

# FREMONT ENVIRONMENTAL INC.

December 7, 2023

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

Subject:       **Excavation Report**  
Howard A27-7 (Wellhead & Flowline)  
API # 05-123-22303  
SWNE Sec. 27, T6N, R64W  
Weld County, Colorado  
Fremont Project No. C022-035  
Facility # 273046, Remediation #20372

Dear Mr. Peterson:

Enclosed please find a copy of the above referenced Excavation Report for the Howard A27-7 (Wellhead & 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 A27-7 (WELLHEAD & FLOWLINE)**

**WELD COUNTY, COLORADO**

**FREMONT PROJECT NO. C022-035**

**FACILITY # 273046, REMEDIATION # 20372**

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

**December 7, 2023**

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**EXCAVATION REPORT**  
**NOBLE ENERGY INC.**  
**HOWARD A27-7 (WELLHEAD & FLOWLINE)**  
**WELD COUNTY, COLORADO**  
**FREMONT PROJECT NO. C022-035**  
**FACILITY # 273046, REMEDIATION # 20372**

**1.0 INTRODUCTION**

The purpose of this document is to present information collected during the one day excavation of soils at the former Howard A27-7 flowline and wellhead locations in Weld County, Colorado. The excavation projects were completed on June 16, 2023 and June 19, 2023 respectively.

**2.0 BACKGROUND INFORMATION**

**2.1 Site Location**

The Howard A27-7 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 0.25 miles west southwest of the intersection of County Road 66 and County Road 57. The location is further described as the SW  $\frac{1}{4}$  of the NE  $\frac{1}{4}$  of Section 27, Township 6N, Range 64W.

**2.2 Site History**

The site consists of the Howard A-66N64W facility which services the Howard A 27-7 oil well. The Howard A 27-7 well was drilled in 2004 to a depth of approximately 7,103 feet. Historical releases were discovered along the Howard flowline at both the wellhead and separator connections during decommissioning activities in April 2022. A site investigation to determine the extent of soil and groundwater impacts was undertaken on May 27, 2022. Groundwater was not encountered at that time.

### **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 A27-7 wellhead location. Generally, the subsurface consists of fine sand that extends to a maximum depth of approximately 14 feet at the former wellhead location and four feet at the separator location. The sand is underlain by a sandy clay or clay extending to a depth of at least 28 feet at the former wellhead location and 15 feet at the separator location. The maximum depth of the borings was 28 feet during site investigation. Refusal was encountered in borings advanced adjacent to the separator between 12 feet to 15 feet.

The excavation was completed at the Howard A27-7 (flowline) location on June 16, 2023. Soil samples were collected as grab samples from the excavation sidewalls at approximately two and a half feet bgs, and from approximately three and a half feet from the base of the excavation.

The excavation was completed at the Howard A27-7 (wellhead) location on June 19, 2023. Soil samples were collected as grab samples from the excavation sidewalls at approximately three and a half feet bgs, and from approximately four and a half feet from 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, Dibenz (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). Barium, cadmium, lead, and selenium exceeded the Table 915-1 Protection of Groundwater Soil Screening Levels (PGSSLs). Four background soil samples were collected at similar depths and lithologies as the exceeding samples in nearby native soil. Additionally, the soil samples that were collected during the site investigation of the legacy spills on May 27, 2022, were collected outside the extent of the final excavation and are therefore being considered as background soil samples. Background soil samples were reported with exceedances for the ECMC Table 915-1 RSSLs for arsenic and PGSSLs for barium, cadmium, lead, nickel, and selenium. Since elevated concentrations of arsenic and selenium were observed in both the excavation samples and background samples, it is proposed that arsenic and selenium concentrations be attributed to native soil conditions.

Cadmium and lead (at the wellhead location) cannot be attributed to native soil conditions based on the background soil data.

A total of approximately 10 cubic yards of petroleum impacted soil was removed from the wellhead location and approximately 12 cubic yards of petroleum impacted soil was removed from the flowline location via excavation by Tasman Geosciences Inc. 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 A27-7 wellhead and flowline locations 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 10 cubic yards of impacted soil were removed from the wellhead location and approximately 12 cubic yards of impacted soil was removed from the flowline location and transported to the landfill. The soil data are illustrated and summarized in the attached tables and figures.

Since groundwater was not observed in either excavation, Noble Energy Inc. (Noble) should request a no further action designation be granted using the ECMC Table 915-1 RSSLs based on a separation greater than 30 feet between groundwater and soil exceeding the PGSSLs at the wellhead location and 10 feet at the flowline location preventing a clear pathway for elevated barium, cadmium and lead concentrations in soil to communicate with groundwater. Additionally, during site investigation, a restrictive clay unit was noted between approximately 15 feet and 28 feet bgs at the wellhead and

between four feet and 15 feet at the flowline location further preventing a pathway between groundwater and the respective exceeding soil samples.

### 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.**



12/7/23

Date \_\_\_\_\_

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

Reviewed by:



7/6/24

Date \_\_\_\_\_

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

## TABLES

**TABLE 1**  
**SUMMARY OF VOLATILE ORGANIC SOIL CHEMISTRY DATA**  
**NOBLE ENERGY INC.**  
**HOWARD A27-7, WELD COUNTY, COLORADO**  
**FREMONT PROJECT NO. C022-035**

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**		
MW-1 5 Ft	5/27/2022	5	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50
SB-2 4 Ft	5/27/2022	4	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50
SB-3 4 Ft	5/27/2022	4	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50
SB-4 4 Ft	5/27/2022	4	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50
SB-5 4 Ft	5/27/2022	4	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50
B01@2.5'	06/16/2023	2.5'	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50
E01@2.5'	06/16/2023	2.5'	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50
N01@2.5'	06/16/2023	2.5'	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50
S01@2.5'	06/16/2023	2.5'	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50
W01@2.5'	06/16/2023	2.5'	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50
SB-1 5ft	5/27/2022	5	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50
SB-2 5ft	5/27/2022	5	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50
SB-3 5ft	5/27/2022	5	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50
SB-4 5ft	5/27/2022	5	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50
SB-5 5ft	5/27/2022	5	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50
B01@4.5'	06/19/2023	4.5'	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50
E01@3.5'	06/19/2023	3.5'	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50
N01@3.5'	06/19/2023	3.5'	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50
S01@3.5'	06/19/2023	3.5'	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50
W01@3.5'	06/19/2023	3.5'	<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.  
HOWARD A27-7, WELD COUNTY, COLORADO  
FREMONT PROJECT NO. C022-035

