

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

July 24, 2024

Jacob Whritenour

Tasman Geosciences

6855 W. 119th Ave.

Broomfield, CO 80020

RE: Noble - Leonard 21-16I4 Flowline

Work Order #2407231

Enclosed are the results of analyses for samples received by Summit Scientific on 07/18/24 17:45. 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 fluid and cursive, written in a professional style.

Natalie Tessier For Paul Shrewsbury
President



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

Project: Noble - Leonard 21-1614 Flowline

Project Number: UWRWE-A2811-ABN

Project Manager: Jacob Whritenour

Reported:
07/24/24 08:04

ANALYTICAL REPORT FOR SAMPLES

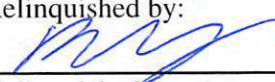
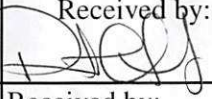
Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FL01R-W@2'	2407231-01	Soil	07/18/24 11:12	07/18/24 17:45
FL01-01@2'	2407231-02	Soil	07/18/24 11:16	07/18/24 17:45
BKG01@2'	2407231-03	Soil	07/18/24 11:55	07/18/24 17:45

Summit Scientific

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

		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: Leonard 21-1614
City/State/Zip: Broomfield/CO/ 80020		Leonard 21-1614 Flow Line	AFE#: UWRWE-A2811-ABN
Phone: 303-487-1228		Project Name: Novack 628-27D	PO/Billing Codes:
Sampler Name: Ryan Yavinsky / Jeff Rollins		Project Number:	Contact: Miguel Barron

					Preservative				Matrix				Analysis Requested								Special Instructions	
ID	Sample Description	Date Sampled	Time Sampled	# of containers	HCl	HNO3	None	Other _____	Water	Soil	Air-Canister #	Other _____	VOC - 915	TPH - 915	PAH - 915	Metals - 915	pH, EC, SAR	Boron - HWS	HOLD			
1	FLOIR-we2'	7/18/24	1112	3			3			X			X	X	X	X	X	X				
2	FLOI-01e2'	↓	1116	↓			↓			↓			↓	↓	↓	↓	↓	↓				
3	BK601e2'	↓	1155	↓			↓			↓			↓	↓	↓	↓	↓	↓				
4																↓	↓	↓				
5																						
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8																						
9																						
10																						
11																						
12																						
13																						
14																						
15																						

Relinquished by: 	Date/Time: 7/18/24 1500	Received by: Tasman Lock Box	Date/Time: 7/18/24 1500	TAT Business Days	Field DO	Notes:
				Same Day	Field EC	
Relinquished by: Tasman Lock Box	Date/Time: 7/18/24 1745	Received by: 	Date/Time: 7/18/24 1745	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: 9.9	Corrected Temperature: 6	IR gun #: 1	HNO3 lot #:			

S₂

Sample Receipt Checklist

S2 Work Order# 2407231Client: Norfolk Southern Client Project ID: Leonard 21-16TH FalllineShipped Via: H.D./P.U./FedEx/UPS/USPS/Other ☐ Airbill #: _____

<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Matrix (Check all that apply) Air ☐ Soil/Solid ☒ Water ☐ Other ☐Temp (°C) 9.9 Thermometer # 1

	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"/>	<u>on ice</u>
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

7/18/24

Date/Time



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

Project: Noble - Leonard 21-1614 Flowline
Project Number: UWRWE-A2811-ABN
Project Manager: Jacob Whritenour

Reported:
07/24/24 08:04

FL01R-W@2'
2407231-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **07/18/24 11:12**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BHG0542	07/19/24	07/23/24	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: **07/18/24 11:12**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0405	101 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0397	99.2 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0393	98.2 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **07/18/24 11:12**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BHG0544	07/19/24	07/23/24	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **07/18/24 11:12**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	10.8	86.7 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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PAH by EPA Method 8270D SIM

Date Sampled: **07/18/24 11:12**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BHG0519	07/19/24	07/20/24	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: **07/18/24 11:12**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0185	55.6 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0154	46.2 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **07/18/24 11:12**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BHG0526	07/19/24	07/20/24	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **07/18/24 11:12**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Reported:
07/24/24 08:04

FL01R-W@2'
2407231-01 (Soil)

