

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

October 10, 2024

Jacob Whritenour

Tasman Geosciences

6855 W. 119th Ave.

Broomfield, CO 80020

RE: Noble - Frico 07-14 Flowline

Work Order #2410092

Enclosed are the results of analyses for samples received by Summit Scientific on 10/04/24 17:40. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in blue ink that reads "Jacob Wood". The signature is written in a cursive style with a large initial "J" and a long horizontal stroke at the end.

Jacob Wood For Paul Shrewsbury

President



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

Project: Noble - Frico 07-14 Flowline

Project Number: UWRWE-A2446-ABN 31206

Project Manager: Jacob Whritenour

Reported:
10/10/24 15:07

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FL01-04@3'	2410092-01	Soil	10/04/24 13:04	10/04/24 17:40
FL01R-S@3'	2410092-02	Soil	10/04/24 13:55	10/04/24 17:40

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S₂

Sample Receipt Checklist

S2 Work Order# 241009a

Client: Noblewoman Client Project ID: Frico 7-14 Flowline

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

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

Temp (°C) 7.6 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"/>	
If custody seals are present, are they intact? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	and etc
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

10/4/24
Date/Time



Tasman Geosciences
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Project Number: UWRWE-A2446-ABN 31206
Project Manager: Jacob Whritenour

Reported:
10/10/24 15:07

FL01-04@3'
2410092-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/04/24 13:04**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	0.0020		mg/kg	1	BHJ0272	10/07/24	10/07/24	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: **10/04/24 13:04**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4	0.0459	115 %		50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0427	107 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0431	108 %		50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **10/04/24 13:04**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
C10-C28 (DRO)	ND	50		mg/kg	1	BHJ0273	10/07/24	10/09/24	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **10/04/24 13:04**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: o-Terphenyl	14.2	114 %		30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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FL01-04@3'
2410092-01 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **10/04/24 13:04**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BHJ0255	10/07/24	10/08/24	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: **10/04/24 13:04**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0143	42.9 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0169	50.6 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **10/04/24 13:04**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BHJ0259	10/07/24	10/07/24	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **10/04/24 13:04**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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FL01-04@3'
2410092-01 (Soil)

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Total Metals by EPA 6020B

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	1.64	0.200	mg/kg dry	1	BHJ0258	10/07/24	10/08/24	EPA 6020B	
Barium	53.6	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Copper	3.05	0.400	"	"	"	"	"	"	
Lead	4.81	0.200	"	"	"	"	"	"	
Nickel	3.44	0.400	"	"	"	"	"	"	
Silver	0.0215	0.0200	"	"	"	"	"	"	
Zinc	13.1	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **10/04/24 13:04**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHJ0260	10/07/24	10/07/24	EPA 7196A	

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

Date Sampled: **10/04/24 13:04**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	50.3	0.0500	mg/L dry	1	BHJ0275	10/07/24	10/08/24	EPA 6020B	
Magnesium	14.2	0.0500	"	"	"	"	"	"	
Sodium	5.22	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **10/04/24 13:04**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.167	0.00100	units	1	BHJ0338	10/09/24	10/09/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

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2410092-01 (Soil)

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Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **10/04/24 13:04**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
% Solids	94.2			%	1	BHJ0283	10/08/24	10/08/24	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **10/04/24 13:04**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Specific Conductance (EC)	0.185	0.0100		mmhos/cm	1	BHJ0278	10/07/24	10/08/24	EPA 120.1	

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

Date Sampled: **10/04/24 13:04**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	8.60			pH Units	1	BHJ0279	10/07/24	10/08/24	EPA 9045D	

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Reported:
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FL01R-S@3'
2410092-02 (Soil)

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Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/04/24 13:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BHJ0272	10/07/24	10/07/24	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: **10/04/24 13:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	0.0488	122 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0416	104 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0431	108 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **10/04/24 13:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BHJ0273	10/07/24	10/09/24	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **10/04/24 13:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	11.7	93.4 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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2410092-02 (Soil)