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
MW-1 5 Ft	5/27/2022	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
SB-2 4 Ft	5/27/2022	4	<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
SB-3 4 Ft	5/27/2022	4	<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
SB-4 4 Ft	5/27/2022	4	<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
SB-5 4 Ft	5/27/2022	4	<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
B01@2.5'	06/16/2023	2.5'	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00621	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
E01@2.5'	06/16/2023	2.5'	<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@2.5'	06/16/2023	2.5'	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00617	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
S01@2.5'	06/16/2023	2.5'	<0.00500	<0.00500	0.0109	0.00614	0.00887	<0.00500	0.00878	<0.00500	0.0183	<0.00500	0.0069	0.0156	<0.00500	<0.00500
W01@2.5'	06/16/2023	2.5'	<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
SB-1 5ft	5/27/2022	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
SB-2 5ft	5/27/2022	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
SB-3 5ft	5/27/2022	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
SB-4 5ft	5/27/2022	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
SB-5 5ft	5/27/2022	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
B01@4.5'	06/19/2023	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
E01@3.5'	06/19/2023	3.5'	<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@3.5'	06/19/2023	3.5'	<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@3.5'	06/19/2023	3.5'	<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@3.5'	06/19/2023	3.5'	<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 A27-7, WELD COUNTY, COLORADO**  
**FREMONT PROJECT NO. C022-035**

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
MW-1 5 Ft	5/27/2022	5	8.19	1.3	1.64	0.224
SB-2 4 Ft	5/27/2022	4	<b>8.44</b>	0.481	0.252	0.0119
SB-3 4 Ft	5/27/2022	4	<b>8.35</b>	0.659	0.809	0.752
SB-4 4 Ft	5/27/2022	4	<b>8.54</b>	0.324	0.083	0.076
SB-5 4 Ft	5/27/2022	4	<b>8.37</b>	0.800	0.383	0.0874
B01@2.5'	06/16/2023	2.5'	7.78	1.5	2.33	0.238
E01@2.5'	06/16/2023	2.5'	7.86	1.6	2.85	0.239
N01@2.5'	06/16/2023	2.5'	7.67	1.35	1.78	0.213
S01@2.5'	06/16/2023	2.5'	7.85	1.66	2.42	0.34
W01@2.5'	06/16/2023	2.5'	7.76	1.21	1.92	0.201
BKG01@3'	06/16/2023	3'	7.81	2.63	5.27	0.295
BKG02@3'	06/16/2023	3'	<b>8.45</b>	0.343	2.11	0.0732
SB-1 5ft	5/27/2022	5	7.81	3.74	2.73	0.415
SB-2 5ft	5/27/2022	5	7.21	3.67	<b>6.45</b>	1.34
SB-3 5ft	5/27/2022	5	7.62	3.66	2.33	0.0287
SB-4 5ft	5/27/2022	5	7.36	3.49	1.64	0.0213
SB-5 5ft	5/27/2022	5	7.73	3.54	1.61	0.733
B01@4.5'	06/19/2023	4.5'	7.55	<b>6.13</b>	3.39	0.782
E01@3.5'	06/19/2023	3.5'	7.52	<b>5.26</b>	2.32	0.235
N01@3.5'	06/19/2023	3.5'	7.55	<b>4.54</b>	1.48	0.353
S01@3.5'	06/19/2023	3.5'	7.5	<b>4.98</b>	2	0.465

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
W01@3.5'	06/19/2023	3.5'	7.64	<b>5.94</b>	3.14	0.844
BKG03@4'	06/19/2023	4'	7.38	<b>4.84</b>	2.48	0.318
BKG04@4'	06/19/2023	4'	7.31	3.79	1.58	0.366

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

TABLE 4  
SUMMARY OF METALS IN SOIL CHEMISTRY DATA  
NOBLE ENERGY INC.  
HOWARD A27-7, WELD COUNTY, COLORADO  
FREMONT PROJECT NO. C022-035

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
MW-1 5 Ft	5/27/2022	5	<b>3.71</b>	15.2	<0.209	<0.30	3.57	9.78	6.5	<b>0.481</b>	<0.0209	30.6
SB-2 4 Ft	5/27/2022	4	<b>8.22</b>	<b>447</b>	0.253	<0.30	8.53	7.37	15.8	<b>0.783</b>	0.0256	35.5
SB-3 4 Ft	5/27/2022	4	<b>7.7</b>	26.7	<0.211	<0.30	8.29	7.59	10.4	<b>0.688</b>	<0.0211	53.2
SB-4 4 Ft	5/27/2022	4	<b>5.24</b>	64	<0.209	<0.30	5.32	4.67	7.62	<b>0.513</b>	<0.0209	25.3
SB-5 4 Ft	5/27/2022	4	<b>3.86</b>	<b>262</b>	<0.21	<0.30	4.26	4.34	6.74	<b>0.521</b>	<0.021	22.7
B01@2.5'	06/16/2023	2.5'	<b>5.8</b>	<b>220</b>	0.272	<0.30	6.22	<b>46.1</b>	4.38	0.232	0.0793	24.5
E01@2.5'	06/16/2023	2.5'	<b>10.8</b>	<b>604</b>	0.319	<0.30	5.87	<b>17.9</b>	4.47	<b>0.331</b>	0.0459	26.8
N01@2.5'	06/16/2023	2.5'	<b>7.2</b>	<b>282</b>	<b>0.411</b>	<0.30	4.95	<b>38.7</b>	4.37	<b>0.263</b>	0.0629	22.1
S01@2.5'	06/16/2023	2.5'	<b>6.5</b>	<b>166</b>	0.283	<0.30	4.65	<b>28.7</b>	4.66	<b>0.389</b>	0.0589	23.6
W01@2.5'	06/16/2023	2.5'	<b>4.86</b>	<b>234</b>	0.237	<0.30	4.56	<b>27.6</b>	4.09	0.199	0.0531	20
BKG01@3'	06/16/2023	3'	<b>5.38</b>	<b>162</b>	0.231	<0.30	5.15	7.57	4.71	0.2	0.0451	16.6
BKG02@3'	06/16/2023	3'	<b>5.08</b>	75.9	0.293	<0.30	2.62	6.19	3.5	<0.285	<0.0220	15.5
SB-1 5ft	5/27/2022	5	<b>0.904</b>	10.2	<0.250	<0.30	13.8	6.05	1.68	<b>0.913</b>	0.0738	12.2
SB-2 5ft	5/27/2022	5	<b>12.5</b>	25.5	<0.254	<0.30	17.8	<b>34.8</b>	11.7	<b>2.5</b>	0.0796	99.4
SB-3 5ft	5/27/2022	5	<b>9.54</b>	13.5	0.33	<0.30	16.9	11.4	20.5	<b>1.43</b>	0.0433	104
SB-4 5ft	5/27/2022	5	<b>9.64</b>	14	<b>0.587</b>	<0.30	20.9	10.6	<b>34.9</b>	<b>2.14</b>	0.0527	138
SB-5 5ft	5/27/2022	5	<b>8.1</b>	18.6	0.251	<0.30	13.4	11.7	19.2	<b>0.925</b>	0.041	71.7
B01@4.5'	06/19/2023	4.5'	<b>10.7</b>	22.4	<b>0.484</b>	<0.30	8.63	12.7	10.4	<0.293	0.0568	38.2
E01@3.5'	06/19/2023	3.5'	<b>12.8</b>	24.6	<b>0.399</b>	<0.30	7.81	<b>15.1</b>	9.52	0.203	0.0574	30.7
N01@3.5'	06/19/2023	3.5'	<b>11.1</b>	19.2	0.343	<0.30	7.74	12.8	7.42	0.218	0.049	33.1
S01@3.5'	06/19/2023	3.5'	<b>9.89</b>	21	0.346	<0.30	7.47	13.1	7.4	<0.296	0.0497	28.9
W01@3.5'	06/19/2023	3.5'	<b>10.9</b>	21.5	0.346	<0.30	7.69	13.2	8.27	0.207	0.0449	30.4
BKG03@4'	06/16/2023	4'	<b>11.3</b>	23.2	0.342	<0.30	7.61	11.4	8.49	<0.293	0.0455	31
BKG04@4'	06/16/2023	4'	<b>10.3</b>	40.1	<b>0.42</b>	<0.30	7.83	13.4	9.19	<0.312	0.0595	34.2

