

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

July 16, 2024

Paul Henchan

Fremont Environmental

PO Box 1289

Wellington, CO 80549

RE: Noble - Farr T4N-R64W-S18 L01

Work Order #2407137

Enclosed are the results of analyses for samples received by Summit Scientific on 07/11/24 16:27. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

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

Natalie Tessier For Paul Shrewsbury

President



Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: Noble - Farr T4N-R64W-S18 L01

Project Number: [none]
Project Manager: Paul Henchan

Reported:
07/16/24 09:21

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Backfill	2407137-01	Soil	07/11/24 00:00	07/11/24 16:27

SUMMIT SCIENTIFIC

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

Lab ID	Page <u>2</u> of <u>2</u>
<u>2407137</u>	

	Send Data To:	Send Invoice To:
Client: <u>Fremont Env</u>	Project Manager: <u>Paul Henehan</u>	Company: <u>Noble</u>
Address:	E-Mail: <u>Paulh@fremontenv.com</u>	Project Name/Location:
City/State/Zip:	<u>Jeff@fremontenv.com Ethemb@fremontenv.com</u>	AFE#:
Phone:	Project Name: <u>Farr T4N-R64W-518 L01</u>	PO/Billing Codes:
Sampler Name: <u>J6</u>	Project Number:	Contact:

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix			Analysis Requested						Special Instructions	
					HCl	HNO3	None	Other	Water	Soil	Air-Canister #	Other	BTEX+N	TMBs(915)	DRO,ORO,GRO	PAHs(915)	EC-PH, SAR, Turb		Metals(915)
1	<u>Backfill</u>	<u>7/11/24</u>		<u>2</u>			<u>X</u>			<u>X</u>			<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	
2																			
3																			
4																			
5																			
6																			
7																			
8																			
9																			
10																			
11																			
12																			
13																			
14																			
15																			

Relinquished by: <u>[Signature]</u> Date/Time: <u>7/11/24</u>	Received by: <u>[Signature]</u> Date/Time: <u>7/11/24 16:27</u>	TAT Business Days	Field DO	Notes:
		Same Day <input checked="" type="checkbox"/>	Field EC	
Relinquished by:	Received by:	1 Day	Field ORP	
		2 Days	Field pH	
		3 Days	Field Temp.	
		Standard	Field Turb.	
Temperature Upon Receipt: <u>5.0</u>	Corrected Temperature	IR gun #: <u>2</u>	HNO3 lot #:	

S₂

Sample Receipt Checklist

S2 Work Order# 2407137

Client: Fremont - Noble

Client Project ID: Favr T4N-R64W-S18 L01

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 type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples due within 48 hours present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<i>same day</i>
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 type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client w/ date and time recorded? ⁽¹⁾	<input type="checkbox"/>	<input checked="" 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

7/11/24
Date/Time



Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: Noble - Farr T4N-R64W-S18 L01

Project Number: [none]
Project Manager: Paul Henchan

Reported:
07/16/24 09:21

Backfill
2407137-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **07/11/24 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	0.0020		mg/kg	1	BHG0327	07/11/24	07/11/24	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: **07/11/24 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4	0.0405	101 %		50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0411	103 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0419	105 %		50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **07/11/24 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
C10-C28 (DRO)	ND	50		mg/kg	1	BHG0329	07/11/24	07/11/24	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **07/11/24 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: o-Terphenyl	6.69	53.6 %		30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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2407137-01 (Soil)

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PAH by EPA Method 8270D SIM

Date Sampled: **07/11/24 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BHG0331	07/12/24	07/12/24	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: **07/11/24 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0216	64.7 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0206	61.9 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **07/11/24 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BHG0340	07/12/24	07/13/24	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **07/11/24 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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2407137-01 (Soil)

