

Flowline Closure Checklist

COGCC Rule 911.a.(4) Environmental Site Closure Assessment Field Form

Additional Attachments:		Tank Battery Closure		Wellhead Closure		Pit Closure		Partially Buried Vault Closure
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Site Name & COGCC Facility Number: Foos C27-18	Date: 8/25/2023	Remediation Project #: 28232
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Associated Wells:	Age of Site:	Number of Photos Attached: 2
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Starting point: (GPS coordinates and descriptions)
40.287198/ -104.536543

End point: (GPS coordinates and descriptions)
40.285692/ -104.529413

USCS Soil Type: SW	Estimated Depth to Groundwater: > 4'
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Hydrocarbon Impacted Soils / Spills: (Note estimated size and if impact appears to be surficial or extends to an unknown depth)
None observed

Salt Crusted Soils or Impacted Vegetation: (Note estimated size and if impact appears to be surficial or extends to an unknown depth)
None observed

Flowlines

Flowline type	Oil / Gas / Water			
Depth	4'			
Age				
Length	2580'			
Construction Material	steel			
Were flowlines pulled?	no			
Visual Integrity of lines	good			
Visual impacts if trenched	none observed			
PID Readings if trenched	2.2 - 5.3			
Sample taken? Location/Sample ID#	yes, see below			
Photo Number(s)	1, 2			

Other observations regarding on location flowlines:
Samples were taken at the wellhead (FL01-A@4') and at the separator (FL01-B@3').
The flowline was ABIP for now due to crops, and a future partial removal is planned for the fall / winter.

Summary

Was impacted soil identified? No	
Total number of samples field screened: 2	Total number of samples collected: 2
Highest PID Reading: 5.3	Total number of samples submitted to lab for analysis: 2
If more than 10 cubic yards of impacted soil were observed:	
Vertical extent:	Estimated spill volume:
Lateral extent:	Volume of soil removed:
Is additional investigation required?	
Was groundwater encountered during the investigation? No	
Measured depth to groundwater:	Was remedial groundwater removal conducted?
Date Groundwater was encountered:	Commencement date of removal:
Sheen on groundwater?	Volume of groundwater removed prior to sampling:
Free product observed?	Volume of groundwater removed post sampling:
Total number of samples collected:	Total Volume of groundwater removed:
Total number of samples submitted to lab for analysis:	

Photographic Log



Equipment ID: FL01-A@4'	Equipment Type: Flowline	
Material: Steel	Volume:	Contents: Oil/Gas/Water
Notes/Conditions:		



Equipment ID: FL01-B@3'	Equipment Type: Flowline	
Material: Steel	Volume:	Contents: Oil/Gas/Water
Notes/Conditions: Facing North.		

TABLE 1
SOIL SAMPLE LOCATIONS
NOBLE ENERGY, INC. - FOOS C27-18

Soil Sample ID	Date	PID (ppm)	Visual	Olfactory	Sample Type (Grab/Lab)	Latitude ¹	Longitude	PDOP
FL01-A@4'	08/25/23	5.3	No Staining	No Odor	Lab	40.287190	-104.536543	0.9
FL01-B@3'	08/25/23	2.2	No Staining	No Odor	Lab	40.285694	-104.529412	1.2

Notes:

PID = Photoionization detector

ppm = parts per million

PDOP = Position dilution of precision

HC = Hydrocarbon

1.) Latitude and longitude coordinates will be provided in decimal degrees with an accuracy and precision of 5 decimals of a degree using the North American Datum ("NAD") of 1983

**TABLE 2
SOIL ANALYTICAL DATA
NOBLE ENERGY, INC. - FOOS C27-18**

Soil Sample ID	Date	¹ Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	1,2,4 - TMB (mg/kg)	1,3,5 - TMB (mg/kg)	Naphthalene (mg/kg)	TPH-GRO (mg/kg)	TPH-DRO (mg/kg)	TPH-ORO (mg/kg)	Acenaphthene (mg/kg)	Anthracene (mg/kg)	Benz(a) (mg/kg)	Benzo(a) (mg/kg)	Benzo(b) (mg/kg)	Benzo(k) (mg/kg)	Chrysene (mg/kg)	A,H (mg/kg)	Fluoranthene (mg/kg)	Fluorene (mg/kg)	1,2,3-CD (mg/kg)	Pyrene (mg/kg)	1-M (mg/kg)	2-M (mg/kg)
Residential SSL²		1.2	490	5.8	58	30	27	2	500			360	1,800	1.1	0.11	1.1	11	110	0.11	240	240	1.1	180	18	24
Protection of Groundwater SSL^{2,3}		0.0026	0.69	0.78	9.9	0.0081	0.0087	0.0038	500			0.55	6	0.011	0.24	0.3	2.9	9	0.096	8.9	0.54	0.98	1.3	0.006	0.019
FL01-A@4'	08/25/23	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
FL01-B@3'	08/25/23	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500