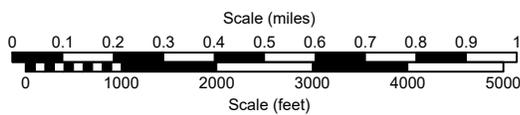
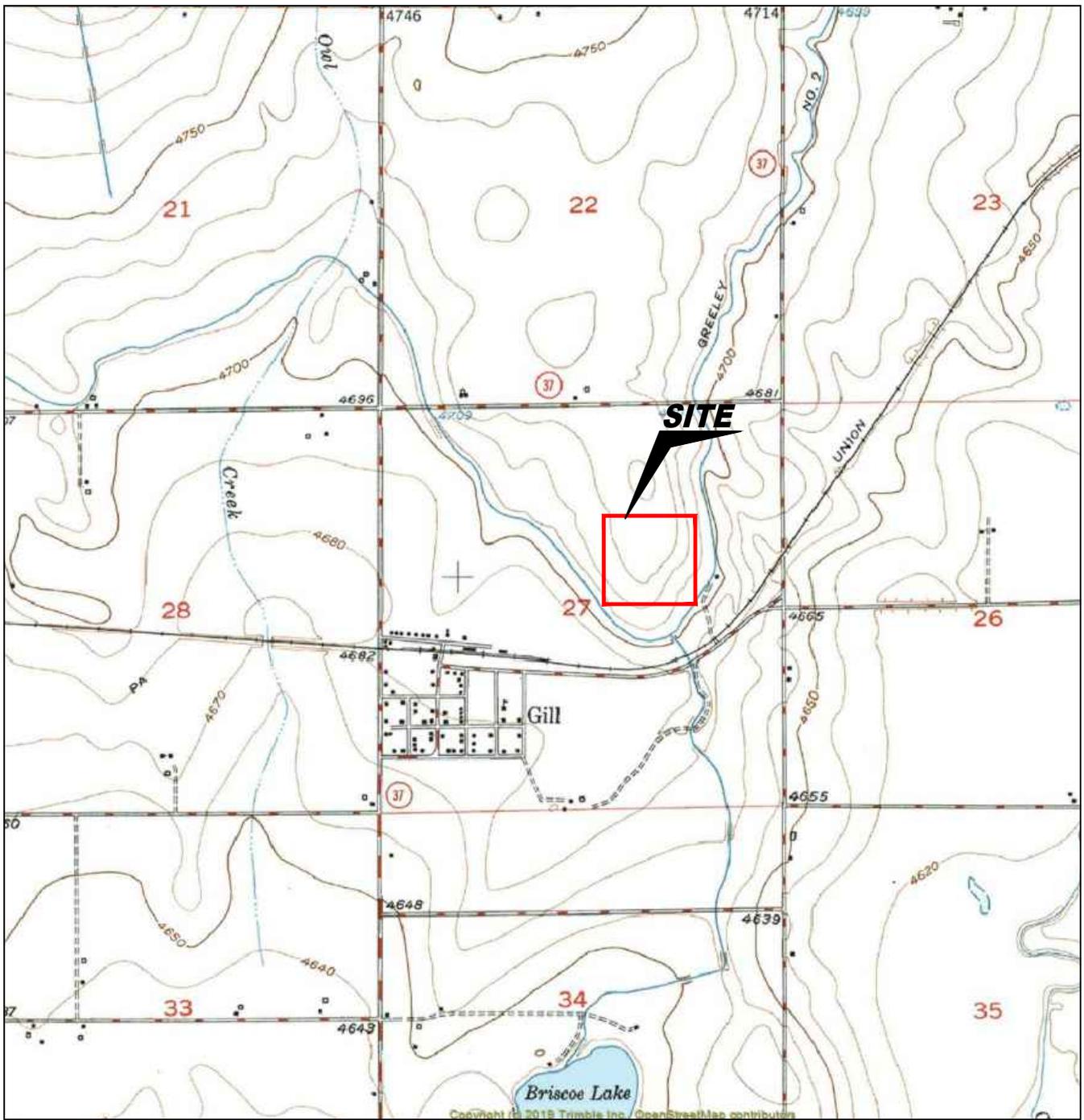
Bold faced values exceed the ECMC Table 915-1 concentrations

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

## FIGURES



USGS 7.5 MINUTE SERIES (TOPOGRAPHIC)

