08/23/24

Acenaphthene	0.0247	0.00500	mg/kg	0.0333		74.0	31-137			
Anthracene	0.0266	0.00500	"	0.0333		79.7	30-120			
Benzo (a) anthracene	0.0283	0.00500	"	0.0333		84.8	30-120			
Benzo (a) pyrene	0.0220	0.00500	"	0.0333		66.0	30-120			
Benzo (b) fluoranthene	0.0354	0.00500	"	0.0333		106	30-120			
Benzo (k) fluoranthene	0.0178	0.00500	"	0.0333		53.5	30-120			
Chrysene	0.0329	0.00500	"	0.0333		98.7	30-120			
Dibenz (a,h) anthracene	0.0239	0.00500	"	0.0333		71.6	30-120			
Fluoranthene	0.0248	0.00500	"	0.0333		74.4	30-120			
Fluorene	0.0261	0.00500	"	0.0333		78.4	30-120			
Indeno (1,2,3-cd) pyrene	0.0270	0.00500	"	0.0333		80.9	30-120			
Pyrene	0.0300	0.00500	"	0.0333		90.1	35-142			
1-Methylnaphthalene	0.0193	0.00500	"	0.0333		57.8	35-142			
2-Methylnaphthalene	0.0193	0.00500	"	0.0333		57.8	35-142			
Surrogate: 2-Methylnaphthalene-d10	0.0193		"	0.0333		57.8	40-150			
Surrogate: Fluoranthene-d10	0.0262		"	0.0333		78.5	40-150			

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Project Manager: Jacob Whritenour

Reported:
08/29/24 11:02

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

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

Batch BHH0688 - EPA 5030 Soil MS

Matrix Spike (BHH0688-MS1)	Source: 2408254-01			Prepared & Analyzed: 08/23/24								
Acenaphthene	0.0175	0.00500	mg/kg	0.0333	ND	52.5	31-137					
Anthracene	0.0199	0.00500	"	0.0333	ND	59.6	30-120					
Benzo (a) anthracene	0.0217	0.00500	"	0.0333	ND	65.0	30-120					
Benzo (a) pyrene	0.0151	0.00500	"	0.0333	ND	45.2	30-120					
Benzo (b) fluoranthene	0.0132	0.00500	"	0.0333	ND	39.7	30-120					
Benzo (k) fluoranthene	0.0191	0.00500	"	0.0333	ND	57.4	30-120					
Chrysene	0.0235	0.00500	"	0.0333	ND	70.6	30-120					
Dibenz (a,h) anthracene	0.0197	0.00500	"	0.0333	ND	59.1	30-120					
Fluoranthene	0.0187	0.00500	"	0.0333	ND	56.1	30-120					
Fluorene	0.0195	0.00500	"	0.0333	ND	58.4	30-120					
Indeno (1,2,3-cd) pyrene	0.0147	0.00500	"	0.0333	ND	44.0	30-120					
Pyrene	0.0217	0.00500	"	0.0333	ND	65.0	35-142					
1-Methylnaphthalene	0.0168	0.00500	"	0.0333	ND	50.3	15-130					
2-Methylnaphthalene	0.0166	0.00500	"	0.0333	0.00573	32.6	15-130					
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0163</i>		<i>"</i>	<i>0.0333</i>		<i>49.0</i>	<i>40-150</i>					
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0200</i>		<i>"</i>	<i>0.0333</i>		<i>59.9</i>	<i>40-150</i>					