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Total Metals by EPA 6020B

Arsenic	1.23	0.200	mg/kg dry	1	BHG0534	07/19/24	07/20/24	EPA 6020B
Barium	42.9	0.400	"	"	"	"	"	"
Cadmium	ND	0.200	"	"	"	"	"	"
Copper	3.62	0.400	"	"	"	"	"	"
Lead	8.25	0.200	"	"	"	"	"	"
Nickel	2.24	0.400	"	"	"	"	"	"
Silver	ND	0.0200	"	"	"	"	"	"
Zinc	12.1	0.400	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

Hexavalent Chromium by EPA Method 7196

Date Sampled: **07/18/24 11:12**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHG0522	07/19/24	07/19/24	EPA 7196A	

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

Date Sampled: **07/18/24 11:12**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	32.3	0.0500	mg/L dry	1	BHG0539	07/19/24	07/22/24	EPA 6020B	
Magnesium	5.58	0.0500	"	"	"	"	"	"	
Sodium	3.06	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **07/18/24 11:12**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.131	0.00100	units	1	BHG0623	07/23/24	07/23/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

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FL01R-W@2'
2407231-01 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **07/18/24 11:12**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	95.8		%	1	BHG0530	07/19/24	07/22/24	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **07/18/24 11:12**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.114	0.0100	mmhos/cm	1	BHG0549	07/19/24	07/22/24	EPA 120.1	

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

Date Sampled: **07/18/24 11:12**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.86		pH Units	1	BHG0548	07/19/24	07/22/24	EPA 9045D	

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Reported:
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FL01-01@2'
2407231-02 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **07/18/24 11:16**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BHG0542	07/19/24	07/23/24	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: **07/18/24 11:16**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0463	116 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0386	96.5 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0401	100 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **07/18/24 11:16**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BHG0544	07/19/24	07/23/24	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **07/18/24 11:16**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	10.1	80.7 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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PAH by EPA Method 8270D SIM

Date Sampled: **07/18/24 11:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BHG0519	07/19/24	07/20/24	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: **07/18/24 11:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0181	54.2 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0185	55.4 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **07/18/24 11:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BHG0526	07/19/24	07/20/24	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **07/18/24 11:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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07/24/24 08:04

FL01-01@2'
2407231-02 (Soil)

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Total Metals by EPA 6020B

Arsenic	1.16	0.200	mg/kg dry	1	BHG0534	07/19/24	07/20/24	EPA 6020B
Barium	33.3	0.400	"	"	"	"	"	"
Cadmium	ND	0.200	"	"	"	"	"	"
Copper	2.07	0.400	"	"	"	"	"	"
Lead	2.98	0.200	"	"	"	"	"	"
Nickel	2.06	0.400	"	"	"	"	"	"
Silver	ND	0.0200	"	"	"	"	"	"
Zinc	8.61	0.400	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

Hexavalent Chromium by EPA Method 7196

Date Sampled: **07/18/24 11:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHG0522	07/19/24	07/19/24	EPA 7196A	

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

Date Sampled: **07/18/24 11:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	4.24	0.0500	mg/L dry	1	BHG0539	07/19/24	07/22/24	EPA 6020B	
Magnesium	1.75	0.0500	"	"	"	"	"	"	
Sodium	0.334	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **07/18/24 11:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.0345	0.00100	units	1	BHG0623	07/23/24	07/23/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

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FL01-01@2'
2407231-02 (Soil)

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Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **07/18/24 11:16**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
% Solids	97.0			%	1	BHG0530	07/19/24	07/22/24	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **07/18/24 11:16**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Specific Conductance (EC)	4.92	0.0100		mmhos/cm	1	BHG0549	07/19/24	07/22/24	EPA 120.1	

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

Date Sampled: **07/18/24 11:16**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	6.72			pH Units	1	BHG0548	07/19/24	07/22/24	EPA 9045D	

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

Project: Noble - Leonard 21-1614 Flowline
Project Number: UWRWE-A2811-ABN
Project Manager: Jacob Whritenour

Reported:
07/24/24 08:04

BKG01@2'
2407231-03 (Soil)

Summit Scientific

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **07/18/24 11:55**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Boron	ND	2.00	mg/L	1	BHG0526	07/19/24	07/20/24	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **07/18/24 11:55**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Arsenic	2.78	0.200	mg/kg dry	1	BHG0534	07/19/24	07/20/24	EPA 6020B	
Barium	65.7	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Copper	2.76	0.400	"	"	"	"	"	"	
Lead	5.69	0.200	"	"	"	"	"	"	
Nickel	3.73	0.400	"	"	"	"	"	"	
Silver	0.0355	0.0200	"	"	"	"	"	"	
Zinc	14.6	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **07/18/24 11:55**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHG0522	07/19/24	07/19/24	EPA 7196A	

