

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

June 28, 2024

Jacob Whritenour
Tasman Geosciences
6855 W. 119th Ave.
Broomfield, CO 80020
RE: Noble - WCL 24-5 Flowline
Work Order #2406237

Enclosed are the results of analyses for samples received by Summit Scientific on 06/17/24 17:49. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Natalie Tessier For Paul Shrewsbury
President



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

Project: Noble - WCL 24-5 Flowline

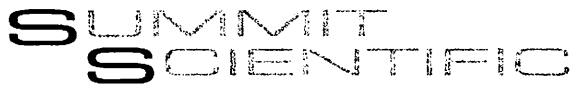
Project Number: UWRWE-A1761-ABN

Project Manager: Jacob Whritenour

Reported:
06/28/24 08:13

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FL01R-W@4'	2406237-01	Soil	06/17/24 11:55	06/17/24 17:49
FL01R-S@4'	2406237-02	Soil	06/17/24 12:35	06/17/24 17:49
BKG01@4'	2406237-03	Soil	06/17/24 11:50	06/17/24 17:49
BKG02@4'	2406237-04	Soil	06/17/24 13:40	06/17/24 17:49



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

Lab ID	Page 1 of 1
2406237	

Client: Noble Noble / Tasman		Project Manager: Jake Whritenour		Company: Chevron	
Address: 6855 W 119th Ave		E-Mail: Jwhritenour@tasman-geo.com		Project Name/Location: WCL 24-5 Flowline	
City/State/Zip: Broomfield / CO / 80220				AFE#: UWRWE-A1761-ARN	
Phone:		Project Name: WCL 24-5 Flowline		PO/Billing Codes:	
Sampler Name: Jordan Hestmark		Project Number:		Contact: Dan Peterson, Wade Firestien	

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix		Air-Canister #	Other	Analysis Requested							Special Instructions
					HCl	HNO3	None	Other	Water	Soil			BTEXN - 8260B	TPH - (C6 - C36)	1,2,4 & 1,3,5 - TMB	Boron - HWS	pH, EC, SAR	PAHs - 915	Metals - 915	
1	FLOIR-W @ 4'	6/17/24	1155	3			X			X		X	X	X	X	X	X	X		
2	FLOIR-S @ 4'		1235	1								X	X	X	X	X	X	X		
3	BK601 @ 4'		1150	1										X		X	X			
4	BK602 @ 4'		1340	1										X		X	X			
5																				
6																				
7																				
8																				
9																				
10																				
11																				
12																				
13																				
14																				
15																				

Relinquished by: Jordan Hestmark	Date/Time: 6/17/24 1740	Received by: Tasman Lockbox	Date/Time: 6/17/24 1740	TAT Business Days	Field DO	Notes:
				Same Day	Field EC	
Relinquished by: Tasman Lockbox	Date/Time: 6/17/24 1749	Received by: [Signature]	Date/Time: 6/17/24 1749	1 Day	Field ORP	
				2 Days	Field pH	
Relinquished by:	Date/Time:	Received by:	Date/Time:	3 Days	Field Temp.	
				Standard	Field Turb. <input checked="" type="checkbox"/>	
Temperature Upon Receipt: 11.1	Corrected Temperature: 8	IR gun #: 1	HNO3 lot #:			

S₂

Sample Receipt Checklist

S2 Work Order# 2406237

Client: Northwestern Client Project ID: WCL 24-S Flowline

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"/>	on ice
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

6/17/24
Date/Time



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

Project: Noble - WCL 24-5 Flowline

Project Number: UWRWE-A1761-ABN
Project Manager: Jacob Whritenour

Reported:
06/28/24 08:13

FL01R-W@4'
2406237-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **06/17/24 11:55**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	0.0020		mg/kg	1	BHF0540	06/18/24	06/19/24	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: **06/17/24 11:55**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4	0.0383	95.7 %		50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0384	95.9 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0414	103 %		50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **06/17/24 11:55**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
C10-C28 (DRO)	ND	50		mg/kg	1	BHF0541	06/18/24	06/19/24	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **06/17/24 11:55**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: o-Terphenyl	9.42	75.4 %		30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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PAH by EPA Method 8270D SIM