Matrix Spike Dup (BHH0688-MSD1)	Source: 2408254-01			Prepared & Analyzed: 08/23/24								
Acenaphthene	0.0217	0.00500	mg/kg	0.0333	ND	65.1	31-137	21.4	30			
Anthracene	0.0229	0.00500	"	0.0333	ND	68.6	30-120	13.9	30			
Benzo (a) anthracene	0.0249	0.00500	"	0.0333	ND	74.6	30-120	13.8	30			
Benzo (a) pyrene	0.0171	0.00500	"	0.0333	ND	51.2	30-120	12.4	30			
Benzo (b) fluoranthene	0.0264	0.00500	"	0.0333	ND	79.2	30-120	66.5	30			QR-02
Benzo (k) fluoranthene	0.0137	0.00500	"	0.0333	ND	41.2	30-120	32.9	30			QR-02
Chrysene	0.0153	0.00500	"	0.0333	ND	45.8	30-120	42.8	30			QR-02
Dibenz (a,h) anthracene	0.0151	0.00500	"	0.0333	ND	45.3	30-120	26.3	30			
Fluoranthene	0.0213	0.00500	"	0.0333	ND	63.9	30-120	13.0	30			
Fluorene	0.0268	0.00500	"	0.0333	ND	80.3	30-120	31.6	30			QR-02
Indeno (1,2,3-cd) pyrene	0.0177	0.00500	"	0.0333	ND	53.1	30-120	18.8	30			
Pyrene	0.0237	0.00500	"	0.0333	ND	71.2	35-142	9.02	30			
1-Methylnaphthalene	0.0199	0.00500	"	0.0333	ND	59.7	15-130	17.1	50			
2-Methylnaphthalene	0.0202	0.00500	"	0.0333	0.00573	43.3	15-130	19.3	50			
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0182</i>		<i>"</i>	<i>0.0333</i>		<i>54.7</i>	<i>40-150</i>					
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0230</i>		<i>"</i>	<i>0.0333</i>		<i>69.0</i>	<i>40-150</i>					

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Project: Noble - Long C20-17
Project Number: UWRWE-A1876-ABN
Project Manager: Jacob Whritenour

Reported:
08/29/24 11:02

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

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

Batch BHH0766 - EPA 3050B

Blank (BHH0766-BLK1)				Prepared: 08/26/24 Analyzed: 08/29/24						
Boron	ND	2.00	mg/L							
LCS (BHH0766-BS1)				Prepared: 08/26/24 Analyzed: 08/29/24						
Boron	4.94	2.00	mg/L	5.00		98.9	80-120			
Duplicate (BHH0766-DUP1)				Source: 2408276-01 Prepared: 08/26/24 Analyzed: 08/29/24						
Boron	0.240	2.00	mg/L		0.260			8.00	20	
Matrix Spike (BHH0766-MS1)				Source: 2408276-01 Prepared: 08/26/24 Analyzed: 08/29/24						
Boron	5.28	2.00	mg/L	5.05	0.260	99.6	75-125			
Matrix Spike Dup (BHH0766-MSD1)				Source: 2408276-01 Prepared: 08/26/24 Analyzed: 08/29/24						
Boron	5.09	2.00	mg/L	5.05	0.260	95.8	75-125	3.65	25	

Summit Scientific

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Project: Noble - Long C20-17

Project Number: UWRWE-A1876-ABN
Project Manager: Jacob Whritenour

Reported:
08/29/24 11:02

Total Metals by EPA 6020B - Quality Control
Summit Scientific

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

Batch BHH0691 - EPA 3050B

Blank (BHH0691-BLK1)

Prepared: 08/23/24 Analyzed: 08/28/24

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	"							
Silver	ND	0.0200	"							
Zinc	ND	0.400	"							
Selenium	ND	0.260	"							

LCS (BHH0691-BS1)

Prepared: 08/23/24 Analyzed: 08/28/24

Arsenic	38.2	0.200	mg/kg wet	38.5	99.3	80-120
Barium	38.6	0.400	"	38.5	100	80-120
Cadmium	1.88	0.200	"	1.92	97.9	80-120
Copper	38.6	0.400	"	38.5	100	80-120
Lead	20.5	0.200	"	19.2	107	80-120
Nickel	38.1	0.400	"	38.5	99.2	80-120
Silver	1.88	0.0200	"	1.92	97.6	80-120
Zinc	37.9	0.400	"	38.5	98.5	80-120
Selenium	3.92	0.260	"	3.85	102	80-120