Soil Sample ID	Date	pH	SAR	EC (mmhos/cm)	Boron (mg/L)
Residential SSL²		6 - 8.3	<6	<4mmhos/cm	2
FL01-A@4'	08/25/23	8.48	0.854	0.222	0.0858
FL01-B@3'	08/25/23	8.11	0.129	0.151	0.328

Sample ID	Date Sampled	Arsenic (mg/kg)	Barium (mg/kg)	Cadmium (mg/kg)	Chromium (VI) (mg/kg)	Copper (mg/kg)	Lead (mg/kg)	Nickel (mg/kg)	Selenium (mg/kg)	Silver (mg/kg)	Zinc (mg/kg)
Residential SSL^(1,2)		0.68	15,000	71	0.3	3,100	400	1,500	390	390	23,000
Protection of Groundwater SSL^(1,2,3)		0.29	82	0.38	0.00067	46	14	26	0.26	0.8	370
FL01-A@4'	08/25/23	1.88	128	<0.200	<0.30	5.59	7.47	4.47	<0.260	0.0271	18.4
FL01-B@3'	08/25/23	2.83	76.1	0.221	<0.30	7.24	9.31	5.46	<0.260	0.0493	22.3

Notes:

- Compounds referenced from 2 CCR 404-1, Table 915-1, effective January 15, 2021.
- Soil Screening Levels (SSL) referenced from EPA Regional Screening Levels (EPA RSLs) for Chemical Contaminants at Superfund Sites, effective November 2020.
- SSLs are applicable if a pathway for communication with groundwater is present.

Definitions:

ECMC = Energy and Carbon Management Commission
 TPH-GRO = Total petroleum hydrocarbons - gasoline range organics
 TPH-DRO = Total petroleum hydrocarbons - diesel range organics
 TPH-ORO = Total petroleum hydrocarbons - oil range organics
 mg/kg = Milligrams per kilogram
 SAR = Sodium Adsorption Ratio
 EC = Electrical Conductivity
 mmhos/cm = Millimhos per centimeter
 mg/L = Milligrams per liter
 < = Analytical result is less than the indicated laboratory reporting limit

1,2,4 - TMB = 1,2,4 Trimethylbenzene
 1,3,5 - TMB = 1,3,5 Trimethylbenzene
 Benz(a) = Benzo (a) anthracene
 Benzo(b) = Benzo (b) fluoranthene
 Benzo(k) = Benzo(k)fluoranthene
 Benzo(a) = Benzo(a)pyrene
 A,H = Dibenzo(a,h)anthracene
 1,2,3-CD = Indeno(1,2,3-cd)pyrene
 1-M = 1-methylnaphthalene
 2-M = 2-methylnaphthalene

Highlighted results are equal to or exceed the ECMC Table 915-1 standard



FL01-A@4'
(08/25/2023)

PID = 5.3 ppm
 Arsenic = **1.88** mg/kg
 Barium = **128** mg/kg
 pH = **8.48**

FL01-B@3'
(08/25/2023)

PID = 2.2 ppm
 Arsenic = **2.83**mg/kg

Legend

- Flowline Location
- Soil Sample Location – Lab Analyzed (Collected via Trimble GPS)

Notes

- 1) All locations are approximate unless otherwise noted.
- 2) Buried infrastructure has been spatially projected.
- 3) Analytical results below laboratory detection limits or within compliance of ECMC Table 915-1 not shown.
- 4) Concentration in exceedance of ECMC table 915-1 soil standards indicated in **RED**.

GPS – Global Positioning System
 mg/kg – Milligrams per kilogram
 ppm – parts per million
 PID – Photoionization Detector

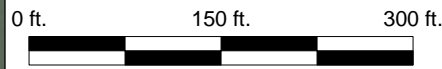


Image Source: Google Earth; Google 2020

DATE: 09/13/2023

DESIGNED BY: JW

DRAWN BY: EH



**Noble Energy, Inc. – DJ Basin
 Foos C27-18**
 NWNE, Section 27, Township 4 North, Range 64 West
 Weld County, Colorado

Flowline Closure & Soil
 Analytical Results Map
 (09/13/2023)

FIGURE
 1

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

September 05, 2023

Jacob Whritenour
Tasman Geosciences
6855 W. 119th Ave.
Broomfield, CO 80020
RE: Noble - Foos C27-18
Work Order #2308607

Enclosed are the results of analyses for samples received by Summit Scientific on 08/25/23 17:55. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Scott Sheely For Paul Shrewsbury
President