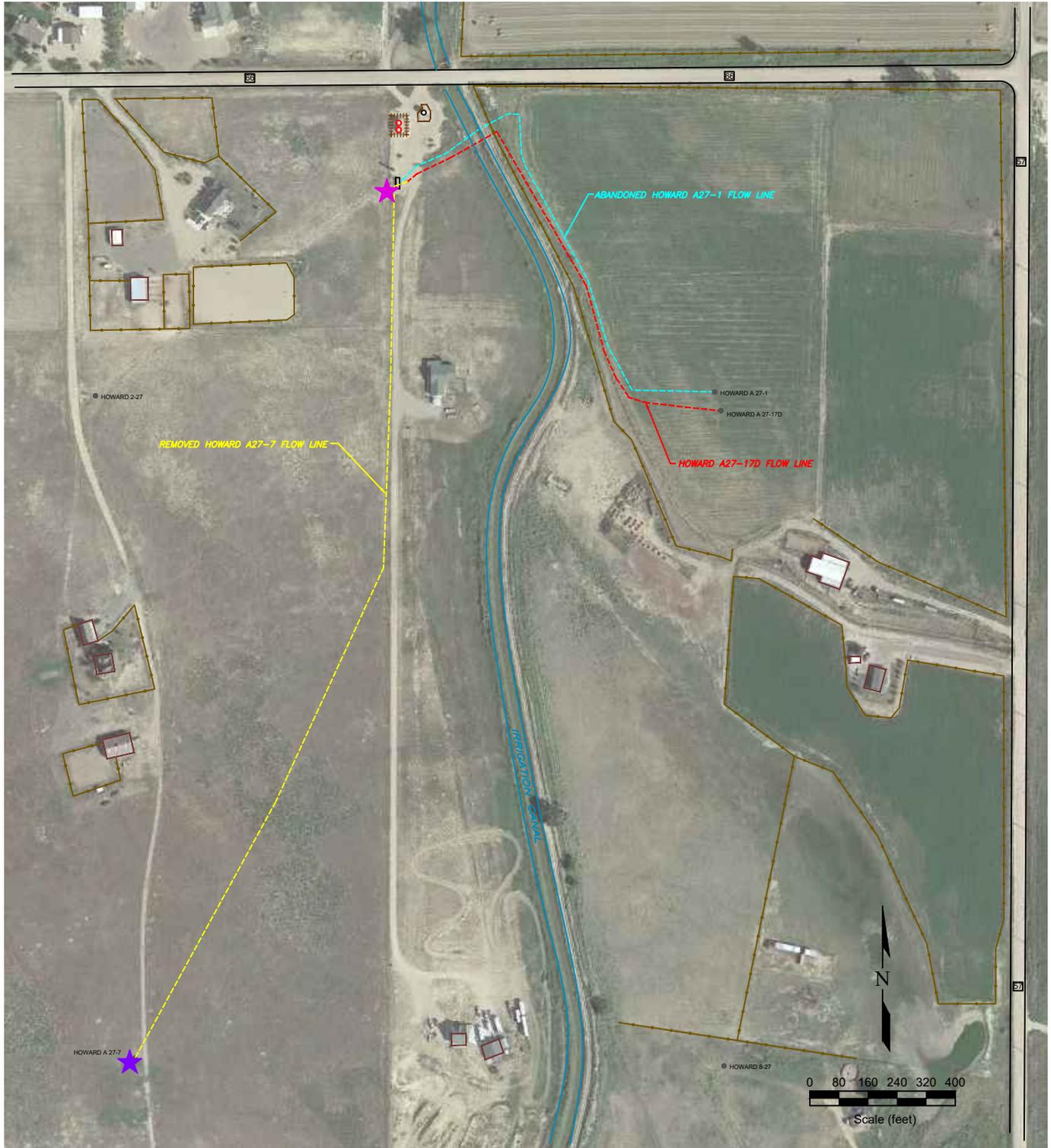
Figure 1  
SITE LOCATION MAP

**Noble Energy, Inc. ~ Howard A27-7**  
SWNE Sec. 27, T6N, R64W, 6th PM  
Weld County, Colorado

40.463920°, -104.531620° Separator; 40.45884°, -104.53344° Wellhead

Project # <b>C022-035</b>	API # <b>05-123-22303</b>	Facility # <b>273046</b>
Date <b>2/6/24</b>	Remediation # <b>20372</b>	Filename <b>22035T</b>





**LEGEND**

- WELL HEAD LOCATION
- ABOVE GROUND STORAGE TANK
- ★ WELLHEAD EXCAVATION LOCATION
- BUILDING
- FORMER FACILITY
- FORMER FACILITY
- ABANDONED IN PLACE FLOW LINE
- ACTIVE FLOW LINE
- REMOVED FLOW LINE
- ▤ CONTAINMENT BERM
- ▤ CONTAINMENT WALL
- FENCE LINE