Duplicate (BHH0691-DUP1)

Source: 2408275-02

Prepared: 08/23/24 Analyzed: 08/28/24

Arsenic	1.01	0.181	mg/kg dry	1.03	2.41	20	
Barium	141	0.362	"	126	11.4	20	
Cadmium	0.165	0.181	"	0.153	7.41	20	
Copper	2.11	0.362	"	2.16	2.40	20	
Lead	8.56	0.181	"	7.71	10.4	20	
Nickel	2.52	0.362	"	2.63	4.22	20	
Silver	0.0733	0.0181	"	0.0588	22.0	20	QR-01
Zinc	7.62	0.362	"	7.88	3.34	20	
Selenium	0.167	0.236	"	ND	200	20	QR-01

Summit Scientific

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

Project: Noble - Long C20-17
Project Number: UWRWE-A1876-ABN
Project Manager: Jacob Whritenour

Reported:
08/29/24 11:02

Total Metals by EPA 6020B - Quality Control
Summit Scientific

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

Batch BHH0691 - EPA 3050B

Matrix Spike (BHH0691-MS1)	Source: 2408275-02			Prepared: 08/23/24 Analyzed: 08/28/24								
Arsenic	11.4	0.200	mg/kg dry	44.6	1.03	23.2	75-125					QM-05
Barium	165	0.400	"	44.6	126	86.0	75-125					
Cadmium	2.33	0.200	"	2.23	0.153	97.5	75-125					
Copper	12.7	0.400	"	44.6	2.16	23.6	75-125					QM-05
Lead	27.1	0.200	"	22.3	7.71	86.9	75-125					
Nickel	13.3	0.400	"	44.6	2.63	23.9	75-125					QM-05
Silver	2.16	0.0200	"	2.23	0.0588	94.3	75-125					
Zinc	18.9	0.400	"	44.6	7.88	24.7	75-125					QM-05
Selenium	4.39	0.260	"	4.46	ND	98.5	75-125					

Matrix Spike Dup (BHH0691-MSD1)	Source: 2408275-02			Prepared: 08/23/24 Analyzed: 08/28/24								
Arsenic	9.79	0.200	mg/kg dry	41.9	1.03	20.9	75-125	15.1	25			QM-05
Barium	173	0.400	"	41.9	126	111	75-125	4.79	25			
Cadmium	2.17	0.200	"	2.10	0.153	96.4	75-125	6.79	25			
Copper	11.0	0.400	"	41.9	2.16	21.2	75-125	14.0	25			QM-05
Lead	26.3	0.200	"	21.0	7.71	88.7	75-125	2.92	25			
Nickel	11.5	0.400	"	41.9	2.63	21.2	75-125	14.0	25			QM-05
Silver	2.06	0.0200	"	2.10	0.0588	95.2	75-125	5.03	25			
Zinc	16.8	0.400	"	41.9	7.88	21.4	75-125	11.5	25			QM-05
Selenium	4.16	0.260	"	4.19	ND	99.2	75-125	5.41	25			

Batch BHH0693 - EPA 3050B

Blank (BHH0693-BLK1)	Prepared: 08/23/24 Analyzed: 08/28/24											
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	"									
Silver	ND	0.0200	"									
Zinc	ND	0.400	"									
Selenium	ND	0.260	"									

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6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Long C20-17
Project Number: UWRWE-A1876-ABN
Project Manager: Jacob Whritenour

Reported:
08/29/24 11:02

Total Metals by EPA 6020B - Quality Control
Summit Scientific

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

Batch BHH0693 - EPA 3050B

LCS (BHH0693-BS1)

Prepared: 08/23/24 Analyzed: 08/28/24

Arsenic	34.6	0.200	mg/kg wet	37.6		92.0	80-120			
Barium	33.4	0.400	"	37.6		88.8	80-120			
Cadmium	1.70	0.200	"	1.88		90.3	80-120			
Copper	36.6	0.400	"	37.6		97.3	80-120			
Lead	16.9	0.200	"	18.8		90.1	80-120			
Nickel	36.2	0.400	"	37.6		96.3	80-120			
Silver	1.70	0.0200	"	1.88		90.5	80-120			
Zinc	35.7	0.400	"	37.6		95.0	80-120			
Selenium	3.80	0.260	"	3.76		101	80-120			