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PAH by EPA Method 8270D SIM

Date Sampled: **10/04/24 13:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BHJ0255	10/07/24	10/08/24	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: **10/04/24 13:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0129	38.7 %	40-150		"	"	"	"	S-04
Surrogate: Fluoranthene-d10	0.0171	51.3 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **10/04/24 13:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BHJ0259	10/07/24	10/07/24	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **10/04/24 13:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Reported:
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FL01R-S@3'
2410092-02 (Soil)

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Total Metals by EPA 6020B

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Arsenic	2.76	0.200	mg/kg dry	1	BHJ0258	10/07/24	10/08/24	EPA 6020B
Barium	77.0	0.400	"	"	"	"	"	"
Cadmium	0.224	0.200	"	"	"	"	"	"
Copper	4.71	0.400	"	"	"	"	"	"
Lead	6.56	0.200	"	"	"	"	"	"
Nickel	5.22	0.400	"	"	"	"	"	"
Silver	0.0350	0.0200	"	"	"	"	"	"
Zinc	19.1	0.400	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

Hexavalent Chromium by EPA Method 7196

Date Sampled: **10/04/24 13:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHJ0260	10/07/24	10/07/24	EPA 7196A	

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

Date Sampled: **10/04/24 13:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	173	0.0500	mg/L dry	1	BHJ0275	10/07/24	10/08/24	EPA 6020B	
Magnesium	54.0	0.0500	"	"	"	"	"	"	
Sodium	4.79	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **10/04/24 13:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.0815	0.00100	units	1	BHJ0338	10/09/24	10/09/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **10/04/24 13:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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FL01R-S@3'
2410092-02 (Soil)

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Physical Parameters by APHA/ASTM/EPA Methods

% Solids	83.5	%	1	BHJ0283	10/08/24	10/08/24	Calculation
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Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **10/04/24 13:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.241	0.0100	mmhos/cm	1	BHJ0278	10/07/24	10/08/24	EPA 120.1	

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

Date Sampled: **10/04/24 13:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.66		pH Units	1	BHJ0279	10/07/24	10/08/24	EPA 9045D	

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Reported:
10/10/24 15:07

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 BHJ0272 - EPA 5030 Soil MS

Blank (BHJ0272-BLK1)

Prepared & Analyzed: 10/07/24

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>	<i>0.0415</i>		<i>"</i>	<i>0.0400</i>		<i>104</i>		<i>50-150</i>		
<i>Surrogate: Toluene-d8</i>	<i>0.0420</i>		<i>"</i>	<i>0.0400</i>		<i>105</i>		<i>50-150</i>		
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0420</i>		<i>"</i>	<i>0.0400</i>		<i>105</i>		<i>50-150</i>		

LCS (BHJ0272-BS1)

Prepared & Analyzed: 10/07/24

Benzene	0.111	0.0020	mg/kg	0.100		111		70-130		
Toluene	0.126	0.0050	"	0.100		126		70-130		
Ethylbenzene	0.116	0.0050	"	0.100		116		70-130		
m,p-Xylene	0.226	0.010	"	0.200		113		70-130		
o-Xylene	0.109	0.0050	"	0.100		109		70-130		
1,2,4-Trimethylbenzene	0.109	0.0050	"	0.100		109		70-130		
1,3,5-Trimethylbenzene	0.109	0.0050	"	0.100		109		70-130		
Naphthalene	0.0920	0.0038	"	0.100		92.0		70-130		
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0430</i>		<i>"</i>	<i>0.0400</i>		<i>108</i>		<i>50-150</i>		
<i>Surrogate: Toluene-d8</i>	<i>0.0418</i>		<i>"</i>	<i>0.0400</i>		<i>104</i>		<i>50-150</i>		
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0404</i>		<i>"</i>	<i>0.0400</i>		<i>101</i>		<i>50-150</i>		

Matrix Spike (BHJ0272-MS1)

