

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

February 24, 2025

Daniel Simpson

Tasman Geosciences

6855 W. 119th Ave.

Broomfield, CO 80020

RE: Noble - Frank CC 07-19 Flowline

Work Order #2412275

Enclosed are the results of analyses for samples received by Summit Scientific on 12/12/24 18:12. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "Amanda Stilwell". The signature is fluid and cursive, with a large initial "A" and "S".

Amanda Stilwell For Paul Shrewsbury
President



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

Project: Noble - Frank CC 07-19 Flowline

Project Number: UWRWE-A2872-ABN
Project Manager: Daniel Simpson

Reported:
02/24/25 13:22

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FL01R-W@2'	2412275-01	Soil	12/12/24 13:12	12/12/24 18:12
FL01-02@2'	2412275-02	Soil	12/12/24 13:03	12/12/24 18:12
BKG01@2'	2412275-03	Soil	12/12/24 13:23	12/12/24 18:12
BKG01@3'	2412275-04	Soil	12/12/24 13:29	12/12/24 18:12

Case Narrative

The COC received has been revised per client request on 02/24/25. Sample times have also been revised by client.

This is a revision of the report originally sent on 2/24/25 at 10:30 MT.

Summit Scientific

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

Lab ID	Page 1 of 1
2412275	

	Send Data To:	Send Invoice To:
Client: Tasman, Inc.	Project Manager: Daniel Simpson	Company: <i>Noble</i>
Address: 6855 W. 119th Ave.	E-Mail: Tas-chevron-5@tasman-geo.com	Project Name/Location: <i>Frank CCB7-19 Flowline</i>
City/State/Zip: Broomfield / CO/ 80020	<i>rbuevf27@chevron.com jason.davidson@chevron.com</i>	AFE#: <i>VNRWF-A2872</i>
Phone: 303-487-1228	Project Name: <i>Frank CCB7-19 Flowline</i>	PO/Billing Codes:
Sampler Name: <i>Kelly Hoag</i>	Project Number:	Contact: <i>Sam Malwal</i>

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix		Air-Canister #	Other	Analysis Requested							Special Instructions
					HCl	HNO3	None	Other	Water	Soil			Metals - 915	VOC - 915	TPH - 915	PAH - 915	SAR, EC, pH	Boron - HWS	HOLD	
1	<i>FLOIR-W@2'</i>	<i>12/12/24</i>	13:12	<i>2</i>			<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		SAR, EC, pH by saturated paste
2	<i>FLOI-O2@2'</i>	<i>I</i>	13:03	<i>I</i>								<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
3	<i>BKG01@2'</i>	<i>I</i>	13:23	<i>I</i>								<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			
4	<i>BKG01@3'</i>	<i>I</i>	13:29	<i>I</i>								<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			
5			<i>-JMB</i>																	
6																				
7																				
8																				
9																				
10																				
11																				
12																				
13																				
14																				
15																				

Relinquished by: <i>KH</i>	Date/Time: <i>12/12/24 15:25</i>	Received by: Tasman Lockbox	Date/Time: <i>12/12/24 15:25</i>	TAT Business Days	Field DO	Notes:
Relinquished by: <i>Tasmanlockbox</i>	Date/Time: <i>12/24 1812</i>	Received by: <i>[Signature]</i>	Date/Time: <i>12/24 1812</i>	Same Day	Field EC	
Relinquished by:	Date/Time:	Received by:	Date/Time:	1 Day	Field ORP	
				2 Days	Field pH	
				3 Days	Field Temp.	
				Standard	<input checked="" type="checkbox"/> Field Turb.	
Temperature Upon Receipt: <i>3.0</i>	Corrected Temperature: <i>0</i>	IR gun #: <i>1</i>	HNO3 lot #:			

S₂

Sample Receipt Checklist

S2 Work Order# 2410275

Client: Tusman Client Project ID: Frank CC 07-19 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"/>	
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

12/12/24
Date/Time

00000



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

Project: Noble - Frank CC 07-19 Flowline

Project Number: UWRWE-A2872-ABN
Project Manager: Daniel Simpson

Reported:
02/24/25 13:22

FL01R-W@2'
2412275-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **12/12/24 13:12**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	0.0020		mg/kg	1	BHL1122	12/23/24	12/27/24	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: **12/12/24 13:12**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4	0.0404	101 %		50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0396	98.9 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0388	97.1 %		50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **12/12/24 13:12**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
C10-C28 (DRO)	ND	50		mg/kg	1	BHL1124	12/23/24	12/28/24	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **12/12/24 13:12**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: o-Terphenyl	12.2	97.6 %		30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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02/24/25 13:22

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2412275-01 (Soil)