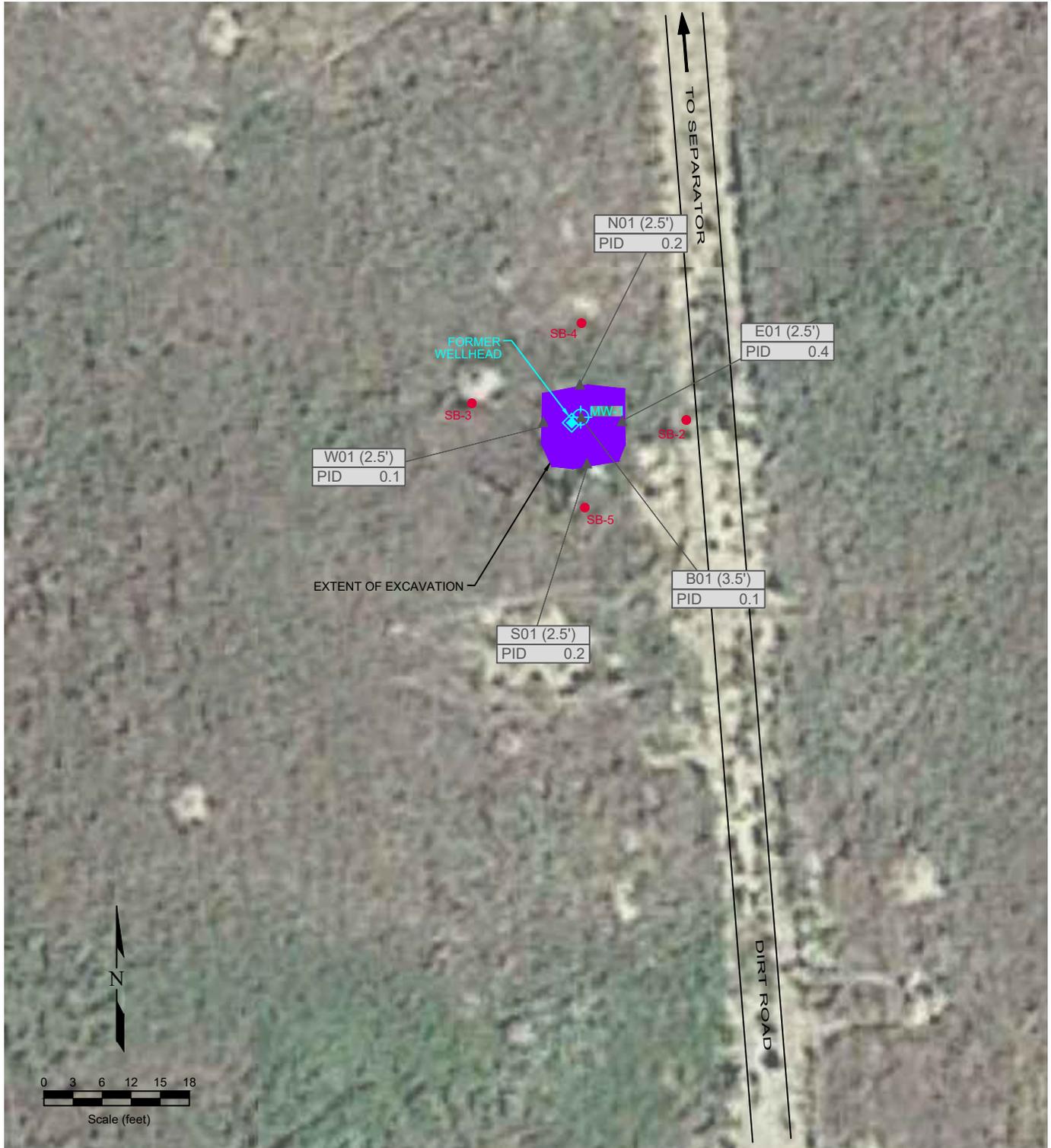
**Figure 2  
SITE MAP**

**Noble Energy, Inc.~ Howard A27-7**  
 SWNE Sec. 27, T6N, R64W, 6th PM  
 Weld County, Colorado

40.463920°, -104.531620° Separator; 40.45884°, -104.53344° Wellhead

Project No. <b>C022-035</b>	API # <b>05-123-22303</b>	Facility # <b>273046</b>
Date <b>2/6/24</b>	Remediation # <b>20372</b>	Filename <b>22035Q1</b>





**LEGEND**

- ◆ FORMER WELL HEAD LOCATION
- MONITORING WELL
- EXTENT OF EXCAVATION
- ▲ PID READING LOCATION
- ⊕ DESTROYED MONITORING WELL
- SOIL BORING

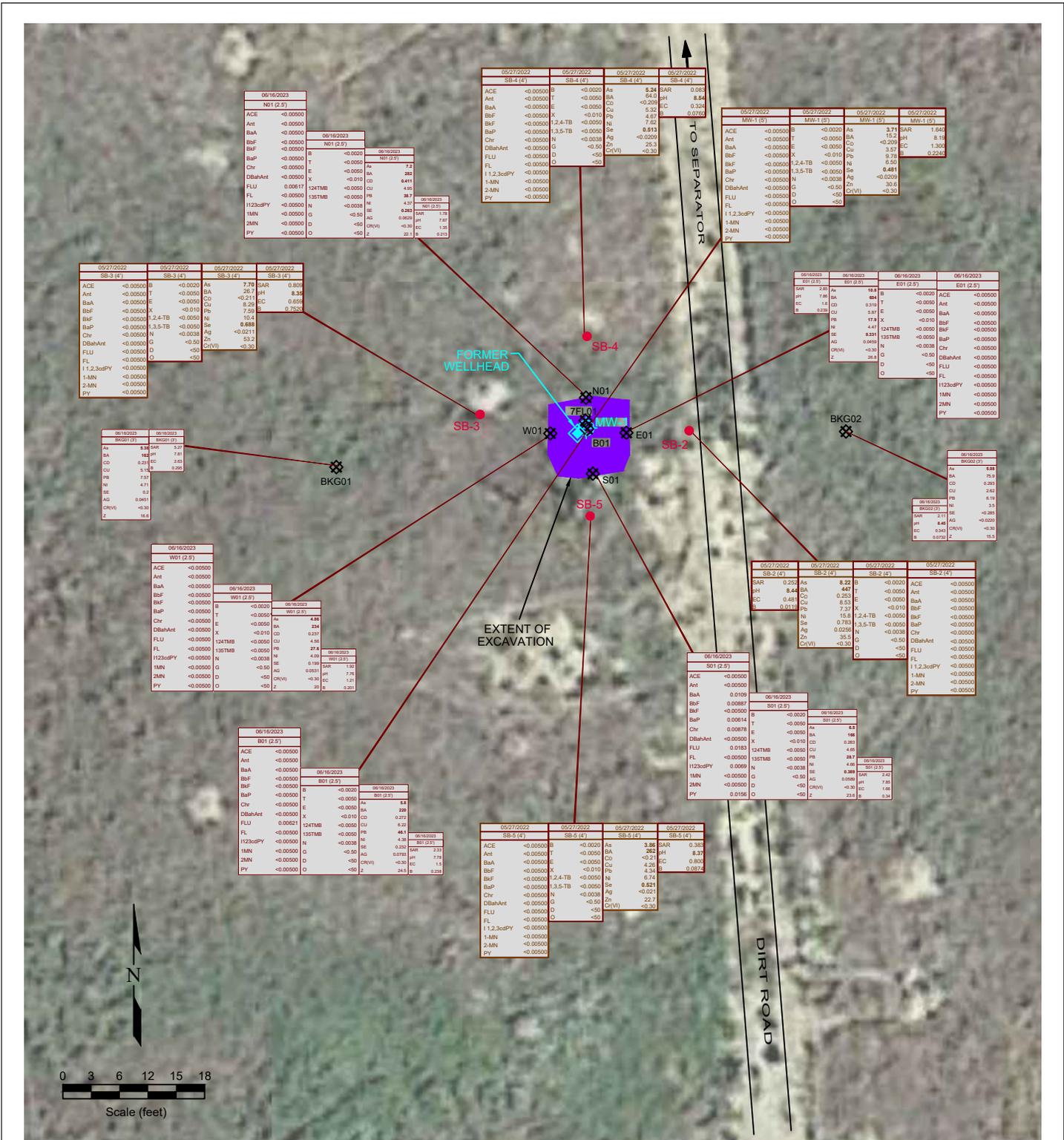
N01 (2.5') SAMPLE IDENTIFICATION AND DEPTH  
PID 0.2 PID = PHOTO IONIZATION DETECTION / PPM = PARTS PER MILLION

**Figure 3  
WELLHEAD SITE MAP**

**Noble Energy, Inc.~ Howard A27-7 (Wellhead)**  
 SWNE Sec. 27, T6N, R64W, 6th PM  
 Weld County, Colorado  
 40.45884°, -104.53344°

Project No. <b>C022-035</b>	API # <b>05-123-22303</b>	Facility # <b>273046</b>
Date <b>2/6/24</b>	Remediation # <b>20372</b>	Filename <b>22035QWH1</b>