Source: 2410076-01

Prepared & Analyzed: 10/07/24

Benzene	0.113	0.0020	mg/kg	0.100	ND	113		70-130		
Toluene	0.119	0.0050	"	0.100	ND	119		70-130		
Ethylbenzene	0.118	0.0050	"	0.100	ND	118		70-130		
m,p-Xylene	0.226	0.010	"	0.200	ND	113		70-130		
o-Xylene	0.110	0.0050	"	0.100	ND	110		70-130		
1,2,4-Trimethylbenzene	0.113	0.0050	"	0.100	ND	113		70-130		
1,3,5-Trimethylbenzene	0.116	0.0050	"	0.100	ND	116		70-130		
Naphthalene	0.0982	0.0038	"	0.100	ND	98.2		70-130		
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0444</i>		<i>"</i>	<i>0.0400</i>		<i>111</i>		<i>50-150</i>		
<i>Surrogate: Toluene-d8</i>	<i>0.0420</i>		<i>"</i>	<i>0.0400</i>		<i>105</i>		<i>50-150</i>		
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0404</i>		<i>"</i>	<i>0.0400</i>		<i>101</i>		<i>50-150</i>		

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

Project: Noble - Frico 07-14 Flowline
Project Number: UWRWE-A2446-ABN 31206
Project Manager: Jacob Whritenour

Reported:
10/10/24 15:07

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 BHJ0272 - EPA 5030 Soil MS

Matrix Spike Dup (BHJ0272-MSD1)	Source: 2410076-01			Prepared & Analyzed: 10/07/24						
Benzene	0.114	0.0020	mg/kg	0.100	ND	114	70-130	0.159	30	
Toluene	0.119	0.0050	"	0.100	ND	119	70-130	0.479	30	
Ethylbenzene	0.117	0.0050	"	0.100	ND	117	70-130	0.665	30	
m,p-Xylene	0.226	0.010	"	0.200	ND	113	70-130	0.0663	30	
o-Xylene	0.111	0.0050	"	0.100	ND	111	70-130	0.733	30	
1,2,4-Trimethylbenzene	0.112	0.0050	"	0.100	ND	112	70-130	1.04	30	
1,3,5-Trimethylbenzene	0.113	0.0050	"	0.100	ND	113	70-130	2.09	30	
Naphthalene	0.102	0.0038	"	0.100	ND	102	70-130	3.36	30	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0450</i>		<i>"</i>	<i>0.0400</i>		<i>112</i>	<i>50-150</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0420</i>		<i>"</i>	<i>0.0400</i>		<i>105</i>	<i>50-150</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0408</i>		<i>"</i>	<i>0.0400</i>		<i>102</i>	<i>50-150</i>			

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6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Frico 07-14 Flowline
Project Number: UWRWE-A2446-ABN 31206
Project Manager: Jacob Whritenour

Reported:
10/10/24 15:07

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 BHJ0273 - EPA 3550A

Blank (BHJ0273-BLK1)

Prepared: 10/07/24 Analyzed: 10/09/24

C10-C28 (DRO)	ND	50	mg/kg								
C28-C36 (ORO)	ND	50	"								
Surrogate: <i>o</i> -Terphenyl	11.7		"	12.5		93.5	30-150				

LCS (BHJ0273-BS1)

Prepared: 10/07/24 Analyzed: 10/09/24

C10-C28 (DRO)	522	50	mg/kg	500		104	70-130				
Surrogate: <i>o</i> -Terphenyl	14.9		"	12.5		119	30-150				

Matrix Spike (BHJ0273-MS1)

Source: 2410075-01

Prepared: 10/07/24 Analyzed: 10/09/24

C10-C28 (DRO)	404	50	mg/kg	500	14.5	77.8	70-130				
Surrogate: <i>o</i> -Terphenyl	16.2		"	12.5		130	30-150				

Matrix Spike Dup (BHJ0273-MSD1)

Source: 2410075-01

Prepared: 10/07/24 Analyzed: 10/09/24

C10-C28 (DRO)	465	50	mg/kg	500	14.5	90.0	70-130	14.1	20		
Surrogate: <i>o</i> -Terphenyl	16.1		"	12.5		129	30-150				

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

Project: Noble - Frico 07-14 Flowline
Project Number: UWRWE-A2446-ABN 31206
Project Manager: Jacob Whritenour

Reported:
10/10/24 15:07

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 BHJ0255 - EPA 5030 Soil MS

Blank (BHJ0255-BLK1)

Prepared & Analyzed: 10/07/24

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	0.0201		"	0.0333	60.4	40-150				
Surrogate: Fluoranthene-d10	0.0207		"	0.0333	62.2	40-150				