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

Project: Noble - Foos C27-18
Project Number: UWRWE-A3219-ABN
Project Manager: Jacob Whritenour

Reported:
09/05/23 14:52

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FL01-B@3'	2308607-01	Soil	08/25/23 14:55	08/25/23 17:55
FL01-A@4'	2308607-02	Soil	08/25/23 15:15	08/25/23 17:55

Summit Scientific

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

S₂

Sample Receipt Checklist

S2 Work Order# 2308607

Client: Noble Gasman Client Project ID: Foos C27-RB

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

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

Temp (°C) 10.0

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.	-			on J OE
If custody seals are present, are they intact? (1)	-			
Are samples due within 48 hours present?		-		
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		-		
Is a chain-of-custody (COC) form present and filled out Completely? (1)	-			
Is the COC properly relinquished by the client w/ date and time recorded? (1)	-			
Were all samples received intact? (1)	✓			
Was adequate sample volume provided? (1)	✓			
Does the COC agree with the number and type of sample bottles received? (1)	✓			
Do the sample IDs on the bottle labels match the COC? (1)	✓			
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.			✓	
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.			✓	
If samples are acid preserved for metals, is the pH ≤ 2? (1) Record the pH in Comments.			✓	
If dissolved metals are requested, were samples field filtered?			✓	
Additional Comments (if any):				
(1) If NO, then contact the client before proceeding with analysis and note in case narrative.				

AS

Custodian Printed Name

8/25/23
Date/Time



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

Project: Noble - Foos C27-18
Project Number: UWRWE-A3219-ABN
Project Manager: Jacob Whritenour

Reported:
09/05/23 14:52

FL01-B@3'
2308607-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/25/23 14:55**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	0.0020		mg/kg	1	BGH1131	08/28/23	08/29/23	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: **08/25/23 14:55**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4	0.0408	102 %		50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0402	100 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0370	92.5 %		50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/25/23 14:55**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
C10-C28 (DRO)	ND	50		mg/kg	1	BGH1132	08/28/23	08/29/23	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **08/25/23 14:55**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: o-Terphenyl	13.1	105 %		30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

Summit Scientific

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Broomfield CO, 80020

Project: Noble - Foos C27-18
Project Number: UWRWE-A3219-ABN
Project Manager: Jacob Whritenour

Reported:
09/05/23 14:52

FL01-B@3'
2308607-01 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **08/25/23 14:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGH1187	08/29/23	08/31/23	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: **08/25/23 14:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0145	43.4 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0144	43.3 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **08/25/23 14:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.328	0.0100	mg/L	1	BGH1128	08/28/23	08/30/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **08/25/23 14:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Foos C27-18
Project Number: UWRWE-A3219-ABN
Project Manager: Jacob Whritenour

Reported:
09/05/23 14:52

FL01-B@3'
2308607-01 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	2.83	0.200	mg/kg dry	1	BGH1091	08/28/23	08/30/23	EPA 6020B	
Barium	76.1	0.400	"	"	"	"	"	"	
Cadmium	0.221	0.200	"	"	"	"	"	"	
Copper	7.24	0.400	"	"	"	"	"	"	
Lead	9.31	0.200	"	"	"	"	"	"	
Nickel	5.46	0.400	"	"	"	"	"	"	
Silver	0.0493	0.0200	"	"	"	"	"	"	
Zinc	22.3	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **08/25/23 14:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGH1193	08/29/23	08/29/23	EPA 7196A	

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

Date Sampled: **08/25/23 14:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	21.5	0.0540	mg/L dry	1	BGH1167	08/29/23	08/31/23	EPA 6020B	
Magnesium	4.10	0.0540	"	"	"	"	"	"	
Sodium	2.49	0.0540	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **08/25/23 14:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.129	0.00100	units	1	BGH1269	08/31/23	08/31/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **08/25/23 14:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Project Manager: Jacob Whritenour

Reported:
09/05/23 14:52

FL01-B@3'
2308607-01 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

% Solids	92.5	%	1	BGH1125	08/28/23	08/28/23	Calculation
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Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **08/25/23 14:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.151	0.0100	mmhos/cm	1	BGH1191	08/29/23	08/30/23	EPA 120.1	

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

Date Sampled: **08/25/23 14:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.11		pH Units	1	BGH1190	08/29/23	08/30/23	EPA 9045D	

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Project: Noble - Foos C27-18
Project Number: UWRWE-A3219-ABN
Project Manager: Jacob Whritenour