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PAH by EPA Method 8270D SIM

Date Sampled: **12/12/24 13:12**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BHL1115	12/23/24	12/29/24	EPA 8270D SIM	
Anthracene	0.00639	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	0.00793	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	0.00548	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	0.00710	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	0.00642	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	0.0179	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	0.0142	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **12/12/24 13:12**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0122	36.6 %	40-140		"	"	"	"	S-02
Surrogate: Fluoranthene-d10	0.0124	37.2 %	40-140		"	"	"	"	S-02

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **12/12/24 13:12**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BIB0236	02/06/25	02/11/25	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **12/12/24 13:12**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Project: Noble - Frank CC 07-19 Flowline

Project Number: UWRWE-A2872-ABN
Project Manager: Daniel Simpson

Reported:
02/24/25 13:22

FL01R-W@2'
2412275-01 (Soil)

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Total Metals by EPA 6020B

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Arsenic	4.69	0.200	mg/kg dry	1	BIB0218	02/05/25	02/21/25	EPA 6020B
Barium	223	0.400	"	"	"	"	"	"
Cadmium	0.507	0.200	"	"	"	"	"	"
Copper	20.3	0.400	"	"	"	"	"	"
Lead	16.1	0.200	"	"	"	"	"	"
Nickel	17.1	0.400	"	"	"	"	"	"
Silver	0.0911	0.0200	"	"	"	"	"	"
Zinc	71.9	0.400	"	"	"	"	"	"
Selenium	0.397	0.260	"	"	"	"	"	"

Hexavalent Chromium by EPA Method 7196

Date Sampled: 12/12/24 13:12

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BIA0394	01/10/25	01/14/25	EPA 7196A	

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

Date Sampled: 12/12/24 13:12

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	81.1	0.0500	mg/L dry	1	BIA0292	01/08/25	01/16/25	EPA 6020B	
Magnesium	19.8	0.0500	"	"	"	"	"	"	
Sodium	186	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: 12/12/24 13:12

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	4.80	0.00100	units	1	BIA0758	01/16/25	01/16/25	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: 12/12/24 13:12

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Tasman Geosciences
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Project: Noble - Frank CC 07-19 Flowline

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Project Manager: Daniel Simpson

Reported:
02/24/25 13:22

FL01R-W@2'
2412275-01 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

% Solids	72.8	%	1	BIA0267	01/08/25	01/08/25	Calculation
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Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **12/12/24 13:12**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	1.29	0.0100	mmhos/cm	1	BIA0282	01/08/25	01/10/25	EPA 120.1	

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

Date Sampled: **12/12/24 13:12**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.08		pH Units	1	BIA0269	01/08/25	01/10/25	EPA 9045D	

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Project Number: UWRWE-A2872-ABN
Project Manager: Daniel Simpson

Reported:
02/24/25 13:22

FL01-02@2'
2412275-02 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **12/12/24 13:03**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	0.0020		mg/kg	1	BHL1122	12/23/24	12/27/24	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	0.0097	0.0038		"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50		"	"	"	"	"	"	

Date Sampled: **12/12/24 13:03**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4	0.0418	104 %		50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0398	99.6 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0393	98.2 %		50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **12/12/24 13:03**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
C10-C28 (DRO)	ND	50		mg/kg	1	BHL1124	12/23/24	12/28/24	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **12/12/24 13:03**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: o-Terphenyl	8.15	65.2 %		30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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Project Manager: Daniel Simpson

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02/24/25 13:22

FL01-02@2'
2412275-02 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **12/12/24 13:03**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Acenaphthene	0.541	0.00500	mg/kg	1	BHL1115	12/23/24	12/29/24	EPA 8270D SIM	E
Anthracene	0.994	0.00500	"	"	"	"	"	"	E
Benzo (a) anthracene	0.896	0.00500	"	"	"	"	"	"	E
Benzo (a) pyrene	0.551	0.00500	"	"	"	"	"	"	E
Benzo (b) fluoranthene	0.846	0.00500	"	"	"	"	"	"	E
Benzo (k) fluoranthene	0.280	0.00500	"	"	"	"	"	"	E
Chrysene	0.797	0.00500	"	"	"	"	"	"	E
Dibenz (a,h) anthracene	0.0225	0.00500	"	"	"	"	"	"	
Fluoranthene	1.79	0.00500	"	"	"	"	"	"	E
Fluorene	0.766	0.00500	"	"	"	"	"	"	E
Indeno (1,2,3-cd) pyrene	0.456	0.00500	"	"	"	"	"	"	E
Pyrene	1.66	0.00500	"	"	"	"	"	"	E
1-Methylnaphthalene	0.0744	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	0.142	0.00500	"	"	"	"	"	"	