LCS (BHJ0255-BS1)

Prepared & Analyzed: 10/07/24

Acenaphthene	0.0231	0.00500	mg/kg	0.0333	69.3	31-137				
Anthracene	0.0244	0.00500	"	0.0333	73.1	30-120				
Benzo (a) anthracene	0.0242	0.00500	"	0.0333	72.6	30-120				
Benzo (a) pyrene	0.0222	0.00500	"	0.0333	66.6	30-120				
Benzo (b) fluoranthene	0.0227	0.00500	"	0.0333	68.1	30-120				
Benzo (k) fluoranthene	0.0232	0.00500	"	0.0333	69.6	30-120				
Chrysene	0.0241	0.00500	"	0.0333	72.2	30-120				
Dibenz (a,h) anthracene	0.0207	0.00500	"	0.0333	62.0	30-120				
Fluoranthene	0.0238	0.00500	"	0.0333	71.5	30-120				
Fluorene	0.0237	0.00500	"	0.0333	71.1	30-120				
Indeno (1,2,3-cd) pyrene	0.0211	0.00500	"	0.0333	63.2	30-120				
Pyrene	0.0233	0.00500	"	0.0333	69.8	35-142				
1-Methylnaphthalene	0.0170	0.00500	"	0.0333	51.0	35-142				
2-Methylnaphthalene	0.0188	0.00500	"	0.0333	56.5	35-142				
Surrogate: 2-Methylnaphthalene-d10	0.0176		"	0.0333	52.8	40-150				
Surrogate: Fluoranthene-d10	0.0239		"	0.0333	71.8	40-150				

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

Project: Noble - Frico 07-14 Flowline
Project Number: UWRWE-A2446-ABN 31206
Project Manager: Jacob Whritenour

Reported:
10/10/24 15:07

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 BHJ0255 - EPA 5030 Soil MS

Matrix Spike (BHJ0255-MS1)	Source: 2410084-01			Prepared & Analyzed: 10/07/24					QM-01
Acenaphthene	0.0111	0.00500	mg/kg	0.0333	ND	33.2	31-137		
Anthracene	0.0118	0.00500	"	0.0333	ND	35.4	30-120		
Benzo (a) anthracene	0.0111	0.00500	"	0.0333	ND	33.4	30-120		
Benzo (a) pyrene	0.00896	0.00500	"	0.0333	ND	26.9	30-120		QM-05
Benzo (b) fluoranthene	0.00894	0.00500	"	0.0333	ND	26.8	30-120		QM-05
Benzo (k) fluoranthene	0.00929	0.00500	"	0.0333	ND	27.9	30-120		QM-05
Chrysene	0.0104	0.00500	"	0.0333	ND	31.1	30-120		
Dibenz (a,h) anthracene	0.00754	0.00500	"	0.0333	ND	22.6	30-120		QM-05
Fluoranthene	0.0111	0.00500	"	0.0333	ND	33.2	30-120		
Fluorene	0.0116	0.00500	"	0.0333	ND	34.9	30-120		
Indeno (1,2,3-cd) pyrene	0.00771	0.00500	"	0.0333	ND	23.1	30-120		QM-05
Pyrene	0.00983	0.00500	"	0.0333	ND	29.5	35-142		QM-05
1-Methylnaphthalene	0.00996	0.00500	"	0.0333	ND	29.9	15-130		
2-Methylnaphthalene	0.0115	0.00500	"	0.0333	ND	34.4	15-130		
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0110</i>		<i>"</i>	<i>0.0333</i>		<i>32.9</i>	<i>40-150</i>		<i>QM-05</i>
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0113</i>		<i>"</i>	<i>0.0333</i>		<i>34.0</i>	<i>40-150</i>		<i>QM-05</i>