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Total Metals by EPA 6020B

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	0.927	0.200	mg/kg dry	1	BHG0330	07/12/24	07/12/24	EPA 6020B	
Barium	69.6	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Copper	1.58	0.400	"	"	"	"	"	"	
Lead	5.21	0.200	"	"	"	"	"	"	
Nickel	1.81	0.400	"	"	"	"	"	"	
Silver	0.0578	0.0200	"	"	"	"	"	"	
Zinc	6.74	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: 07/11/24 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHG0347	07/12/24	07/12/24	EPA 7196A	

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

Date Sampled: 07/11/24 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	74.9	0.0500	mg/L dry	1	BHG0314	07/11/24	07/13/24	EPA 6020B	
Magnesium	18.2	0.0500	"	"	"	"	"	"	
Sodium	4.52	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: 07/11/24 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.122	0.00100	units	1	BHG0377	07/15/24	07/15/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

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2407137-01 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **07/11/24 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	77.5		%	1	BHG0337	07/12/24	07/12/24	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **07/11/24 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.140	0.0100	mmhos/cm	1	BHG0316	07/11/24	07/12/24	EPA 120.1	

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

Date Sampled: **07/11/24 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.75		pH Units	1	BHG0315	07/11/24	07/12/24	EPA 9045D	

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Project Number: [none]
Project Manager: Paul Henchan

Reported:
07/16/24 09:21

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 BHG0327 - EPA 5030 Soil MS

Blank (BHG0327-BLK1)

Prepared & Analyzed: 07/11/24

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>0.0394</i>		<i>"</i>	<i>0.0400</i>		<i>98.6</i>	<i>50-150</i>				
<i>Surrogate: Toluene-d8</i>	<i>0.0403</i>		<i>"</i>	<i>0.0400</i>		<i>101</i>	<i>50-150</i>				
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0422</i>		<i>"</i>	<i>0.0400</i>		<i>105</i>	<i>50-150</i>				

LCS (BHG0327-BS1)

Prepared: 07/11/24 Analyzed: 07/12/24

Benzene	0.0959	0.0020	mg/kg	0.100		95.9	70-130				
Toluene	0.114	0.0050	"	0.100		114	70-130				
Ethylbenzene	0.106	0.0050	"	0.100		106	70-130				
m,p-Xylene	0.212	0.010	"	0.200		106	70-130				
o-Xylene	0.106	0.0050	"	0.100		106	70-130				
1,2,4-Trimethylbenzene	0.103	0.0050	"	0.100		103	70-130				
1,3,5-Trimethylbenzene	0.104	0.0050	"	0.100		104	70-130				
Naphthalene	0.0875	0.0038	"	0.100		87.5	70-130				
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0432</i>		<i>"</i>	<i>0.0400</i>		<i>108</i>	<i>50-150</i>				
<i>Surrogate: Toluene-d8</i>	<i>0.0422</i>		<i>"</i>	<i>0.0400</i>		<i>106</i>	<i>50-150</i>				
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0398</i>		<i>"</i>	<i>0.0400</i>		<i>99.4</i>	<i>50-150</i>				

Matrix Spike (BHG0327-MS1)

Source: 2407137-01

Prepared: 07/11/24 Analyzed: 07/12/24

Benzene	0.0934	0.0020	mg/kg	0.100	ND	93.4	70-130				
Toluene	0.113	0.0050	"	0.100	ND	113	70-130				
Ethylbenzene	0.104	0.0050	"	0.100	ND	104	70-130				
m,p-Xylene	0.208	0.010	"	0.200	ND	104	70-130				
o-Xylene	0.100	0.0050	"	0.100	ND	100	70-130				
1,2,4-Trimethylbenzene	0.100	0.0050	"	0.100	ND	100	70-130				
1,3,5-Trimethylbenzene	0.101	0.0050	"	0.100	ND	101	70-130				
Naphthalene	0.0818	0.0038	"	0.100	ND	81.8	70-130				
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0388</i>		<i>"</i>	<i>0.0400</i>		<i>96.9</i>	<i>50-150</i>				
<i>Surrogate: Toluene-d8</i>	<i>0.0423</i>		<i>"</i>	<i>0.0400</i>		<i>106</i>	<i>50-150</i>				
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0395</i>		<i>"</i>	<i>0.0400</i>		<i>98.7</i>	<i>50-150</i>				

