

FREMONT ENVIRONMENTAL INC.

October 16, 2023

Mr. Daniel Peterson
Noble Energy Inc.
2115 117th Avenue
Greeley, CO 80634

Subject: **Flowline Closure Data Submittal**
Sauer G04-29D
API # 05-123-30793
SESW Sec. 33, T5N, R65W
Weld County, Colorado
Fremont Project No. C023-162
Remediation # 29214

Dear Mr. Peterson:

As you requested, Fremont Environmental Inc. (Fremont) personnel conducted flowline closure activities for Noble Energy Inc. (Noble) Sauer G04-29D. Impacted soil was not encountered during abandonment activities. Details of the Sauer G04-29D flowline closure activities are documented in the attached closure report. Groundwater was not encountered during flowline abandonment activities.

Please contact me at (603) 477-6907 if you require any additional information. Fremont appreciates the opportunity to provide this service.

Sincerely,

FREMONT ENVIRONMENTAL INC.



Ethan D. Black, P.G.
Consultant

Attachments:

- Facility Closure Checklist
- Tables
- Figures
- Photos
- Laboratory Report

Flowline Closure Checklist

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

<i>Additional Attachments:</i>		Tank Battery Closure		Wellhead Closure		Pit Closure		Partially Buried Vault Closure
<i>Site Name & COGCC Facility Number:</i>		<i>Date:</i>						<i>Remediation Project #:</i>
<i>Associated Wells:</i>		<i>Age of Site:</i>						<i>Number of Photos Attached:</i>

Starting point: (GPS coordinates and descriptions)

End point: (GPS coordinates and descriptions)

USCS Soil Type: _____ *Estimated Depth to Groundwater:* _____

Hydrocarbon Impacted Soils / Spills: (Note estimated size and if impact appears to be surficial or extends to an unknown depth)

Salt Crusted Soils or Impacted Vegetation: (Note estimated size and if impact appears to be surficial or extends to an unknown depth)

Flowlines

<i>Flowline type</i>								
<i>Depth</i>								
<i>Age</i>								
<i>Length</i>								
<i>Construction Material</i>								
<i>Were flowlines pulled?</i>								
<i>Visual Integrity of lines</i>								
<i>Visual impacts if trenched</i>								
<i>PID Readings if trenched</i>								
<i>Sample taken?</i>								
<i>Location/Sample ID#</i>								
<i>Photo Number(s)</i>								

Other observations regarding on location flowlines:

Summary

Was impacted soil identified?
 No Yes - less than 10 cubic yards Yes - more than 10 cubic yards

<i>Total number of samples field screened:</i>	<i>Total number of samples collected:</i>
<i>Highest PID Reading:</i>	<i>Total number of samples submitted to lab for analysis:</i>
<i>If more than 10 cubic yards of impacted soil were observed:</i>	
<i>Vertical extent:</i>	<i>Estimated spill volume:</i>
<i>Lateral extent:</i>	<i>Volume of soil removed:</i>
<i>Is additional investigation required?</i>	
<i>Was groundwater encountered during the investigation?</i> No Yes - not impacted or in contact with impacted soils Yes - groundwater impacted and/or in contact with impacted soils	
<i>Measured depth to groundwater:</i>	<i>Was remedial groundwater removal conducted? Yes No</i>
<i>Date Groundwater was encountered:</i>	<i>Commencement date of removal:</i>
<i>Sheen on groundwater? Yes No</i>	<i>Volume of groundwater removed prior to sampling:</i>
<i>Free product observed? Yes No</i>	<i>Volume of groundwater removed post sampling:</i>
<i>Total number of samples collected:</i>	<i>Total Volume of groundwater removed:</i>
<i>Total number of samples submitted to lab for analysis:</i>	

TABLE 1
SUMMARY OF VOLATILE ORGANIC SOIL CHEMISTRY DATA
NOBLE ENERGY INC.
SAUER G04-29D, WELD COUNTY, COLORADO
FREMONT PROJECT NO. C023-163

Sample ID	Sample Date	Depth (ft)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-Benzene (mg/kg)	Xylenes (mg/kg)	1,2,4-Trimethyl-Benzene (mg/kg)	1,3,5-Trimethyl-Benzene (mg/kg)	Naphthalene (mg/kg)	TPH GRO (mg/kg)	TPH DRO (mg/kg)	TPH ORO (mg/kg)
ECMC Table 915-1 Limits (Residential SSL)			1.2	490	5.8	58	30	27	2	500**		
ECMC Table 915-1 Limits (Protection of Groundwater SSL)			0.0026	0.69	0.78	9.9	0.0081	0.0087	0.0038	500**		
FL01 3ft	06/16/2023	3	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50

Bold faced values exceed the ECMC Table 915-1 concentrations

Red & blue highlighted 915-1 Limits indicate the referenced soil screening level (SSL)

* Indicates laboratory minimum detection limit in excess of SSL

** Summation of GRO+DRO+ORO must be less than 500 mg/kg

NA - Not analyzed

TABLE 2
SUMMARY OF POLYCYCLIC AROMATIC HYDROCARBON SOIL CHEMISTRY DATA
NOBLE ENERGY INC.
SAUER G04-29D, WELD COUNTY, COLORADO
FREMONT PROJECT NO. C023-163