Date Sampled: **06/17/24 11:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BHF0500	06/18/24	06/20/24	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: **06/17/24 11:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0195	58.5 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0184	55.1 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **06/17/24 11:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BHF0559	06/19/24	06/20/24	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **06/17/24 11:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Project Number: UWRWE-A1761-ABN
Project Manager: Jacob Whritenour

Reported:
06/28/24 08:13

FL01R-W@4'
2406237-01 (Soil)

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Total Metals by EPA 6020B

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Arsenic	2.02	0.200	mg/kg dry	1	BHF0528	06/18/24	06/19/24	EPA 6020B
Barium	53.7	0.400	"	"	"	"	"	"
Cadmium	0.234	0.200	"	"	"	"	"	"
Copper	4.73	0.400	"	"	"	"	"	"
Lead	6.87	0.200	"	"	"	"	"	"
Nickel	3.77	0.400	"	"	"	"	"	"
Silver	0.0604	0.0200	"	"	"	"	"	"
Zinc	20.0	0.400	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

Hexavalent Chromium by EPA Method 7196

Date Sampled: **06/17/24 11:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHF0565	06/19/24	06/19/24	EPA 7196A	

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

Date Sampled: **06/17/24 11:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	248	0.0500	mg/L dry	1	BHF0571	06/19/24	06/21/24	EPA 6020B	
Magnesium	50.2	0.0500	"	"	"	"	"	"	
Sodium	21.1	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **06/17/24 11:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.319	0.00100	units	1	BHF0675	06/21/24	06/21/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **06/17/24 11:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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06/28/24 08:13

FL01R-W@4'
2406237-01 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

% Solids	89.6	%	1	BHF0525	06/18/24	06/18/24	Calculation
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Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **06/17/24 11:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.0838	0.0100	mmhos/cm	1	BHF0573	06/19/24	06/20/24	EPA 120.1	

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

Date Sampled: **06/17/24 11:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.33		pH Units	1	BHF0572	06/19/24	06/20/24	EPA 9045D	

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FL01R-S@4'
2406237-02 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **06/17/24 12:35**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	0.0020	mg/kg	1	BHF0540	06/18/24	06/19/24	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: **06/17/24 12:35**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4	0.0400	100 %	50-150	"	"	"	"	"	
Surrogate: Toluene-d8	0.0402	101 %	50-150	"	"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0401	100 %	50-150	"	"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **06/17/24 12:35**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
C10-C28 (DRO)	ND	50	mg/kg	1	BHF0541	06/18/24	06/19/24	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **06/17/24 12:35**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: o-Terphenyl	9.39	75.1 %	30-150	"	"	"	"	"	

PAH by EPA Method 8270D SIM

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FL01R-S@4'
2406237-02 (Soil)

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PAH by EPA Method 8270D SIM

Date Sampled: **06/17/24 12:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BHF0500	06/18/24	06/20/24	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: **06/17/24 12:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0171	51.3 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0172	51.7 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **06/17/24 12:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BHF0559	06/19/24	06/20/24	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **06/17/24 12:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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06/28/24 08:13

FL01R-S@4'
2406237-02 (Soil)

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Total Metals by EPA 6020B

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Arsenic	2.32	0.200	mg/kg dry	1	BHF0528	06/18/24	06/19/24	EPA 6020B
Barium	64.2	0.400	"	"	"	"	"	"
Cadmium	ND	0.200	"	"	"	"	"	"
Copper	4.50	0.400	"	"	"	"	"	"
Lead	6.02	0.200	"	"	"	"	"	"
Nickel	4.37	0.400	"	"	"	"	"	"
Silver	0.0442	0.0200	"	"	"	"	"	"
Zinc	20.0	0.400	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

Hexavalent Chromium by EPA Method 7196

Date Sampled: **06/17/24 12:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHF0565	06/19/24	06/19/24	EPA 7196A	

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

Date Sampled: **06/17/24 12:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	213	0.0500	mg/L dry	1	BHF0571	06/19/24	06/21/24	EPA 6020B	
Magnesium	39.8	0.0500	"	"	"	"	"	"	
Sodium	2.38	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **06/17/24 12:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.0393	0.00100	units	1	BHF0675	06/21/24	06/21/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

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FL01R-S@4'
2406237-02 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **06/17/24 12:35**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
% Solids	86.9			%	1	BHF0525	06/18/24	06/18/24	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **06/17/24 12:35**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Specific Conductance (EC)	0.0746	0.0100		mmhos/cm	1	BHF0573	06/19/24	06/20/24	EPA 120.1	