Date Sampled: **12/12/24 13:03**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 2-Methylnaphthalene-d10	0.0200	59.9 %	40-140		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0187	56.2 %	40-140		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **12/12/24 13:03**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Boron	ND	2.00	mg/L	1	BIB0236	02/06/25	02/11/25	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **12/12/24 13:03**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	3.72	0.200	mg/kg dry	1	BIB0218	02/05/25	02/21/25	EPA 6020B	

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Project: Noble - Frank CC 07-19 Flowline

Project Number: UWRWE-A2872-ABN
Project Manager: Daniel Simpson

Reported:
02/24/25 13:22

FL01-02@2'
2412275-02 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Barium	159	0.400	mg/kg dry	1	BIB0218	02/05/25	02/21/25	EPA 6020B	
Cadmium	0.448	0.200	"	"	"	"	"	"	
Copper	18.3	0.400	"	"	"	"	"	"	
Lead	14.5	0.200	"	"	"	"	"	"	
Nickel	13.2	0.400	"	"	"	"	"	"	
Silver	0.0882	0.0200	"	"	"	"	"	"	
Zinc	73.3	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: 12/12/24 13:03

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BIA0394	01/10/25	01/14/25	EPA 7196A	

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

Date Sampled: 12/12/24 13:03

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	29.5	0.0500	mg/L dry	1	BIA0292	01/08/25	01/16/25	EPA 6020B	
Magnesium	10.3	0.0500	"	"	"	"	"	"	
Sodium	69.7	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: 12/12/24 13:03

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	2.82	0.00100	units	1	BIA0758	01/16/25	01/16/25	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: 12/12/24 13:03

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	78.3		%	1	BIA0267	01/08/25	01/08/25	Calculation	

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

Project: Noble - Frank CC 07-19 Flowline
Project Number: UWRWE-A2872-ABN
Project Manager: Daniel Simpson

Reported:
02/24/25 13:22

FL01-02@2'
2412275-02 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **12/12/24 13:03**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.604	0.0100	mmhos/cm	1	BIA0282	01/08/25	01/10/25	EPA 120.1	

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

Date Sampled: **12/12/24 13:03**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.38		pH Units	1	BIA0269	01/08/25	01/10/25	EPA 9045D	

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Project: Noble - Frank CC 07-19 Flowline

Project Number: UWRWE-A2872-ABN
Project Manager: Daniel Simpson

Reported:
02/24/25 13:22

BKG01@2'
2412275-03 (Soil)

Summit Scientific

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **12/12/24 13:23**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Boron	ND	2.00	mg/L	1	BIB0236	02/06/25	02/11/25	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **12/12/24 13:23**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	4.83	0.200	mg/kg dry	1	BIB0218	02/05/25	02/21/25	EPA 6020B	
Barium	171	0.400	"	"	"	"	"	"	
Cadmium	0.482	0.200	"	"	"	"	"	"	
Copper	20.3	0.400	"	"	"	"	"	"	
Lead	15.9	0.200	"	"	"	"	"	"	
Nickel	15.9	0.400	"	"	"	"	"	"	
Silver	0.0907	0.0200	"	"	"	"	"	"	
Zinc	75.5	0.400	"	"	"	"	"	"	
Selenium	0.338	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **12/12/24 13:23**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BIA0394	01/10/25	01/14/25	EPA 7196A	

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

Date Sampled: **12/12/24 13:23**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	166	0.0500	mg/L dry	1	BIA0292	01/08/25	01/16/25	EPA 6020B	
Magnesium	45.4	0.0500	"	"	"	"	"	"	
Sodium	201	0.0500	"	"	"	"	"	"	

Calculated Analysis

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Project: Noble - Frank CC 07-19 Flowline

Project Number: UWRWE-A2872-ABN
Project Manager: Daniel Simpson

Reported:
02/24/25 13:22

BKG01@2'
2412275-03 (Soil)

Summit Scientific

Calculated Analysis

Date Sampled: **12/12/24 13:23**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	3.57	0.00100	units	1	BIA0758	01/16/25	01/16/25	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **12/12/24 13:23**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	77.7		%	1	BIA0267	01/08/25	01/08/25	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **12/12/24 13:23**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	2.03	0.0100	mmhos/cm	1	BIA0282	01/08/25	01/10/25	EPA 120.1	

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

Date Sampled: **12/12/24 13:23**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.85		pH Units	1	BIA0269	01/08/25	01/10/25	EPA 9045D	

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Project: Noble - Frank CC 07-19 Flowline

Project Number: UWRWE-A2872-ABN
Project Manager: Daniel Simpson

Reported:
02/24/25 13:22

BKG01@3'
2412275-04 (Soil)

Summit Scientific

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **12/12/24 13:29**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Boron	ND	2.00	mg/L	1	BIB0236	02/06/25	02/11/25	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **12/12/24 13:29**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	4.29	0.200	mg/kg dry	1	BIB0218	02/05/25	02/21/25	EPA 6020B	
Barium	164	0.400	"	"	"	"	"	"	
Cadmium	0.489	0.200	"	"	"	"	"	"	
Copper	18.9	0.400	"	"	"	"	"	"	
Lead	15.1	0.200	"	"	"	"	"	"	
Nickel	16.6	0.400	"	"	"	"	"	"	
Silver	0.0944	0.0200	"	"	"	"	"	"	
Zinc	67.2	0.400	"	"	"	"	"	"	
Selenium	0.394	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **12/12/24 13:29**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BIA0394	01/10/25	01/14/25	EPA 7196A	

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

Date Sampled: **12/12/24 13:29**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	171	0.0500	mg/L dry	1	BIA0292	01/08/25	01/16/25	EPA 6020B	
Magnesium	41.6	0.0500	"	"	"	"	"	"	
Sodium	277	0.0500	"	"	"	"	"	"	

Calculated Analysis

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Tasman Geosciences
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Broomfield CO, 80020

Project: Noble - Frank CC 07-19 Flowline

Project Number: UWRWE-A2872-ABN
Project Manager: Daniel Simpson

Reported:
02/24/25 13:22

BKG01@3'
2412275-04 (Soil)

Summit Scientific

Calculated Analysis

Date Sampled: **12/12/24 13:29**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	4.93	0.00100	units	1	BIA0758	01/16/25	01/16/25	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **12/12/24 13:29**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	74.6		%	1	BIA0267	01/08/25	01/08/25	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **12/12/24 13:29**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	2.31	0.0100	mmhos/cm	1	BIA0282	01/08/25	01/10/25	EPA 120.1	

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

Date Sampled: **12/12/24 13:29**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.03		pH Units	1	BIA0269	01/08/25	01/10/25	EPA 9045D	

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Broomfield CO, 80020

Project: Noble - Frank CC 07-19 Flowline

Project Number: UWRWE-A2872-ABN
Project Manager: Daniel Simpson

Reported:
02/24/25 13:22

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 BHL1122 - EPA 5030 Soil MS

Blank (BHL1122-BLK1)

Prepared: 12/23/24 Analyzed: 12/26/24

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	0.0426		"	0.0400		107	50-150			
Surrogate: Toluene-d8	0.0407		"	0.0400		102	50-150			
Surrogate: 4-Bromofluorobenzene	0.0389		"	0.0400		97.3	50-150			

LCS (BHL1122-BS1)

Prepared: 12/23/24 Analyzed: 12/26/24

Benzene	0.0996	0.0020	mg/kg	0.100		99.6	70-130			
Toluene	0.0968	0.0050	"	0.100		96.8	70-130			
Ethylbenzene	0.0995	0.0050	"	0.100		99.5	70-130			
m,p-Xylene	0.199	0.010	"	0.200		99.3	70-130			
o-Xylene	0.0987	0.0050	"	0.100		98.7	70-130			
1,2,4-Trimethylbenzene	0.0984	0.0050	"	0.100		98.4	70-130			
1,3,5-Trimethylbenzene	0.0972	0.0050	"	0.100		97.2	70-130			
Naphthalene	0.0951	0.0038	"	0.100		95.1	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0404		"	0.0400		101	50-150			
Surrogate: Toluene-d8	0.0392		"	0.0400		98.1	50-150			
Surrogate: 4-Bromofluorobenzene	0.0398		"	0.0400		99.5	50-150			

Matrix Spike (BHL1122-MS1)

Source: 2412244-01

Prepared: 12/23/24 Analyzed: 12/26/24

Benzene	0.104	0.0020	mg/kg	0.100	ND	104	70-130			
Toluene	0.105	0.0050	"	0.100	ND	105	70-130			
Ethylbenzene	0.101	0.0050	"	0.100	ND	101	70-130			
m,p-Xylene	0.202	0.010	"	0.200	ND	101	70-130			
o-Xylene	0.0999	0.0050	"	0.100	ND	99.9	70-130			
1,2,4-Trimethylbenzene	0.0944	0.0050	"	0.100	ND	94.4	70-130			
1,3,5-Trimethylbenzene	0.0956	0.0050	"	0.100	ND	95.6	70-130			
Naphthalene	0.0935	0.0038	"	0.100	ND	93.5	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0422		"	0.0400		106	50-150			
Surrogate: Toluene-d8	0.0406		"	0.0400		101	50-150			
Surrogate: 4-Bromofluorobenzene	0.0396		"	0.0400		99.0	50-150			

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Project: Noble - Frank CC 07-19 Flowline