Matrix Spike Dup (BHJ0255-MSD1)	Source: 2410084-01			Prepared & Analyzed: 10/07/24					QM-01
Acenaphthene	0.0113	0.00500	mg/kg	0.0333	ND	33.8	31-137	1.96	30
Anthracene	0.0120	0.00500	"	0.0333	ND	36.0	30-120	1.66	30
Benzo (a) anthracene	0.0108	0.00500	"	0.0333	ND	32.5	30-120	2.95	30
Benzo (a) pyrene	0.00804	0.00500	"	0.0333	ND	24.1	30-120	10.9	30
Benzo (b) fluoranthene	0.00798	0.00500	"	0.0333	ND	23.9	30-120	11.4	30
Benzo (k) fluoranthene	0.00830	0.00500	"	0.0333	ND	24.9	30-120	11.3	30
Chrysene	0.00975	0.00500	"	0.0333	ND	29.3	30-120	6.21	30
Dibenz (a,h) anthracene	0.00865	0.00500	"	0.0333	ND	26.0	30-120	13.8	30
Fluoranthene	0.0107	0.00500	"	0.0333	ND	32.1	30-120	3.45	30
Fluorene	0.0121	0.00500	"	0.0333	ND	36.2	30-120	3.53	30
Indeno (1,2,3-cd) pyrene	0.00745	0.00500	"	0.0333	ND	22.3	30-120	3.50	30
Pyrene	0.0103	0.00500	"	0.0333	ND	30.8	35-142	4.44	30
1-Methylnaphthalene	0.00985	0.00500	"	0.0333	ND	29.6	15-130	1.04	50
2-Methylnaphthalene	0.0107	0.00500	"	0.0333	ND	32.2	15-130	6.47	50
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0105</i>		<i>"</i>	<i>0.0333</i>		<i>31.4</i>	<i>40-150</i>		<i>QM-05</i>
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0107</i>		<i>"</i>	<i>0.0333</i>		<i>32.1</i>	<i>40-150</i>		<i>QM-05</i>

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

Project: Noble - Frico 07-14 Flowline
Project Number: UWRWE-A2446-ABN 31206
Project Manager: Jacob Whritenour

Reported:
10/10/24 15:07

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

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

Batch BHJ0259 - EPA 3050B

Blank (BHJ0259-BLK1)

Prepared & Analyzed: 10/07/24

Boron ND 2.00 mg/L

LCS (BHJ0259-BS1)

Prepared & Analyzed: 10/07/24

Boron 5.14 2.00 mg/L 5.00 103 80-120

Duplicate (BHJ0259-DUP1)

Source: 2410084-01

Prepared & Analyzed: 10/07/24

Boron 1.01 2.00 mg/L 0.863 15.7 20

Matrix Spike (BHJ0259-MS1)

Source: 2410084-01

Prepared & Analyzed: 10/07/24

Boron 4.92 2.00 mg/L 5.00 0.863 81.2 75-125

Matrix Spike Dup (BHJ0259-MSD1)

Source: 2410084-01

Prepared & Analyzed: 10/07/24

Boron 5.06 2.00 mg/L 5.00 0.863 83.9 75-125 2.71 25

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

Project: Noble - Frico 07-14 Flowline
Project Number: UWRWE-A2446-ABN 31206
Project Manager: Jacob Whritenour

Reported:
10/10/24 15:07

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 BHJ0258 - EPA 3050B

Blank (BHJ0258-BLK1)

Prepared: 10/07/24 Analyzed: 10/08/24

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 (BHJ0258-BS1)

Prepared: 10/07/24 Analyzed: 10/08/24

Arsenic	40.9	0.200	mg/kg wet	39.7	103	80-120
Barium	38.5	0.400	"	39.7	97.0	80-120
Cadmium	1.86	0.200	"	1.98	93.6	80-120
Copper	35.2	0.400	"	39.7	88.7	80-120
Lead	18.3	0.200	"	19.8	92.1	80-120
Nickel	35.4	0.400	"	39.7	89.3	80-120
Silver	1.88	0.0200	"	1.98	94.7	80-120
Zinc	35.3	0.400	"	39.7	88.9	80-120
Selenium	3.98	0.260	"	3.97	100	80-120

Duplicate (BHJ0258-DUP1)