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Project: Noble - Farr T4N-R64W-S18 L01

Project Number: [none]
 Project Manager: Paul Henchan

Reported:
 07/16/24 09:21

Volatile Organic Compounds by EPA Method 8260B - Quality Control

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

Batch BHG0327 - EPA 5030 Soil MS

Matrix Spike Dup (BHG0327-MSD1)	Source: 2407137-01			Prepared: 07/11/24 Analyzed: 07/12/24						
Benzene	0.104	0.0020	mg/kg	0.100	ND	104	70-130	11.0	30	
Toluene	0.127	0.0050	"	0.100	ND	127	70-130	11.8	30	
Ethylbenzene	0.117	0.0050	"	0.100	ND	117	70-130	11.8	30	
m,p-Xylene	0.227	0.010	"	0.200	ND	114	70-130	8.98	30	
o-Xylene	0.114	0.0050	"	0.100	ND	114	70-130	13.1	30	
1,2,4-Trimethylbenzene	0.111	0.0050	"	0.100	ND	111	70-130	9.77	30	
1,3,5-Trimethylbenzene	0.115	0.0050	"	0.100	ND	115	70-130	13.2	30	
Naphthalene	0.0874	0.0038	"	0.100	ND	87.4	70-130	6.67	30	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0430</i>		<i>"</i>	<i>0.0400</i>		<i>107</i>	<i>50-150</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0426</i>		<i>"</i>	<i>0.0400</i>		<i>106</i>	<i>50-150</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0406</i>		<i>"</i>	<i>0.0400</i>		<i>102</i>	<i>50-150</i>			

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Project: Noble - Farr T4N-R64W-S18 L01

Project Number: [none]
 Project Manager: Paul Henchan

Reported:
 07/16/24 09:21

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 BHG0329 - EPA 3550A

Blank (BHG0329-BLK1)

Prepared: 07/11/24 Analyzed: 07/12/24

C10-C28 (DRO)	ND	50	mg/kg								
C28-C36 (ORO)	ND	50	"								
Surrogate: <i>o</i> -Terphenyl	12.3		"	12.5		98.0	30-150				

LCS (BHG0329-BS1)

Prepared: 07/11/24 Analyzed: 07/12/24

C10-C28 (DRO)	506	50	mg/kg	500		101	70-130				
Surrogate: <i>o</i> -Terphenyl	12.0		"	12.5		96.4	30-150				

Matrix Spike (BHG0329-MS1)

Source: 2407137-01

Prepared: 07/11/24 Analyzed: 07/12/24

C10-C28 (DRO)	461	50	mg/kg	500	ND	92.1	70-130				
Surrogate: <i>o</i> -Terphenyl	7.95		"	12.5		63.6	30-150				

Matrix Spike Dup (BHG0329-MSD1)

Source: 2407137-01

Prepared: 07/11/24 Analyzed: 07/12/24

C10-C28 (DRO)	469	50	mg/kg	500	ND	93.8	70-130	1.84	20		
Surrogate: <i>o</i> -Terphenyl	6.83		"	12.5		54.6	30-150				

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Project: Noble - Farr T4N-R64W-S18 L01

Project Number: [none]
Project Manager: Paul Henchan

Reported:
07/16/24 09:21

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 BHG0331 - EPA 5030 Soil MS

Blank (BHG0331-BLK1)

Prepared & Analyzed: 07/12/24

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	0.0302		"	0.0333		90.5	40-150			
Surrogate: Fluoranthene-d10	0.0276		"	0.0333		82.8	40-150			

LCS (BHG0331-BS1)