Project Number: UWRWE-A2872-ABN
Project Manager: Daniel Simpson

Reported:
02/24/25 13:22

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 BHL1122 - EPA 5030 Soil MS

Matrix Spike Dup (BHL1122-MSD1)	Source: 2412244-01			Prepared: 12/23/24 Analyzed: 12/26/24						
Benzene	0.0977	0.0020	mg/kg	0.100	ND	97.7	70-130	6.71	30	
Toluene	0.0965	0.0050	"	0.100	ND	96.5	70-130	8.48	30	
Ethylbenzene	0.0961	0.0050	"	0.100	ND	96.1	70-130	4.52	30	
m,p-Xylene	0.191	0.010	"	0.200	ND	95.7	70-130	5.37	30	
o-Xylene	0.0960	0.0050	"	0.100	ND	96.0	70-130	3.95	30	
1,2,4-Trimethylbenzene	0.0910	0.0050	"	0.100	ND	91.0	70-130	3.66	30	
1,3,5-Trimethylbenzene	0.0917	0.0050	"	0.100	ND	91.7	70-130	4.17	30	
Naphthalene	0.0901	0.0038	"	0.100	ND	90.1	70-130	3.69	30	
Surrogate: 1,2-Dichloroethane-d4	0.0413		"	0.0400		103	50-150			
Surrogate: Toluene-d8	0.0399		"	0.0400		99.7	50-150			
Surrogate: 4-Bromofluorobenzene	0.0398		"	0.0400		99.4	50-150			

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Broomfield CO, 80020

Project: Noble - Frank CC 07-19 Flowline
Project Number: UWRWE-A2872-ABN
Project Manager: Daniel Simpson

Reported:
02/24/25 13:22

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 BHL1124 - EPA 3550A

Blank (BHL1124-BLK1)

Prepared: 12/23/24 Analyzed: 12/27/24

C10-C28 (DRO)	ND	50	mg/kg								
C28-C36 (ORO)	ND	50	"								
Surrogate: <i>o</i> -Terphenyl	13.7		"	12.5		110		30-150			

LCS (BHL1124-BS1)

Prepared: 12/23/24 Analyzed: 12/27/24

C10-C28 (DRO)	535	50	mg/kg	500		107		70-130			
Surrogate: <i>o</i> -Terphenyl	14.0		"	12.5		112		30-150			

Matrix Spike (BHL1124-MS1)

Source: 2412244-01

Prepared: 12/23/24 Analyzed: 12/27/24

C10-C28 (DRO)	525	50	mg/kg	500	9.17	103		70-130			
Surrogate: <i>o</i> -Terphenyl	11.5		"	12.5		91.8		30-150			

Matrix Spike Dup (BHL1124-MSD1)

Source: 2412244-01

Prepared: 12/23/24 Analyzed: 12/27/24

C10-C28 (DRO)	457	50	mg/kg	500	9.17	89.5		70-130	13.9	20	
Surrogate: <i>o</i> -Terphenyl	10.6		"	12.5		84.4		30-150			

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Project: Noble - Frank CC 07-19 Flowline

Project Number: UWRWE-A2872-ABN
Project Manager: Daniel Simpson

Reported:
02/24/25 13:22

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

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

Batch BHL1115 - EPA 5030 Soil MS

Blank (BHL1115-BLK1)

Prepared: 12/23/24 Analyzed: 12/29/24

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	"							
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0149</i>		"	<i>0.0333</i>		<i>44.6</i>	<i>40-140</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0201</i>		"	<i>0.0333</i>		<i>60.4</i>	<i>40-140</i>			

LCS (BHL1115-BS1)

Prepared: 12/23/24 Analyzed: 12/29/24

Acenaphthene	0.0200	0.00500	mg/kg	0.0333		59.9	40-140			
Anthracene	0.0208	0.00500	"	0.0333		62.3	40-140			
Benzo (a) anthracene	0.0217	0.00500	"	0.0333		65.2	40-140			
Benzo (a) pyrene	0.0199	0.00500	"	0.0333		59.6	40-140			
Benzo (b) fluoranthene	0.0187	0.00500	"	0.0333		56.2	40-140			
Benzo (k) fluoranthene	0.0194	0.00500	"	0.0333		58.2	40-140			
Chrysene	0.0206	0.00500	"	0.0333		61.7	40-140			
Dibenz (a,h) anthracene	0.0179	0.00500	"	0.0333		53.6	40-140			
Fluoranthene	0.0202	0.00500	"	0.0333		60.6	40-140			
Fluorene	0.0203	0.00500	"	0.0333		60.9	40-140			
Indeno (1,2,3-cd) pyrene	0.0184	0.00500	"	0.0333		55.2	40-140			
Pyrene	0.0215	0.00500	"	0.0333		64.5	40-140			
1-Methylnaphthalene	0.0197	0.00500	"	0.0333		59.2	40-140			
2-Methylnaphthalene	0.0196	0.00500	"	0.0333		58.9	40-140			
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0200</i>		"	<i>0.0333</i>		<i>59.9</i>	<i>40-140</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0206</i>		"	<i>0.0333</i>		<i>61.9</i>	<i>40-140</i>			