Source: 2410074-01

Prepared: 10/07/24 Analyzed: 10/08/24

Arsenic	1.76	0.200	mg/kg dry	2.76	44.5	20	QR-01
Barium	14.9	0.400	"	13.9	7.03	20	
Cadmium	0.176	0.200	"	0.203	14.2	20	
Copper	5.45	0.400	"	6.79	21.9	20	QR-04
Lead	7.82	0.200	"	11.6	39.2	20	QR-04
Nickel	3.40	0.400	"	3.66	7.34	20	
Silver	0.0301	0.0200	"	0.0338	11.9	20	
Zinc	19.3	0.400	"	21.4	10.2	20	
Selenium	ND	0.260	"	ND		20	

Summit Scientific

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

Project: Noble - Frico 07-14 Flowline
Project Number: UWRWE-A2446-ABN 31206
Project Manager: Jacob Whritenour

Reported:
10/10/24 15:07

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 BHJ0258 - EPA 3050B

Matrix Spike (BHJ0258-MS1)

Source: 2410074-01

Prepared: 10/07/24 Analyzed: 10/08/24

Arsenic	37.3	0.200	mg/kg dry	41.5	2.76	83.4	75-125			
Barium	44.4	0.400	"	41.5	13.9	73.5	75-125			QM-05
Cadmium	1.94	0.200	"	2.07	0.203	83.7	75-125			
Copper	21.6	0.400	"	41.5	6.79	35.7	75-125			QM-05
Lead	24.1	0.200	"	20.7	11.6	60.0	75-125			QM-05
Nickel	19.6	0.400	"	41.5	3.66	38.4	75-125			QM-05
Silver	1.72	0.0200	"	2.07	0.0338	81.2	75-125			
Zinc	35.6	0.400	"	41.5	21.4	34.4	75-125			QM-05
Selenium	3.97	0.260	"	4.15	ND	95.6	75-125			

Matrix Spike Dup (BHJ0258-MSD1)

Source: 2410074-01

Prepared: 10/07/24 Analyzed: 10/08/24

Arsenic	38.4	0.200	mg/kg dry	41.5	2.76	86.0	75-125	2.87	25	
Barium	50.6	0.400	"	41.5	13.9	88.5	75-125	13.2	25	
Cadmium	2.00	0.200	"	2.07	0.203	86.9	75-125	3.34	25	
Copper	22.3	0.400	"	41.5	6.79	37.4	75-125	3.28	25	QM-05
Lead	26.5	0.200	"	20.7	11.6	71.6	75-125	9.57	25	QM-05
Nickel	20.6	0.400	"	41.5	3.66	40.9	75-125	5.29	25	QM-05
Silver	1.74	0.0200	"	2.07	0.0338	82.1	75-125	1.10	25	
Zinc	34.6	0.400	"	41.5	21.4	31.8	75-125	2.97	25	QM-05
Selenium	4.27	0.260	"	4.15	ND	103	75-125	7.40	25	

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Broomfield CO, 80020

Project: Noble - Frico 07-14 Flowline
Project Number: UWRWE-A2446-ABN 31206
Project Manager: Jacob Whritenour

Reported:
10/10/24 15:07

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 BHJ0260 - 3060A Mod

Blank (BHJ0260-BLK1)

Prepared & Analyzed: 10/07/24

Chromium, Hexavalent ND 0.30 mg/kg wet

LCS (BHJ0260-BS1)

Prepared & Analyzed: 10/07/24

Chromium, Hexavalent 25.0 0.30 mg/kg wet 25.0 99.8 80-120

Duplicate (BHJ0260-DUP1)

Source: 2410084-01

Prepared & Analyzed: 10/07/24

Chromium, Hexavalent ND 0.30 mg/kg dry ND 20

Matrix Spike (BHJ0260-MS1)

Source: 2410084-01

Prepared & Analyzed: 10/07/24

Chromium, Hexavalent 28.2 0.30 mg/kg dry 31.5 ND 89.6 75-125

Matrix Spike Dup (BHJ0260-MSD1)

Source: 2410084-01

Prepared & Analyzed: 10/07/24

Chromium, Hexavalent 34.0 0.30 mg/kg dry 31.5 ND 108 75-125 18.6 20

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

Project: Noble - Frico 07-14 Flowline

Project Number: UWRWE-A2446-ABN 31206
Project Manager: Jacob Whritenour

Reported:
10/10/24 15:07

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 BHJ0275 - General Preparation

Blank (BHJ0275-BLK1)