**LEGEND**

- FORMER WELL HEAD LOCATION
- MONITORING WELL
- EXTENT OF EXCAVATION
- SOIL SAMPLE LOCATION
- DESTROYED MONITORING WELL
- SOIL BORING

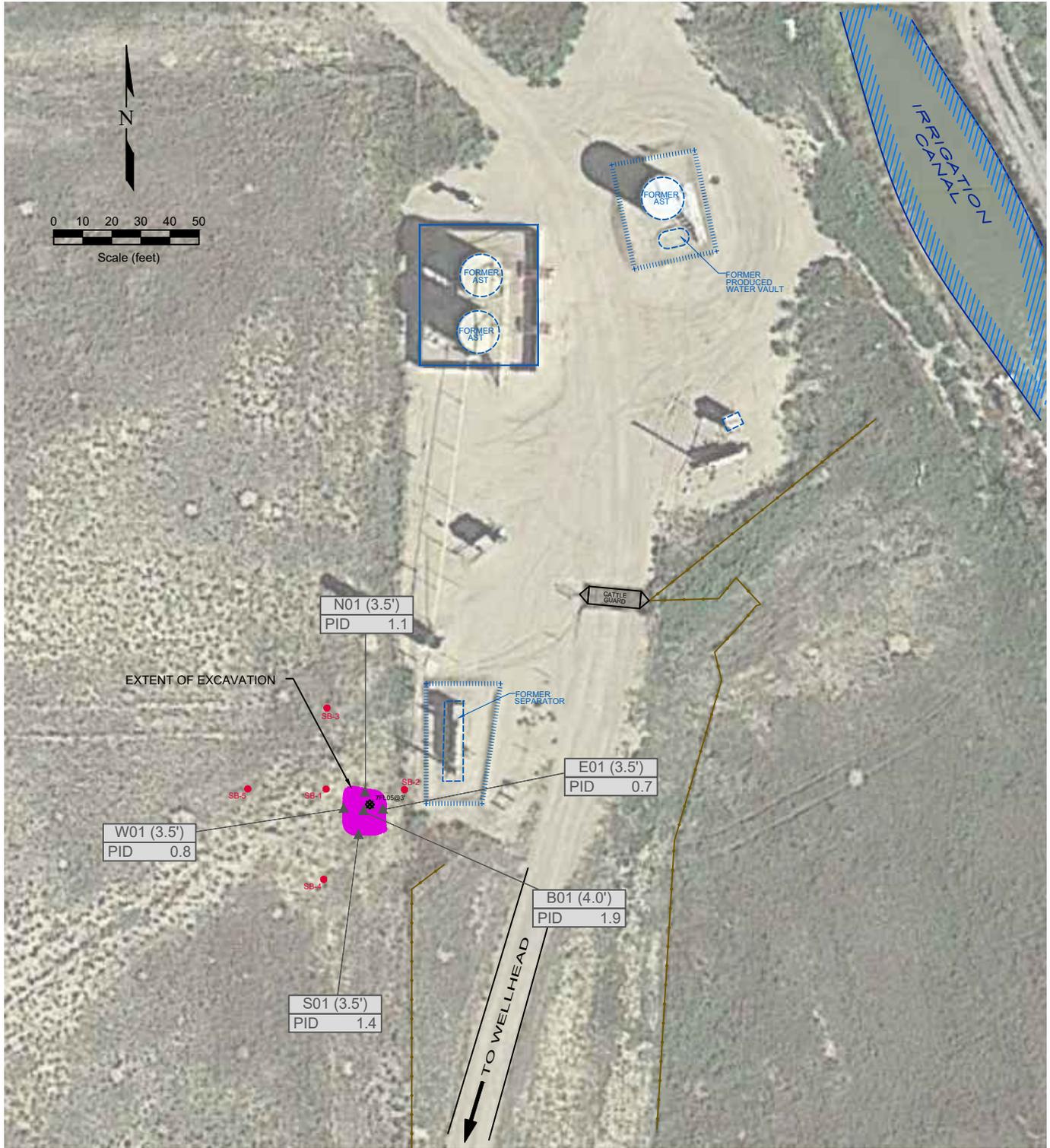
DATE SAMPLED	SAMPLE ID and DEPTH (ft)	DATE SAMPLED	SAMPLE ID and DEPTH (ft)	DATE SAMPLED	SAMPLE ID & DEPTH (ft)
06/16/2023	B01 (2.5)	06/16/2023	B01 (2.5)	06/16/2023	B01 (2.5)
ACE	<0.0050	ACE	<0.0050	ACE	<0.0050
Ant	<0.0050	Ant	<0.0050	Ant	<0.0050
BaA	<0.0050	BaA	<0.0050	BaA	<0.0050
BbF	<0.0050	BbF	<0.0050	BbF	<0.0050
BaP	<0.0050	BaP	<0.0050	BaP	<0.0050
Chr	<0.0050	Chr	<0.0050	Chr	<0.0050
DBahAnt	<0.0050	DBahAnt	<0.0050	DBahAnt	<0.0050
FLU	0.00621	FLU	0.00621	FLU	0.00621
1123cdPY	<0.0050	1123cdPY	<0.0050	1123cdPY	<0.0050
1MN	<0.0050	1MN	<0.0050	1MN	<0.0050
2MN	<0.0050	2MN	<0.0050	2MN	<0.0050
PY	<0.0050	PY	<0.0050	PY	<0.0050

NOT ANALYZED

**Figure 4**  
**WELLHEAD EXCAVATION SOIL CHEMISTRY MAP**

**Noble Energy, Inc. ~ Howard A27-7 (Wellhead)**  
 SWNE Sec. 27, T6N, R64W, 6th PM  
 Weld County, Colorado  
 40.45884°, -104.53344°

Project No. <b>C022-035</b>	API # <b>05-123-22303</b>	Facility # <b>273046</b>
Date <b>2/6/24</b>	Remediation # <b>20372</b>	Filename <b>22035QWH2</b>



**LEGEND**

- SOIL BORING LOCATION
  - ABOVE GROUND STORAGE TANK
  - FORMER FACILITY
  - AREA OF EXCAVATION
  - ▨ CONTAINMENT BERM
  - ▧ CONTAINMENT WALL
  - FENCE LINE
  - EXTENT OF EXCAVATION
  - ⊛ SOIL SAMPLE LOCATION
- PID PID = photo ionization detection  
ppm ppm = parts per million

Figure 5  
**SEPARATOR SITE MAP**

**Noble Energy, Inc.~ Howard A27-7**  
 SWNE Sec. 27, T6N, R64W, 6th PM  
 Weld County, Colorado  
 40.463920°, -104.53163