Prepared & Analyzed: 07/12/24

Acenaphthene	0.0263	0.00500	mg/kg	0.0333		78.8	31-137			
Anthracene	0.0254	0.00500	"	0.0333		76.3	30-120			
Benzo (a) anthracene	0.0267	0.00500	"	0.0333		80.2	30-120			
Benzo (a) pyrene	0.0237	0.00500	"	0.0333		71.1	30-120			
Benzo (b) fluoranthene	0.0238	0.00500	"	0.0333		71.5	30-120			
Benzo (k) fluoranthene	0.0247	0.00500	"	0.0333		74.2	30-120			
Chrysene	0.0267	0.00500	"	0.0333		80.1	30-120			
Dibenz (a,h) anthracene	0.0220	0.00500	"	0.0333		66.1	30-120			
Fluoranthene	0.0253	0.00500	"	0.0333		75.9	30-120			
Fluorene	0.0263	0.00500	"	0.0333		79.0	30-120			
Indeno (1,2,3-cd) pyrene	0.0217	0.00500	"	0.0333		65.2	30-120			
Pyrene	0.0329	0.00500	"	0.0333		98.8	35-142			
1-Methylnaphthalene	0.0295	0.00500	"	0.0333		88.5	35-142			
2-Methylnaphthalene	0.0281	0.00500	"	0.0333		84.2	35-142			
Surrogate: 2-Methylnaphthalene-d10	0.0293		"	0.0333		87.8	40-150			
Surrogate: Fluoranthene-d10	0.0262		"	0.0333		78.6	40-150			

Summit Scientific

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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: Noble - Farr T4N-R64W-S18 L01

Project Number: [none]
Project Manager: Paul Henchan

Reported:
07/16/24 09:21

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 BHG0331 - EPA 5030 Soil MS

Matrix Spike (BHG0331-MS1)	Source: 2407125-01			Prepared & Analyzed: 07/12/24						
Acenaphthene	0.0183	0.00500	mg/kg	0.0333	ND	54.8	31-137			
Anthracene	0.0191	0.00500	"	0.0333	ND	57.4	30-120			
Benzo (a) anthracene	0.0191	0.00500	"	0.0333	ND	57.3	30-120			
Benzo (a) pyrene	0.0170	0.00500	"	0.0333	ND	50.9	30-120			
Benzo (b) fluoranthene	0.0164	0.00500	"	0.0333	ND	49.2	30-120			
Benzo (k) fluoranthene	0.0169	0.00500	"	0.0333	ND	50.6	30-120			
Chrysene	0.0187	0.00500	"	0.0333	ND	56.1	30-120			
Dibenz (a,h) anthracene	0.0144	0.00500	"	0.0333	ND	43.3	30-120			
Fluoranthene	0.0169	0.00500	"	0.0333	ND	50.6	30-120			
Fluorene	0.0187	0.00500	"	0.0333	ND	56.1	30-120			
Indeno (1,2,3-cd) pyrene	0.0154	0.00500	"	0.0333	ND	46.1	30-120			
Pyrene	0.0210	0.00500	"	0.0333	ND	63.0	35-142			
1-Methylnaphthalene	0.0201	0.00500	"	0.0333	ND	60.2	15-130			
2-Methylnaphthalene	0.0196	0.00500	"	0.0333	ND	58.8	15-130			
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0198</i>		<i>"</i>	<i>0.0333</i>		<i>59.4</i>	<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0174</i>		<i>"</i>	<i>0.0333</i>		<i>52.2</i>	<i>40-150</i>			