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

Date Sampled: **07/18/24 11:55**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Calcium	15.9	0.0500	mg/L dry	1	BHG0539	07/19/24	07/22/24	EPA 6020B	
Magnesium	4.55	0.0500	"	"	"	"	"	"	
Sodium	0.966	0.0500	"	"	"	"	"	"	

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Reported:
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BKG01@2'
2407231-03 (Soil)

Summit Scientific

Calculated Analysis

Date Sampled: **07/18/24 11:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.0550	0.00100	units	1	BHG0623	07/23/24	07/23/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **07/18/24 11:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	92.1		%	1	BHG0530	07/19/24	07/22/24	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **07/18/24 11:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.0426	0.0100	mmhos/cm	1	BHG0549	07/19/24	07/22/24	EPA 120.1	

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

Date Sampled: **07/18/24 11:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.10		pH Units	1	BHG0548	07/19/24	07/22/24	EPA 9045D	

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Reported:
07/24/24 08:04

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

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

Batch BHG0542 - EPA 5030 Soil MS

Blank (BHG0542-BLK1)

Prepared: 07/19/24 Analyzed: 07/22/24

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	0.0403		"	0.0400		101	50-150			
Surrogate: Toluene-d8	0.0398		"	0.0400		99.4	50-150			
Surrogate: 4-Bromofluorobenzene	0.0381		"	0.0400		95.2	50-150			

LCS (BHG0542-BS1)

Prepared: 07/19/24 Analyzed: 07/22/24

Benzene	0.0975	0.0020	mg/kg	0.100		97.5	70-130			
Toluene	0.0985	0.0050	"	0.100		98.5	70-130			
Ethylbenzene	0.0957	0.0050	"	0.100		95.7	70-130			
m,p-Xylene	0.193	0.010	"	0.200		96.5	70-130			
o-Xylene	0.0978	0.0050	"	0.100		97.8	70-130			
1,2,4-Trimethylbenzene	0.0913	0.0050	"	0.100		91.3	70-130			
1,3,5-Trimethylbenzene	0.0928	0.0050	"	0.100		92.8	70-130			
Naphthalene	0.0893	0.0038	"	0.100		89.3	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0406		"	0.0400		102	50-150			
Surrogate: Toluene-d8	0.0395		"	0.0400		98.7	50-150			
Surrogate: 4-Bromofluorobenzene	0.0395		"	0.0400		98.8	50-150			

Matrix Spike (BHG0542-MS1)

Source: 2407216-01

Prepared: 07/19/24 Analyzed: 07/23/24

Benzene	0.0973	0.0020	mg/kg	0.100	ND	97.3	70-130			
Toluene	0.0980	0.0050	"	0.100	ND	98.0	70-130			
Ethylbenzene	0.0963	0.0050	"	0.100	ND	96.3	70-130			
m,p-Xylene	0.195	0.010	"	0.200	ND	97.5	70-130			
o-Xylene	0.0936	0.0050	"	0.100	ND	93.6	70-130			
1,2,4-Trimethylbenzene	0.0906	0.0050	"	0.100	ND	90.6	70-130			
1,3,5-Trimethylbenzene	0.0940	0.0050	"	0.100	ND	94.0	70-130			
Naphthalene	0.0838	0.0038	"	0.100	ND	83.8	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0424		"	0.0400		106	50-150			
Surrogate: Toluene-d8	0.0396		"	0.0400		98.9	50-150			
Surrogate: 4-Bromofluorobenzene	0.0399		"	0.0400		99.7	50-150			

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Project Manager: Jacob Whritenour