Sample ID	Sample Date	Depth (ft)	Acenaphthene (mg/kg)	Anthracene (mg/kg)	Benzo (a) Anthracene (mg/kg)	Benzo (a) Pyrene (mg/kg)	Benzo (b) Fluoranthene (mg/kg)	Benzo (k) Fluoranthene (mg/kg)	Chrysene (mg/kg)	Dibenzo (a,h) Anthracene (mg/kg)	Fluoranthene (mg/kg)	Fluorene (mg/kg)	Indeno (1,2,3-cd) Pyrene (mg/kg)	Pyrene (mg/kg)	1-Methyl - Naphthalene (mg/kg)	2-Methyl- Naphthalene (mg/kg)
ECMC Table 915-1 Limits (Residential SSL)			360	1800	1.1	0.11	1.1	11	110	0.11	240	240	1.1	180	18	24
ECMC Table 915-1 Limits (Protection of Groundwater SSL)			0.55	5.8	0.011	0.24	0.3	2.9	9	0.096	8.9	0.54	0.98	1.3	0.006	0.019
FL01 3ft	06/16/2023	3	<0.00500	<0.00500	0.00939	0.008	0.015	0.005	0.00907	<0.00500	0.019	<0.00500	0.007	0.018	<0.00500	<0.00500

Bold faced values exceed the ECMC Table 915-1 concentrations

Red & blue highlighted 915-1 Limits indicate the referenced soil screening level (SSL)

* Indicates laboratory minimum detection limit in excess of SSL

NA - Not analyzed

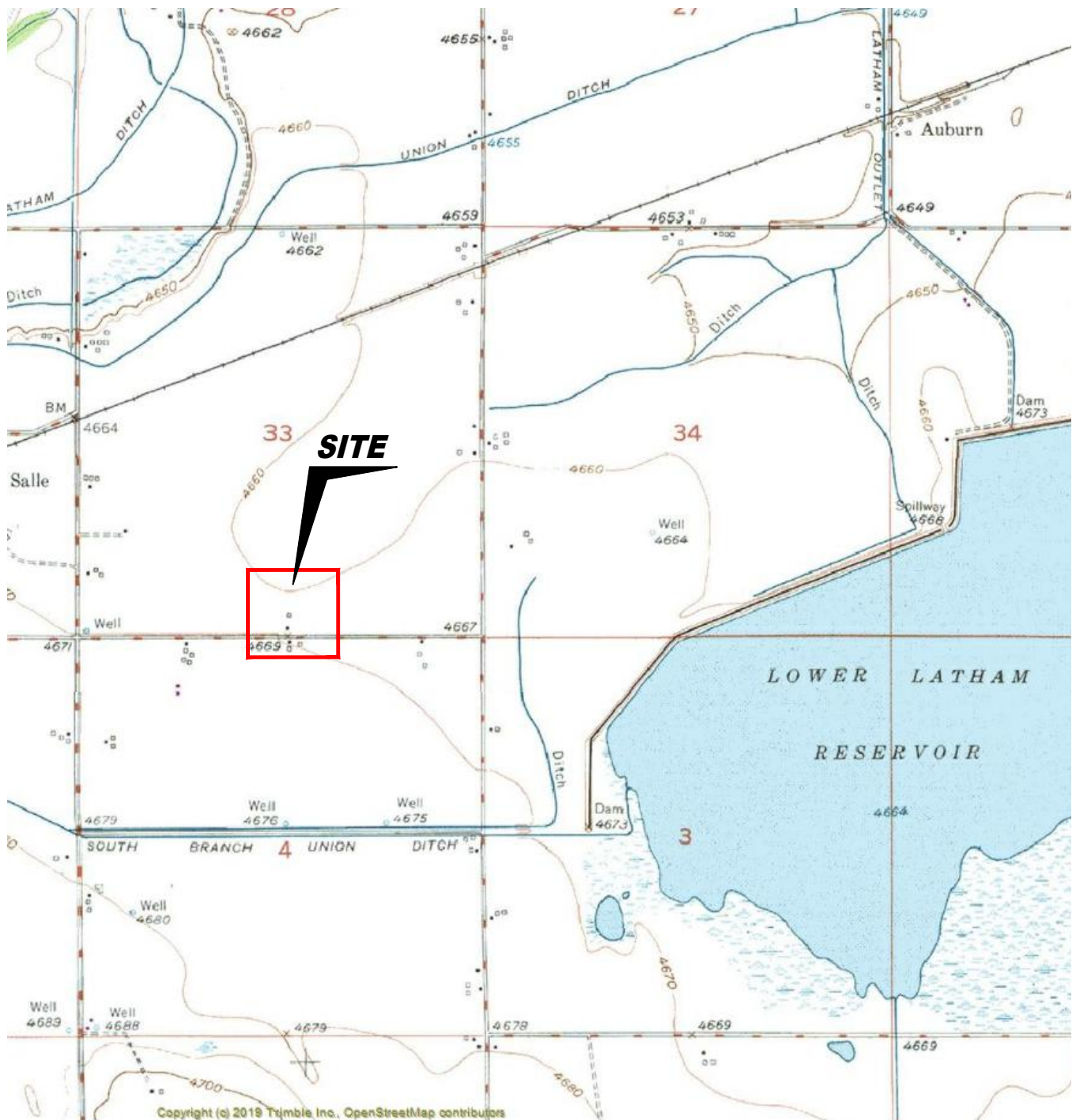
TABLE 3
SUMMARY OF SOIL SUITABILITY FOR RECLAMATION
NOBLE ENERGY INC.
SAUER G04-29D, WELD COUNTY, COLORADO
FREMONT PROJECT NO. C023-163