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

Date Sampled: **06/17/24 12:35**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	8.17			pH Units	1	BHF0572	06/19/24	06/20/24	EPA 9045D	

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Project: Noble - WCL 24-5 Flowline

Project Number: UWRWE-A1761-ABN
Project Manager: Jacob Whritenour

Reported:
06/28/24 08:13

BKG01@4'
2406237-03 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Date Sampled: **06/17/24 11:50**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	2.35	0.200	mg/kg dry	1	BHF0528	06/18/24	06/19/24	EPA 6020B	
Barium	54.6	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Copper	3.93	0.400	"	"	"	"	"	"	
Lead	5.51	0.200	"	"	"	"	"	"	
Nickel	3.73	0.400	"	"	"	"	"	"	
Silver	0.0491	0.0200	"	"	"	"	"	"	
Zinc	17.0	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **06/17/24 11:50**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHF0565	06/19/24	06/19/24	EPA 7196A	

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

Date Sampled: **06/17/24 11:50**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	29.3	0.0500	mg/L dry	1	BHF0571	06/19/24	06/21/24	EPA 6020B	
Magnesium	9.58	0.0500	"	"	"	"	"	"	
Sodium	33.1	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **06/17/24 11:50**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	1.36	0.00100	units	1	BHF0675	06/21/24	06/21/24	Calculation	

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6855 W. 119th Ave.
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Project: Noble - WCL 24-5 Flowline

Project Number: UWRWE-A1761-ABN
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Reported:
06/28/24 08:13

BKG01@4'
2406237-03 (Soil)

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Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **06/17/24 11:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	90.4		%	1	BHF0525	06/18/24	06/18/24	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **06/17/24 11:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.558	0.0100	mmhos/cm	1	BHF0573	06/19/24	06/20/24	EPA 120.1	

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

Date Sampled: **06/17/24 11:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.87		pH Units	1	BHF0572	06/19/24	06/20/24	EPA 9045D	

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Project: Noble - WCL 24-5 Flowline

Project Number: UWRWE-A1761-ABN
Project Manager: Jacob Whritenour

Reported:
06/28/24 08:13

BKG02@4'
2406237-04 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Date Sampled: **06/17/24 13:40**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	2.41	0.180	mg/kg dry	1	BHF0528	06/18/24	06/19/24	EPA 6020B	
Barium	54.3	0.360	"	"	"	"	"	"	
Cadmium	ND	0.180	"	"	"	"	"	"	
Copper	3.51	0.360	"	"	"	"	"	"	
Lead	5.20	0.180	"	"	"	"	"	"	
Nickel	3.78	0.360	"	"	"	"	"	"	
Silver	0.0362	0.0180	"	"	"	"	"	"	
Zinc	16.2	0.360	"	"	"	"	"	"	
Selenium	ND	0.234	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **06/17/24 13:40**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHF0565	06/19/24	06/19/24	EPA 7196A	

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

Date Sampled: **06/17/24 13:40**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	31.9	0.0500	mg/L dry	1	BHF0571	06/19/24	06/21/24	EPA 6020B	
Magnesium	28.2	0.0500	"	"	"	"	"	"	
Sodium	121	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **06/17/24 13:40**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	3.76	0.00100	units	1	BHF0675	06/21/24	06/21/24	Calculation	

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Project: Noble - WCL 24-5 Flowline

Project Number: UWRWE-A1761-ABN
Project Manager: Jacob Whritenour

Reported:
06/28/24 08:13

BKG02@4'
2406237-04 (Soil)

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Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **06/17/24 13:40**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
% Solids	93.3			%	1	BHF0525	06/18/24	06/18/24	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **06/17/24 13:40**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Specific Conductance (EC)	0.335	0.0100		mmhos/cm	1	BHF0573	06/19/24	06/20/24	EPA 120.1	

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

Date Sampled: **06/17/24 13:40**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	7.90			pH Units	1	BHF0572	06/19/24	06/20/24	EPA 9045D	

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Project: Noble - WCL 24-5 Flowline

Project Number: UWRWE-A1761-ABN
Project Manager: Jacob Whritenour

Reported:
06/28/24 08:13

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 BHF0540 - EPA 5030 Soil MS

Blank (BHF0540-BLK1)