Prepared: 10/07/24 Analyzed: 10/08/24

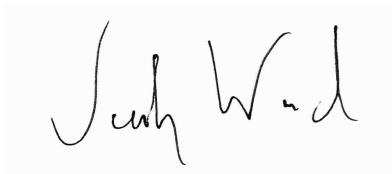
Calcium	ND	0.0500	mg/L wet							
Magnesium	ND	0.0500	"							
Sodium	ND	0.0500	"							

LCS (BHJ0275-BS1)

Prepared: 10/07/24 Analyzed: 10/08/24

Calcium	5.44	0.0500	mg/L wet	5.00	109	70-130
Magnesium	5.06	0.0500	"	5.00	101	70-130
Sodium	5.11	0.0500	"	5.00	102	70-130

Summit Scientific



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

Project: Noble - Frico 07-14 Flowline
 Project Number: UWRWE-A2446-ABN 31206
 Project Manager: Jacob Whritenour

Reported:
 10/10/24 15:07

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

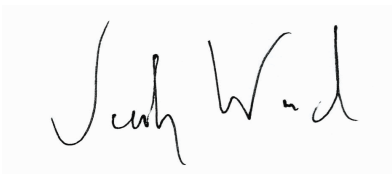
Summit Scientific

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

Batch BHJ0283 - General Preparation

Duplicate (BHJ0283-DUP1)	Source: 2410004-06	Prepared & Analyzed: 10/08/24
% Solids	89.7 %	90.1 0.467 20

Summit Scientific



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Broomfield CO, 80020

Project: Noble - Frico 07-14 Flowline

Project Number: UWRWE-A2446-ABN 31206
Project Manager: Jacob Whritenour

Reported:
10/10/24 15:07

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 BHJ0278 - General Preparation

Blank (BHJ0278-BLK1)

Prepared: 10/07/24 Analyzed: 10/08/24

Specific Conductance (EC) ND 0.0100 mmhos/cm

LCS (BHJ0278-BS1)

Prepared: 10/07/24 Analyzed: 10/08/24

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

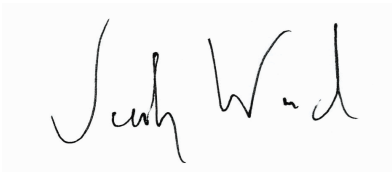
Duplicate (BHJ0278-DUP1)

Source: 2410090-01

Prepared: 10/07/24 Analyzed: 10/08/24

Specific Conductance (EC) 0.667 0.0100 mmhos/cm 0.673 0.776 20

Summit Scientific



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6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Frico 07-14 Flowline

Project Number: UWRWE-A2446-ABN 31206
Project Manager: Jacob Whritenour

Reported:
10/10/24 15:07

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 BHJ0279 - General Preparation

LCS (BHJ0279-BS1)

Prepared: 10/07/24 Analyzed: 10/08/24

pH 9.23 pH Units 9.18 101 95-105

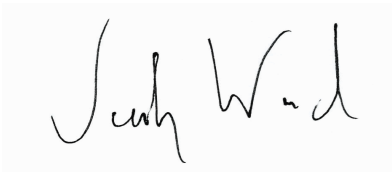
Duplicate (BHJ0279-DUP1)

Source: 2410090-01

Prepared: 10/07/24 Analyzed: 10/08/24

pH 7.81 pH Units 7.80 0.128 20

Summit Scientific



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

Project: Noble - Frico 07-14 Flowline

Project Number: UWRWE-A2446-ABN 31206

Project Manager: Jacob Whritenour

Reported:
10/10/24 15:07

Notes and Definitions

- S-04 A sample matrix effect prevented complete surrogate recovery.
- QR-04 The RPD value for the sample duplicate or MS/MSD was outside of QC acceptance limits. Sample results were accepted based on LCS and/or LCSD recoveries and/or RPD values.
- QR-01 Analyses are not controlled on RPD values from sample concentrations below the reporting limit. Sample results were accepted based on LCS and/or LCSD recoveries and/or RPD values.
- 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.
- QM-01 The spike recovery for this QC sample is outside of established control limits due to sample matrix interference. Sample results were accepted based on LCS and/or LCSD recoveries and/or RPD values.
- 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