Matrix Spike Dup (BHG0331-MSD1)	Source: 2407125-01			Prepared & Analyzed: 07/12/24						
Acenaphthene	0.0195	0.00500	mg/kg	0.0333	ND	58.5	31-137	6.44	30	
Anthracene	0.0198	0.00500	"	0.0333	ND	59.3	30-120	3.18	30	
Benzo (a) anthracene	0.0194	0.00500	"	0.0333	ND	58.1	30-120	1.37	30	
Benzo (a) pyrene	0.0171	0.00500	"	0.0333	ND	51.2	30-120	0.476	30	
Benzo (b) fluoranthene	0.0165	0.00500	"	0.0333	ND	49.6	30-120	0.714	30	
Benzo (k) fluoranthene	0.0168	0.00500	"	0.0333	ND	50.4	30-120	0.443	30	
Chrysene	0.0188	0.00500	"	0.0333	ND	56.3	30-120	0.333	30	
Dibenz (a,h) anthracene	0.0171	0.00500	"	0.0333	ND	51.3	30-120	17.1	30	
Fluoranthene	0.0193	0.00500	"	0.0333	ND	57.8	30-120	13.3	30	
Fluorene	0.0195	0.00500	"	0.0333	ND	58.6	30-120	4.35	30	
Indeno (1,2,3-cd) pyrene	0.0160	0.00500	"	0.0333	ND	48.1	30-120	4.29	30	
Pyrene	0.0216	0.00500	"	0.0333	ND	64.8	35-142	2.90	30	
1-Methylnaphthalene	0.0236	0.00500	"	0.0333	ND	70.7	15-130	16.1	50	
2-Methylnaphthalene	0.0213	0.00500	"	0.0333	ND	63.8	15-130	8.26	50	
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0222</i>		<i>"</i>	<i>0.0333</i>		<i>66.6</i>	<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0201</i>		<i>"</i>	<i>0.0333</i>		<i>60.4</i>	<i>40-150</i>			

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Fremont Environmental
 PO Box 1289
 Wellington CO, 80549

Project: Noble - Farr T4N-R64W-S18 L01

Project Number: [none]
 Project Manager: Paul Henchan

Reported:
 07/16/24 09:21

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

Summit Scientific

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

Batch BHG0340 - EPA 3050B

Blank (BHG0340-BLK1)

Prepared: 07/12/24 Analyzed: 07/13/24

Boron ND 2.00 mg/L

LCS (BHG0340-BS1)

Prepared: 07/12/24 Analyzed: 07/13/24

Boron 4.98 2.00 mg/L 5.00 99.6 80-120

Duplicate (BHG0340-DUP1)

Source: 2407137-01

Prepared: 07/12/24 Analyzed: 07/13/24

Boron 0.0521 2.00 mg/L 0.106 67.8 20 QR-01

Matrix Spike (BHG0340-MS1)

Source: 2407137-01

Prepared: 07/12/24 Analyzed: 07/13/24

Boron 5.08 2.00 mg/L 5.02 0.106 99.0 75-125

Matrix Spike Dup (BHG0340-MSD1)

Source: 2407137-01

Prepared: 07/12/24 Analyzed: 07/13/24

Boron 5.34 2.00 mg/L 5.02 0.106 104 75-125 4.96 25

Summit Scientific

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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: Noble - Farr T4N-R64W-S18 L01

Project Number: [none]
Project Manager: Paul Henchan

Reported:
07/16/24 09:21

Total Metals by EPA 6020B - Quality Control
Summit Scientific

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

Batch BHG0330 - EPA 3050B

Blank (BHG0330-BLK1)

Prepared: 07/12/24 Analyzed: 07/15/24

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 (BHG0330-BS1)

Prepared: 07/12/24 Analyzed: 07/15/24

Arsenic	38.1	0.200	mg/kg wet	36.5	104	80-120
Barium	34.4	0.400	"	36.5	94.2	80-120
Cadmium	1.80	0.200	"	1.82	98.5	80-120
Copper	33.3	0.400	"	36.5	91.1	80-120
Lead	17.4	0.200	"	18.2	95.6	80-120
Nickel	38.2	0.400	"	36.5	105	80-120
Silver	1.77	0.0200	"	1.82	97.1	80-120
Zinc	37.0	0.400	"	36.5	101	80-120
Selenium	3.89	0.260	"	3.65	107	80-120

Duplicate (BHG0330-DUP1)