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Broomfield CO, 80020

Project: Noble - Frank CC 07-19 Flowline

Project Number: UWRWE-A2872-ABN
Project Manager: Daniel Simpson

Reported:
02/24/25 13:22

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 BHL1115 - EPA 5030 Soil MS

Matrix Spike (BHL1115-MS1)	Source: 2412256-28			Prepared: 12/23/24 Analyzed: 12/29/24						
Acenaphthene	0.0173	0.00500	mg/kg	0.0333	ND	51.9	40-140			
Anthracene	0.0177	0.00500	"	0.0333	ND	53.0	40-140			
Benzo (a) anthracene	0.0176	0.00500	"	0.0333	ND	52.7	40-140			
Benzo (a) pyrene	0.0161	0.00500	"	0.0333	ND	48.2	40-140			
Benzo (b) fluoranthene	0.0151	0.00500	"	0.0333	ND	45.2	40-140			
Benzo (k) fluoranthene	0.0157	0.00500	"	0.0333	ND	47.1	40-140			
Chrysene	0.0169	0.00500	"	0.0333	ND	50.7	40-140			
Dibenz (a,h) anthracene	0.0143	0.00500	"	0.0333	ND	42.8	40-140			
Fluoranthene	0.0165	0.00500	"	0.0333	ND	49.4	40-140			
Fluorene	0.0170	0.00500	"	0.0333	ND	51.0	40-140			
Indeno (1,2,3-cd) pyrene	0.0140	0.00500	"	0.0333	ND	42.1	40-140			
Pyrene	0.0175	0.00500	"	0.0333	ND	52.5	40-140			
1-Methylnaphthalene	0.0173	0.00500	"	0.0333	ND	51.8	40-140			
2-Methylnaphthalene	0.0174	0.00500	"	0.0333	ND	52.1	40-140			
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0175</i>	<i>"</i>	<i>"</i>	<i>0.0333</i>	<i>"</i>	<i>52.6</i>	<i>40-140</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0169</i>	<i>"</i>	<i>"</i>	<i>0.0333</i>	<i>"</i>	<i>50.8</i>	<i>40-140</i>			

Matrix Spike Dup (BHL1115-MSD1)	Source: 2412256-28			Prepared: 12/23/24 Analyzed: 12/29/24						
Acenaphthene	0.0190	0.00500	mg/kg	0.0333	ND	56.9	40-140	9.15	30	
Anthracene	0.0192	0.00500	"	0.0333	ND	57.5	40-140	8.17	30	
Benzo (a) anthracene	0.0196	0.00500	"	0.0333	ND	58.9	40-140	11.2	30	
Benzo (a) pyrene	0.0176	0.00500	"	0.0333	ND	52.9	40-140	9.45	30	
Benzo (b) fluoranthene	0.0165	0.00500	"	0.0333	ND	49.6	40-140	9.20	30	
Benzo (k) fluoranthene	0.0170	0.00500	"	0.0333	ND	50.9	40-140	7.69	30	
Chrysene	0.0183	0.00500	"	0.0333	ND	55.0	40-140	8.19	30	
Dibenz (a,h) anthracene	0.0156	0.00500	"	0.0333	ND	46.7	40-140	8.85	30	
Fluoranthene	0.0179	0.00500	"	0.0333	ND	53.7	40-140	8.32	30	
Fluorene	0.0186	0.00500	"	0.0333	ND	55.9	40-140	9.00	30	
Indeno (1,2,3-cd) pyrene	0.0154	0.00500	"	0.0333	ND	46.3	40-140	9.63	30	
Pyrene	0.0190	0.00500	"	0.0333	ND	57.1	40-140	8.49	30	
1-Methylnaphthalene	0.0195	0.00500	"	0.0333	ND	58.5	40-140	12.0	30	
2-Methylnaphthalene	0.0194	0.00500	"	0.0333	ND	58.1	40-140	10.9	30	
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0196</i>	<i>"</i>	<i>"</i>	<i>0.0333</i>	<i>"</i>	<i>58.9</i>	<i>40-140</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0185</i>	<i>"</i>	<i>"</i>	<i>0.0333</i>	<i>"</i>	<i>55.4</i>	<i>40-140</i>			

Summit Scientific

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

Project: Noble - Frank CC 07-19 Flowline
Project Number: UWRWE-A2872-ABN
Project Manager: Daniel Simpson