Prepared & Analyzed: 06/18/24

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	"								
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0428		"	0.0400		107	50-150				
<i>Surrogate: Toluene-d8</i>	0.0388		"	0.0400		97.1	50-150				
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0409		"	0.0400		102	50-150				

LCS (BHF0540-BS1)

Prepared & Analyzed: 06/18/24

Benzene	0.0970	0.0020	mg/kg	0.100		97.0	70-130				
Toluene	0.106	0.0050	"	0.100		106	70-130				
Ethylbenzene	0.101	0.0050	"	0.100		101	70-130				
m,p-Xylene	0.201	0.010	"	0.200		100	70-130				
o-Xylene	0.0995	0.0050	"	0.100		99.5	70-130				
1,2,4-Trimethylbenzene	0.0994	0.0050	"	0.100		99.4	70-130				
1,3,5-Trimethylbenzene	0.0992	0.0050	"	0.100		99.2	70-130				
Naphthalene	0.0865	0.0038	"	0.100		86.5	70-130				
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0431		"	0.0400		108	50-150				
<i>Surrogate: Toluene-d8</i>	0.0421		"	0.0400		105	50-150				
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0405		"	0.0400		101	50-150				

Matrix Spike (BHF0540-MS1)

Source: 2406210-01

Prepared & Analyzed: 06/18/24

Benzene	0.0912	0.0020	mg/kg	0.100	ND	91.2	70-130				
Toluene	0.0979	0.0050	"	0.100	ND	97.9	70-130				
Ethylbenzene	0.0971	0.0050	"	0.100	ND	97.1	70-130				
m,p-Xylene	0.189	0.010	"	0.200	ND	94.7	70-130				
o-Xylene	0.0952	0.0050	"	0.100	ND	95.2	70-130				
1,2,4-Trimethylbenzene	0.0925	0.0050	"	0.100	ND	92.5	70-130				
1,3,5-Trimethylbenzene	0.0919	0.0050	"	0.100	ND	91.9	70-130				
Naphthalene	0.0857	0.0038	"	0.100	ND	85.7	70-130				
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0418		"	0.0400		104	50-150				
<i>Surrogate: Toluene-d8</i>	0.0400		"	0.0400		100	50-150				
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0398		"	0.0400		99.5	50-150				

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Project: Noble - WCL 24-5 Flowline

Project Number: UWRWE-A1761-ABN
Project Manager: Jacob Whritenour

Reported:
06/28/24 08:13

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		

Batch BHF0540 - EPA 5030 Soil MS

Matrix Spike Dup (BHF0540-MSD1)	Source: 2406210-01			Prepared & Analyzed: 06/18/24						
Benzene	0.110	0.0020	mg/kg	0.100	ND	110	70-130	18.2	30	
Toluene	0.119	0.0050	"	0.100	ND	119	70-130	19.2	30	
Ethylbenzene	0.112	0.0050	"	0.100	ND	112	70-130	14.6	30	
m,p-Xylene	0.213	0.010	"	0.200	ND	107	70-130	11.9	30	
o-Xylene	0.106	0.0050	"	0.100	ND	106	70-130	10.6	30	
1,2,4-Trimethylbenzene	0.104	0.0050	"	0.100	ND	104	70-130	11.6	30	
1,3,5-Trimethylbenzene	0.105	0.0050	"	0.100	ND	105	70-130	12.9	30	
Naphthalene	0.0922	0.0038	"	0.100	ND	92.2	70-130	7.25	30	
Surrogate: 1,2-Dichloroethane-d4	0.0487		"	0.0400		122	50-150			
Surrogate: Toluene-d8	0.0411		"	0.0400		103	50-150			
Surrogate: 4-Bromofluorobenzene	0.0408		"	0.0400		102	50-150			

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Project: Noble - WCL 24-5 Flowline
Project Number: UWRWE-A1761-ABN
Project Manager: Jacob Whritenour

Reported:
06/28/24 08:13

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 BHF0541 - EPA 3550A

Blank (BHF0541-BLK1)

Prepared & Analyzed: 06/18/24

C10-C28 (DRO)	ND	50	mg/kg								
C28-C36 (ORO)	ND	50	"								
Surrogate: <i>o</i> -Terphenyl	14.3		"	12.5		114		30-150			

LCS (BHF0541-BS1)