Source: 2406108-04

Prepared: 07/12/24 Analyzed: 07/15/24

Arsenic	0.917	0.200	mg/kg dry	0.940	2.41	20	
Barium	42.9	0.400	"	37.0	14.7	20	
Cadmium	0.415	0.200	"	0.310	28.9	20	QR-01
Copper	6.45	0.400	"	7.47	14.6	20	
Lead	15.5	0.200	"	11.7	28.2	20	QR-04
Nickel	3.49	0.400	"	2.68	26.3	20	QR-04
Silver	0.0588	0.0200	"	0.0606	3.10	20	
Zinc	11.9	0.400	"	12.3	3.54	20	
Selenium	ND	0.260	"	ND		20	

Summit Scientific

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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: Noble - Farr T4N-R64W-S18 L01

Project Number: [none]
Project Manager: Paul Henchan

Reported:
07/16/24 09:21

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 BHG0330 - EPA 3050B

Matrix Spike (BHG0330-MS1)

Source: 2406108-04

Prepared: 07/12/24 Analyzed: 07/15/24

Arsenic	8.62	0.200	mg/kg dry	43.9	0.940	17.5	75-125				QM-05
Barium	77.7	0.400	"	43.9	37.0	92.7	75-125				
Cadmium	2.35	0.200	"	2.19	0.310	92.9	75-125				
Copper	23.9	0.400	"	43.9	7.47	37.4	75-125				QM-05
Lead	26.8	0.200	"	21.9	11.7	69.2	75-125				QM-07
Nickel	10.9	0.400	"	43.9	2.68	18.8	75-125				QM-05
Silver	2.09	0.0200	"	2.19	0.0606	92.4	75-125				
Zinc	19.7	0.400	"	43.9	12.3	16.9	75-125				QM-05
Selenium	3.40	0.260	"	4.39	ND	77.6	75-125				

Matrix Spike Dup (BHG0330-MSD1)

Source: 2406108-04

Prepared: 07/12/24 Analyzed: 07/15/24

Arsenic	8.54	0.200	mg/kg dry	45.6	0.940	16.7	75-125	0.921	25		QM-05
Barium	76.0	0.400	"	45.6	37.0	85.5	75-125	2.24	25		
Cadmium	2.39	0.200	"	2.28	0.310	91.1	75-125	1.57	25		
Copper	24.6	0.400	"	45.6	7.47	37.7	75-125	3.02	25		QM-05
Lead	29.0	0.200	"	22.8	11.7	76.1	75-125	7.74	25		
Nickel	10.4	0.400	"	45.6	2.68	16.9	75-125	4.74	25		QM-05
Silver	2.15	0.0200	"	2.28	0.0606	91.9	75-125	3.13	25		
Zinc	20.3	0.400	"	45.6	12.3	17.6	75-125	3.20	25		QM-05
Selenium	3.40	0.260	"	4.56	ND	74.6	75-125	0.0884	25		QM-07

Post Spike (BHG0330-PS1)

Source: 2406108-04

Prepared: 07/12/24 Analyzed: 07/15/24

Arsenic	19.3		ug/l	100	2.00	17.3	75-125				QM-01
Barium	188		"	100	78.8	109	75-125				
Cadmium	5.82		"	5.00	0.660	103	75-125				
Copper	55.6		"	100	15.9	39.7	75-125				QM-01
Lead	66.0		"	50.0	24.8	82.5	75-125				
Nickel	23.5		"	100	5.70	17.8	75-125				QM-01
Silver	5.21		"	5.00	0.129	102	75-125				
Zinc	43.6		"	100	26.2	17.4	75-125				QM-01
Selenium	8.81		"	10.0	0.247	85.6	75-125				

Summit Scientific

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Fremont Environmental
 PO Box 1289
 Wellington CO, 80549

Project: Noble - Farr T4N-R64W-S18 L01

Project Number: [none]
 Project Manager: Paul Henchan

Reported:
 07/16/24 09:21

Hexavalent Chromium by EPA Method 7196 - Quality Control
Summit Scientific

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

Batch BHG0347 - 3060A Mod

Blank (BHG0347-BLK1)

Prepared & Analyzed: 07/12/24

Chromium, Hexavalent ND 0.30 mg/kg wet

LCS (BHG0347-BS1)