Sample ID	Sample Date	Depth (ft)	pH	EC (mmhos/cm)	SAR	Boron (mg/L)
ECMC Table 915-1 Soil Suitability Limits			6 - 8.3	<4	<6	2
FL01 3ft	06/16/2023	3	7.88	1.32	4.57	0.127

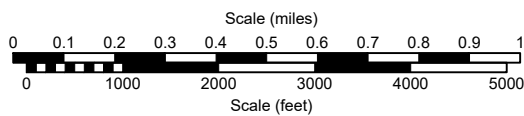
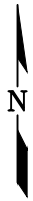
Bold faced values exceed the ECMC Table 915-1 concentrations

Yellow highlighted 915-1 Limits indicate the referenced soil screening level (SSL)

NA - Not analyzed



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USGS 7.5 MINUTE SERIES (TOPOGRAPHIC)

Figure 1
SITE LOCATION MAP

Noble Energy Inc. ~ Sauer G 04-29D
 SESW Sec. 33, T5N, R65W, 6th PM
 Weld County, Colorado
 40.350691°, -104.670613°

Project # C023-163	API # 05-123-30793	Facility #
Date 10/17/23	Remediation # 29214	Filename 23163T





LEGEND

- WELL HEAD LOCATION
- ▲ PID READING LOCATION
- ABOVE GROUND STORAGE TANK
- FORMER FACILITY
- BUILDING
- FORMER FACILITY
- BUILDING
- FENCE LINE
- ||||| CONTAINMENT BERM
- CONTAINMENT WALL
- ABANDONED IN PLACE
- FORMER FLOW LINE

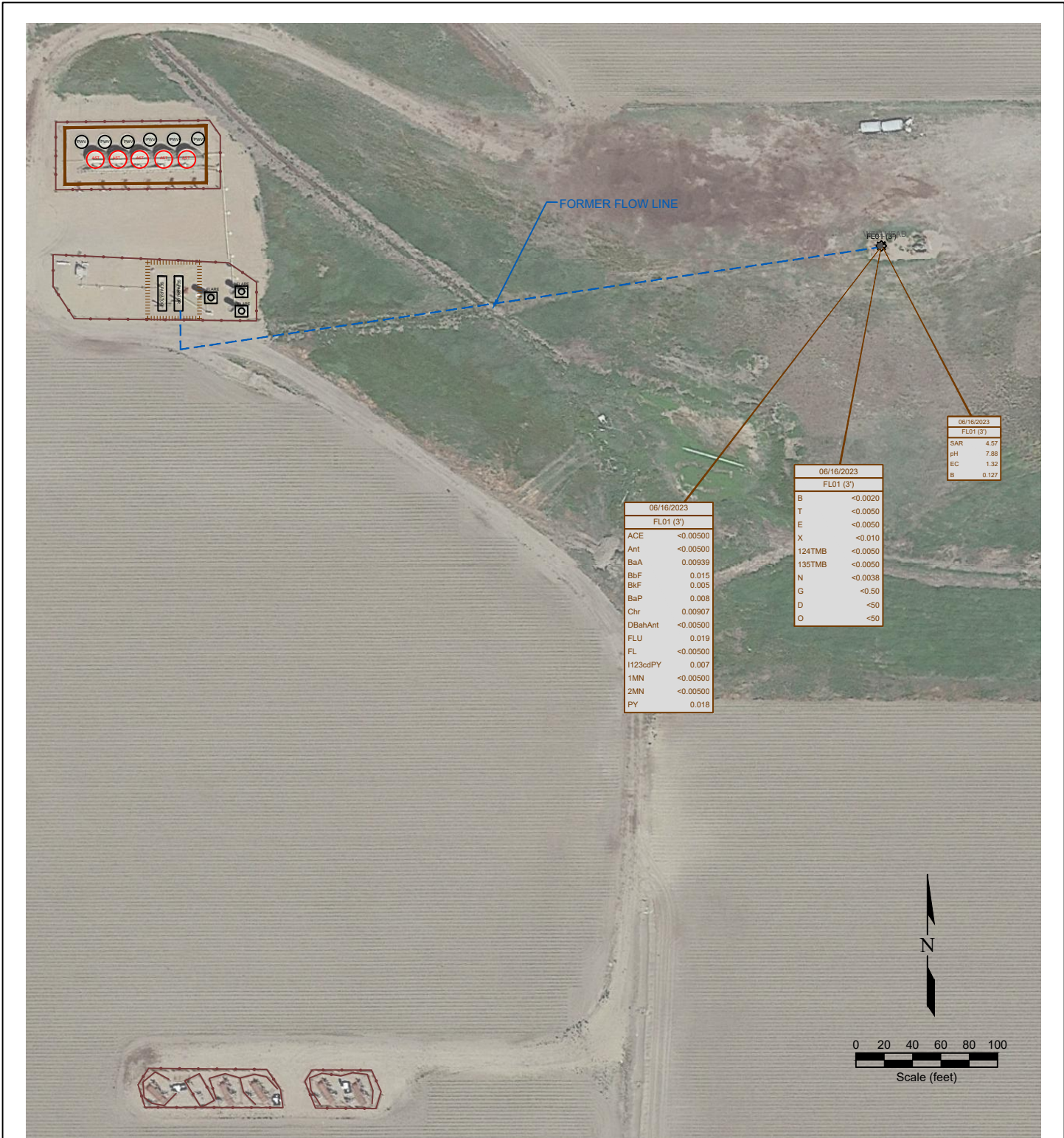
PID = photo ionization detection
ppm = parts per million

**Figure 2
SITE MAP**

Noble Energy Inc. ~ Sauer G 04-29D
 SESW Sec. 33, T5N, R65W, 6th PM
 Weld County, Colorado
 40.350691°, -104.670613°

Project No. C023-163	API # 05-123-30793	Facility #
Date 10/17/23	Remediation # 29214	Filename 23163Q





06/16/2023	
FL01 (3')	
ACE	<0.00500
Ant	<0.00500
BaA	0.00939
BbF	0.015
BkF	0.005
BaP	0.008
Chr	0.00907
DBahAnt	<0.00500
FLU	0.019
FL	<0.00500
I123cdPY	0.007
1MN	<0.00500
2MN	<0.00500
PY	0.018

06/16/2023	
FL01 (3')	
B	<0.0020
T	<0.0050
E	<0.0050
X	<0.010
124TMB	<0.0050
135TMB	<0.0050
N	<0.0038
G	<0.50
D	<50
O	<50

06/16/2023	
FL01 (3')	
SAR	4.57
pH	7.88
EC	1.32
B	0.127

LEGEND

● WELL HEAD LOCATION	○ ABOVE GROUND STORAGE TANK	FORMER FACILITY	FORMER FLOW LINE	— FENCE LINE	— CONTAINMENT BERM
⊗ SOIL SAMPLE LOCATION		BUILDING	CONTAINMENT WALL	— CONTAINMENT WALL	— ABANDONED IN PLACE
			FORMER FLOW LINE		

06/16/2023	DATE SAMPLED	06/16/2023	DATE SAMPLED	06/16/2023	DATE SAMPLED
FL01 (3')	SAMPLE ID and DEPTH (ft)	FL01 (3')	SAMPLE ID and DEPTH (ft)	FL01 (3')	SAMPLE ID and DEPTH (ft)
ACE	ACE NAPHTHENE (mg/kg)	B	BENZENE (mg/kg)	CHR	CHRYSENE (mg/kg)
Ant	ANTHRACENE (mg/kg)	T	TOLUENE (mg/kg)	EC	EC (mmhos/cm)
BaA	BENZO (A) ANTHRACENE (mg/kg)	E	ETHYLBENZENE (mg/kg)	EC	EC (mmhos/cm)
BbF	BENZO (B) FLUORANTHENE (mg/kg)	X	TOTAL XYLENES (mg/kg)	B	BORON (mg/L)
BkF	BENZO (K) FLUORANTHENE (mg/kg)	124TMB	1,2,4-TRIMETHYLBENZENE (mg/kg)		
BaP	BENZO (A) PYRENE (mg/kg)	135TMB	1,3,5-TRIMETHYLBENZENE (mg/kg)		
Chr	CHRYSENE (mg/kg)	N	NAPHTHALENE (mg/kg)		
DBahAnt	DIBENZ (A,H) ANTHRACENE (mg/kg)	G	TPH-GRO (mg/kg)		
FLU	FLUORANTHENE (mg/kg)	D	TPH-DRO (mg/kg)		
FL	FLUORENE (mg/kg)	O	TPH-ORO (mg/kg)		
I123cdPY	INDENO (1,2,3-CD) PYRENE (mg/kg)				
1MN	1-METHYLNAPHTHALENE (mg/kg)				
2MN	2-METHYLNAPHTHALENE (mg/kg)				
PY	PYRENE (mg/kg)				

Figure 3
SOIL CHEMISTRY MAP

Noble Energy Inc. ~ Sauer G 04-29D
 SESW Sec. 33, T5N, R65W, 6th PM
 Weld County, Colorado
 40.350691°, -104.670613°

Project No. C023-163	API # 05-123-30793	Facility #
Date 10/17/23	Remediation # 29214	Filename 23163Q



Photo Log



Description:

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Photo Log



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Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403


303.277.9310

June 28, 2023

Paul Henchan
Fremont Environmental
PO Box 1289
Wellington, CO 80549
RE: Noble - Sauer G04-29D
Work Order #2306333

Enclosed are the results of analyses for samples received by Summit Scientific on 06/16/23 13:00. 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



Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: Noble - Sauer G04-29D

Project Number: UWRWE-A2583-ABN

Project Manager: Paul Henchan

Reported:
06/28/23 15:40

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FL01 3ft	2306333-01	Soil	06/16/23 00:00	06/16/23 13:00

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.

SUMMIT SCIENTIFIC

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

Lab ID	Page 1 of 1
2306333	

Client: Fremont Environmental		Send Data To:		Send Invoice To:	
Address: 8305 6th St.		Project Manager: Henehan		Company:	
City/State/Zip: Wellington, CO		E-Mail: Fremont Dist. List		Project Name/Location:	
Phone: 603-477-6907		Project Name: Noble - Saver G04-29D		AFEN:	
Sampler Name: Ethan Black		Project Number:		PO/Billing Codes: UWRWE-A258-ABN	
				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, Naphthalene, TMBs	TPH (C6-C16)	PAH	Table 915-1 Metals		SAR, EC, pH, Boron
1	FLO1 SET	6/16/23		2			X						X	X	X	X		
2																		
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		
11																		
12																		
13																		
14																		
15																		

Relinquished by: Ethan Black	Date/Time: 6/16/23 1300	Received by: [Signature]	Date/Time: 6/16/23 1300	TAT Business Days	Field DO	Notes:
				Same Day	Field EC	
Relinquished by: S2	Date/Time: 6/16/23 1300	Received by: [Signature]	Date/Time: 6/16/23 1300	1 Day	Field ORP	
				2 Days	Field pH	
Relinquished by: [Signature]	Date/Time:	Received by:	Date/Time:	3 Days	Field Temp.	
Temperature Upon Receipt: 13.2	Corrected Temperature: 0	IR gun #: 1	HNO3 lot #:	Standard	X Field Turb.	

S₂

Sample Receipt Checklist

S2 Work Order# 2306333

Client: Fremont Client Project ID: Noble-Saver G04-290

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"/>	on ICE
If custody seals are present, are they intact? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are samples due within 48 hours present?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Are water samples with short hold times present? Note the short hold analysis in the comments column - pH, Nitrate/Nitrite, Ferrous Iron (Fe ²⁺), Hexavalent Chromium (Cr ⁶⁺ , Cr VI), COD/BOD, Total Coliform, E. Coli, Total Residual Chlorine (TRC), Dissolved Oxygen	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Is a chain-of-custody (COC) form present and filled out completely? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client w/ date and time recorded? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all samples received intact? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	3
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

6/16/23

Date/Time

25



Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: Noble - Sauer G04-29D
Project Number: UWRWE-A2583-ABN
Project Manager: Paul Henchan

Reported:
06/28/23 15:40

FL01 3ft
2306333-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **06/16/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	0.0020		mg/kg	1	BGF0664	06/19/23	06/20/23	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: **06/16/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4	0.0432	108 %		50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0411	103 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0401	100 %		50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **06/16/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
C10-C28 (DRO)	ND	50		mg/kg	1	BGF0666	06/19/23	06/19/23	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **06/16/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: o-Terphenyl	11.7	93.6 %		30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

Summit Scientific

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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: Noble - Sauer G04-29D
Project Number: UWRWE-A2583-ABN
Project Manager: Paul Henchan

Reported:
06/28/23 15:40

FL01 3ft
2306333-01 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **06/16/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGF0636	06/19/23	06/20/23	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	0.00939	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	0.00830	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	0.0148	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	0.00548	0.00500	"	"	"	"	"	"	
Chrysene	0.00907	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	0.0192	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	0.00709	0.00500	"	"	"	"	"	"	
Pyrene	0.0175	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **06/16/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0249	74.6 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0288	86.4 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **06/16/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.127	0.0100	mg/L	1	BGF0749	06/21/23	06/22/23	EPA 6020B	

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

Date Sampled: **06/16/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Fremont Environmental
 PO Box 1289
 Wellington CO, 80549

Project: Noble - Sauer G04-29D
 Project Number: UWRWE-A2583-ABN
 Project Manager: Paul Henchan

Reported:
 06/28/23 15:40

FL01 3ft
2306333-01 (Soil)

Summit Scientific

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	53.7	0.0557	mg/L dry	1	BGF0797	06/22/23	06/27/23	EPA 6020B	
Magnesium	34.2	0.0557	"	"	"	"	"	"	
Sodium	174	0.0557	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **06/16/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	4.57	0.00100	units	1	BGF1024	06/28/23	06/28/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **06/16/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	89.7		%	1	BGF0717	06/20/23	06/20/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **06/16/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	1.32	0.0100	mmhos/cm	1	BGF0827	06/23/23	06/23/23	EPA 120.1	

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

Date Sampled: **06/16/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.88		pH Units	1	BGF0828	06/23/23	06/23/23	EPA 9045D	

Summit Scientific

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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: Noble - Sauer G04-29D
Project Number: UWRWE-A2583-ABN
Project Manager: Paul Henchan

Reported:
06/28/23 15:40

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 BGF0664 - EPA 5030 Soil MS

Blank (BGF0664-BLK1)

Prepared: 06/19/23 Analyzed: 06/20/23

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>	0.0360		"	0.0400		90.1	50-150			
<i>Surrogate: Toluene-d8</i>	0.0404		"	0.0400		101	50-150			
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0391		"	0.0400		97.7	50-150			

LCS (BGF0664-BS1)

Prepared: 06/19/23 Analyzed: 06/20/23

Benzene	0.117	0.0020	mg/kg	0.125		93.3	70-130			
Toluene	0.121	0.0050	"	0.125		96.6	70-130			
Ethylbenzene	0.130	0.0050	"	0.125		104	70-130			
m,p-Xylene	0.264	0.010	"	0.250		106	70-130			
o-Xylene	0.127	0.0050	"	0.125		102	70-130			
1,2,4-Trimethylbenzene	0.152	0.0050	"	0.125		122	70-130			
1,3,5-Trimethylbenzene	0.153	0.0050	"	0.125		122	70-130			
Naphthalene	0.151	0.0038	"	0.125		121	70-130			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0397		"	0.0400		99.2	50-150			
<i>Surrogate: Toluene-d8</i>	0.0405		"	0.0400		101	50-150			
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0394		"	0.0400		98.6	50-150			

Matrix Spike (BGF0664-MS1)

Source: 2306314-01

Prepared: 06/19/23 Analyzed: 06/20/23

Benzene	0.116	0.0020	mg/kg	0.125	ND	93.1	70-130			
Toluene	0.123	0.0050	"	0.125	ND	98.5	70-130			
Ethylbenzene	0.128	0.0050	"	0.125	ND	103	70-130			
m,p-Xylene	0.268	0.010	"	0.250	ND	107	70-130			
o-Xylene	0.127	0.0050	"	0.125	ND	102	70-130			
1,2,4-Trimethylbenzene	0.152	0.0050	"	0.125	ND	122	70-130			
1,3,5-Trimethylbenzene	0.152	0.0050	"	0.125	ND	122	70-130			
Naphthalene	0.160	0.0038	"	0.125	ND	128	70-130			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0405		"	0.0400		101	50-150			
<i>Surrogate: Toluene-d8</i>	0.0406		"	0.0400		101	50-150			
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0394		"	0.0400		98.6	50-150			

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Fremont Environmental
 PO Box 1289
 Wellington CO, 80549

Project: Noble - Sauer G04-29D
 Project Number: UWRWE-A2583-ABN
 Project Manager: Paul Henchan

Reported:
 06/28/23 15:40

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 BGF0664 - EPA 5030 Soil MS

Matrix Spike Dup (BGF0664-MSD1)	Source: 2306314-01			Prepared: 06/19/23 Analyzed: 06/20/23						
Benzene	0.116	0.0020	mg/kg	0.125	ND	92.9	70-130	0.258	30	
Toluene	0.124	0.0050	"	0.125	ND	98.8	70-130	0.316	30	
Ethylbenzene	0.125	0.0050	"	0.125	ND	99.7	70-130	2.99	30	
m,p-Xylene	0.265	0.010	"	0.250	ND	106	70-130	1.12	30	
o-Xylene	0.124	0.0050	"	0.125	ND	99.0	70-130	2.84	30	
1,2,4-Trimethylbenzene	0.149	0.0050	"	0.125	ND	119	70-130	2.05	30	
1,3,5-Trimethylbenzene	0.150	0.0050	"	0.125	ND	120	70-130	1.59	30	
Naphthalene	0.152	0.0038	"	0.125	ND	122	70-130	5.09	30	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0410</i>		<i>"</i>	<i>0.0400</i>		<i>102</i>	<i>50-150</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0411</i>		<i>"</i>	<i>0.0400</i>		<i>103</i>	<i>50-150</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0392</i>		<i>"</i>	<i>0.0400</i>		<i>98.0</i>	<i>50-150</i>			

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Fremont Environmental
 PO Box 1289
 Wellington CO, 80549

Project: Noble - Sauer G04-29D
 Project Number: UWRWE-A2583-ABN
 Project Manager: Paul Henchan

Reported:
 06/28/23 15:40

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 BGF0666 - EPA 3550A

Blank (BGF0666-BLK1)

Prepared & Analyzed: 06/19/23

C10-C28 (DRO)	ND	50	mg/kg								
C28-C36 (ORO)	ND	50	"								
Surrogate: <i>o</i> -Terphenyl	12.0		"	12.5		95.9	30-150				

LCS (BGF0666-BS1)

Prepared & Analyzed: 06/19/23

C10-C28 (DRO)	529	50	mg/kg	500		106	70-130				
Surrogate: <i>o</i> -Terphenyl	11.6		"	12.5		93.0	30-150				

Matrix Spike (BGF0666-MS1)

Source: 2306314-01

Prepared & Analyzed: 06/19/23

C10-C28 (DRO)	530	50	mg/kg	500	24.2	101	70-130				
Surrogate: <i>o</i> -Terphenyl	11.8		"	12.5		94.2	30-150				

Matrix Spike Dup (BGF0666-MSD1)

Source: 2306314-01

Prepared & Analyzed: 06/19/23

C10-C28 (DRO)	573	50	mg/kg	500	24.2	110	70-130	7.72	20		
Surrogate: <i>o</i> -Terphenyl	11.8		"	12.5		94.4	30-150				

Summit Scientific

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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: Noble - Sauer G04-29D
Project Number: UWRWE-A2583-ABN
Project Manager: Paul Henchan

Reported:
06/28/23 15:40

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 BGF0636 - EPA 5030 Soil MS

Blank (BGF0636-BLK1)

Prepared & Analyzed: 06/19/23

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	"							
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0255</i>		"	<i>0.0333</i>		<i>76.6</i>	<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0307</i>		"	<i>0.0333</i>		<i>92.0</i>	<i>40-150</i>			

LCS (BGF0636-BS1)

Prepared & Analyzed: 06/19/23

Acenaphthene	0.0279	0.00500	mg/kg	0.0333	83.7	31-137
Anthracene	0.0297	0.00500	"	0.0333	89.0	30-120
Benzo (a) anthracene	0.0289	0.00500	"	0.0333	86.8	30-120
Benzo (a) pyrene	0.0245	0.00500	"	0.0333	73.6	30-120
Benzo (b) fluoranthene	0.0261	0.00500	"	0.0333	78.4	30-120
Benzo (k) fluoranthene	0.0261	0.00500	"	0.0333	78.2	30-120
Chrysene	0.0289	0.00500	"	0.0333	86.7	30-120
Dibenz (a,h) anthracene	0.0225	0.00500	"	0.0333	67.5	30-120
Fluoranthene	0.0291	0.00500	"	0.0333	87.3	30-120
Fluorene	0.0267	0.00500	"	0.0333	80.0	30-120
Indeno (1,2,3-cd) pyrene	0.0283	0.00500	"	0.0333	85.0	30-120
Pyrene	0.0304	0.00500	"	0.0333	91.2	35-142
1-Methylnaphthalene	0.0241	0.00500	"	0.0333	72.4	35-142
2-Methylnaphthalene	0.0237	0.00500	"	0.0333	71.1	35-142
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0249</i>		"	<i>0.0333</i>	<i>74.8</i>	<i>40-150</i>
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0302</i>		"	<i>0.0333</i>	<i>90.5</i>	<i>40-150</i>

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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: Noble - Sauer G04-29D
Project Number: UWRWE-A2583-ABN
Project Manager: Paul Henchan

Reported:
06/28/23 15:40

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 BGF0636 - EPA 5030 Soil MS

Matrix Spike (BGF0636-MS1)	Source: 2306317-01			Prepared & Analyzed: 06/19/23								
Acenaphthene	0.0327	0.00500	mg/kg	0.0333	ND	98.1	31-137					
Anthracene	0.0203	0.00500	"	0.0333	ND	61.0	30-120					
Benzo (a) anthracene	0.0266	0.00500	"	0.0333	0.00345	69.4	30-120					
Benzo (a) pyrene	0.0310	0.00500	"	0.0333	ND	93.1	30-120					
Benzo (b) fluoranthene	0.0377	0.00500	"	0.0333	ND	113	30-120					
Benzo (k) fluoranthene	0.0264	0.00500	"	0.0333	ND	79.2	30-120					
Chrysene	0.0245	0.00500	"	0.0333	ND	73.4	30-120					
Dibenz (a,h) anthracene	0.0310	0.00500	"	0.0333	ND	93.0	30-120					
Fluoranthene	0.0358	0.00500	"	0.0333	0.00617	88.9	30-120					
Fluorene	0.0245	0.00500	"	0.0333	ND	73.4	30-120					
Indeno (1,2,3-cd) pyrene	0.0301	0.00500	"	0.0333	ND	90.4	30-120					
Pyrene	0.0323	0.00500	"	0.0333	0.00464	82.9	35-142					
1-Methylnaphthalene	0.0249	0.00500	"	0.0333	ND	74.6	15-130					
2-Methylnaphthalene	0.0255	0.00500	"	0.0333	ND	76.5	15-130					
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0194</i>		<i>"</i>	<i>0.0333</i>		<i>58.2</i>	<i>40-150</i>					
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0294</i>		<i>"</i>	<i>0.0333</i>		<i>88.3</i>	<i>40-150</i>					

Matrix Spike Dup (BGF0636-MSD1)	Source: 2306317-01			Prepared & Analyzed: 06/19/23								
Acenaphthene	0.0330	0.00500	mg/kg	0.0333	ND	99.0	31-137	0.897	30			
Anthracene	0.0242	0.00500	"	0.0333	ND	72.7	30-120	17.5	30			
Benzo (a) anthracene	0.0289	0.00500	"	0.0333	0.00345	76.3	30-120	8.26	30			
Benzo (a) pyrene	0.0231	0.00500	"	0.0333	ND	69.2	30-120	29.4	30			
Benzo (b) fluoranthene	0.0301	0.00500	"	0.0333	ND	90.2	30-120	22.6	30			
Benzo (k) fluoranthene	0.0210	0.00500	"	0.0333	ND	62.9	30-120	22.9	30			
Chrysene	0.0263	0.00500	"	0.0333	ND	79.0	30-120	7.37	30			
Dibenz (a,h) anthracene	0.0233	0.00500	"	0.0333	ND	70.0	30-120	28.3	30			
Fluoranthene	0.0273	0.00500	"	0.0333	0.00617	63.5	30-120	26.8	30			
Fluorene	0.0220	0.00500	"	0.0333	ND	66.0	30-120	10.6	30			
Indeno (1,2,3-cd) pyrene	0.0307	0.00500	"	0.0333	ND	92.0	30-120	1.79	30			
Pyrene	0.0264	0.00500	"	0.0333	0.00464	65.4	35-142	19.9	30			
1-Methylnaphthalene	0.0215	0.00500	"	0.0333	ND	64.5	15-130	14.5	50			
2-Methylnaphthalene	0.0217	0.00500	"	0.0333	ND	65.2	15-130	15.9	50			
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0227</i>		<i>"</i>	<i>0.0333</i>		<i>68.1</i>	<i>40-150</i>					
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0340</i>		<i>"</i>	<i>0.0333</i>		<i>102</i>	<i>40-150</i>					

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Fremont Environmental
 PO Box 1289
 Wellington CO, 80549

Project: Noble - Sauer G04-29D
 Project Number: UWRWE-A2583-ABN
 Project Manager: Paul Henchan

Reported:
 06/28/23 15:40

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

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

Batch BGF0749 - EPA 3050B

Blank (BGF0749-BLK1)

Prepared: 06/21/23 Analyzed: 06/22/23

Boron ND 0.0100 mg/L

LCS (BGF0749-BS1)

Prepared: 06/21/23 Analyzed: 06/22/23

Boron 4.09 0.0100 mg/L 5.00 81.8 80-120

Duplicate (BGF0749-DUP1)

Source: 2306329-01

Prepared: 06/21/23 Analyzed: 06/22/23

Boron 0.446 0.0100 mg/L 0.464 3.91 20

Matrix Spike (BGF0749-MS1)

Source: 2306329-01

Prepared: 06/21/23 Analyzed: 06/22/23

Boron 5.05 0.0100 mg/L 5.00 0.464 91.7 75-125

Matrix Spike Dup (BGF0749-MSD1)

Source: 2306329-01

Prepared: 06/21/23 Analyzed: 06/22/23

Boron 5.00 0.0100 mg/L 5.00 0.464 90.7 75-125 0.962 25

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Fremont Environmental
 PO Box 1289
 Wellington CO, 80549

Project: Noble - Sauer G04-29D
 Project Number: UWRWE-A2583-ABN
 Project Manager: Paul Henchan

Reported:
 06/28/23 15:40

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 BGF0797 - General Preparation

Blank (BGF0797-BLK1)

Prepared: 06/22/23 Analyzed: 06/27/23

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

LCS (BGF0797-BS1)

Prepared: 06/22/23 Analyzed: 06/27/23

Calcium	5.44	0.0500	mg/L wet	5.00		109	70-130			
Magnesium	4.68	0.0500	"	5.00		93.6	70-130			
Sodium	5.20	0.0500	"	5.00		104	70-130			

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Fremont Environmental
 PO Box 1289
 Wellington CO, 80549

Project: Noble - Sauer G04-29D

Project Number: UWRWE-A2583-ABN
 Project Manager: Paul Henchan

Reported:
 06/28/23 15:40

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

Summit Scientific

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

Batch BGF0717 - General Preparation


Duplicate (BGF0717-DUP1)

Source: 2306329-01

Prepared & Analyzed: 06/20/23

% Solids	92.0		%		91.7			0.232		20	
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Fremont Environmental
 PO Box 1289
 Wellington CO, 80549

Project: Noble - Sauer G04-29D
 Project Number: UWRWE-A2583-ABN
 Project Manager: Paul Henchan

Reported:
 06/28/23 15:40

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 BGF0827 - General Preparation

Blank (BGF0827-BLK1)

Prepared & Analyzed: 06/23/23

Specific Conductance (EC) ND 0.0100 mmhos/cm

LCS (BGF0827-BS1)

Prepared & Analyzed: 06/23/23

Specific Conductance (EC) 0.153 0.0100 mmhos/cm 0.150 102 95-105

Duplicate (BGF0827-DUP1)

Source: 2306333-01

Prepared & Analyzed: 06/23/23

Specific Conductance (EC) 1.32 0.0100 mmhos/cm 1.32 0.00 20

Summit Scientific

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Fremont Environmental
 PO Box 1289
 Wellington CO, 80549

Project: Noble - Sauer G04-29D

Project Number: UWRWE-A2583-ABN
 Project Manager: Paul Henchan

Reported:
 06/28/23 15:40

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 BGF0828 - General Preparation

LCS (BGF0828-BS1)

Prepared & Analyzed: 06/23/23

pH 8.95 pH Units 9.18 97.5 95-105


Duplicate (BGF0828-DUP1)

Source: 2306333-01

Prepared & Analyzed: 06/23/23

pH 7.88 pH Units 7.88 0.00 20

Summit Scientific



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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: Noble - Sauer G04-29D

Project Number: UWRWE-A2583-ABN

Project Manager: Paul Henchan

Reported:
06/28/23 15:40

Notes and Definitions

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