Prepared & Analyzed: 06/18/24

C10-C28 (DRO)	460	50	mg/kg	500		92.1		70-130			
Surrogate: <i>o</i> -Terphenyl	14.1		"	12.5		113		30-150			

Matrix Spike (BHF0541-MS1)

Source: 2406210-01

Prepared & Analyzed: 06/18/24

C10-C28 (DRO)	493	50	mg/kg	500	28.7	93.0		70-130			
Surrogate: <i>o</i> -Terphenyl	14.1		"	12.5		113		30-150			

Matrix Spike Dup (BHF0541-MSD1)

Source: 2406210-01

Prepared: 06/18/24 Analyzed: 06/19/24

C10-C28 (DRO)	538	50	mg/kg	500	28.7	102		70-130	8.66	20	
Surrogate: <i>o</i> -Terphenyl	15.7		"	12.5		126		30-150			

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Project: Noble - WCL 24-5 Flowline

Project Number: UWRWE-A1761-ABN
Project Manager: Jacob Whritenour

Reported:
06/28/24 08:13

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 BHF0500 - EPA 5030 Soil MS

Blank (BHF0500-BLK1)

Prepared: 06/18/24 Analyzed: 06/19/24

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	0.0280		"	0.0333		84.1	40-150			
Surrogate: Fluoranthene-d10	0.0255		"	0.0333		76.4	40-150			

LCS (BHF0500-BS1)

Prepared: 06/18/24 Analyzed: 06/19/24

Acenaphthene	0.0256	0.00500	mg/kg	0.0333		76.8	31-137			
Anthracene	0.0262	0.00500	"	0.0333		78.7	30-120			
Benzo (a) anthracene	0.0267	0.00500	"	0.0333		80.2	30-120			
Benzo (a) pyrene	0.0240	0.00500	"	0.0333		72.0	30-120			
Benzo (b) fluoranthene	0.0240	0.00500	"	0.0333		72.0	30-120			
Benzo (k) fluoranthene	0.0242	0.00500	"	0.0333		72.6	30-120			
Chrysene	0.0259	0.00500	"	0.0333		77.6	30-120			
Dibenz (a,h) anthracene	0.0227	0.00500	"	0.0333		68.0	30-120			
Fluoranthene	0.0259	0.00500	"	0.0333		77.6	30-120			
Fluorene	0.0254	0.00500	"	0.0333		76.3	30-120			
Indeno (1,2,3-cd) pyrene	0.0232	0.00500	"	0.0333		69.5	30-120			
Pyrene	0.0284	0.00500	"	0.0333		85.1	35-142			
1-Methylnaphthalene	0.0332	0.00500	"	0.0333		99.6	35-142			
2-Methylnaphthalene	0.0314	0.00500	"	0.0333		94.3	35-142			
Surrogate: 2-Methylnaphthalene-d10	0.0333		"	0.0333		99.9	40-150			
Surrogate: Fluoranthene-d10	0.0277		"	0.0333		83.2	40-150			

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Project: Noble - WCL 24-5 Flowline

Project Number: UWRWE-A1761-ABN
Project Manager: Jacob Whritenour

Reported:
06/28/24 08:13

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 BHF0500 - EPA 5030 Soil MS

Matrix Spike (BHF0500-MS1)	Source: 2406220-01			Prepared: 06/18/24 Analyzed: 06/19/24						
Acenaphthene	0.0240	0.00500	mg/kg	0.0333	ND	72.0	31-137			
Anthracene	0.0240	0.00500	"	0.0333	ND	71.9	30-120			
Benzo (a) anthracene	0.0253	0.00500	"	0.0333	ND	75.9	30-120			
Benzo (a) pyrene	0.0229	0.00500	"	0.0333	ND	68.6	30-120			
Benzo (b) fluoranthene	0.0236	0.00500	"	0.0333	ND	70.8	30-120			
Benzo (k) fluoranthene	0.0232	0.00500	"	0.0333	ND	69.7	30-120			
Chrysene	0.0243	0.00500	"	0.0333	ND	72.8	30-120			
Dibenz (a,h) anthracene	0.0196	0.00500	"	0.0333	ND	58.9	30-120			
Fluoranthene	0.0239	0.00500	"	0.0333	ND	71.6	30-120			
Fluorene	0.0245	0.00500	"	0.0333	ND	73.5	30-120			
Indeno (1,2,3-cd) pyrene	0.0142	0.00500	"	0.0333	ND	42.5	30-120			
Pyrene	0.0275	0.00500	"	0.0333	ND	82.6	35-142			
1-Methylnaphthalene	0.0296	0.00500	"	0.0333	ND	88.7	15-130			
2-Methylnaphthalene	0.0285	0.00500	"	0.0333	ND	85.4	15-130			
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0301</i>		<i>"</i>	<i>0.0333</i>		<i>90.3</i>	<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0257</i>		<i>"</i>	<i>0.0333</i>		<i>77.1</i>	<i>40-150</i>			