Duplicate (BHH0693-DUP1)

Source: 2408276-10

Prepared: 08/23/24 Analyzed: 08/28/24

Arsenic	1.95	0.200	mg/kg dry		1.87			4.31	20	
Barium	45.5	0.400	"		50.2			9.97	20	
Cadmium	0.164	0.200	"		0.161			1.83	20	
Copper	3.81	0.400	"		3.90			2.33	20	
Lead	7.88	0.200	"		9.00			13.2	20	
Nickel	3.33	0.400	"		3.47			4.08	20	
Silver	0.0194	0.0200	"		0.0208			6.67	20	
Zinc	15.0	0.400	"		14.5			3.37	20	
Selenium	ND	0.260	"		ND				20	

Matrix Spike (BHH0693-MS1)

Source: 2408276-10

Prepared: 08/23/24 Analyzed: 08/28/24

Arsenic	35.6	0.179	mg/kg dry	37.4	1.87	90.2	75-125			
Barium	85.1	0.357	"	37.4	50.2	93.3	75-125			
Cadmium	1.85	0.179	"	1.87	0.161	90.2	75-125			
Copper	27.8	0.357	"	37.4	3.90	64.0	75-125			QM-05
Lead	24.6	0.179	"	18.7	9.00	83.6	75-125			
Nickel	27.6	0.357	"	37.4	3.47	64.7	75-125			QM-05
Silver	1.68	0.0179	"	1.87	0.0208	88.7	75-125			
Zinc	39.3	0.357	"	37.4	14.5	66.2	75-125			QM-05
Selenium	3.63	0.232	"	3.74	ND	97.2	75-125			

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Broomfield CO, 80020

Project: Noble - Long C20-17

Project Number: UWRWE-A1876-ABN
Project Manager: Jacob Whritenour

Reported:
08/29/24 11:02

Total Metals by EPA 6020B - Quality Control
Summit Scientific

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

Batch BHH0693 - EPA 3050B

Matrix Spike Dup (BHH0693-MSD1)	Source: 2408276-10			Prepared: 08/23/24 Analyzed: 08/28/24						
Arsenic	36.1	0.200	mg/kg dry	38.4	1.87	89.1	75-125	1.58	25	
Barium	90.1	0.400	"	38.4	50.2	104	75-125	5.75	25	
Cadmium	1.92	0.200	"	1.92	0.161	91.7	75-125	4.10	25	
Copper	29.3	0.400	"	38.4	3.90	66.1	75-125	5.24	25	QM-05
Lead	25.0	0.200	"	19.2	9.00	83.4	75-125	1.69	25	
Nickel	28.9	0.400	"	38.4	3.47	66.1	75-125	4.53	25	QM-05
Silver	1.75	0.0200	"	1.92	0.0208	90.1	75-125	4.45	25	
Zinc	40.5	0.400	"	38.4	14.5	67.4	75-125	3.00	25	QM-05
Selenium	3.78	0.260	"	3.84	ND	98.4	75-125	4.06	25	

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Project: Noble - Long C20-17
Project Number: UWRWE-A1876-ABN
Project Manager: Jacob Whritenour