Reported:
07/24/24 08:04

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

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

Batch BHG0542 - EPA 5030 Soil MS

Matrix Spike Dup (BHG0542-MSD1)	Source: 2407216-01			Prepared: 07/19/24 Analyzed: 07/23/24						
Benzene	0.0903	0.0020	mg/kg	0.100	ND	90.3	70-130	7.39	30	
Toluene	0.0927	0.0050	"	0.100	ND	92.7	70-130	5.57	30	
Ethylbenzene	0.0927	0.0050	"	0.100	ND	92.7	70-130	3.78	30	
m,p-Xylene	0.188	0.010	"	0.200	ND	94.1	70-130	3.54	30	
o-Xylene	0.0909	0.0050	"	0.100	ND	90.9	70-130	2.93	30	
1,2,4-Trimethylbenzene	0.0866	0.0050	"	0.100	ND	86.6	70-130	4.47	30	
1,3,5-Trimethylbenzene	0.0899	0.0050	"	0.100	ND	89.9	70-130	4.40	30	
Naphthalene	0.0845	0.0038	"	0.100	ND	84.5	70-130	0.891	30	
Surrogate: 1,2-Dichloroethane-d4	0.0411		"	0.0400		103	50-150			
Surrogate: Toluene-d8	0.0394		"	0.0400		98.6	50-150			
Surrogate: 4-Bromofluorobenzene	0.0398		"	0.0400		99.6	50-150			

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Project Manager: Jacob Whritenour

Reported:
07/24/24 08:04

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

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

Batch BHG0544 - EPA 3550A

Blank (BHG0544-BLK1)

Prepared: 07/19/24 Analyzed: 07/22/24

C10-C28 (DRO)	ND	50	mg/kg							
C28-C36 (ORO)	ND	50	"							
Surrogate: o-Terphenyl	10.6		"	12.5		84.6	30-150			

LCS (BHG0544-BS1)

Prepared: 07/19/24 Analyzed: 07/22/24

C10-C28 (DRO)	408	50	mg/kg	500		81.6	70-130			
Surrogate: o-Terphenyl	10.4		"	12.5		82.8	30-150			

Matrix Spike (BHG0544-MS1)

Source: 2407216-01

Prepared: 07/19/24 Analyzed: 07/22/24

C10-C28 (DRO)	449	50	mg/kg	500	ND	89.7	70-130			
Surrogate: o-Terphenyl	11.3		"	12.5		90.6	30-150			

Matrix Spike Dup (BHG0544-MSD1)

Source: 2407216-01

Prepared: 07/19/24 Analyzed: 07/22/24

C10-C28 (DRO)	437	50	mg/kg	500	ND	87.4	70-130	2.65	20	
Surrogate: o-Terphenyl	9.12		"	12.5		73.0	30-150			

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PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

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

Batch BHG0519 - EPA 5030 Soil MS

Blank (BHG0519-BLK1)

Prepared & Analyzed: 07/19/24

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	0.0227		"	0.0333		68.0	40-150			
Surrogate: Fluoranthene-d10	0.0257		"	0.0333		77.2	40-150			

LCS (BHG0519-BS1)

Prepared & Analyzed: 07/19/24

Acenaphthene	0.0193	0.00500	mg/kg	0.0333		58.0	31-137			
Anthracene	0.0204	0.00500	"	0.0333		61.3	30-120			
Benzo (a) anthracene	0.0199	0.00500	"	0.0333		59.7	30-120			
Benzo (a) pyrene	0.0197	0.00500	"	0.0333		59.1	30-120			
Benzo (b) fluoranthene	0.0202	0.00500	"	0.0333		60.6	30-120			
Benzo (k) fluoranthene	0.0202	0.00500	"	0.0333		60.6	30-120			
Chrysene	0.0194	0.00500	"	0.0333		58.1	30-120			
Dibenz (a,h) anthracene	0.0184	0.00500	"	0.0333		55.1	30-120			
Fluoranthene	0.0221	0.00500	"	0.0333		66.3	30-120			
Fluorene	0.0194	0.00500	"	0.0333		58.3	30-120			
Indeno (1,2,3-cd) pyrene	0.0152	0.00500	"	0.0333		45.7	30-120			
Pyrene	0.0198	0.00500	"	0.0333		59.5	35-142			
1-Methylnaphthalene	0.0380	0.00500	"	0.0333		114	35-142			
2-Methylnaphthalene	0.0398	0.00500	"	0.0333		119	35-142			
Surrogate: 2-Methylnaphthalene-d10	0.0394		"	0.0333		118	40-150			
Surrogate: Fluoranthene-d10	0.0230		"	0.0333		69.1	40-150			

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PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

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

Batch BHG0519 - EPA 5030 Soil MS

Matrix Spike (BHG0519-MS1)

Source: 2407226-01

Prepared & Analyzed: 07/19/24

Acenaphthene	0.0178	0.00500	mg/kg	0.0333	ND	53.4	31-137				
Anthracene	0.0182	0.00500	"	0.0333	ND	54.4	30-120				
Benzo (a) anthracene	0.0187	0.00500	"	0.0333	ND	56.2	30-120				
Benzo (a) pyrene	0.0184	0.00500	"	0.0333	ND	55.1	30-120				
Benzo (b) fluoranthene	0.0185	0.00500	"	0.0333	ND	55.5	30-120				
Benzo (k) fluoranthene	0.0186	0.00500	"	0.0333	ND	55.9	30-120				
Chrysene	0.0182	0.00500	"	0.0333	ND	54.6	30-120				
Dibenz (a,h) anthracene	0.0178	0.00500	"	0.0333	ND	53.4	30-120				
Fluoranthene	0.0196	0.00500	"	0.0333	ND	58.8	30-120				
Fluorene	0.0180	0.00500	"	0.0333	ND	54.0	30-120				
Indeno (1,2,3-cd) pyrene	0.0150	0.00500	"	0.0333	ND	45.1	30-120				
Pyrene	0.0177	0.00500	"	0.0333	ND	53.1	35-142				
1-Methylnaphthalene	0.0314	0.00500	"	0.0333	ND	94.3	15-130				
2-Methylnaphthalene	0.0427	0.00500	"	0.0333	ND	128	15-130				
Surrogate: 2-Methylnaphthalene-d10	0.0346		"	0.0333		104	40-150				
Surrogate: Fluoranthene-d10	0.0203		"	0.0333		61.0	40-150				

Matrix Spike Dup (BHG0519-MSD1)

Source: 2407226-01

Prepared & Analyzed: 07/19/24

Acenaphthene	0.0166	0.00500	mg/kg	0.0333	ND	49.8	31-137	6.87	30		
Anthracene	0.0172	0.00500	"	0.0333	ND	51.6	30-120	5.46	30		
Benzo (a) anthracene	0.0176	0.00500	"	0.0333	ND	52.9	30-120	6.13	30		
Benzo (a) pyrene	0.0173	0.00500	"	0.0333	ND	51.9	30-120	6.02	30		
Benzo (b) fluoranthene	0.0175	0.00500	"	0.0333	ND	52.4	30-120	5.71	30		
Benzo (k) fluoranthene	0.0177	0.00500	"	0.0333	ND	53.0	30-120	5.39	30		
Chrysene	0.0172	0.00500	"	0.0333	ND	51.5	30-120	5.89	30		
Dibenz (a,h) anthracene	0.0179	0.00500	"	0.0333	ND	53.8	30-120	0.806	30		
Fluoranthene	0.0199	0.00500	"	0.0333	ND	59.7	30-120	1.51	30		
Fluorene	0.0178	0.00500	"	0.0333	ND	53.3	30-120	1.41	30		
Indeno (1,2,3-cd) pyrene	0.0145	0.00500	"	0.0333	ND	43.6	30-120	3.43	30		
Pyrene	0.0159	0.00500	"	0.0333	ND	47.8	35-142	10.5	30		
1-Methylnaphthalene	0.0300	0.00500	"	0.0333	ND	90.1	15-130	4.53	50		
2-Methylnaphthalene	0.0424	0.00500	"	0.0333	ND	127	15-130	0.763	50		
Surrogate: 2-Methylnaphthalene-d10	0.0345		"	0.0333		103	40-150				
Surrogate: Fluoranthene-d10	0.0210		"	0.0333		63.0	40-150				

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

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

Batch BHG0526 - EPA 3050B

Blank (BHG0526-BLK1)

Prepared: 07/19/24 Analyzed: 07/20/24

Boron ND 2.00 mg/L

LCS (BHG0526-BS1)

Prepared: 07/19/24 Analyzed: 07/20/24

Boron 4.84 2.00 mg/L 5.00 96.8 80-120

Duplicate (BHG0526-DUP1)

Source: 2407229-01

Prepared: 07/19/24 Analyzed: 07/20/24

Boron 0.122 2.00 mg/L 0.179 38.4 20 QR-01

Matrix Spike (BHG0526-MS1)

Source: 2407229-01

Prepared: 07/19/24 Analyzed: 07/20/24

Boron 5.58 2.00 mg/L 5.05 0.179 107 75-125

Matrix Spike Dup (BHG0526-MSD1)

Source: 2407229-01

Prepared: 07/19/24 Analyzed: 07/20/24

Boron 5.92 2.00 mg/L 5.05 0.179 114 75-125 5.93 25

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07/24/24 08:04

Total Metals by EPA 6020B - Quality Control
Summit Scientific

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

Batch BHG0534 - EPA 3050B

Blank (BHG0534-BLK1)

Prepared: 07/19/24 Analyzed: 07/20/24

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 (BHG0534-BS1)

Prepared: 07/19/24 Analyzed: 07/20/24

Arsenic	39.5	0.200	mg/kg wet	38.5	103	80-120	QM-07
Barium	46.5	0.400	"	38.5	121	80-120	
Cadmium	1.82	0.200	"	1.92	94.8	80-120	
Copper	37.1	0.400	"	38.5	96.4	80-120	
Lead	18.6	0.200	"	19.2	96.8	80-120	
Nickel	37.5	0.400	"	38.5	97.6	80-120	
Silver	1.82	0.0200	"	1.92	94.6	80-120	
Zinc	37.3	0.400	"	38.5	96.9	80-120	
Selenium	3.86	0.260	"	3.85	100	80-120	

Duplicate (BHG0534-DUP1)

Source: 2406179-01

Prepared: 07/19/24 Analyzed: 07/20/24

Arsenic	4.37	0.200	mg/kg dry	3.91	11.2	20
Barium	131	0.400	"	118	10.3	20
Cadmium	0.214	0.200	"	0.178	18.4	20
Copper	5.62	0.400	"	5.34	5.18	20
Lead	9.49	0.200	"	8.53	10.7	20
Nickel	6.36	0.400	"	5.84	8.49	20
Silver	0.0406	0.0200	"	0.0381	6.35	20
Zinc	21.1	0.400	"	19.7	6.79	20
Selenium	ND	0.260	"	ND		20

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Project Number: UWRWE-A2811-ABN
Project Manager: Jacob Whritenour

Reported:
07/24/24 08:04

Total Metals by EPA 6020B - Quality Control
Summit Scientific

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

Batch BHG0534 - EPA 3050B

Matrix Spike (BHG0534-MS1)			Source: 2406179-01		Prepared: 07/19/24 Analyzed: 07/20/24					
Arsenic	43.8	0.200	mg/kg dry	41.3	3.91	96.5	75-125			
Barium	159	0.400	"	41.3	118	101	75-125			
Cadmium	2.16	0.200	"	2.07	0.178	96.1	75-125			
Copper	25.7	0.400	"	41.3	5.34	49.1	75-125			QM-05
Lead	27.6	0.200	"	20.7	8.53	92.2	75-125			
Nickel	26.5	0.400	"	41.3	5.84	50.1	75-125			QM-05
Silver	1.98	0.0200	"	2.07	0.0381	94.1	75-125			
Zinc	40.3	0.400	"	41.3	19.7	49.8	75-125			QM-05
Selenium	3.30	0.260	"	4.13	ND	79.8	75-125			

Matrix Spike Dup (BHG0534-MSD1)			Source: 2406179-01		Prepared: 07/19/24 Analyzed: 07/20/24					
Arsenic	45.4	0.200	mg/kg dry	42.3	3.91	98.1	75-125	3.55	25	
Barium	150	0.400	"	42.3	118	77.3	75-125	5.78	25	
Cadmium	2.25	0.200	"	2.11	0.178	97.9	75-125	3.76	25	
Copper	27.6	0.400	"	42.3	5.34	52.6	75-125	7.20	25	QM-05
Lead	28.2	0.200	"	21.1	8.53	92.9	75-125	2.10	25	
Nickel	28.6	0.400	"	42.3	5.84	53.8	75-125	7.43	25	QM-05
Silver	2.05	0.0200	"	2.11	0.0381	95.3	75-125	3.43	25	
Zinc	41.9	0.400	"	42.3	19.7	52.4	75-125	3.81	25	QM-05
Selenium	3.55	0.260	"	4.23	ND	84.0	75-125	7.42	25	

Post Spike (BHG0534-PS1)			Source: 2406179-01		Prepared: 07/19/24 Analyzed: 07/20/24					
Arsenic	110		ug/l	100	8.75	101	75-125			
Barium	362		"	100	264	98.3	75-125			
Cadmium	5.21		"	5.00	0.399	96.2	75-125			
Copper	65.7		"	100	12.0	53.7	75-125			QM-01
Lead	67.0		"	50.0	19.1	95.8	75-125			
Nickel	66.9		"	100	13.1	53.8	75-125			QM-01
Silver	4.93		"	5.00	0.0852	96.9	75-125			
Zinc	99.9		"	100	44.2	55.7	75-125			QM-01
Selenium	8.59		"	10.0	0.242	83.5	75-125			