Reported:
09/05/23 14:52

FL01-A@4'
2308607-02 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/25/23 15:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BGH1131	08/28/23	08/29/23	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: **08/25/23 15:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	0.0316	78.9 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0416	104 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0360	90.0 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/25/23 15:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BGH1132	08/28/23	08/29/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/25/23 15:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	12.8	102 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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Project: Noble - Foos C27-18
Project Number: UWRWE-A3219-ABN
Project Manager: Jacob Whritenour

Reported:
09/05/23 14:52

FL01-A@4'
2308607-02 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **08/25/23 15:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGH1187	08/29/23	08/31/23	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: **08/25/23 15:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0203	60.9 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0201	60.4 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **08/25/23 15:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.0858	0.0100	mg/L	1	BGH1128	08/28/23	08/31/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **08/25/23 15:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Foos C27-18
Project Number: UWRWE-A3219-ABN
Project Manager: Jacob Whritenour

Reported:
09/05/23 14:52

**FL01-A@4 '
2308607-02 (Soil)**

Summit Scientific

Total Metals by EPA 6020B

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	1.88	0.200	mg/kg dry	1	BGH1091	08/28/23	08/30/23	EPA 6020B	
Barium	128	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Copper	5.59	0.400	"	"	"	"	"	"	
Lead	7.47	0.200	"	"	"	"	"	"	
Nickel	4.47	0.400	"	"	"	"	"	"	
Silver	0.0271	0.0200	"	"	"	"	"	"	
Zinc	18.4	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **08/25/23 15:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGH1193	08/29/23	08/29/23	EPA 7196A	

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

Date Sampled: **08/25/23 15:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	73.8	0.0616	mg/L dry	1	BGH1167	08/29/23	08/31/23	EPA 6020B	
Magnesium	8.27	0.0616	"	"	"	"	"	"	
Sodium	29.0	0.0616	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **08/25/23 15:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.854	0.00100	units	1	BGH1269	08/31/23	08/31/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

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Broomfield CO, 80020

Project: Noble - Foos C27-18
Project Number: UWRWE-A3219-ABN
Project Manager: Jacob Whritenour

Reported:
09/05/23 14:52

FL01-A@4 '
2308607-02 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **08/25/23 15:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	81.2		%	1	BGH1125	08/28/23	08/28/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **08/25/23 15:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.222	0.0100	mmhos/cm	1	BGH1191	08/29/23	08/30/23	EPA 120.1	

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

Date Sampled: **08/25/23 15:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.48		pH Units	1	BGH1190	08/29/23	08/30/23	EPA 9045D	

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Project: Noble - Foos C27-18
Project Number: UWRWE-A3219-ABN
Project Manager: Jacob Whritenour

Reported:
09/05/23 14:52

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 BGH1131 - EPA 5030 Soil MS

Blank (BGH1131-BLK1)

Prepared: 08/28/23 Analyzed: 08/29/23

Benzene	ND	0.0020	mg/kg							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
1,2,4-Trimethylbenzene	ND	0.0050	"							
1,3,5-Trimethylbenzene	ND	0.0050	"							
Naphthalene	ND	0.0038	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0268		"	0.0400		67.0	50-150			
<i>Surrogate: Toluene-d8</i>	0.0387		"	0.0400		96.8	50-150			
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0389		"	0.0400		97.4	50-150			

LCS (BGH1131-BS1)

Prepared: 08/28/23 Analyzed: 08/29/23

Benzene	0.0971	0.0020	mg/kg	0.100		97.1	70-130			
Toluene	0.101	0.0050	"	0.100		101	70-130			
Ethylbenzene	0.113	0.0050	"	0.100		113	70-130			
m,p-Xylene	0.222	0.010	"	0.200		111	70-130			
o-Xylene	0.102	0.0050	"	0.100		102	70-130			
1,2,4-Trimethylbenzene	0.110	0.0050	"	0.100		110	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>	0.0357		"	0.0400		89.2	50-150			
<i>Surrogate: Toluene-d8</i>	0.0410		"	0.0400		103	50-150			
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0407		"	0.0400		102	50-150			

Matrix Spike (BGH1131-MS1)

Source: 2308601-01

Prepared: 08/28/23 Analyzed: 08/29/23

Benzene	0.0909	0.0020	mg/kg	0.100	ND	90.9	70-130			
Toluene	0.0916	0.0050	"	0.100	ND	91.6	70-130			
Ethylbenzene	0.101	0.0050	"	0.100	ND	101	70-130			
m,p-Xylene	0.197	0.010	"	0.200	ND	98.3	70-130			
o-Xylene	0.0938	0.0050	"	0.100	ND	93.8	70-130			
1,2,4-Trimethylbenzene	0.0956	0.0050	"	0.100	ND	95.6	70-130			
1,3,5-Trimethylbenzene	0.0946	0.0050	"	0.100	ND	94.6	70-130			
Naphthalene	0.0830	0.0038	"	0.100	ND	83.0	70-130			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0374		"	0.0400		93.5	50-150			
<i>Surrogate: Toluene-d8</i>	0.0398		"	0.0400		99.6	50-150			
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0389		"	0.0400		97.2	50-150			