Project No. <b>C022-035</b>	API # <b>05-123-22303</b>	Facility # <b>273046</b>
Date <b>2/6/24</b>	Remediation # <b>20372</b>	Filename <b>22035QS1</b>





**APPENDIX A**

**PHOTO LOG**

# Photo Log

DIRECTION  
E (T)

40.45881°N  
104.53349°W

ACCURACY 4 m  
DATUM WGS84



Howard A27-7

2023-06-16  
09:15:09-06:00

**Description:**

Howard A27-7 Wellhead Pre Excavation Facing E

# Photo Log

DIRECTION  
NE (T)

40.45881°N  
104.53342°W

ACCURACY 5 m  
DATUM WGS84



Howard A27-7

WH excavation

2023-06-16  
09:42:20-06:00

### Description:

Howard A27-7 Wellhead Excavation Facing NE

# Photo Log



DIRECTION  
SE (T)

40.45883°N  
104.53341°W

ACCURACY 5 m  
DATUM WGS84



Howard A27-7

WH excavation

2023-06-16  
09:42:38-06:00

### Description:

Howard A27-7 Wellhead Excavation Facing SE

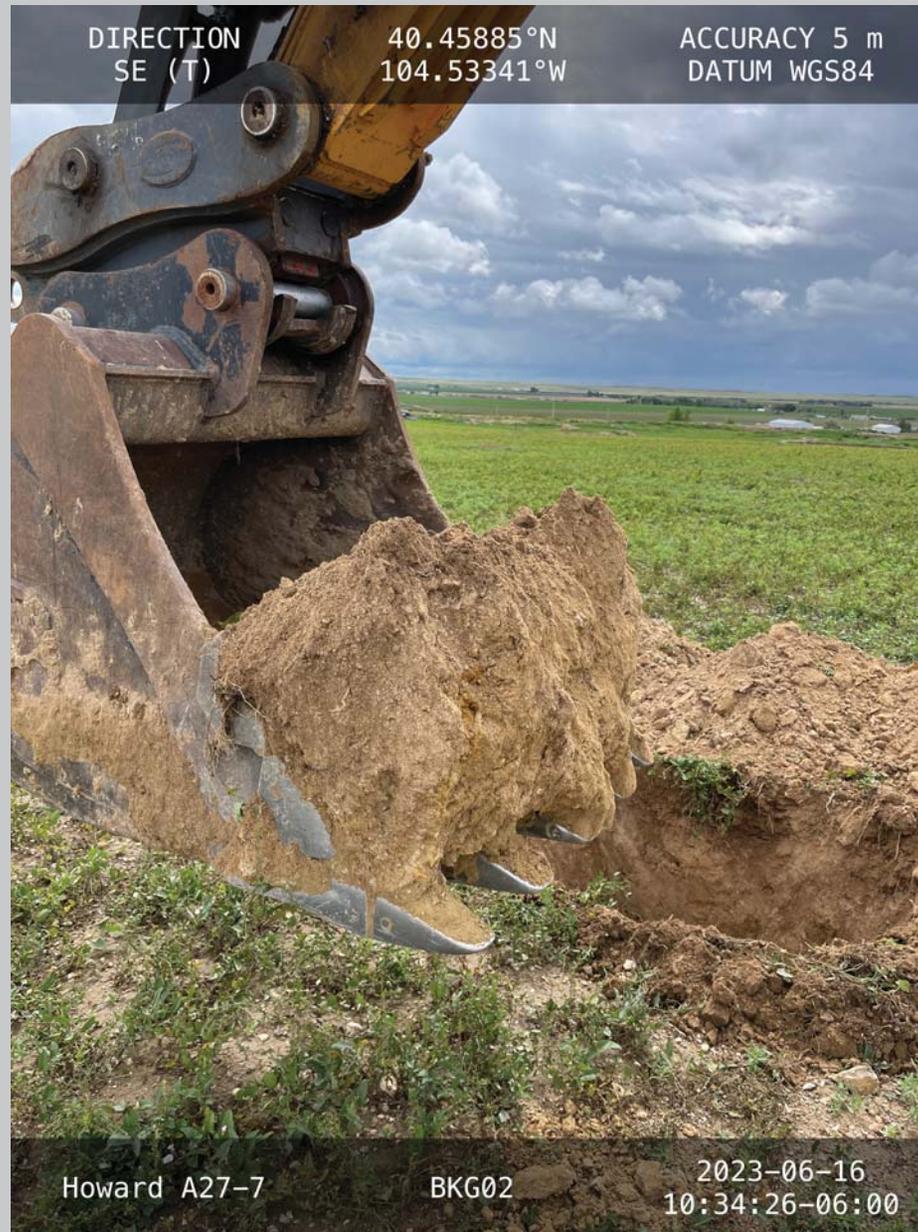
# Photo Log



**Description:**

BKG01@3'

# Photo Log



**Description:**

BKG02@3'

# Photo Log



DIRECTION  
SW (T)

40.46390°N  
104.53161°W

ACCURACY 5 m  
DATUM WGS84



Howard A27-7 FL

2023-06-19  
12:12:37-06:00

### *Description:*

Howard A27-7 Flowline Excavation Facing SW

# Photo Log

DIRECTION  
NW (T)

40.46387°N  
104.53157°W

ACCURACY 5 m  
DATUM WGS84



Howard A27-7 FL

2023-06-19  
12:12:48-06:00

### **Description:**

Howard A27-7 Flowline Excavation Facing NW

# Photo Log



DIRECTION  
NW (T)

40.46393°N  
104.53155°W

ACCURACY 10 m  
DATUM WGS84



Howard A27-7 FL

BKG03@4'

2023-06-19  
12:16:13-06:00

**Description:**

BKG03@4'

# Photo Log



**Description:**

BKG04@4'

**APPENDIX B**

**LABORATORY DOCUMENTATION**

# Summit Scientific

---

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

June 17, 2022

Paul Henchan

Fremont Environmental

PO Box 1289

Wellington, CO 80549

RE: Noble - Howard A27-07 (Wellhead)

Work Order #2206045

Enclosed are the results of analyses for samples received by Summit Scientific on 06/02/22 16:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Mikayla Axtell For Paul Shrewsbury

President



Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Howard A27-07 (Wellhead)

Project Number: [none]  
Project Manager: Paul Henchan

**Reported:**  
06/17/22 11:41

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-1 5ft	2206045-01	Soil	05/27/22 00:00	06/02/22 16:00
SB-2 4ft	2206045-02	Soil	05/27/22 00:00	06/02/22 16:00
SB-3 4ft	2206045-03	Soil	05/27/22 00:00	06/02/22 16:00
SB-4 4ft	2206045-04	Soil	05/27/22 00:00	06/02/22 16:00
SB-5 4ft	2206045-05	Soil	05/27/22 00:00	06/02/22 16:00