Reported:
02/24/25 13:22

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

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

Batch BIB0236 - EPA 3050B

Blank (BIB0236-BLK1)

Prepared: 02/06/25 Analyzed: 02/11/25

Boron ND 2.00 mg/L

LCS (BIB0236-BS1)

Prepared: 02/06/25 Analyzed: 02/12/25

Boron 4.76 2.00 mg/L 5.00 95.3 80-120

Duplicate (BIB0236-DUP1)

Source: 2412275-01

Prepared: 02/06/25 Analyzed: 02/11/25

Boron 1.45 2.00 mg/L 1.41 2.38 20

Matrix Spike (BIB0236-MS1)

Source: 2412275-01

Prepared: 02/06/25 Analyzed: 02/12/25

Boron 4.76 2.00 mg/L 4.95 1.41 67.5 75-125 QM-05

Matrix Spike Dup (BIB0236-MSD1)

Source: 2412275-01

Prepared: 02/06/25 Analyzed: 02/12/25

Boron 4.76 2.00 mg/L 4.95 1.41 67.5 75-125 0.0194 25 QM-05

Summit Scientific

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

Project: Noble - Frank CC 07-19 Flowline

Project Number: UWRWE-A2872-ABN
Project Manager: Daniel Simpson

Reported:
02/24/25 13:22

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 BIB0218 - EPA 3050B

Blank (BIB0218-BLK1)

Prepared: 02/05/25 Analyzed: 02/21/25

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 (BIB0218-BS1)

Prepared: 02/05/25 Analyzed: 02/21/25

Arsenic	38.6	0.200	mg/kg wet	41.7	92.6	80-120
Barium	40.3	0.400	"	41.7	96.8	80-120
Cadmium	2.09	0.200	"	2.08	100	80-120
Copper	40.3	0.400	"	41.7	96.7	80-120
Lead	21.2	0.200	"	20.8	102	80-120
Nickel	39.9	0.400	"	41.7	95.7	80-120
Silver	2.09	0.0200	"	2.08	100	80-120
Zinc	39.8	0.400	"	41.7	95.6	80-120
Selenium	4.11	0.260	"	4.17	98.5	80-120

Duplicate (BIB0218-DUP1)

Source: 2412269-01

Prepared: 02/05/25 Analyzed: 02/21/25

Arsenic	4.50	0.200	mg/kg dry	4.86	7.84	20
Barium	71.5	0.400	"	73.3	2.47	20
Cadmium	0.196	0.200	"	0.196	0.241	20
Copper	5.51	0.400	"	5.62	2.02	20
Lead	6.54	0.200	"	6.73	2.79	20
Nickel	7.82	0.400	"	8.05	2.89	20
Silver	0.0293	0.0200	"	0.0282	4.02	20
Zinc	27.0	0.400	"	27.1	0.624	20
Selenium	ND	0.260	"	ND		20

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Broomfield CO, 80020

Project: Noble - Frank CC 07-19 Flowline

Project Number: UWRWE-A2872-ABN
Project Manager: Daniel Simpson

Reported:
02/24/25 13:22

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 BIB0218 - EPA 3050B

Matrix Spike (BIB0218-MS1)

Source: 2412269-01

Prepared: 02/05/25 Analyzed: 02/21/25

Arsenic	47.1	0.200	mg/kg dry	45.8	4.86	92.2	75-125			
Barium	114	0.400	"	45.8	73.3	88.8	75-125			
Cadmium	2.62	0.200	"	2.29	0.196	106	75-125			
Copper	48.5	0.400	"	45.8	5.62	93.6	75-125			
Lead	30.4	0.200	"	22.9	6.73	103	75-125			
Nickel	50.7	0.400	"	45.8	8.05	93.1	75-125			
Silver	2.41	0.0200	"	2.29	0.0282	104	75-125			
Zinc	70.7	0.400	"	45.8	27.1	95.2	75-125			
Selenium	4.58	0.260	"	4.58	ND	99.9	75-125			

Matrix Spike Dup (BIB0218-MSD1)

Source: 2412269-01

Prepared: 02/05/25 Analyzed: 02/21/25

Arsenic	45.4	0.200	mg/kg dry	44.4	4.86	91.4	75-125	3.53	25
Barium	107	0.400	"	44.4	73.3	75.0	75-125	6.71	25
Cadmium	2.46	0.200	"	2.22	0.196	102	75-125	6.28	25
Copper	47.0	0.400	"	44.4	5.62	93.2	75-125	3.19	25
Lead	28.7	0.200	"	22.2	6.73	98.8	75-125	5.79	25
Nickel	49.1	0.400	"	44.4	8.05	92.6	75-125	3.14	25
Silver	2.24	0.0200	"	2.22	0.0282	99.7	75-125	7.42	25
Zinc	70.0	0.400	"	44.4	27.1	96.6	75-125	1.04	25
Selenium	4.67	0.260	"	4.44	ND	105	75-125	2.07	25