Summit Scientific

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



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

Project: Noble - Leonard 21-1614 Flowline
Project Number: UWRWE-A2811-ABN
Project Manager: Jacob Whritenour

Reported:
07/24/24 08:04

Hexavalent Chromium by EPA Method 7196 - Quality Control
Summit Scientific

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

Batch BHG0522 - 3060A Mod

Blank (BHG0522-BLK1)

Prepared & Analyzed: 07/19/24

Chromium, Hexavalent ND 0.30 mg/kg wet

LCS (BHG0522-BS1)

Prepared & Analyzed: 07/19/24

Chromium, Hexavalent 26.2 0.30 mg/kg wet 25.0 105 80-120

Duplicate (BHG0522-DUP1)

Source: 2407195-21

Prepared & Analyzed: 07/19/24

Chromium, Hexavalent ND 0.30 mg/kg dry ND 20

Matrix Spike (BHG0522-MS1)

Source: 2407195-21

Prepared & Analyzed: 07/19/24

Chromium, Hexavalent 27.4 0.30 mg/kg dry 25.7 ND 107 75-125

Matrix Spike Dup (BHG0522-MSD1)

Source: 2407195-21

Prepared & Analyzed: 07/19/24

Chromium, Hexavalent 27.0 0.30 mg/kg dry 25.7 ND 105 75-125 1.32 20

Summit Scientific

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

Project: Noble - Leonard 21-1614 Flowline
Project Number: UWRWE-A2811-ABN
Project Manager: Jacob Whritenour

Reported:
07/24/24 08:04

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

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

Batch BHG0539 - General Preparation

Blank (BHG0539-BLK1)

Prepared: 07/19/24 Analyzed: 07/22/24

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

LCS (BHG0539-BS1)

Prepared: 07/19/24 Analyzed: 07/22/24

Calcium	5.17	0.0500	mg/L wet	5.00	103	70-130
Magnesium	5.11	0.0500	"	5.00	102	70-130
Sodium	5.10	0.0500	"	5.00	102	70-130

Summit Scientific

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

Project: Noble - Leonard 21-16I4 Flowline

Project Number: UWRWE-A2811-ABN
Project Manager: Jacob Whritenour

Reported:
07/24/24 08:04

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

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

Batch BHG0530 - General Preparation

Duplicate (BHG0530-DUP1)		Source: 2407229-01			Prepared: 07/19/24 Analyzed: 07/22/24						
% Solids	90.2		%		90.7			0.501		20	

Summit Scientific

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

Project: Noble - Leonard 21-16I4 Flowline
Project Number: UWRWE-A2811-ABN
Project Manager: Jacob Whritenour

Reported:
07/24/24 08:04

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

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

Batch BHG0549 - General Preparation

Blank (BHG0549-BLK1)

Prepared: 07/19/24 Analyzed: 07/22/24

Specific Conductance (EC) ND 0.0100 mmhos/cm

LCS (BHG0549-BS1)

Prepared: 07/19/24 Analyzed: 07/22/24

Specific Conductance (EC) 0.156 0.0100 mmhos/cm 0.150 104 95-105

Duplicate (BHG0549-DUP1)

Source: 2407231-01

Prepared: 07/19/24 Analyzed: 07/22/24

Specific Conductance (EC) 0.113 0.0100 mmhos/cm 0.114 1.41 20

Summit Scientific

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

Project: Noble - Leonard 21-16I4 Flowline

Project Number: UWRWE-A2811-ABN

Project Manager: Jacob Whritenour

Reported:
07/24/24 08:04

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

Summit Scientific

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

Batch BHG0548 - General Preparation

LCS (BHG0548-BS1)

Prepared: 07/19/24 Analyzed: 07/22/24

pH	9.19	pH Units	9.18	100	95-105
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Duplicate (BHG0548-DUP1)

Source: 2407231-01

Prepared: 07/19/24 Analyzed: 07/22/24

pH	8.80	pH Units	8.86	0.679	20
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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Leonard 21-16I4 Flowline

Project Number: UWRWE-A2811-ABN
Project Manager: Jacob Whritenour

Reported:
07/24/24 08:04

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-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.
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