Matrix Spike Dup (BHF0500-MSD1)	Source: 2406220-01			Prepared: 06/18/24 Analyzed: 06/19/24						
Acenaphthene	0.0234	0.00500	mg/kg	0.0333	ND	70.2	31-137	2.58	30	
Anthracene	0.0241	0.00500	"	0.0333	ND	72.4	30-120	0.700	30	
Benzo (a) anthracene	0.0250	0.00500	"	0.0333	ND	75.1	30-120	0.997	30	
Benzo (a) pyrene	0.0232	0.00500	"	0.0333	ND	69.6	30-120	1.50	30	
Benzo (b) fluoranthene	0.0245	0.00500	"	0.0333	ND	73.5	30-120	3.64	30	
Benzo (k) fluoranthene	0.0232	0.00500	"	0.0333	ND	69.7	30-120	0.0215	30	
Chrysene	0.0238	0.00500	"	0.0333	ND	71.5	30-120	1.76	30	
Dibenz (a,h) anthracene	0.0185	0.00500	"	0.0333	ND	55.6	30-120	5.65	30	
Fluoranthene	0.0239	0.00500	"	0.0333	ND	71.6	30-120	0.0726	30	
Fluorene	0.0238	0.00500	"	0.0333	ND	71.5	30-120	2.65	30	
Indeno (1,2,3-cd) pyrene	0.0137	0.00500	"	0.0333	ND	41.0	30-120	3.57	30	
Pyrene	0.0272	0.00500	"	0.0333	ND	81.7	35-142	1.09	30	
1-Methylnaphthalene	0.0305	0.00500	"	0.0333	ND	91.6	15-130	3.14	50	
2-Methylnaphthalene	0.0270	0.00500	"	0.0333	ND	81.1	15-130	5.21	50	
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0293</i>		<i>"</i>	<i>0.0333</i>		<i>87.9</i>	<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0254</i>		<i>"</i>	<i>0.0333</i>		<i>76.1</i>	<i>40-150</i>			

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

Project: Noble - WCL 24-5 Flowline

Project Number: UWRWE-A1761-ABN
Project Manager: Jacob Whritenour

Reported:
06/28/24 08:13

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 BHF0559 - EPA 3050B

Blank (BHF0559-BLK1)

Prepared: 06/19/24 Analyzed: 06/20/24

Boron ND 2.00 mg/L

LCS (BHF0559-BS1)

Prepared: 06/19/24 Analyzed: 06/20/24

Boron 4.94 2.00 mg/L 5.00 98.8 80-120

Duplicate (BHF0559-DUP1)

Source: 2406179-01

Prepared: 06/19/24 Analyzed: 06/20/24

Boron 0.237 2.00 mg/L 0.247 4.22 20

Matrix Spike (BHF0559-MS1)

Source: 2406179-01

Prepared: 06/19/24 Analyzed: 06/20/24

Boron 5.37 2.00 mg/L 5.01 0.247 102 75-125

Matrix Spike Dup (BHF0559-MSD1)

Source: 2406179-01

Prepared: 06/19/24 Analyzed: 06/20/24

Boron 5.39 2.00 mg/L 5.01 0.247 103 75-125 0.388 25

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

Project: Noble - WCL 24-5 Flowline

Project Number: UWRWE-A1761-ABN
Project Manager: Jacob Whritenour

Reported:
06/28/24 08:13

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 BHF0528 - EPA 3050B

Blank (BHF0528-BLK1)

Prepared: 06/18/24 Analyzed: 06/19/24

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 (BHF0528-BS1)

Prepared: 06/18/24 Analyzed: 06/19/24

Arsenic	38.8	0.200	mg/kg wet	40.0		97.0	80-120
Barium	39.3	0.400	"	40.0		98.4	80-120
Cadmium	1.95	0.200	"	2.00		97.7	80-120
Copper	40.9	0.400	"	40.0		102	80-120
Lead	19.7	0.200	"	20.0		98.7	80-120
Nickel	40.6	0.400	"	40.0		102	80-120
Silver	1.96	0.0200	"	2.00		98.0	80-120
Zinc	40.7	0.400	"	40.0		102	80-120
Selenium	3.92	0.260	"	4.00		98.0	80-120

Duplicate (BHF0528-DUP1)

Source: 2406220-01

Prepared: 06/18/24 Analyzed: 06/19/24

Arsenic	4.92	0.200	mg/kg dry	5.12		3.87	20
Barium	159	0.400	"	163		2.42	20
Cadmium	0.370	0.200	"	0.371		0.0943	20
Copper	6.57	0.400	"	6.47		1.48	20
Lead	10.3	0.200	"	10.2		0.436	20
Nickel	7.13	0.400	"	7.14		0.127	20
Silver	0.0613	0.0200	"	0.0668		8.61	20
Zinc	26.2	0.400	"	25.2		3.82	20
Selenium	0.178	0.260	"	ND		200	20

QR-01

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Project: Noble - WCL 24-5 Flowline

Project Number: UWRWE-A1761-ABN
Project Manager: Jacob Whritenour

Reported:
06/28/24 08:13

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 BHF0528 - EPA 3050B

Matrix Spike (BHF0528-MS1)

Source: 2406220-01

Prepared: 06/18/24 Analyzed: 06/19/24

Arsenic	47.0	0.200	mg/kg dry	43.0	5.12	97.3	75-125				
Barium	171	0.400	"	43.0	163	17.3	75-125				QM-07
Cadmium	2.50	0.200	"	2.15	0.371	99.0	75-125				
Copper	26.2	0.400	"	43.0	6.47	46.0	75-125				QM-07
Lead	28.2	0.200	"	21.5	10.2	83.6	75-125				
Nickel	27.1	0.400	"	43.0	7.14	46.5	75-125				QM-07
Silver	2.12	0.0200	"	2.15	0.0668	95.7	75-125				
Zinc	45.8	0.400	"	43.0	25.2	47.9	75-125				QM-07
Selenium	3.41	0.260	"	4.30	ND	79.3	75-125				

Matrix Spike Dup (BHF0528-MSD1)

Source: 2406220-01

Prepared: 06/18/24 Analyzed: 06/19/24

Arsenic	46.3	0.200	mg/kg dry	42.3	5.12	97.3	75-125	1.39	25		
Barium	162	0.400	"	42.3	163	NR	75-125	5.10	25		QM-07
Cadmium	2.50	0.200	"	2.12	0.371	100	75-125	0.0546	25		
Copper	24.8	0.400	"	42.3	6.47	43.3	75-125	5.62	25		QM-07
Lead	27.8	0.200	"	21.2	10.2	83.0	75-125	1.47	25		
Nickel	25.9	0.400	"	42.3	7.14	44.2	75-125	4.76	25		QM-07
Silver	2.12	0.0200	"	2.12	0.0668	97.2	75-125	0.0481	25		
Zinc	45.1	0.400	"	42.3	25.2	47.0	75-125	1.54	25		QM-07
Selenium	3.47	0.260	"	4.23	ND	81.9	75-125	1.69	25		

Post Spike (BHF0528-PS1)

Source: 2406220-01

Prepared: 06/18/24 Analyzed: 06/19/24

Arsenic	120		ug/l	100	12.2	107	75-125				
Barium	483		"	100	389	94.0	75-125				
Cadmium	6.23		"	5.00	0.882	107	75-125				
Copper	65.5		"	100	15.4	50.1	75-125				QM-01
Lead	69.6		"	50.0	24.3	90.5	75-125				
Nickel	67.6		"	100	17.0	50.6	75-125				QM-01
Silver	5.40		"	5.00	0.159	105	75-125				
Zinc	112		"	100	59.9	52.1	75-125				QM-01
Selenium	9.51		"	10.0	0.407	91.0	75-125				

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Project: Noble - WCL 24-5 Flowline
Project Number: UWRWE-A1761-ABN
Project Manager: Jacob Whritenour