Reported:
08/29/24 11:02

Hexavalent Chromium by EPA Method 7196 - Quality Control
Summit Scientific

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

Batch BHH0810 - 3060A Mod

Blank (BHH0810-BLK1)		Prepared & Analyzed: 08/27/24								
Chromium, Hexavalent	ND	0.30	mg/kg wet							
LCS (BHH0810-BS1)		Prepared & Analyzed: 08/27/24								
Chromium, Hexavalent	5.15	0.30	mg/kg wet	5.00		103	80-120			
Duplicate (BHH0810-DUP1)		Source: 2408276-01		Prepared & Analyzed: 08/27/24						
Chromium, Hexavalent	ND	0.30	mg/kg dry		ND				20	
Matrix Spike (BHH0810-MS1)		Source: 2408276-01		Prepared & Analyzed: 08/27/24						
Chromium, Hexavalent	5.02	0.30	mg/kg dry	5.51	ND	91.0	75-125			
Matrix Spike Dup (BHH0810-MSD1)		Source: 2408276-01		Prepared & Analyzed: 08/27/24						
Chromium, Hexavalent	5.57	0.30	mg/kg dry	5.51	ND	101	75-125	10.4	20	

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Project: Noble - Long C20-17

Project Number: UWRWE-A1876-ABN
Project Manager: Jacob Whritenour

Reported:
08/29/24 11:02

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

Summit Scientific

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

Batch BHH0789 - General Preparation

Blank (BHH0789-BLK1)

Prepared: 08/26/24 Analyzed: 08/29/24

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

LCS (BHH0789-BS1)

Prepared: 08/26/24 Analyzed: 08/29/24

Calcium	5.84	0.0500	mg/L wet	5.00	117	70-130				
Magnesium	5.10	0.0500	"	5.00	102	70-130				
Sodium	5.11	0.0500	"	5.00	102	70-130				

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Project: Noble - Long C20-17
Project Number: UWRWE-A1876-ABN
Project Manager: Jacob Whritenour

Reported:
08/29/24 11:02

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

Summit Scientific

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

Batch BHH0754 - General Preparation

Duplicate (BHH0754-DUP1)		Source: 2408275-01			Prepared & Analyzed: 08/26/24				
% Solids	84.3		%		86.0		1.98	20	

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Broomfield CO, 80020

Project: Noble - Long C20-17
Project Number: UWRWE-A1876-ABN
Project Manager: Jacob Whritenour

Reported:
08/29/24 11:02

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

Summit Scientific

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

Batch BHH0791 - General Preparation

Blank (BHH0791-BLK1)

Prepared: 08/26/24 Analyzed: 08/28/24

Specific Conductance (EC) ND 0.0100 mmhos/cm

LCS (BHH0791-BS1)

Prepared: 08/26/24 Analyzed: 08/28/24

Specific Conductance (EC) 0.154 0.0100 mmhos/cm 0.150 103 95-105

Duplicate (BHH0791-DUP1)

Source: 2408276-01

Prepared: 08/26/24 Analyzed: 08/28/24

Specific Conductance (EC) 1.15 0.0100 mmhos/cm 1.16 0.864 20

Summit Scientific

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

Project: Noble - Long C20-17

Project Number: UWRWE-A1876-ABN
Project Manager: Jacob Whritenour

Reported:
08/29/24 11:02

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

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

Batch BHH0793 - General Preparation

LCS (BHH0793-BS1)

Prepared: 08/26/24 Analyzed: 08/28/24

pH	9.07	pH Units	9.18	98.8	95-105
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Duplicate (BHH0793-DUP1)

Source: 2408276-01

Prepared: 08/26/24 Analyzed: 08/28/24

pH	7.99	pH Units	8.03	0.499	20
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Broomfield CO, 80020

Project: Noble - Long C20-17

Project Number: UWRWE-A1876-ABN

Project Manager: Jacob Whritenour

Reported:
08/29/24 11:02

Notes and Definitions

- QR-02 The RPD result exceeded the QC control limits; however, both percent recoveries were acceptable. Sample results for the QC batch were accepted based on percent recoveries and completeness of QC data.
- QR-01 Analyses are not controlled on RPD values from sample concentrations below the reporting limit. QC batch accepted based on LCS and/or LCSD QC results.
- QM-05 The spike recovery was outside acceptance limits for the MS and/or MSD due to matrix interference. The associated LCS and/or LCSD were within acceptance limits, therefore the data are considered valid.
- E The concentration indicated for this analyte is an estimated value above the calibration range of the instrument.
- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference