

# **FREMONT ENVIRONMENTAL INC.**

December 28, 2023

Mr. Daniel Peterson,  
Noble Energy Inc.  
2115 117<sup>th</sup> Ave,  
Greeley, CO 80634

Subject:     **Excavation Report**  
Howard A27-1 (Flowline)  
API # 05-123-22848  
NENE Sec. 27, T6N, R64W  
Weld County, Colorado  
Fremont Project No. C022-040  
Facility # 276882, Remediation # 20374

Dear Mr. Peterson:

Enclosed please find a copy of the above referenced Excavation Report for the Howard A27-1 (Flowline) location in Weld County, Colorado. The enclosed report describes excavation and sampling efforts to remediate impacted soil at the site.

Please contact me at (970) 213-7488 if you require any additional information.

Fremont appreciates the opportunity to provide this service.

Sincerely,  
**FREMONT ENVIRONMENTAL INC.**



Chris Lattes  
Consultant

Enclosure

**EXCAVATION REPORT**

**NOBLE ENERGY INC.**

**HOWARD A27-1 (FLOWLINE)**

**WELD COUNTY, COLORADO**

**FREMONT PROJECT NO. C022-040**

**FACILITY # 276882, REMEDIATION # 20374**

**Prepared by:  
Fremont Environmental Inc.  
1759 Redwing Lane  
Broomfield, CO 80020  
(303) 956-8714**

**December 28, 2023**

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**EXCAVATION REPORT**  
**NOBLE ENERGY INC.**  
**HOWARD A27-1 (FLOWLINE)**  
**WELD COUNTY, COLORADO**  
**FREMONT PROJECT NO. C022-040**  
**FACILITY # 276882, REMEDIATION # 20374**

**1.0 INTRODUCTION**

The purpose of this document is to present information collected during the single day excavation of soil at the former Howard A27-1 flowline location in Weld County, Colorado. This excavation project was completed on June 21, 2023.

**2.0 BACKGROUND INFORMATION**

**2.1 Site Location**

The Howard A27-1 flowline is located approximately one mile northeast of Gill, Colorado in Weld County as shown on Figure 1. The site is located in a rural and agricultural area approximately 0.18 miles southwest of the intersection of County Road 66 and County Road 57. The location is further described as the NE  $\frac{1}{4}$  of the NE  $\frac{1}{4}$  of Section 27, Township 6N, Range 64W.

**2.2 Site History**

The site consists of the wellhead for the Howard A27-1 natural gas well. The Howard A27-1 well was drilled in 2005 to a depth of approximately 7,036 feet. A historical release was discovered beneath the Howard A27-1 flowline adjacent to the associated wellhead during flowline decommissioning activities at the Howard location in April 2022. As a result, a site investigation to determine the extent of soil impacts was undertaken on June 14, 2022. Groundwater was encountered at that time at a depth of approximately 7.5 feet.

### **3.0 FIELD ACTIVITIES**

#### **3.1 Soil Excavation and Sampling**

Soil remediation efforts consisted of the excavation and removal of petroleum impacted soil at and adjacent to the former Howard A27-1 flowline location. Generally, the subsurface consists of sand and silty sand that extends to a depth of approximately 10 feet. The maximum depth of the site investigation borings was 10 feet. Groundwater is present on site at a depth of approximately 7.5 feet.

The excavation was completed at the Howard A27-1 (flowline) on June 21, 2023. Soil samples were collected as grab samples from the excavation sidewalls at approximately 4.5 feet below ground surface (bgs), and approximately 5.5 feet at the base of the excavation.

The soil samples were analyzed by Summit Scientific, Inc. in Golden, Colorado for benzene, toluene, ethylbenzene and total xylenes (BTEX), naphthalene, 1,2,4-trimethylbenzene and 1,3,5-trimethylbenzene (TMB), Total Petroleum Hydrocarbons – Gasoline Range Organics (TPH-GRO) by EPA method 8260B, TPH – Diesel Range Organics (TPH-DRO), Extended Range Organics (TPH-ORO) by EPA method 8015, Polycyclic Aromatic Hydrocarbons (PAH): Acenaphthene, Anthracene, Benzo (a) anthracene, Benzo (a) pyrene, Benzo (b) fluoranthene, Chrysene, Dibenzo (a,h) anthracene, Fluoranthene, Fluorene, Indeno (1,2,3-cd) pyrene, Pyrene, 1-Methylnaphthalene, 2-Methylnaphthalene by EPA method 8270D, Total Metals by EPA method 6020B, and Hexavalent Chromium by EPA method 7196, sodium absorption ratio (SAR) by EPA 6020/USDA60 6(2) saturated paste extraction method, specific conductance by EPA Method 120.1 saturated paste extraction and pH by APHA/ASTM/EPA Methods, Saturated Paste Extraction. The laboratory reports and chain-of-custody documentation are included in Appendix B.

A summary of the laboratory data for the soil samples is included in Tables 1 through 4. Analytical results for the soil samples collected from the sidewalls and base of the remedial excavation were reported with no organic compound or Soil Suitability for Remediation exceedances for the Energy & Carbon Management Commission (ECMC) Table 915-1 protection of groundwater soil screening levels (PGSSLs). However, arsenic exceeded the ECMC Table 915-1 residential soil screening levels (RSSLs), and barium exceeded the Table 915-1 Protection of Groundwater Soil Screening Levels (PGSSLs). Two background samples were collected at similar depths and lithologies as the exceeding samples in nearby native soil. Background soil samples were reported with exceedances for the ECMC Table 915-1 RSSLs for arsenic. Since elevated concentrations of arsenic were observed in both the excavation samples and background samples, it is proposed that arsenic concentrations be attributed to native soil conditions.

A total of approximately 15 cubic yards of petroleum-impacted soil was removed via excavation by Tasman Geosciences Inc. from the flowline location. Impacted soil was disposed of at Waste Management North Weld Landfill in Weld County, CO as non-hazardous waste. The excavation was backfilled with clean imported soil.

#### **4.0 DISCUSSION**

As demonstrated by the analytical results that were reported from the soil sampling, petroleum impacted soil was removed from the Howard A27-1 flowline location by excavation. This was confirmed by analysis of soil samples collected from the sidewalls and the floor, which were reported with concentrations below the ECMC Table 915-1 PGSSLs for organic petroleum constituents upon completion of the excavation. Approximately 15 cubic yards of impacted soil were removed and transported to the landfill. The soil data are illustrated and summarized in the attached tables and figures.

### 5.0 REMARKS

The discussion and conclusions contained in this report represent our professional opinions. These opinions are based on currently available information and are arrived at in accordance with currently accepted hydrogeologic and engineering practices at this time and location. Other than this, no warranty is implied or intended.

This report was prepared by **FREMONT ENVIRONMENTAL INC.**



12/28/23

Date\_\_\_\_\_

\_\_\_\_\_  
Chris Lattes  
Consultant

Reviewed by:



1/22/24

Date\_\_\_\_\_

\_\_\_\_\_  
Ethan D. Black, PG  
Geologist

## **TABLES**



TABLE 1  
SUMMARY OF VOLATILE ORGANIC SOIL CHEMISTRY DATA  
NOBLE ENERGY INC.  
HOWARD A27-1 WELLHEAD, WELD COUNTY, COLORADO  
FREMONT PROJECT NO. C022-040

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)
COGCC Table 915-1 Limits (Residential SSL)			1.2	490	5.8	58	30	27	2	500**		
COGCC Table 915-1 Limits (Protection of Groundwater SSL)			0.0026	0.69	0.78	9.9	0.0081	0.0087	0.0038	500**		
B01@5.5'	06/21/2023	5.5'	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50
E01@4.5'	06/21/2023	4.5'	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50
N01@4.5'	06/21/2023	4.5'	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50
S01@4.5'	06/21/2023	4.5'	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50
W01@4.5'	06/21/2023	4.5'	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50

Bold faced values exceed the COGCC 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.  
HOWARD A27-1 WELLHEAD, WELD COUNTY, COLORADO  
FREMONT PROJECT NO. C022-040

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)
COGCC 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
COGCC 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
B01@5.5'	06/21/2023	5.5'	<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
E01@4.5'	06/21/2023	4.5'	<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
N01@4.5'	06/21/2023	4.5'	<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
S01@4.5'	06/21/2023	4.5'	<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
W01@4.5'	06/21/2023	4.5'	<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

Bold faced values exceed the COGCC 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.**  
**HOWARD A27-1 WELLHEAD, WELD COUNTY, COLORADO**  
**FREMONT PROJECT NO. C022-040**

Sample ID	Sample Date	Depth (ft)	pH	EC (mmhos/cm)	SAR	Boron (mg/L)
COGCC Table 915-1 Soil Suitability Limits			6 - 8.3	<4	<6	2
B01@5.5'	06/21/2023	5.5'	7.71	1.3	2.88	0.243
E01@4.5'	06/21/2023	4.5'	7.52	1.14	1.16	0.246
N01@4.5'	06/21/2023	4.5'	8.13	0.795	3.94	0.249
S01@4.5'	06/21/2023	4.5'	7.62	1.26	1.42	0.168
W01@4.5'	06/21/2023	4.5'	8.26	0.327	0.944	0.108
BKG05@4.5'	06/21/2023	4.5'	8.09	0.803	3.74	0.266
BKG06@4.5'	06/21/2023	4.5'	8.04	1.12	3.64	0.24

Bold faced values exceed the COGCC Table 915-1 concentrations

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

NA - Not analyzed

TABLE 4  
SUMMARY OF METALS IN SOIL CHEMISTRY DATA  
NOBLE ENERGY INC.  
HOWARD A27-1 WELLHEAD, WELD COUNTY, COLORADO  
FREMONT PROJECT NO. C022-040

Sample ID	Sample Date	Depth (ft)	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)
COGCC Table 915-1 Limits (Residential SSL)			0.68	15000	71	0.3	3100	400	1500	390	390	23000
COGCC Table 915-1 Limits (Protection of Groundwater SSL)			0.29	82	0.38	0.00067	46	14	26	0.26	0.8	370
B01@5.5'	06/21/2023	5.5'	1.33	80.8	<0.229	<0.30	1.95	9.13	1.24	<0.298	<0.0229	9.95
E01@4.5'	06/21/2023	4.5'	1.14	82.3	<0.222	<0.30	1.65	5.06	1.26	<0.288	<0.0222	8.68
N01@4.5'	06/21/2023	4.5'	0.506	33.1	<0.215	<0.30	0.465	2.79	0.734	<0.279	<0.0215	7.24
S01@4.5'	06/21/2023	4.5'	0.991	45.8	<0.215	<0.30	1.39	4.85	1.12	<0.280	<0.0215	8.72
W01@4.5'	06/21/2023	4.5'	0.876	56.3	<0.213	<0.30	0.552	3.08	1.34	<0.276	<0.0213	7.33
BKG05@4.5'	06/21/2023	4.5'	0.761	79	<0.218	<0.30	0.994	4.12	1.06	<0.284	<0.0218	7.92
BKG06@4.5'	06/21/2023	4.5'	0.472	44.2	<0.216	<0.30	0.5	2.83	0.748	<0.281	<0.0216	7.54

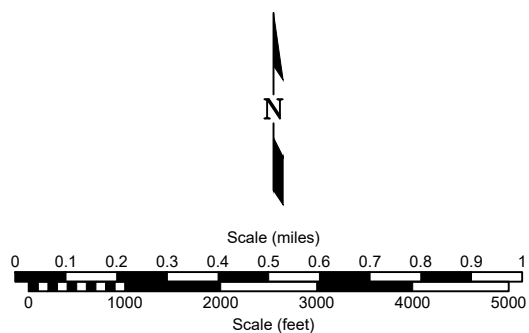
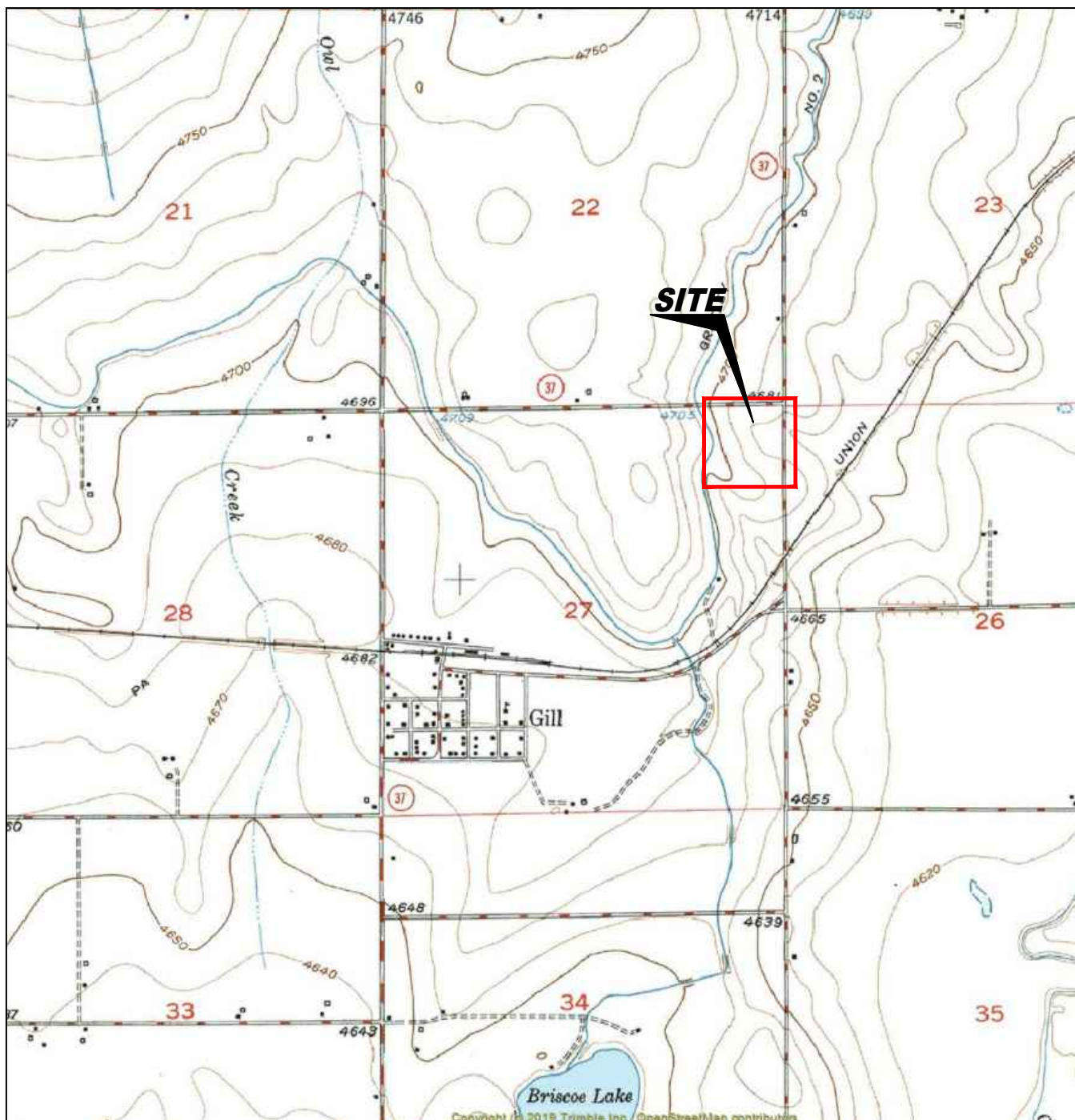
Bold faced values exceed the COGCC Table 915-1 concentrations

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

## **FIGURES**



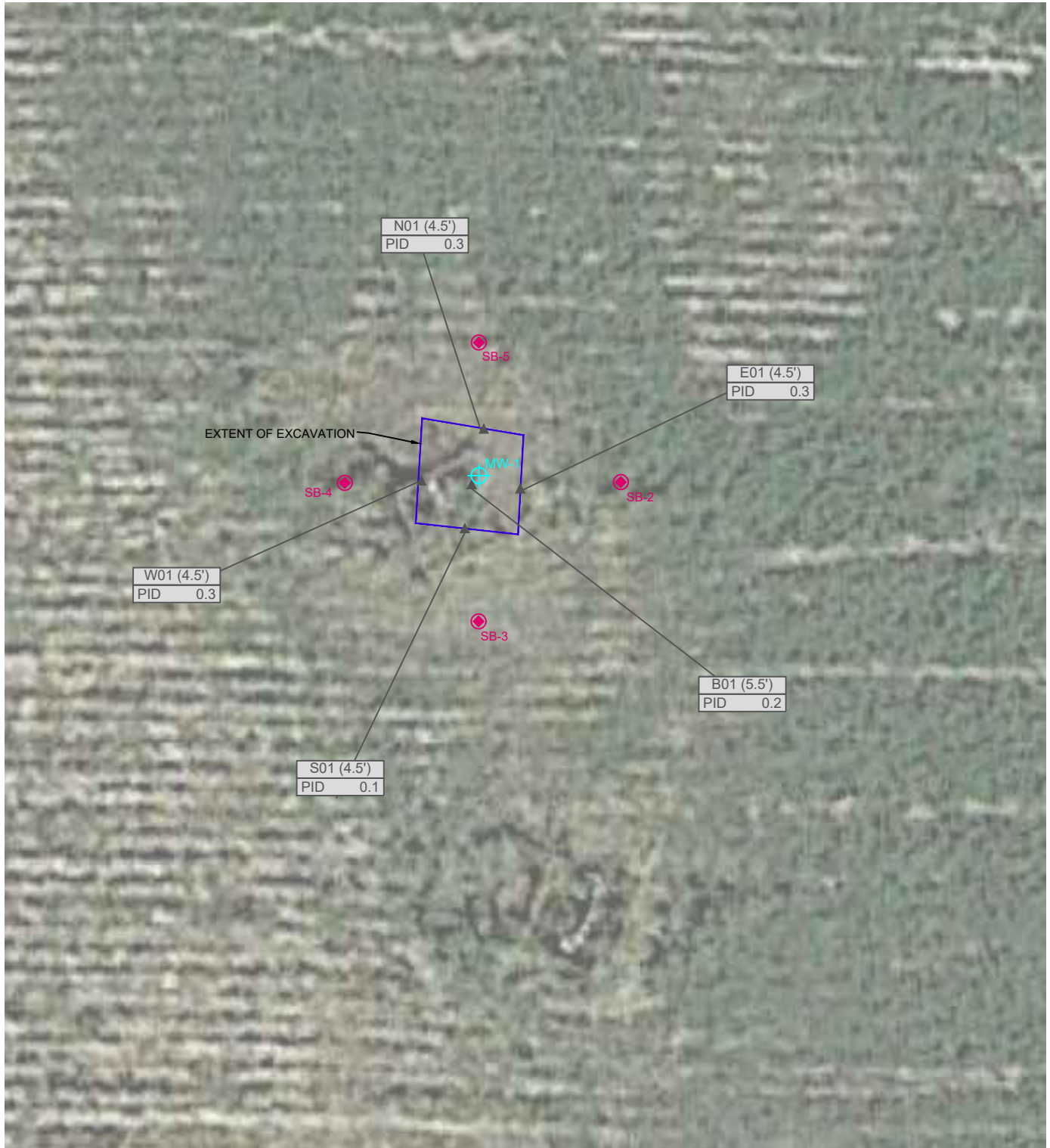
USGS 7.5 MINUTE SERIES (TOPOGRAPHIC)

Figure 1  
**SITE LOCATION MAP**

**Noble Energy, Inc. ~ Howard A27-1**  
NENE Sec. 27, T6N, R64W, 6th PM  
Weld County, Colorado  
40.462728°, -104.529151°

Project # <b>C022-040</b>	API # <b>05-123-22848</b>	Facility # <b>276882</b>
Date <b>1/22/24</b>	Remediation # <b>20374</b>	Filename <b>22040T</b>





#### LEGEND

▲	PID READING LOCATION	●	SOIL BORING LOCATION	⊕	DESTROYED MONITORING WELL	—	EXTENT OF EXCAVATION
E01 (4.5')	SAMPLE IDENTIFICATION AND DEPTH (ft)	PID	0.3				

PID = PHOTO IONIZATION DETECTION PPM = PARTS PER MILLION

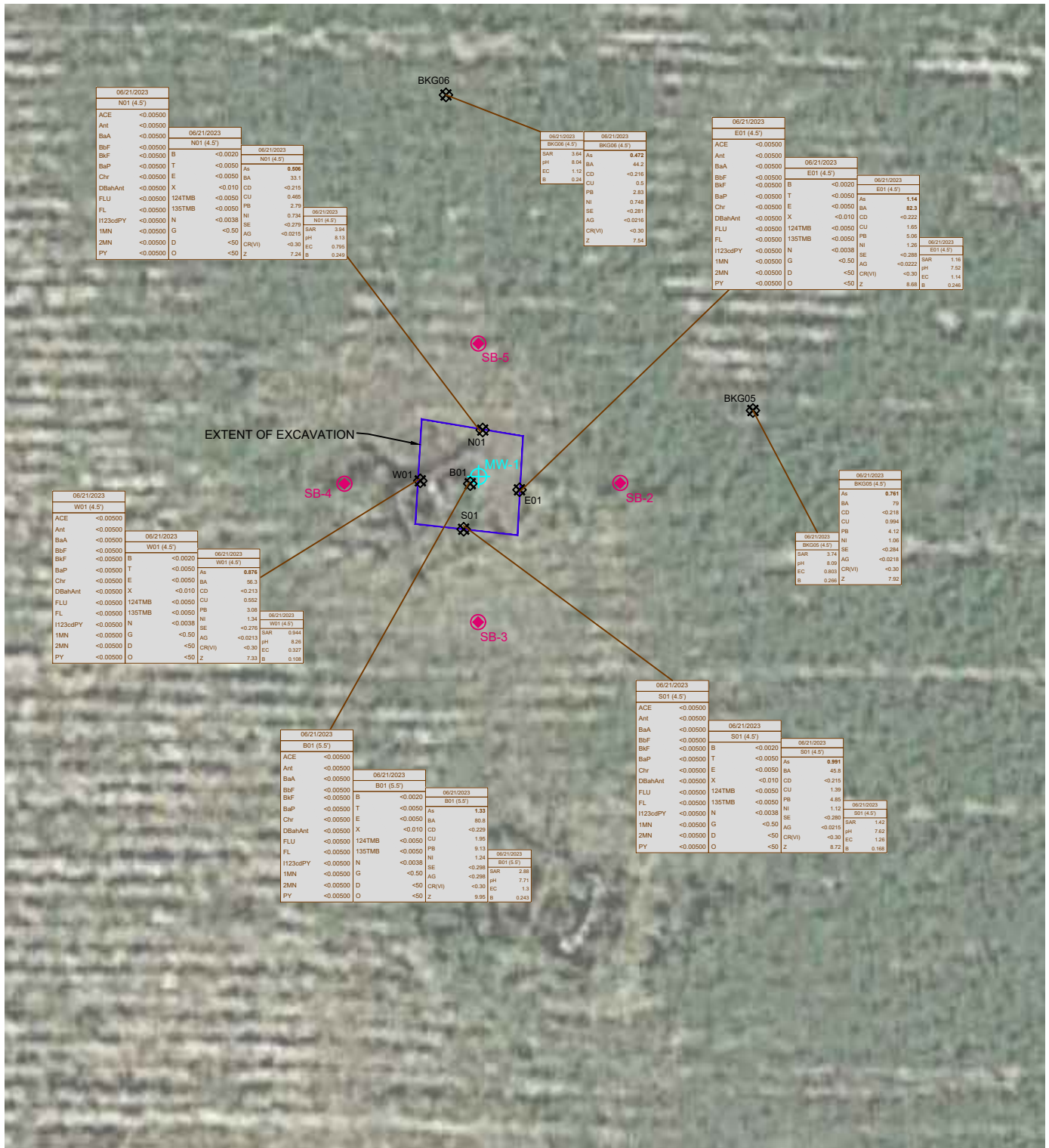
Figure 2  
SITE MAP

**Noble Energy, Inc. ~ Howard A27-1**  
NENE Sec. 27, T6N, R64W, 6th PM  
Weld County, Colorado  
40.462728°, -104.529151°

Project No. <b>C022-040</b>	API # <b>05-123-22848</b>	Facility # <b>276882</b>
Date <b>1/23/24</b>	Remediation # <b>20374</b>	Filename <b>22040QS</b>







### LEGEND

SOIL SAMPLE LOCATION SOIL BORING LOCATION DESTROYED MONITORING WELL EXTENT OF EXCAVATION

06/21/2023	DATE SAMPLED
E01 (4.5)	SAMPLE ID and DEPTH (ft)
ACE	<0.00500
Ant	<0.00500
BaA	<0.00500
BbF	<0.00500
BkF	<0.00500
BaP	<0.00500
Chr	<0.00500
DBahAnt	<0.00500
FLU	<0.00500
FL	<0.00500
1123cdPY	<0.00500
1MN	<0.00500
2MN	<0.00500
PY	<0.00500

06/21/2023	DATE SAMPLED
W01 (4.5)	SAMPLE ID and DEPTH (ft)
ACE	<0.00500
Ant	<0.00500
BaA	<0.00500
BbF	<0.00500
BkF	<0.00500
BaP	<0.00500
Chr	<0.00500
DBahAnt	<0.00500
FLU	<0.00500
FL	<0.00500
1123cdPY	<0.00500
1MN	<0.00500
2MN	<0.00500
PY	<0.00500

06/21/2023	DATE SAMPLED
B01 (5.5)	SAMPLE ID and DEPTH (ft)
ACE	<0.00500
Ant	<0.00500
BaA	<0.00500
BbF	<0.00500
BkF	<0.00500
BaP	<0.00500
Chr	<0.00500
DBahAnt	<0.00500
FLU	<0.00500
FL	<0.00500
1123cdPY	<0.00500
1MN	<0.00500
2MN	<0.00500
PY	<0.00500

06/21/2023	DATE SAMPLED
S01 (4.5)	SAMPLE ID and DEPTH (ft)
ACE	<0.00500
Ant	<0.00500
BaA	<0.00500
BbF	<0.00500
BkF	<0.00500
BaP	<0.00500
Chr	<0.00500
DBahAnt	<0.00500
FLU	<0.00500
FL	<0.00500
1123cdPY	<0.00500
1MN	<0.00500
2MN	<0.00500
PY	<0.00500

06/21/2023	DATE SAMPLED
B01 (5.5)	SAMPLE ID and DEPTH (ft)
ACE	<0.00500
Ant	<0.00500
BaA	<0.00500
BbF	<0.00500
BkF	<0.00500
BaP	<0.00500
Chr	<0.00500
DBahAnt	<0.00500
FLU	<0.00500
FL	<0.00500
1123cdPY	<0.00500
1MN	<0.00500
2MN	<0.00500
PY	<0.00500

06/21/2023	DATE SAMPLED
S01 (4.5)	SAMPLE ID and DEPTH (ft)
ACE	<0.00500
Ant	<0.00500
BaA	<0.00500
BbF	<0.00500
BkF	<0.00500
BaP	<0.00500
Chr	<0.00500
DBahAnt	<0.00500
FLU	<0.00500
FL	<0.00500
1123cdPY	<0.00500
1MN	<0.00500
2MN	<0.00500
PY	<0.00500

06/21/2023	DATE SAMPLED
E01 (4.5)	SAMPLE ID and DEPTH (ft)
ACE	<0.00500
Ant	<0.00500
BaA	<0.00500
BbF	<0.00500
BkF	<0.00500
BaP	<0.00500
Chr	<0.00500
DBahAnt	<0.00500
FLU	<0.00500
FL	<0.00500
1123cdPY	<0.00500
1MN	<0.00500
2MN	<0.00500
PY	<0.00500

06/21/2023	DATE SAMPLED
BKG05 (4.5)	SAMPLE ID and DEPTH (ft)
ACE	<0.00500
Ant	<0.00500
BaA	<0.00500
BbF	<0.00500
BkF	<0.00500
BaP	<0.00500
Chr	<0.00500
DBahAnt	<0.00500
FLU	<0.00500
FL	<0.00500
1123cdPY	<0.00500
1MN	<0.00500
2MN	<0.00500
PY	<0.00500

Figure 3  
SOIL CHEMISTRY MAP

Noble Energy, Inc. ~ Howard A27-1  
NENE Sec. 27, T6N, R64W, 6th PM  
Weld County, Colorado  
40.462728° , -104.529151°

Project No. C022-040	API # 05-123-22848	Facility # 276882	
Date 1/23/24	Remediation # 20374	Filename 22040QS	



**APPENDIX A**

**PHOTO LOG**

# Photo Log

DIRECTION  
SE (T)

40.46277°N  
104.52922°W

ACCURACY 5 m  
DATUM WGS84



## Description:

Pre Excavation Overview Facing SE



# Photo Log

DIRECTION  
NW (T)

40.46270°N  
104.52916°W

ACCURACY 5 m  
DATUM WGS84



Howard A27-1 WH

2023-06-21  
09:51:09-06:00

## Description:

Excavation Facing NW



# Photo Log

DIRECTION  
SW (T)

40.46273°N  
104.52915°W

ACCURACY 5 m  
DATUM WGS84



Howard A27-1 WH

2023-06-21  
09:51:21-06:00

## Description:

Excavation Facing SW



# Photo Log

DIRECTION  
SE (T)

40.46274°N  
104.52917°W

ACCURACY 5 m  
DATUM WGS84



Howard A27-1 WH

2023-06-21  
09:51:34-06:00

## Description:

Excavation Facing SE



# Photo Log

DIRECTION  
NE (T)

40.46271°N  
104.52919°W

ACCURACY 5 m  
DATUM WGS84



Howard A27-1 WH

2023-06-21  
09:52:56-06:00

## Description:

Excavation Facing NE



# Photo Log



## Description:

BKG05



# Photo Log



## Description:

BKG06



## **APPENDIX B**

### **LABORATORY DOCUMENTATION**

# Summit Scientific

---

4653 Table Mountain Drive, Golden, Colorado 80401

303.277.9310

June 26, 2023

Paul Henehan

Fremont Environmental

PO Box 1289

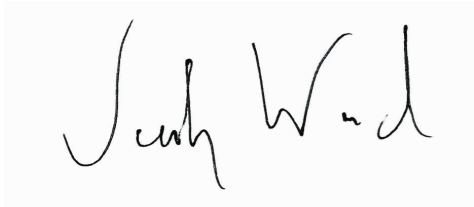
Wellington, CO 80549

RE: Noble - Howard 27-1 WH

Work Order # 2306402

Enclosed are the results of analyses for samples received by Summit Scientific on 06/21/23 16:30. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Jacob Wood". The signature is written in a cursive, flowing style.

Jacob Wood For Paul Shrewsbury

President



Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Howard 27-1 WH

Project Number: [none]  
Project Manager: Paul Henehan

**Reported:**  
06/26/23 14:10

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
N01@4.5'	2306402-01	Soil	06/21/23 00:00	06/21/23 16:30
E01@4.5'	2306402-02	Soil	06/21/23 00:00	06/21/23 16:30
S01@4.5'	2306402-03	Soil	06/21/23 00:00	06/21/23 16:30
W01@4.5'	2306402-04	Soil	06/21/23 00:00	06/21/23 16:30
B01@5.5'	2306402-05	Soil	06/21/23 00:00	06/21/23 16:30
BKG05@4.5'	2306402-06	Soil	06/21/23 00:00	06/21/23 16:30
BKG06@4.5'	2306402-07	Soil	06/21/23 00:00	06/21/23 16:30

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.*

2306402

# Summit Scientific

S<sub>2</sub>

4653 Table Mountain Drive ♦ Golden, Colorado 80403

303-277-9310 ♦ 303-374-5933 (f)

Page 1 of 1

Client: Fremont Environmental

Project Manager: Paul Henehan

Address:

E-Mail: Fremont Distribution List: PaulH, EthanB, JeffG and ChrisL. @fremontenv.com

City/State/Zip:

Bill to Noble

Phone:

Project Name: HOWARD 27-1 WH

Sampler Name: Chris Lattes

Project Number:

					Preservative				Matrix				Analysis Requested							Special Instructions
ID	Sample Description	Date Sampled	Time Sampled	# of containers	HCl	HNO <sub>3</sub>	None	Other	Water	Soil	Air-Canister #	Other	TPH, BTEX, TMBs, Naph	PAH (915)	EC, SAR, pH, Boron	Metals (915)	TDS, Chloride, Sulfate	Full Trace 915	HOLD	
1	NØ1 @ 4.5'	6/21/23		2			X			X								X		
2	Ex1 @ 4.5'	↓		↓			↓			↓								X		
3	3Ø1 @ 4.5'	↓		↓			↓			↓								X		
4	WØ1 @ 4.5'	↓		↓			↓			↓								X		
5	BØ1 @ 5.5'	6/21/23		2			X											X		
6	BKØ5 @ 4.5'	↓		1			↓			↓					X	X				
7	BKØ6 @ 4.5'	6/21/23		1			X			X					X	X				
8																				
9																				
10																				

Relinquished by:	Date/Time:	Received by:	Date/Time:	Turn Around Time	(Check)	Notes:
Chris Lattes	6/21/23 14:40	SH	6/21/23 14:40	Same Day	X 72 hours	
				24 hours	— Standard	
				48 hours	—	
Relinquished by:	Date/Time:	Received by:	Date/Time:	Sample Integrity:		
SZ	6/21/23 16:30	[Signature]	6/21/23 16:30	Temperature Upon Receipt: 9.3		
Relinquished by:	Date/Time:	Received by:	Date/Time:	Samples Intact: (Yes) No		

S<sub>2</sub>

## Sample Receipt Checklist

S2 Work Order# 2306402Client: Frement Client Project ID: Howard 27-1 WHShipped Via: H.D./P.U./FedEx/UPS/USPS/Other ☐ Airbill #: ☐

<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	-------------------------------------	--------------------------	--------------------------	--------------------------

Matrix (Check all that apply) Air ☐ Soil/Solid ☒ Water ☐ Other ☐Temp (°C) 9.3Thermometer # 1

	Yes	No	N/A	Comments (if any)
If samples require cooling, is the temperature < 6°C? <sup>(1)</sup> <b>NOTE:</b> 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? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are samples due within 48 hours present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Same day
Are water samples with short hold times present? Note the short hold analysis in the comments column - pH, Nitrate/Nitrite, Ferrous Iron (Fe <sup>2+</sup> ), Hexavalent Chromium (Cr <sup>6+</sup> , 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? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client w/ date and time recorded? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all samples received intact? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
For volatiles in water – is there headspace present? <b>If yes, contact client and note in narrative.</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples preserved that require preservation (excluding cooling)? <sup>(1)</sup> Note the type of preservative in the comments column – HCl, H <sub>2</sub> SO <sub>4</sub> , NaOH, HNO <sub>3</sub> , etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If samples are acid preserved for metals, is the pH ≤ 2? <sup>(1)</sup> 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):				
<sup>(1)</sup> If NO, then contact the client before proceeding with analysis and note in case narrative.				

AS  
Custodian Printed Name

4/21/23  
Date/Time



Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Howard 27-1 WH

Project Number: [none]  
Project Manager: Paul Henehan

**Reported:**  
06/26/23 14:10

**N01@4.5'**  
**2306402-01 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **06/21/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Benzene	ND	0.0020		mg/kg	1	BGF0766	06/21/23	06/21/23	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: **06/21/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Surrogate: 1,2-Dichloroethane-d4		95.3 %		50-150		"	"	"	"	
Surrogate: Toluene-d8		97.4 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		98.0 %		50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **06/21/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
C10-C28 (DRO)	ND	50		mg/kg	1	BGF0770	06/21/23	06/21/23	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **06/21/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Surrogate: o-Terphenyl		103 %		30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Howard 27-1 WH

Project Number: [none]  
Project Manager: Paul Henehan

**Reported:**  
06/26/23 14:10

**N01@4.5'**  
**2306402-01 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **06/21/23 00:00**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chrysene	ND	0.00500		mg/kg	1	BGF0780	06/22/23	06/23/23	EPA 8270D SIM	
Fluorene	ND	0.00500		"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500		"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500		"	"	"	"	"	"	

Date Sampled: **06/21/23 00:00**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		45.7 %		40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		78.0 %		40-150		"	"	"	"	

**Total Metals by EPA 6020B Hot Water Soluble Extraction**

Date Sampled: **06/21/23 00:00**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	<b>0.249</b>	0.0100		mg/L	1	BGF0805	06/22/23	06/23/23	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **06/21/23 00:00**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	<b>0.506</b>	0.215		mg/kg dry	1	BGF0775	06/22/23	06/23/23	EPA 6020B	
Barium	<b>33.1</b>	0.429		"	"	"	"	"	"	
Cadmium	ND	0.215		"	"	"	"	"	"	
Copper	<b>0.465</b>	0.429		"	"	"	"	"	"	
Lead	<b>2.79</b>	0.215		"	"	"	"	"	"	
Nickel	<b>0.734</b>	0.429		"	"	"	"	"	"	
Selenium	ND	0.279	0.188	"	"	"	"	"	"	
Silver	ND	0.0215		"	"	"	"	"	"	
Zinc	<b>7.24</b>	0.429		"	"	"	"	"	"	

Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Howard 27-1 WH

Project Number: [none]  
Project Manager: Paul Henehan

**Reported:**  
06/26/23 14:10

**N01@4.5'**  
**2306402-01 (Soil)**

**Summit Scientific**

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **06/21/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Chromium, Hexavalent	ND	0.30		mg/kg dry	1	BGF0773	06/22/23	06/22/23	EPA 7196A	

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

Date Sampled: **06/21/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Calcium	36.7	0.0537		mg/L dry	1	BGF0769	06/21/23	06/25/23	EPA 6020B	
Magnesium	17.0	0.0537		"	"	"	"	"	"	
Sodium	115	0.0537		"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **06/21/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Sodium Adsorption Ratio	3.94	0.00100		units	1	BGF0904	06/26/23	06/26/23	Calculation	

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **06/21/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
% Solids	93.2			%	1	BGF0772	06/22/23	06/22/23	Calculation	

**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction**

Date Sampled: **06/21/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Specific Conductance (EC)	0.795	0.0100		mmhos/cm	1	BGF0790	06/22/23	06/22/23	EPA 120.1	

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

Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Howard 27-1 WH

Project Number: [none]  
Project Manager: Paul Henehan

**Reported:**  
06/26/23 14:10

**N01@4.5'**  
**2306402-01 (Soil)**

**Summit Scientific**

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

Date Sampled: **06/21/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
<b>pH</b>	<b>8.13</b>			pH Units	1	BGF0789	06/22/23	06/22/23	EPA 9045D	

Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Howard 27-1 WH

Project Number: [none]  
Project Manager: Paul Henehan

**Reported:**  
06/26/23 14:10

**E01@4.5'**  
**2306402-02 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **06/21/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Benzene	ND	0.0020		mg/kg	1	BGF0766	06/21/23	06/21/23	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: **06/21/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Surrogate: 1,2-Dichloroethane-d4		101 %		50-150		"	"	"	"	
Surrogate: Toluene-d8		96.3 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		106 %		50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **06/21/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
C10-C28 (DRO)	ND	50		mg/kg	1	BGF0770	06/21/23	06/21/23	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **06/21/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Surrogate: o-Terphenyl		90.3 %		30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Howard 27-1 WH

Project Number: [none]  
Project Manager: Paul Henehan

**Reported:**  
06/26/23 14:10

**E01@4.5'**  
**2306402-02 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **06/21/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Acenaphthene	ND	0.00500		mg/kg	1	BGF0780	06/22/23	06/23/23	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: **06/21/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Surrogate: 2-Methylnaphthalene-d10		40.5 %		40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		53.0 %		40-150		"	"	"	"	

**Total Metals by EPA 6020B Hot Water Soluble Extraction**

Date Sampled: **06/21/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Boron	0.246	0.0100		mg/L	1	BGF0805	06/22/23	06/23/23	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **06/21/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							

Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Howard 27-1 WH

Project Number: [none]  
Project Manager: Paul Henehan

**Reported:**  
06/26/23 14:10

**E01@4.5'**  
**2306402-02 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Arsenic	1.14	0.222		mg/kg dry	1	BGF0775	06/22/23	06/23/23	EPA 6020B
Barium	82.3	0.444		"	"	"	"	"	"
Cadmium	ND	0.222		"	"	"	"	"	"
Copper	1.65	0.444		"	"	"	"	"	"
Lead	5.06	0.222		"	"	"	"	"	"
Nickel	1.26	0.444		"	"	"	"	"	"
Selenium	ND	0.288	0.194	"	"	"	"	"	"
Silver	ND	0.0222		"	"	"	"	"	"
Zinc	8.68	0.444		"	"	"	"	"	"

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **06/21/23 00:00**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30		mg/kg dry	1	BGF0773	06/22/23	06/22/23	EPA 7196A	

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

Date Sampled: **06/21/23 00:00**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	120	0.0555		mg/L dry	1	BGF0769	06/21/23	06/25/23	EPA 6020B	
Magnesium	45.6	0.0555		"	"	"	"	"	"	
Sodium	58.7	0.0555		"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **06/21/23 00:00**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	1.16	0.00100		units	1	BGF0904	06/26/23	06/26/23	Calculation	

**Physical Parameters by APHA/ASTM/EPA Methods**

Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Howard 27-1 WH

Project Number: [none]

Project Manager: Paul Henehan

**Reported:**  
06/26/23 14:10

**E01@4.5'**  
**2306402-02 (Soil)**

**Summit Scientific**

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **06/21/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
% Solids	90.1			%	1	BGF0772	06/22/23	06/22/23	Calculation	

**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction**

Date Sampled: **06/21/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Specific Conductance (EC)	1.14	0.0100		mmhos/cm	1	BGF0790	06/22/23	06/22/23	EPA 120.1	

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

Date Sampled: **06/21/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
pH	7.52			pH Units	1	BGF0789	06/22/23	06/22/23	EPA 9045D	

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Howard 27-1 WH

Project Number: [none]

Project Manager: Paul Henehan

**Reported:**  
06/26/23 14:10

**S01@4.5'**  
**2306402-03 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **06/21/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Benzene	ND	0.0020		mg/kg	1	BGF0766	06/21/23	06/21/23	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: **06/21/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Surrogate: 1,2-Dichloroethane-d4		95.0 %		50-150		"	"	"	"	
Surrogate: Toluene-d8		96.4 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		100 %		50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **06/21/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
C10-C28 (DRO)	ND	50		mg/kg	1	BGF0770	06/21/23	06/21/23	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **06/21/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Surrogate: o-Terphenyl		98.8 %		30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Howard 27-1 WH

Project Number: [none]  
Project Manager: Paul Henehan

**Reported:**  
06/26/23 14:10

**S01@4.5'**  
**2306402-03 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **06/21/23 00:00**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500		mg/kg	1	BGF0780	06/22/23	06/23/23	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: **06/21/23 00:00**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		48.0 %		40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		79.9 %		40-150		"	"	"	"	

**Total Metals by EPA 6020B Hot Water Soluble Extraction**

Date Sampled: **06/21/23 00:00**

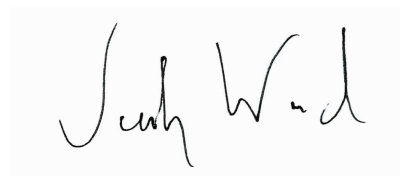
Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>0.168</b>	0.0100		mg/L	1	BGF0805	06/22/23	06/23/23	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **06/21/23 00:00**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Summit Scientific



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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Howard 27-1 WH

Project Number: [none]  
Project Manager: Paul Henehan

**Reported:**  
06/26/23 14:10

**S01@4.5'**  
**2306402-03 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Arsenic	0.991	0.215	mg/kg dry	1	BGF0775	06/22/23	06/23/23	EPA 6020B
Barium	45.8	0.431	"	"	"	"	"	"
Cadmium	ND	0.215	"	"	"	"	"	"
Copper	1.39	0.431	"	"	"	"	"	"
Lead	4.85	0.215	"	"	"	"	"	"
Nickel	1.12	0.431	"	"	"	"	"	"
Selenium	ND	0.280	0.189	"	"	"	"	"
Silver	ND	0.0215	"	"	"	"	"	"
Zinc	8.72	0.431	"	"	"	"	"	"

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **06/21/23 00:00**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30		mg/kg dry	1	BGF0773	06/22/23	06/22/23	EPA 7196A	

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

Date Sampled: **06/21/23 00:00**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	124	0.0539		mg/L dry	1	BGF0769	06/21/23	06/25/23	EPA 6020B	
Magnesium	49.7	0.0539		"	"	"	"	"	"	
Sodium	74.0	0.0539		"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **06/21/23 00:00**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	1.42	0.00100		units	1	BGF0904	06/26/23	06/26/23	Calculation	

**Physical Parameters by APHA/ASTM/EPA Methods**

Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Howard 27-1 WH

Project Number: [none]

Project Manager: Paul Henehan

**Reported:**  
06/26/23 14:10

**S01@4.5'**  
**2306402-03 (Soil)**

**Summit Scientific**

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **06/21/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
% Solids	92.8			%	1	BGF0772	06/22/23	06/22/23	Calculation	

**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction**

Date Sampled: **06/21/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Specific Conductance (EC)	1.26	0.0100		mmhos/cm	1	BGF0790	06/22/23	06/22/23	EPA 120.1	

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

Date Sampled: **06/21/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
pH	7.62			pH Units	1	BGF0789	06/22/23	06/22/23	EPA 9045D	

Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Howard 27-1 WH

Project Number: [none]  
Project Manager: Paul Henehan

**Reported:**  
06/26/23 14:10

**W01@4.5'**  
**2306402-04 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **06/21/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Benzene	ND	0.0020		mg/kg	1	BGF0766	06/21/23	06/21/23	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: **06/21/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Surrogate: 1,2-Dichloroethane-d4		91.1 %		50-150		"	"	"	"	
Surrogate: Toluene-d8		95.2 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		98.5 %		50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **06/21/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
C10-C28 (DRO)	ND	50		mg/kg	1	BGF0770	06/21/23	06/21/23	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **06/21/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Surrogate: o-Terphenyl		93.0 %		30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Howard 27-1 WH

Project Number: [none]  
Project Manager: Paul Henehan

**Reported:**  
06/26/23 14:10

**W01@4.5'**  
**2306402-04 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **06/21/23 00:00**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500		mg/kg	1	BGF0780	06/22/23	06/23/23	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: **06/21/23 00:00**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		57.9 %		40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		81.6 %		40-150		"	"	"	"	

**Total Metals by EPA 6020B Hot Water Soluble Extraction**

Date Sampled: **06/21/23 00:00**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>0.108</b>	0.0100		mg/L	1	BGF0805	06/22/23	06/23/23	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **06/21/23 00:00**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Howard 27-1 WH

Project Number: [none]  
Project Manager: Paul Henehan

**Reported:**  
06/26/23 14:10

**W01@4.5'**  
**2306402-04 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Arsenic	0.876	0.213	mg/kg dry	1	BGF0775	06/22/23	06/23/23	EPA 6020B
Barium	56.3	0.425	"	"	"	"	"	"
Cadmium	ND	0.213	"	"	"	"	"	"
Copper	0.552	0.425	"	"	"	"	"	"
Lead	3.08	0.213	"	"	"	"	"	"
Nickel	1.34	0.425	"	"	"	"	"	"
Selenium	ND	0.276	0.186	"	"	"	"	"
Silver	ND	0.0213	"	"	"	"	"	"
Zinc	7.33	0.425	"	"	"	"	"	"

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **06/21/23 00:00**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30		mg/kg dry	1	BGF0773	06/22/23	06/22/23	EPA 7196A	

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

Date Sampled: **06/21/23 00:00**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	50.8	0.0531		mg/L dry	1	BGF0769	06/21/23	06/25/23	EPA 6020B	
Magnesium	10.2	0.0531		"	"	"	"	"	"	
Sodium	28.2	0.0531		"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **06/21/23 00:00**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.944	0.00100		units	1	BGF0904	06/26/23	06/26/23	Calculation	

**Physical Parameters by APHA/ASTM/EPA Methods**

Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Howard 27-1 WH

Project Number: [none]

Project Manager: Paul Henehan

**Reported:**  
06/26/23 14:10

**W01@4.5'**  
**2306402-04 (Soil)**

**Summit Scientific**

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **06/21/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
% Solids	94.1			%	1	BGF0772	06/22/23	06/22/23	Calculation	

**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction**

Date Sampled: **06/21/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Specific Conductance (EC)	0.327	0.0100		mmhos/cm	1	BGF0790	06/22/23	06/22/23	EPA 120.1	

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

Date Sampled: **06/21/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
pH	8.26			pH Units	1	BGF0789	06/22/23	06/22/23	EPA 9045D	

Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Howard 27-1 WH

Project Number: [none]  
Project Manager: Paul Henehan

**Reported:**  
06/26/23 14:10

**B01@5.5'**  
**2306402-05 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **06/21/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Benzene	ND	0.0020		mg/kg	1	BGF0766	06/21/23	06/21/23	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: **06/21/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Surrogate: 1,2-Dichloroethane-d4		98.9 %		50-150		"	"	"	"	
Surrogate: Toluene-d8		94.8 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		102 %		50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **06/21/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
C10-C28 (DRO)	ND	50		mg/kg	1	BGF0770	06/21/23	06/21/23	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **06/21/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Surrogate: o-Terphenyl		89.3 %		30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Howard 27-1 WH

Project Number: [none]  
Project Manager: Paul Henehan

**Reported:**  
06/26/23 14:10

**B01@5.5'**  
**2306402-05 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **06/21/23 00:00**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500		mg/kg	1	BGF0780	06/22/23	06/23/23	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: **06/21/23 00:00**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		53.2 %		40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		83.4 %		40-150		"	"	"	"	

**Total Metals by EPA 6020B Hot Water Soluble Extraction**

Date Sampled: **06/21/23 00:00**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>0.243</b>	0.0100		mg/L	1	BGF0805	06/22/23	06/23/23	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **06/21/23 00:00**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Howard 27-1 WH

Project Number: [none]  
Project Manager: Paul Henehan

**Reported:**  
06/26/23 14:10

**B01@5.5'**  
**2306402-05 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Arsenic	1.33	0.229		mg/kg dry	1	BGF0775	06/22/23	06/23/23	EPA 6020B
Barium	80.8	0.458		"	"	"	"	"	"
Cadmium	ND	0.229		"	"	"	"	"	"
Copper	1.95	0.458		"	"	"	"	"	"
Lead	9.13	0.229		"	"	"	"	"	"
Nickel	1.24	0.458		"	"	"	"	"	"
Selenium	ND	0.298	0.200	"	"	"	"	"	"
Silver	ND	0.0229		"	"	"	"	"	"
Zinc	9.95	0.458		"	"	"	"	"	"

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **06/21/23 00:00**

Analyte	Result	Reporting		MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit									
Chromium, Hexavalent	ND	0.30			mg/kg dry	1	BGF0773	06/22/23	06/22/23	EPA 7196A	

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

Date Sampled: **06/21/23 00:00**

Analyte	Result	Reporting		MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit									
Calcium	114	0.0572			mg/L dry	1	BGF0769	06/21/23	06/25/23	EPA 6020B	
Magnesium	44.2	0.0572			"	"	"	"	"	"	
Sodium	143	0.0572			"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **06/21/23 00:00**

Analyte	Result	Reporting		MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit									
Sodium Adsorption Ratio	2.88	0.00100			units	1	BGF0904	06/26/23	06/26/23	Calculation	

**Physical Parameters by APHA/ASTM/EPA Methods**

Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Howard 27-1 WH

Project Number: [none]

Project Manager: Paul Henehan

**Reported:**  
06/26/23 14:10

**B01@5.5'**  
**2306402-05 (Soil)**

**Summit Scientific**

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **06/21/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
% Solids	87.3			%	1	BGF0772	06/22/23	06/22/23	Calculation	

**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction**

Date Sampled: **06/21/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Specific Conductance (EC)	1.30	0.0100		mmhos/cm	1	BGF0790	06/22/23	06/22/23	EPA 120.1	

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

Date Sampled: **06/21/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
pH	7.71			pH Units	1	BGF0789	06/22/23	06/22/23	EPA 9045D	

Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Howard 27-1 WH

Project Number: [none]  
Project Manager: Paul Henehan

**Reported:**  
06/26/23 14:10

**BKG05@4.5'**  
**2306402-06 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B Hot Water Soluble Extraction**

Date Sampled: **06/21/23 00:00**

Analyte	Result	Reporting		MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit									
Boron	0.266	0.0100			mg/L	1	BGF0805	06/22/23	06/23/23	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **06/21/23 00:00**

Analyte	Result	Reporting		MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit									
Arsenic	0.761	0.218			mg/kg dry	1	BGF0775	06/22/23	06/23/23	EPA 6020B	
Barium	79.0	0.437			"	"	"	"	"	"	
Cadmium	ND	0.218			"	"	"	"	"	"	
Copper	0.994	0.437			"	"	"	"	"	"	
Lead	4.12	0.218			"	"	"	"	"	"	
Nickel	1.06	0.437			"	"	"	"	"	"	
Selenium	ND	0.284	0.191		"	"	"	"	"	"	
Silver	ND	0.0218			"	"	"	"	"	"	
Zinc	7.92	0.437			"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **06/21/23 00:00**

Analyte	Result	Reporting		MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit									
Chromium, Hexavalent	ND	0.30			mg/kg dry	1	BGF0773	06/22/23	06/22/23	EPA 7196A	

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

Date Sampled: **06/21/23 00:00**

Analyte	Result	Reporting		MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit									
Calcium	37.8	0.0546			mg/L dry	1	BGF0769	06/21/23	06/25/23	EPA 6020B	
Magnesium	20.6	0.0546			"	"	"	"	"	"	
Sodium	115	0.0546			"	"	"	"	"	"	

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Howard 27-1 WH

Project Number: [none]  
Project Manager: Paul Henehan

**Reported:**  
06/26/23 14:10

**BKG05@4.5'**  
**2306402-06 (Soil)**

**Summit Scientific**

**Calculated Analysis**

Date Sampled: **06/21/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Sodium Adsorption Ratio	3.74	0.00100		units	1	BGF0904	06/26/23	06/26/23	Calculation	

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **06/21/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
% Solids	91.6			%	1	BGF0772	06/22/23	06/22/23	Calculation	

**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction**

Date Sampled: **06/21/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Specific Conductance (EC)	0.803	0.0100		mmhos/cm	1	BGF0790	06/22/23	06/22/23	EPA 120.1	

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

Date Sampled: **06/21/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
pH	8.09			pH Units	1	BGF0789	06/22/23	06/22/23	EPA 9045D	

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PO Box 1289  
Wellington CO, 80549

Project: Noble - Howard 27-1 WH

Project Number: [none]  
Project Manager: Paul Henehan

**Reported:**  
06/26/23 14:10

**BKG06@4.5'**  
**2306402-07 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B Hot Water Soluble Extraction**

Date Sampled: **06/21/23 00:00**

Analyte	Result	Reporting		MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit									
<b>Boron</b>	<b>0.240</b>	0.0100			mg/L	1	BGF0805	06/22/23	06/23/23	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **06/21/23 00:00**

Analyte	Result	Reporting		MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit									
<b>Arsenic</b>	<b>0.472</b>	0.216			mg/kg dry	1	BGF0775	06/22/23	06/23/23	EPA 6020B	
<b>Barium</b>	<b>44.2</b>	0.432			"	"	"	"	"	"	
Cadmium	ND	0.216			"	"	"	"	"	"	
<b>Copper</b>	<b>0.500</b>	0.432			"	"	"	"	"	"	
<b>Lead</b>	<b>2.83</b>	0.216			"	"	"	"	"	"	
<b>Nickel</b>	<b>0.748</b>	0.432			"	"	"	"	"	"	
Selenium	ND	0.281	0.189		"	"	"	"	"	"	
Silver	ND	0.0216			"	"	"	"	"	"	
<b>Zinc</b>	<b>7.54</b>	0.432			"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **06/21/23 00:00**

Analyte	Result	Reporting		MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit									
Chromium, Hexavalent	ND	0.30			mg/kg dry	1	BGF0773	06/22/23	06/22/23	EPA 7196A	

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

Date Sampled: **06/21/23 00:00**

Analyte	Result	Reporting		MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit									
<b>Calcium</b>	<b>66.3</b>	0.0540			mg/L dry	1	BGF0769	06/21/23	06/25/23	EPA 6020B	
<b>Magnesium</b>	<b>32.7</b>	0.0540			"	"	"	"	"	"	
<b>Sodium</b>	<b>145</b>	0.0540			"	"	"	"	"	"	

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Howard 27-1 WH

Project Number: [none]  
Project Manager: Paul Henehan

**Reported:**  
06/26/23 14:10

**BKG06@4.5'**  
**2306402-07 (Soil)**

**Summit Scientific**

**Calculated Analysis**

Date Sampled: **06/21/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Sodium Adsorption Ratio	3.64	0.00100		units	1	BGF0904	06/26/23	06/26/23	Calculation	

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **06/21/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
% Solids	92.7			%	1	BGF0772	06/22/23	06/22/23	Calculation	

**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction**

Date Sampled: **06/21/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Specific Conductance (EC)	1.12	0.0100		mmhos/cm	1	BGF0790	06/22/23	06/22/23	EPA 120.1	

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

Date Sampled: **06/21/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
pH	8.04			pH Units	1	BGF0789	06/22/23	06/22/23	EPA 9045D	

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Howard 27-1 WH

Project Number: [none]  
Project Manager: Paul Henehan

**Reported:**  
06/26/23 14:10

## Volatile Organic Compounds by EPA Method 8260B - Quality Control

### Summit Scientific

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

#### Batch BGF0766 - EPA 5030 Soil MS

##### Blank (BGF0766-BLK1)

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

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	"							
Surrogate: 1,2-Dichloroethane-d4	0.0345		"	0.0400		86.3	50-150			
Surrogate: Toluene-d8	0.0397		"	0.0400		99.3	50-150			
Surrogate: 4-Bromofluorobenzene	0.0400		"	0.0400		99.9	50-150			

##### LCS (BGF0766-BS1)

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

Benzene	0.0983	0.0020	mg/kg	0.100		98.3	70-130			
Toluene	0.0784	0.0050	"	0.100		78.4	70-130			
Ethylbenzene	0.0869	0.0050	"	0.100		86.9	70-130			
m,p-Xylene	0.174	0.010	"	0.200		86.9	70-130			
o-Xylene	0.0787	0.0050	"	0.100		78.7	70-130			
1,2,4-Trimethylbenzene	0.0812	0.0050	"	0.100		81.2	70-130			
1,3,5-Trimethylbenzene	0.0844	0.0050	"	0.100		84.4	70-130			
Naphthalene	0.0710	0.0038	"	0.100		71.0	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0374		"	0.0400		93.4	50-150			
Surrogate: Toluene-d8	0.0396		"	0.0400		99.0	50-150			
Surrogate: 4-Bromofluorobenzene	0.0404		"	0.0400		101	50-150			

##### Matrix Spike (BGF0766-MS1)

Source: 2306190-02

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

Benzene	0.0984	0.0020	mg/kg	0.100	ND	98.4	70-130			
Toluene	0.0793	0.0050	"	0.100	ND	79.3	70-130			
Ethylbenzene	0.0938	0.0050	"	0.100	ND	93.8	70-130			
m,p-Xylene	0.186	0.010	"	0.200	ND	93.0	70-130			
o-Xylene	0.0827	0.0050	"	0.100	ND	82.7	70-130			
1,2,4-Trimethylbenzene	0.0867	0.0050	"	0.100	ND	86.7	70-130			
1,3,5-Trimethylbenzene	0.0911	0.0050	"	0.100	ND	91.1	70-130			
Naphthalene	0.0745	0.0038	"	0.100	ND	74.5	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0342		"	0.0400		85.5	50-150			
Surrogate: Toluene-d8	0.0381		"	0.0400		95.2	50-150			
Surrogate: 4-Bromofluorobenzene	0.0397		"	0.0400		99.3	50-150			

Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Howard 27-1 WH

Project Number: [none]

Project Manager: Paul Henehan

Reported:

06/26/23 14:10

## Volatile Organic Compounds by EPA Method 8260B - Quality Control

### Summit Scientific

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

#### Batch BGF0766 - EPA 5030 Soil MS

Matrix Spike Dup (BGF0766-MSD1)	Source: 2306190-02			Prepared: 06/21/23 Analyzed: 06/22/23						
Benzene	0.0971	0.0020	mg/kg	0.100	ND	97.1	70-130	1.32	30	
Toluene	0.0767	0.0050	"	0.100	ND	76.7	70-130	3.31	30	
Ethylbenzene	0.0865	0.0050	"	0.100	ND	86.5	70-130	8.09	30	
m,p-Xylene	0.171	0.010	"	0.200	ND	85.5	70-130	8.49	30	
o-Xylene	0.0783	0.0050	"	0.100	ND	78.3	70-130	5.48	30	
1,2,4-Trimethylbenzene	0.0802	0.0050	"	0.100	ND	80.2	70-130	7.73	30	
1,3,5-Trimethylbenzene	0.0838	0.0050	"	0.100	ND	83.8	70-130	8.40	30	
Naphthalene	0.0739	0.0038	"	0.100	ND	73.9	70-130	0.768	30	
Surrogate: 1,2-Dichloroethane-d4	0.0328		"	0.0400		82.0	50-150			
Surrogate: Toluene-d8	0.0391		"	0.0400		97.6	50-150			
Surrogate: 4-Bromofluorobenzene	0.0391		"	0.0400		97.8	50-150			

Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Howard 27-1 WH

Project Number: [none]  
Project Manager: Paul Henehan

**Reported:**  
06/26/23 14:10

**Extractable Petroleum Hydrocarbons by 8015 - Quality Control**  
**Summit Scientific**

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

**Batch BGF0770 - EPA 3550A**

**Blank (BGF0770-BLK1)**

Prepared & Analyzed: 06/21/23

C10-C28 (DRO)	ND	50	mg/kg							
C28-C36 (ORO)	ND	50	"							
Surrogate: o-Terphenyl	11.0		"	12.5		88.1	30-150			

**LCS (BGF0770-BS1)**

Prepared & Analyzed: 06/21/23

C10-C28 (DRO)	476	50	mg/kg	500		95.3	70-130			
Surrogate: o-Terphenyl	12.0		"	12.5		96.0	30-150			

**Matrix Spike (BGF0770-MS1)**

Source: 2306190-02

Prepared & Analyzed: 06/21/23

C10-C28 (DRO)	413	50	mg/kg	500	31.1	76.4	70-130			
Surrogate: o-Terphenyl	10.4		"	12.5		83.4	30-150			

**Matrix Spike Dup (BGF0770-MSD1)**

Source: 2306190-02

Prepared & Analyzed: 06/21/23

C10-C28 (DRO)	477	50	mg/kg	500	31.1	89.2	70-130	14.3	20	
Surrogate: o-Terphenyl	9.48		"	12.5		75.8	30-150			

Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Howard 27-1 WH

Project Number: [none]  
Project Manager: Paul Henehan

**Reported:**  
06/26/23 14:10

## PAH by EPA Method 8270D SIM - Quality Control

### Summit Scientific

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

#### Batch BGF0780 - EPA 5030 Soil MS

##### Blank (BGF0780-BLK1)

Prepared & Analyzed: 06/22/23

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	0.0303		"	0.0333		90.9		40-150			
Surrogate: Fluoranthene-d10	0.0391		"	0.0333		117		40-150			

##### LCS (BGF0780-BS1)

Prepared & Analyzed: 06/22/23

Acenaphthene	0.0352	0.00500	mg/kg	0.0333		106		31-137			
Anthracene	0.0368	0.00500	"	0.0333		111		30-120			
Benzo (a) anthracene	0.0398	0.00500	"	0.0333		119		30-120			
Benzo (a) pyrene	0.0328	0.00500	"	0.0333		98.3		30-120			
Benzo (b) fluoranthene	0.0346	0.00500	"	0.0333		104		30-120			
Benzo (k) fluoranthene	0.0323	0.00500	"	0.0333		96.8		30-120			
Chrysene	0.0370	0.00500	"	0.0333		111		30-120			
Dibenz (a,h) anthracene	0.0324	0.00500	"	0.0333		97.3		30-120			
Fluoranthene	0.0366	0.00500	"	0.0333		110		30-120			
Fluorene	0.0350	0.00500	"	0.0333		105		30-120			
Indeno (1,2,3-cd) pyrene	0.0356	0.00500	"	0.0333		107		30-120			
Pyrene	0.0380	0.00500	"	0.0333		114		35-142			
1-Methylnaphthalene	0.0334	0.00500	"	0.0333		100		35-142			
2-Methylnaphthalene	0.0299	0.00500	"	0.0333		89.7		35-142			
Surrogate: 2-Methylnaphthalene-d10	0.0338		"	0.0333		101		40-150			
Surrogate: Fluoranthene-d10	0.0390		"	0.0333		117		40-150			

Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Howard 27-1 WH

Project Number: [none]  
Project Manager: Paul Henehan

**Reported:**  
06/26/23 14:10

## PAH by EPA Method 8270D SIM - Quality Control

### Summit Scientific

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

#### Batch BGF0780 - EPA 5030 Soil MS

##### Matrix Spike (BGF0780-MS1)

Source: 2306402-01

Prepared & Analyzed: 06/22/23

Acenaphthene	0.0309	0.00500	mg/kg	0.0333	ND	92.7	31-137				
Anthracene	0.0314	0.00500	"	0.0333	ND	94.2	30-120				
Benzo (a) anthracene	0.0351	0.00500	"	0.0333	ND	105	30-120				
Benzo (a) pyrene	0.0300	0.00500	"	0.0333	ND	90.2	30-120				
Benzo (b) fluoranthene	0.0309	0.00500	"	0.0333	ND	92.7	30-120				
Benzo (k) fluoranthene	0.0296	0.00500	"	0.0333	ND	88.7	30-120				
Chrysene	0.0326	0.00500	"	0.0333	ND	97.9	30-120				
Dibenz (a,h) anthracene	0.0292	0.00500	"	0.0333	ND	87.5	30-120				
Fluoranthene	0.0314	0.00500	"	0.0333	ND	94.1	30-120				
Fluorene	0.0293	0.00500	"	0.0333	ND	87.9	30-120				
Indeno (1,2,3-cd) pyrene	0.0328	0.00500	"	0.0333	ND	98.4	30-120				
Pyrene	0.0341	0.00500	"	0.0333	ND	102	35-142				
1-Methylnaphthalene	0.0299	0.00500	"	0.0333	ND	89.8	15-130				
2-Methylnaphthalene	0.0267	0.00500	"	0.0333	ND	80.0	15-130				
Surrogate: 2-Methylnaphthalene-d10	0.0314		"	0.0333		94.1	40-150				
Surrogate: Fluoranthene-d10	0.0334		"	0.0333		100	40-150				