Reported:
06/28/24 08:13

Hexavalent Chromium by EPA Method 7196 - Quality Control
Summit Scientific

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

Batch BHF0565 - 3060A Mod

Blank (BHF0565-BLK1)

Prepared & Analyzed: 06/19/24

Chromium, Hexavalent ND 0.30 mg/kg wet

LCS (BHF0565-BS1)

Prepared & Analyzed: 06/19/24

Chromium, Hexavalent 25.1 0.30 mg/kg wet 25.0 100 80-120

Duplicate (BHF0565-DUP1)

Source: 2406237-01

Prepared & Analyzed: 06/19/24

Chromium, Hexavalent ND 0.30 mg/kg dry ND 20

Matrix Spike (BHF0565-MS1)

Source: 2406237-01

Prepared & Analyzed: 06/19/24

Chromium, Hexavalent 27.2 0.30 mg/kg dry 28.2 ND 96.4 75-125

Matrix Spike Dup (BHF0565-MSD1)

Source: 2406237-01

Prepared & Analyzed: 06/19/24

Chromium, Hexavalent 25.3 0.30 mg/kg dry 28.2 ND 89.8 75-125 7.09 20

Summit Scientific

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Broomfield CO, 80020

Project: Noble - WCL 24-5 Flowline

Project Number: UWRWE-A1761-ABN
Project Manager: Jacob Whritenour

Reported:
06/28/24 08:13

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 BHF0571 - General Preparation

Blank (BHF0571-BLK1)

Prepared: 06/19/24 Analyzed: 06/21/24

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

LCS (BHF0571-BS1)

Prepared: 06/19/24 Analyzed: 06/21/24

Calcium	4.84	0.0500	mg/L wet	5.00	96.7	70-130				
Magnesium	5.04	0.0500	"	5.00	101	70-130				
Sodium	5.11	0.0500	"	5.00	102	70-130				

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Project: Noble - WCL 24-5 Flowline

Project Number: UWRWE-A1761-ABN
Project Manager: Jacob Whritenour

Reported:
06/28/24 08:13

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 BHF0525 - General Preparation

Duplicate (BHF0525-DUP2)	Source: 2406220-01			Prepared & Analyzed: 06/18/24							
% Solids	92.7		%		92.3				0.424	20	

Summit Scientific

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Project: Noble - WCL 24-5 Flowline

Project Number: UWRWE-A1761-ABN
Project Manager: Jacob Whritenour

Reported:
06/28/24 08:13

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 BHF0573 - General Preparation

Blank (BHF0573-BLK1)

Prepared: 06/19/24 Analyzed: 06/20/24

Specific Conductance (EC) ND 0.0100 mmhos/cm

LCS (BHF0573-BS1)

Prepared: 06/19/24 Analyzed: 06/20/24

Specific Conductance (EC) 0.155 0.0100 mmhos/cm 0.150 103 95-105

Duplicate (BHF0573-DUP1)

Source: 2406220-01

Prepared: 06/19/24 Analyzed: 06/20/24

Specific Conductance (EC) 1.55 0.0100 mmhos/cm 1.57 1.47 20

Summit Scientific

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

Project: Noble - WCL 24-5 Flowline

Project Number: UWRWE-A1761-ABN
Project Manager: Jacob Whritenour

Reported:
06/28/24 08:13

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 BHF0572 - General Preparation

LCS (BHF0572-BS1)

Prepared: 06/19/24 Analyzed: 06/20/24

pH	9.16	pH Units	9.18	99.8	95-105
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Duplicate (BHF0572-DUP1)

Source: 2405230-07

Prepared: 06/19/24 Analyzed: 06/20/24

pH	8.49	pH Units	8.41	0.947	20
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Summit Scientific

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Tasman Geosciences
6855 W. 119th Ave.
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Project: Noble - WCL 24-5 Flowline

Project Number: UWRWE-A1761-ABN

Project Manager: Jacob Whritenour

Reported:
06/28/24 08:13

Notes and Definitions

- QR-01 Analyses are not controlled on RPD values from sample concentrations less than 10 times the reporting limit. QC batch accepted based on LCS and/or LCSD QC results.
- QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS/LCSD recovery.
- QM-01 The spike recovery for this QC sample is outside of established control limits due to sample matrix interference.
- 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