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

Project: Noble - Foos C27-18
Project Number: UWRWE-A3219-ABN
Project Manager: Jacob Whritenour

Reported:
09/05/23 14:52

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

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

Batch BGH1131 - EPA 5030 Soil MS

Matrix Spike Dup (BGH1131-MSD1)	Source: 2308601-01			Prepared: 08/28/23 Analyzed: 08/29/23					
Benzene	0.0862	0.0020	mg/kg	0.100	ND	86.2	70-130	5.28	30
Toluene	0.0870	0.0050	"	0.100	ND	87.0	70-130	5.14	30
Ethylbenzene	0.0932	0.0050	"	0.100	ND	93.2	70-130	8.01	30
m,p-Xylene	0.182	0.010	"	0.200	ND	90.9	70-130	7.80	30
o-Xylene	0.0857	0.0050	"	0.100	ND	85.7	70-130	8.99	30
1,2,4-Trimethylbenzene	0.0904	0.0050	"	0.100	ND	90.4	70-130	5.58	30
1,3,5-Trimethylbenzene	0.0871	0.0050	"	0.100	ND	87.1	70-130	8.29	30
Naphthalene	0.0814	0.0038	"	0.100	ND	81.4	70-130	1.97	30
Surrogate: 1,2-Dichloroethane-d4	0.0380		"	0.0400		94.9	50-150		
Surrogate: Toluene-d8	0.0398		"	0.0400		99.5	50-150		
Surrogate: 4-Bromofluorobenzene	0.0366		"	0.0400		91.5	50-150		

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Broomfield CO, 80020

Project: Noble - Foos C27-18
Project Number: UWRWE-A3219-ABN
Project Manager: Jacob Whritenour

Reported:
09/05/23 14:52

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 BGH1132 - EPA 3550A

Blank (BGH1132-BLK1)

Prepared: 08/28/23 Analyzed: 08/29/23

C10-C28 (DRO)	ND	50	mg/kg								
C28-C36 (ORO)	ND	50	"								
Surrogate: <i>o</i> -Terphenyl	13.1		"	12.5		105	30-150				

LCS (BGH1132-BS1)

Prepared: 08/28/23 Analyzed: 08/29/23

C10-C28 (DRO)	485	50	mg/kg	500		97.0	70-130				
Surrogate: <i>o</i> -Terphenyl	13.0		"	12.5		104	30-150				

Matrix Spike (BGH1132-MS1)

Source: 2308601-01

Prepared: 08/28/23 Analyzed: 08/29/23

C10-C28 (DRO)	496	50	mg/kg	500	5.57	98.1	70-130				
Surrogate: <i>o</i> -Terphenyl	12.8		"	12.5		103	30-150				

Matrix Spike Dup (BGH1132-MSD1)

Source: 2308601-01

Prepared: 08/28/23 Analyzed: 08/29/23

C10-C28 (DRO)	511	50	mg/kg	500	5.57	101	70-130	2.88	20		
Surrogate: <i>o</i> -Terphenyl	12.8		"	12.5		102	30-150				

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Tasman Geosciences
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Project: Noble - Foos C27-18
Project Number: UWRWE-A3219-ABN
Project Manager: Jacob Whritenour

Reported:
09/05/23 14:52

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 BGH1187 - EPA 5030 Soil MS

Blank (BGH1187-BLK1)

Prepared: 08/29/23 Analyzed: 08/30/23

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	0.0278		"	0.0333		83.3	40-150			
Surrogate: Fluoranthene-d10	0.0276		"	0.0333		82.9	40-150			

LCS (BGH1187-BS1)

Prepared: 08/29/23 Analyzed: 08/30/23

Acenaphthene	0.0300	0.00500	mg/kg	0.0333		90.1	31-137			
Anthracene	0.0299	0.00500	"	0.0333		89.6	30-120			
Benzo (a) anthracene	0.0289	0.00500	"	0.0333		86.7	30-120			
Benzo (a) pyrene	0.0303	0.00500	"	0.0333		91.0	30-120			
Benzo (b) fluoranthene	0.0306	0.00500	"	0.0333		91.7	30-120			
Benzo (k) fluoranthene	0.0306	0.00500	"	0.0333		91.9	30-120			
Chrysene	0.0306	0.00500	"	0.0333		91.7	30-120			
Dibenz (a,h) anthracene	0.0399	0.00500	"	0.0333		120	30-120			
Fluoranthene	0.0294	0.00500	"	0.0333		88.1	30-120			
Fluorene	0.0303	0.00500	"	0.0333		91.0	30-120			
Indeno (1,2,3-cd) pyrene	0.0281	0.00500	"	0.0333		84.4	30-120			
Pyrene	0.0345	0.00500	"	0.0333		104	35-142			
1-Methylnaphthalene	0.0294	0.00500	"	0.0333		88.3	35-142			
2-Methylnaphthalene	0.0312	0.00500	"	0.0333		93.5	35-142			
Surrogate: 2-Methylnaphthalene-d10	0.0302		"	0.0333		90.5	40-150			
Surrogate: Fluoranthene-d10	0.0287		"	0.0333		86.0	40-150			

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Project: Noble - Foos C27-18
Project Number: UWRWE-A3219-ABN
Project Manager: Jacob Whritenour

Reported:
09/05/23 14:52

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 BGH1187 - EPA 5030 Soil MS

Matrix Spike (BGH1187-MS1)	Source: 2308601-01			Prepared: 08/29/23 Analyzed: 08/30/23						
Acenaphthene	0.0190	0.00500	mg/kg	0.0333	ND	57.1	31-137			
Anthracene	0.0178	0.00500	"	0.0333	ND	53.5	30-120			
Benzo (a) anthracene	0.0198	0.00500	"	0.0333	ND	59.4	30-120			
Benzo (a) pyrene	0.0193	0.00500	"	0.0333	ND	58.0	30-120			
Benzo (b) fluoranthene	0.0210	0.00500	"	0.0333	ND	63.1	30-120			
Benzo (k) fluoranthene	0.0207	0.00500	"	0.0333	ND	62.1	30-120			
Chrysene	0.0187	0.00500	"	0.0333	ND	56.0	30-120			
Dibenz (a,h) anthracene	0.0220	0.00500	"	0.0333	ND	66.0	30-120			
Fluoranthene	0.0187	0.00500	"	0.0333	ND	56.0	30-120			
Fluorene	0.0183	0.00500	"	0.0333	ND	54.9	30-120			
Indeno (1,2,3-cd) pyrene	0.0273	0.00500	"	0.0333	ND	81.9	30-120			
Pyrene	0.0210	0.00500	"	0.0333	ND	63.1	35-142			
1-Methylnaphthalene	0.0178	0.00500	"	0.0333	ND	53.4	15-130			
2-Methylnaphthalene	0.0187	0.00500	"	0.0333	ND	56.2	15-130			
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0190</i>		<i>"</i>	<i>0.0333</i>		<i>56.9</i>	<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0187</i>		<i>"</i>	<i>0.0333</i>		<i>56.1</i>	<i>40-150</i>			

Matrix Spike Dup (BGH1187-MSD1)	Source: 2308601-01			Prepared: 08/29/23 Analyzed: 08/30/23						
Acenaphthene	0.0211	0.00500	mg/kg	0.0333	ND	63.2	31-137	10.1	30	
Anthracene	0.0181	0.00500	"	0.0333	ND	54.2	30-120	1.37	30	
Benzo (a) anthracene	0.0204	0.00500	"	0.0333	ND	61.3	30-120	3.20	30	
Benzo (a) pyrene	0.0189	0.00500	"	0.0333	ND	56.6	30-120	2.52	30	
Benzo (b) fluoranthene	0.0198	0.00500	"	0.0333	ND	59.5	30-120	5.90	30	
Benzo (k) fluoranthene	0.0198	0.00500	"	0.0333	ND	59.3	30-120	4.59	30	
Chrysene	0.0191	0.00500	"	0.0333	ND	57.4	30-120	2.53	30	
Dibenz (a,h) anthracene	0.0192	0.00500	"	0.0333	ND	57.7	30-120	13.4	30	
Fluoranthene	0.0185	0.00500	"	0.0333	ND	55.4	30-120	1.10	30	
Fluorene	0.0212	0.00500	"	0.0333	ND	63.6	30-120	14.8	30	
Indeno (1,2,3-cd) pyrene	0.0216	0.00500	"	0.0333	ND	64.7	30-120	23.6	30	
Pyrene	0.0211	0.00500	"	0.0333	ND	63.2	35-142	0.141	30	
1-Methylnaphthalene	0.0206	0.00500	"	0.0333	ND	61.8	15-130	14.6	50	
2-Methylnaphthalene	0.0200	0.00500	"	0.0333	ND	60.1	15-130	6.75	50	
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0206</i>		<i>"</i>	<i>0.0333</i>		<i>61.9</i>	<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0184</i>		<i>"</i>	<i>0.0333</i>		<i>55.3</i>	<i>40-150</i>			

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Project: Noble - Foos C27-18
Project Number: UWRWE-A3219-ABN
Project Manager: Jacob Whritenour

Reported:
09/05/23 14:52

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 BGH1128 - EPA 3050B

Blank (BGH1128-BLK1)

Prepared: 08/28/23 Analyzed: 08/30/23

Boron ND 0.0100 mg/L

LCS (BGH1128-BS1)

Prepared: 08/28/23 Analyzed: 08/30/23

Boron 5.48 0.0100 mg/L 5.00 110 80-120

Duplicate (BGH1128-DUP1)

Source: 2308602-02

Prepared: 08/28/23 Analyzed: 08/30/23

Boron 0.0522 0.0100 mg/L 0.0931 56.2 20 QR-01

Matrix Spike (BGH1128-MS1)

Source: 2308602-02

Prepared: 08/28/23 Analyzed: 08/30/23

Boron 5.33 0.0100 mg/L 5.00 0.0931 105 75-125

Matrix Spike Dup (BGH1128-MSD1)

Source: 2308602-02

Prepared: 08/28/23 Analyzed: 08/30/23

Boron 5.24 0.0100 mg/L 5.00 0.0931 103 75-125 1.63 25

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Broomfield CO, 80020

Project: Noble - Foos C27-18
Project Number: UWRWE-A3219-ABN
Project Manager: Jacob Whritenour

Reported:
09/05/23 14:52

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 BGH1091 - EPA 3050B

Blank (BGH1091-BLK1)

Prepared: 08/28/23 Analyzed: 08/30/23

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 (BGH1091-BS1)

Prepared: 08/28/23 Analyzed: 08/30/23

Arsenic	38.4	0.200	mg/kg wet	40.0		96.0	80-120			
Barium	43.1	0.400	"	40.0		108	80-120			
Cadmium	2.13	0.200	"	2.00		107	80-120			
Copper	38.3	0.400	"	40.0		95.8	80-120			
Lead	21.4	0.200	"	20.0		107	80-120			
Nickel	38.3	0.400	"	40.0		95.8	80-120			
Silver	2.09	0.0200	"	2.00		104	80-120			
Zinc	38.9	0.400	"	40.0		97.2	80-120			

Duplicate (BGH1091-DUP1)

Source: 2308565-01

Prepared: 08/28/23 Analyzed: 08/30/23

Arsenic	4.41	0.200	mg/kg dry	5.32		18.5	20			
Barium	40.6	0.400	"	55.3		30.6	20			QM-04
Cadmium	0.145	0.200	"	0.182		22.7	20			QR-01
Copper	7.75	0.400	"	9.09		15.9	20			
Lead	13.2	0.200	"	15.3		15.3	20			
Nickel	10.5	0.400	"	13.8		27.2	20			QM-04
Silver	0.0454	0.0200	"	0.0512		12.0	20			
Zinc	34.7	0.400	"	39.4		12.7	20			
Selenium	1.22	0.260	"	1.38		12.2	200			

Summit Scientific

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

Project: Noble - Foos C27-18
Project Number: UWRWE-A3219-ABN
Project Manager: Jacob Whritenour

Reported:
09/05/23 14:52

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 BGH1091 - EPA 3050B

Matrix Spike (BGH1091-MS1)	Source: 2308565-01			Prepared: 08/28/23		Analyzed: 08/30/23					
Arsenic	36.2	0.200	mg/kg dry	48.3	5.32	64.0	75-125				QM-07
Barium	75.6	0.400	"	48.3	55.3	42.1	75-125				QM-07
Cadmium	2.00	0.200	"	2.41	0.182	75.2	75-125				
Copper	27.9	0.400	"	48.3	9.09	38.9	75-125				QM-07
Lead	30.5	0.200	"	24.1	15.3	63.0	75-125				QM-07
Nickel	30.7	0.400	"	48.3	13.8	34.9	75-125				QM-07
Silver	1.89	0.0200	"	2.41	0.0512	76.3	75-125				
Zinc	52.2	0.400	"	48.3	39.4	26.5	75-125				QM-07