Summit Scientific

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Project: Noble - Frank CC 07-19 Flowline

Project Number: UWRWE-A2872-ABN
Project Manager: Daniel Simpson

Reported:
02/24/25 13:22

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 BIA0394 - 3060A Mod

Blank (BIA0394-BLK1)

Prepared: 01/10/25 Analyzed: 01/14/25

Chromium, Hexavalent ND 0.30 mg/kg wet

LCS (BIA0394-BS1)

Prepared: 01/10/25 Analyzed: 01/14/25

Chromium, Hexavalent 25.0 0.30 mg/kg wet 24.8 101 80-120

Duplicate (BIA0394-DUP1)

Source: 2412272-18

Prepared: 01/10/25 Analyzed: 01/14/25

Chromium, Hexavalent ND 0.30 mg/kg dry ND 20

Matrix Spike (BIA0394-MS1)

Source: 2412272-18

Prepared: 01/10/25 Analyzed: 01/14/25

Chromium, Hexavalent 30.3 0.30 mg/kg dry 29.8 ND 102 75-125

Matrix Spike Dup (BIA0394-MSD1)

Source: 2412272-18

Prepared: 01/10/25 Analyzed: 01/14/25

Chromium, Hexavalent 31.6 0.30 mg/kg dry 32.3 ND 98.0 75-125 4.20 20

Summit Scientific

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

Project: Noble - Frank CC 07-19 Flowline

Project Number: UWRWE-A2872-ABN
Project Manager: Daniel Simpson

Reported:
02/24/25 13:22

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

Summit Scientific

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

Batch BIA0292 - General Preparation

Blank (BIA0292-BLK1)

Prepared: 01/08/25 Analyzed: 01/16/25

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

LCS (BIA0292-BS1)

Prepared: 01/08/25 Analyzed: 01/16/25

Calcium	5.38	0.0500	mg/L wet	5.00	108	70-130
Magnesium	5.19	0.0500	"	5.00	104	70-130
Sodium	5.28	0.0500	"	5.00	106	70-130

Summit Scientific

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Tasman Geosciences
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 Broomfield CO, 80020

Project: Noble - Frank CC 07-19 Flowline
 Project Number: UWRWE-A2872-ABN
 Project Manager: Daniel Simpson

Reported:
 02/24/25 13:22

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 BIA0267 - General Preparation

Duplicate (BIA0267-DUP1)		Source: 2412271-01			Prepared & Analyzed: 01/08/25			
% Solids	90.1		%		90.8		0.756	20

Summit Scientific

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Broomfield CO, 80020

Project: Noble - Frank CC 07-19 Flowline

Project Number: UWRWE-A2872-ABN
Project Manager: Daniel Simpson

Reported:
02/24/25 13:22

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 BIA0282 - General Preparation

Blank (BIA0282-BLK1)

Prepared: 01/08/25 Analyzed: 01/10/25

Specific Conductance (EC) ND 0.0100 mmhos/cm

LCS (BIA0282-BS1)

Prepared: 01/08/25 Analyzed: 01/10/25

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

Duplicate (BIA0282-DUP1)

Source: 2412256-01

Prepared: 01/08/25 Analyzed: 01/10/25

Specific Conductance (EC) 0.416 0.0100 mmhos/cm 0.422 1.55 20

Summit Scientific

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

Project: Noble - Frank CC 07-19 Flowline

Project Number: UWRWE-A2872-ABN
Project Manager: Daniel Simpson

Reported:
02/24/25 13:22

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 BIA0269 - General Preparation

LCS (BIA0269-BS1)

Prepared: 01/08/25 Analyzed: 01/10/25

pH	9.13	pH Units	9.18	99.5	95-105
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Duplicate (BIA0269-DUP1)

Source: 2412256-01

Prepared: 01/08/25 Analyzed: 01/10/25

pH	7.86	pH Units	7.90	0.508	20
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Summit Scientific

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

Project: Noble - Frank CC 07-19 Flowline

Project Number: UWRWE-A2872-ABN
Project Manager: Daniel Simpson

Reported:
02/24/25 13:22

Notes and Definitions

- S-02 The surrogate recovery for this sample cannot be accurately quantified due to matrix interference. Matrix interference was verified via reanalysis.
- QM-05 The spike recovery was outside acceptance limits for the MS and/or MSD due to matrix interference. Sample results were accepted based on LCS and/or LCSD recoveries and/or RPD values.
- 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