##### Matrix Spike Dup (BGF0780-MSD1)

Source: 2306402-01

Prepared & Analyzed: 06/22/23

Acenaphthene	0.0236	0.00500	mg/kg	0.0333	ND	70.7	31-137	27.0	30
Anthracene	0.0248	0.00500	"	0.0333	ND	74.3	30-120	23.6	30
Benzo (a) anthracene	0.0284	0.00500	"	0.0333	ND	85.3	30-120	21.1	30
Benzo (a) pyrene	0.0233	0.00500	"	0.0333	ND	69.9	30-120	25.3	30
Benzo (b) fluoranthene	0.0246	0.00500	"	0.0333	ND	73.7	30-120	22.9	30
Benzo (k) fluoranthene	0.0225	0.00500	"	0.0333	ND	67.6	30-120	26.9	30
Chrysene	0.0253	0.00500	"	0.0333	ND	75.9	30-120	25.3	30
Dibenz (a,h) anthracene	0.0222	0.00500	"	0.0333	ND	66.7	30-120	26.9	30
Fluoranthene	0.0246	0.00500	"	0.0333	ND	73.8	30-120	24.2	30
Fluorene	0.0227	0.00500	"	0.0333	ND	68.1	30-120	25.3	30
Indeno (1,2,3-cd) pyrene	0.0250	0.00500	"	0.0333	ND	75.1	30-120	26.9	30
Pyrene	0.0269	0.00500	"	0.0333	ND	80.7	35-142	23.4	30
1-Methylnaphthalene	0.0193	0.00500	"	0.0333	ND	58.0	15-130	42.9	50
2-Methylnaphthalene	0.0176	0.00500	"	0.0333	ND	52.8	15-130	40.8	50
Surrogate: 2-Methylnaphthalene-d10	0.0208		"	0.0333		62.5	40-150		
Surrogate: Fluoranthene-d10	0.0269		"	0.0333		80.6	40-150		

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Howard 27-1 WH

Project Number: [none]  
Project Manager: Paul Henehan

**Reported:**  
06/26/23 14:10

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

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

**Batch BGF0805 - EPA 3050B**

**Blank (BGF0805-BLK1)**

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

Boron ND 0.0100 mg/L

**LCS (BGF0805-BS1)**

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

Boron 5.75 0.0100 mg/L 5.00 115 80-120

**Duplicate (BGF0805-DUP1)**

**Source: 2306346-01**

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

Boron 0.281 0.0100 mg/L 0.317 12.0 20

**Matrix Spike (BGF0805-MS1)**

**Source: 2306346-01**

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

Boron 4.37 0.0100 mg/L 5.00 0.317 81.1 75-125

**Matrix Spike Dup (BGF0805-MSD1)**

**Source: 2306346-01**

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

Boron 4.81 0.0100 mg/L 5.00 0.317 89.8 75-125 9.44 25

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Howard 27-1 WH

Project Number: [none]  
Project Manager: Paul Henehan

**Reported:**  
06/26/23 14:10

**Total Metals by EPA 6020B - Quality Control**  
**Summit Scientific**

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

**Batch BGF0775 - EPA 3050B**

**Blank (BGF0775-BLK1)**

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

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	"
Selenium	ND	0.260	"
Silver	ND	0.0200	"
Zinc	ND	0.400	"

**LCS (BGF0775-BS1)**

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

Arsenic	40.0	0.200	mg/kg wet	40.0	100	80-120
Barium	36.4	0.400	"	40.0	91.0	80-120
Cadmium	1.73	0.200	"	2.00	86.3	80-120
Copper	38.4	0.400	"	40.0	96.0	80-120
Lead	18.5	0.200	"	20.0	92.3	80-120
Nickel	37.8	0.400	"	40.0	94.4	80-120
Selenium	4.45	0.260	"	4.00	111	80-120
Silver	1.69	0.0200	"	2.00	84.4	80-120
Zinc	41.1	0.400	"	40.0	103	80-120

**Duplicate (BGF0775-DUP1)**

Source: 2306400-40

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

Arsenic	0.663	0.226	mg/kg dry	0.657	0.890	20	
Barium	77.0	0.452	"	80.8	4.84	20	
Cadmium	0.126	0.226	"	0.172	30.7	20	QR-01
Copper	1.09	0.452	"	1.40	24.9	20	QR-04
Lead	3.88	0.226	"	4.40	12.6	20	
Nickel	0.726	0.452	"	1.52	70.8	20	QR-04
Selenium	ND	0.294	"	ND		20	
Silver	0.0190	0.0226	"	0.0262	32.0	20	QR-01
Zinc	5.30	0.452	"	5.60	5.59	20	

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Howard 27-1 WH

Project Number: [none]  
Project Manager: Paul Henehan

**Reported:**  
06/26/23 14:10

**Total Metals by EPA 6020B - Quality Control**  
**Summit Scientific**

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

**Batch BGF0775 - EPA 3050B**

Matrix Spike (BGF0775-MS1)		Source: 2306400-40			Prepared: 06/22/23 Analyzed: 06/23/23					
Arsenic	14.5	0.226	mg/kg dry	45.2	0.657	30.7	75-125			QM-07
Barium	126	0.452	"	45.2	80.8	101	75-125			
Cadmium	1.99	0.226	"	2.26	0.172	80.7	75-125			
Copper	14.4	0.452	"	45.2	1.40	28.9	75-125			QM-07
Lead	22.4	0.226	"	22.6	4.40	79.5	75-125			
Nickel	14.3	0.452	"	45.2	1.52	28.2	75-125			QM-07
Selenium	3.98	0.294	"	4.52	ND	88.2	75-125			
Silver	1.83	0.0226	"	2.26	0.0262	80.0	75-125			
Zinc	19.2	0.452	"	45.2	5.60	30.1	75-125			QM-07

Matrix Spike Dup (BGF0775-MSD1)		Source: 2306400-40			Prepared: 06/22/23 Analyzed: 06/23/23					
Arsenic	14.1	0.226	mg/kg dry	45.2	0.657	29.8	75-125	2.92	25	QM-07
Barium	128	0.452	"	45.2	80.8	105	75-125	1.50	25	
Cadmium	2.10	0.226	"	2.26	0.172	85.1	75-125	4.93	25	
Copper	14.4	0.452	"	45.2	1.40	28.7	75-125	0.599	25	QM-07
Lead	22.7	0.226	"	22.6	4.40	81.0	75-125	1.44	25	
Nickel	14.1	0.452	"	45.2	1.52	27.9	75-125	0.927	25	QM-07
Selenium	4.21	0.294	"	4.52	ND	93.3	75-125	5.61	25	
Silver	1.83	0.0226	"	2.26	0.0262	79.7	75-125	0.272	25	
Zinc	19.6	0.452	"	45.2	5.60	30.9	75-125	1.83	25	QM-07

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Howard 27-1 WH

Project Number: [none]  
Project Manager: Paul Henehan

**Reported:**  
06/26/23 14:10

**Hexavalent Chromium by EPA Method 7196 - Quality Control**  
**Summit Scientific**

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

**Batch BGF0773 - 3060A Mod**

**Blank (BGF0773-BLK1)**

Prepared & Analyzed: 06/22/23

Chromium, Hexavalent ND 0.30 mg/kg wet

**LCS (BGF0773-BS1)**

Prepared & Analyzed: 06/22/23

Chromium, Hexavalent 22.4 0.30 mg/kg wet 25.0 89.4 80-120

**Duplicate (BGF0773-DUP1)**

**Source: 2306402-01**

Prepared & Analyzed: 06/22/23

Chromium, Hexavalent ND 0.30 mg/kg dry ND 20

**Matrix Spike (BGF0773-MS1)**

**Source: 2306402-01**

Prepared & Analyzed: 06/22/23

Chromium, Hexavalent 24.6 0.30 mg/kg dry 26.8 ND 91.8 75-125

**Matrix Spike Dup (BGF0773-MSD1)**

**Source: 2306402-01**

Prepared & Analyzed: 06/22/23

Chromium, Hexavalent 25.0 0.30 mg/kg dry 26.8 ND 93.0 75-125 1.30 20

Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Howard 27-1 WH

Project Number: [none]  
Project Manager: Paul Henehan

**Reported:**  
06/26/23 14:10

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

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

**Batch BGF0769 - General Preparation**

**Blank (BGF0769-BLK1)**

Prepared: 06/21/23 Analyzed: 06/25/23

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

**LCS (BGF0769-BS1)**

Prepared: 06/21/23 Analyzed: 06/25/23

Calcium	5.05	0.0500	mg/L wet	5.00	101	70-130
Magnesium	4.98	0.0500	"	5.00	99.7	70-130
Sodium	5.09	0.0500	"	5.00	102	70-130

Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Howard 27-1 WH

Project Number: [none]  
Project Manager: Paul Henehan

**Reported:**  
06/26/23 14:10

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

#### Summit Scientific

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

#### Batch BGF0772 - General Preparation

**Duplicate (BGF0772-DUP1)**

**Source: 2306392-01**

Prepared & Analyzed: 06/22/23

% Solids	93.7	%	94.8	1.08	20
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Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Howard 27-1 WH

Project Number: [none]  
Project Manager: Paul Henehan

**Reported:**  
06/26/23 14:10

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

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

**Batch BGF0790 - General Preparation**

**Blank (BGF0790-BLK1)**

Prepared & Analyzed: 06/22/23

Specific Conductance (EC) ND 0.0100 mmhos/cm

**LCS (BGF0790-BS1)**

Prepared & Analyzed: 06/22/23

Specific Conductance (EC) 0.152 0.0100 mmhos/cm 0.150 102 95-105

**Duplicate (BGF0790-DUP1)**

**Source: 2306348-01**

Prepared & Analyzed: 06/22/23

Specific Conductance (EC) 0.349 0.0100 mmhos/cm 0.349 0.00 20

Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Howard 27-1 WH

Project Number: [none]  
Project Manager: Paul Henehan

**Reported:**  
06/26/23 14:10

**Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction - Quality Control**  
**Summit Scientific**

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

**Batch BGF0789 - General Preparation**

**LCS (BGF0789-BS1)**

Prepared & Analyzed: 06/22/23

pH	8.96	pH Units	9.18	97.6	95-105
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**Duplicate (BGF0789-DUP1)**

Source: 2306348-01

Prepared & Analyzed: 06/22/23

pH	7.94	pH Units	7.94	0.00	20
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Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Howard 27-1 WH

Project Number: [none]  
Project Manager: Paul Henehan

**Reported:**  
06/26/23 14:10

### 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.
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