Matrix Spike Dup (BGH1091-MSD1)	Source: 2308565-01			Prepared: 08/28/23		Analyzed: 08/30/23					
Arsenic	36.0	0.200	mg/kg dry	48.3	5.32	63.5	75-125	0.753	25		QM-07
Barium	78.2	0.400	"	48.3	55.3	47.4	75-125	3.36	25		QM-07
Cadmium	2.08	0.200	"	2.41	0.182	78.7	75-125	4.19	25		
Copper	28.2	0.400	"	48.3	9.09	39.6	75-125	1.20	25		QM-07
Lead	31.5	0.200	"	24.1	15.3	67.0	75-125	3.08	25		QM-07
Nickel	30.9	0.400	"	48.3	13.8	35.3	75-125	0.688	25		QM-07
Silver	1.91	0.0200	"	2.41	0.0512	77.0	75-125	0.863	25		
Zinc	52.7	0.400	"	48.3	39.4	27.6	75-125	1.02	25		QM-07

Summit Scientific

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Broomfield CO, 80020

Project: Noble - Foos C27-18
Project Number: UWRWE-A3219-ABN
Project Manager: Jacob Whritenour

Reported:
09/05/23 14:52

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 BGH1193 - 3060A Mod

Blank (BGH1193-BLK1)

Prepared & Analyzed: 08/29/23

Chromium, Hexavalent ND 0.30 mg/kg wet

LCS (BGH1193-BS1)

Prepared & Analyzed: 08/29/23

Chromium, Hexavalent 23.7 0.30 mg/kg wet 25.0 94.8 80-120

Duplicate (BGH1193-DUP1)

Source: 2308212-06

Prepared & Analyzed: 08/29/23

Chromium, Hexavalent ND 0.30 mg/kg dry ND ND 20

Matrix Spike (BGH1193-MS1)

Source: 2308212-06

Prepared & Analyzed: 08/29/23

Chromium, Hexavalent 30.1 0.30 mg/kg dry 29.8 ND 101 75-125

Matrix Spike Dup (BGH1193-MSD1)

Source: 2308212-06

Prepared & Analyzed: 08/29/23

Chromium, Hexavalent 28.9 0.30 mg/kg dry 29.8 ND 97.2 75-125 3.83 20

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Project: Noble - Foos C27-18
Project Number: UWRWE-A3219-ABN
Project Manager: Jacob Whritenour

Reported:
09/05/23 14:52

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 BGH1167 - General Preparation

Blank (BGH1167-BLK1)

Prepared: 08/29/23 Analyzed: 08/31/23

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

LCS (BGH1167-BS1)

Prepared: 08/29/23 Analyzed: 08/31/23

Calcium	4.68	0.0500	mg/L wet	5.00	93.7	70-130
Magnesium	5.42	0.0500	"	5.00	108	70-130
Sodium	5.41	0.0500	"	5.00	108	70-130

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Project: Noble - Foos C27-18

Project Number: UWRWE-A3219-ABN

Project Manager: Jacob Whritenour

Reported:
 09/05/23 14:52

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 BGH1125 - General Preparation

Duplicate (BGH1125-DUP1)

Source: 2308577-01

Prepared & Analyzed: 08/28/23

% Solids	88.0		%		88.6			0.682	20	
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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Foos C27-18
Project Number: UWRWE-A3219-ABN
Project Manager: Jacob Whritenour

Reported:
09/05/23 14:52

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 BGH1191 - General Preparation

Blank (BGH1191-BLK1)

Prepared: 08/29/23 Analyzed: 08/30/23

Specific Conductance (EC) ND 0.0100 mmhos/cm

LCS (BGH1191-BS1)

Prepared: 08/29/23 Analyzed: 08/30/23

Specific Conductance (EC) 0.155 0.0100 mmhos/cm 0.150 104 95-105

Duplicate (BGH1191-DUP1)

Source: 2308446-03

Prepared: 08/29/23 Analyzed: 08/30/23

Specific Conductance (EC) 0.140 0.0100 mmhos/cm 0.140 0.00 20

Summit Scientific

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

Project: Noble - Foos C27-18

Project Number: UWRWE-A3219-ABN
Project Manager: Jacob Whritenour

Reported:
09/05/23 14:52

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 BGH1190 - General Preparation

LCS (BGH1190-BS1)

Prepared: 08/29/23 Analyzed: 08/30/23

pH	9.08	pH Units	9.18	98.9	95-105
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Duplicate (BGH1190-DUP1)

Source: 2308446-04

Prepared: 08/29/23 Analyzed: 08/30/23

pH	8.04	pH Units	8.04	0.00	20
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Summit Scientific

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

Project: Noble - Foos C27-18
Project Number: UWRWE-A3219-ABN
Project Manager: Jacob Whritenour

Reported:
09/05/23 14:52

Notes and Definitions

- QR-01 Analyses are not controlled on RPD values from sample concentrations less than 10 times the reporting limit. QC batch accepted based on LCS and/or LCSD QC results.
- QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS/LCSD recovery.
- QM-04 Visual evaluation of the sample indicates the RPD is above the control limit due to a non-homogeneous sample matrix.
- 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