Prepared & Analyzed: 07/12/24

Chromium, Hexavalent 24.2 0.30 mg/kg wet 25.0 96.8 80-120

Duplicate (BHG0347-DUP1)

Source: 2407123-01

Prepared & Analyzed: 07/12/24

Chromium, Hexavalent ND 0.30 mg/kg dry ND 20

Matrix Spike (BHG0347-MS1)

Source: 2407123-01

Prepared & Analyzed: 07/12/24

Chromium, Hexavalent 24.4 0.30 mg/kg dry 25.6 ND 95.2 75-125

Matrix Spike Dup (BHG0347-MSD1)

Source: 2407123-01

Prepared & Analyzed: 07/12/24

Chromium, Hexavalent 24.8 0.30 mg/kg dry 25.6 ND 96.8 75-125 1.67 20

Summit Scientific

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Fremont Environmental
 PO Box 1289
 Wellington CO, 80549

Project: Noble - Farr T4N-R64W-S18 L01

Project Number: [none]
 Project Manager: Paul Henchan

Reported:
 07/16/24 09:21

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

Summit Scientific

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

Batch BHG0314 - General Preparation

Blank (BHG0314-BLK1)

Prepared: 07/11/24 Analyzed: 07/12/24

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

LCS (BHG0314-BS1)

Prepared: 07/11/24 Analyzed: 07/12/24

Calcium	5.15	0.0500	mg/L wet	5.00		103	70-130			
Magnesium	4.72	0.0500	"	5.00		94.4	70-130			
Sodium	4.63	0.0500	"	5.00		92.6	70-130			

Summit Scientific

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Fremont Environmental
 PO Box 1289
 Wellington CO, 80549

Project: Noble - Farr T4N-R64W-S18 L01

Project Number: [none]
 Project Manager: Paul Henchan

Reported:
 07/16/24 09:21

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 BHG0337 - General Preparation

Duplicate (BHG0337-DUP1)

Source: 2406108-04

Prepared & Analyzed: 07/12/24

% Solids	84.3		%		85.1			0.905	20	
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Summit Scientific

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Fremont Environmental
 PO Box 1289
 Wellington CO, 80549

Project: Noble - Farr T4N-R64W-S18 L01

Project Number: [none]
 Project Manager: Paul Henchan

Reported:
 07/16/24 09:21

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

Summit Scientific

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

Batch BHG0316 - General Preparation

Blank (BHG0316-BLK1)

Prepared: 07/11/24 Analyzed: 07/12/24

Specific Conductance (EC) ND 0.0100 mmhos/cm

LCS (BHG0316-BS1)

Prepared: 07/11/24 Analyzed: 07/12/24

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

Duplicate (BHG0316-DUP1)

Source: 2406465-05

Prepared: 07/11/24 Analyzed: 07/12/24

Specific Conductance (EC) 0.292 0.0100 mmhos/cm 0.303 3.73 20

Summit Scientific

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Fremont Environmental
 PO Box 1289
 Wellington CO, 80549

Project: Noble - Farr T4N-R64W-S18 L01

Project Number: [none]
 Project Manager: Paul Henchan

Reported:
 07/16/24 09:21

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 BHG0315 - General Preparation

LCS (BHG0315-BS1)

Prepared: 07/11/24 Analyzed: 07/12/24

pH	9.18	pH Units	9.18	100	95-105
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Duplicate (BHG0315-DUP1)

Source: 2406408-05

Prepared: 07/11/24 Analyzed: 07/12/24

pH	7.82	pH Units	7.80	0.256	20
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Summit Scientific

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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: Noble - Farr T4N-R64W-S18 L01

Project Number: [none]
Project Manager: Paul Henchan

Reported:
07/16/24 09:21

Notes and Definitions

- QR-04 The RPD value for the sample duplicate or MS/MSD was outside of QC acceptance. QC batch accepted based on LCS and/or LCSD recovery and/or RPD values.
- 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