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

2206045

S<sub>2</sub>

4653 Table Mountain Drive ♦ Golden, Colorado 80403

303-277-9310

Page 1 of 1

Client: Fremont Env

Project Manager: Honehan

Address:

E-Mail: ethanb, paulh, jeffg

City/State/Zip:

Bill To: Dan and Erica

Phone:

Project Name: Noble - Howard A 27-7 (wellhead)

Sampler Name: EB

Project Number:

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested						Special Instructions	
					HCl	HNO <sub>3</sub>	None	Other	Water	Soil	Air-Canister #	Other	NIETEX	TPH	TMGS	Metals	SAR/EC/DH	Boron		PAHS
1	MW-1 5 FT	5/27/22		3			X			X				X	X	X	X	X	X	
2	SB-2 4 FT																			
3	SB-3 4 FT																			
4	SB-4 4 FT																			
5	SB-5 4 FT																			
6																				
7																				
8																				
9																				
10																				

Relinquished by: <u>Ethan Black</u>	Date/Time: <u>6/2/22</u>	Received by: <u>[Signature]</u>	Date/Time: <u>6/2/22 1600</u>	Turn Around Time (Check) Same Day <input type="checkbox"/> 72 hours 24 hours <input type="checkbox"/> Standard <input checked="" type="checkbox"/> 48 hours <input type="checkbox"/>	Notes:
Relinquished by:	Date/Time:	Received by:	Date/Time:		
Temperature Upon Receipt: <u>S.O</u>	Corrected Temperature <u>SO</u>	HNO <sub>3</sub> lot #	Sample Integrity:		
IR gun correction: <u>0</u>	IR gun #: <u>1</u>		Samples Intact: <input checked="" type="radio"/> Yes <input type="radio"/> No		

S<sub>2</sub>

Sample Receipt Checklist

S2 Work Order# 2206045

Client: Fremont Client Project ID: Noble-Howard A 27-7 (wellhead)

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 <sup>(1)</sup> ? NOTE: If samples are delivered the same day of sampling, this requirement is met if there is evidence that cooling has begun.	-			ON ICE
Were all samples received intact <sup>(1)</sup> ?	-			
Was adequate sample volume provided <sup>(1)</sup> ?	-			
If custody seals are present, are they intact <sup>(1)</sup> ?	-			
Are samples due within 48 hours present?		-		
Are water samples with short hold times present? Note the short hold analysis in the comments column - pH, Nitrate/Nitrite, Ferrous Iron (Fe <sup>2+</sup> ), Hexavalent Chromium (Cr <sup>6+</sup> , Cr VI), COD/BOD, Total Coliform, E. Coli, Total Residual Chlorine (TRC), Dissolved Oxygen			-	
Is a chain-of-custody (COC) form present and filled out completely <sup>(1)</sup> ?	-			
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	-			
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	-			
Is the COC properly relinquished by the client w/ date and time recorded <sup>(1)</sup> ?	-			
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.			-	
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.			-	
If samples are acid preserved for metals, is the pH ≤ 2 <sup>(1)</sup> ? Record the pH in Comments.			-	
If dissolved metals are requested, were samples field filtered?			-	

Additional Comments (if any):

<sup>(1)</sup> If NO, then contact the client before proceeding with analysis and note in case narrative.

[Signature]  
Custodian Printed Name

6/22/22  
Date/Time



Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Howard A27-07 (Wellhead)

Project Number: [none]  
Project Manager: Paul Henchan

**Reported:**  
06/17/22 11:41

**MW-1 5ft**  
**2206045-01 (Soil)**

**Summit Scientific**

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

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	0.0020		mg/kg	1	BFF0081	06/03/22	06/03/22	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: **05/27/22 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4	0.0456	114 %		50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0362	90.4 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0365	91.4 %		50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
C10-C28 (DRO)	ND	50		mg/kg	1	BFF0083	06/03/22	06/03/22	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: o-Terphenyl	13.1	104 %		30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

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.



Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Howard A27-07 (Wellhead)

Project Number: [none]  
Project Manager: Paul Henchan

**Reported:**  
06/17/22 11:41

**MW-1 5ft**  
**2206045-01 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BFF0235	06/09/22	06/13/22	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: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0176	52.9 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0156	46.7 %	40-150		"	"	"	"	

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

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>0.224</b>	0.0100	mg/L	1	BFF0222	06/08/22	06/13/22	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **05/27/22 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 - Howard A27-07 (Wellhead)

Project Number: [none]  
 Project Manager: Paul Henchan

**Reported:**  
 06/17/22 11:41

**MW-1 5ft**  
**2206045-01 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	3.71	0.209	mg/kg dry	1	BFF0392	06/14/22	06/16/22	EPA 6020B	
Barium	15.2	0.417	"	"	"	"	"	"	
Cadmium	ND	0.209	"	"	"	"	"	"	
Copper	3.57	0.417	"	"	"	"	"	"	
Lead	9.78	0.209	"	"	"	"	"	"	
Nickel	6.50	0.417	"	"	"	"	"	"	
Selenium	0.481	0.271	"	"	"	"	"	"	
Silver	ND	0.0209	"	"	"	"	"	"	
Zinc	30.6	0.417	"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BFF0318	06/12/22	06/12/22	EPA 7196A	

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

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	525	0.0522	mg/L dry	1	BFF0296	06/10/22	06/11/22	EPA 6020B	
Magnesium	99.0	0.0522	"	"	"	"	"	"	
Sodium	156	0.0522	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	1.64	0.00100	units	1	BFF0316	06/12/22	06/12/22	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 A27-07 (Wellhead)

Project Number: [none]  
 Project Manager: Paul Henchan

**Reported:**  
 06/17/22 11:41

**MW-1 5ft**  
**2206045-01 (Soil)**

**Summit Scientific**

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

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	95.8		%	1	BFF0223	06/08/22	06/09/22	Calculation	

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

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	1.30	0.0100	mmhos/cm	1	BFF0298	06/10/22	06/10/22	EPA 120.1	

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

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.19		pH Units	1	BFF0297	06/10/22	06/10/22	EPA 9045D	

Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Howard A27-07 (Wellhead)

Project Number: [none]  
Project Manager: Paul Henchan

**Reported:**  
06/17/22 11:41

**SB-2 4ft**  
**2206045-02 (Soil)**

**Summit Scientific**

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

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BFF0081	06/03/22	06/03/22	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: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	0.0454	114 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0369	92.3 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0378	94.4 %	50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BFF0083	06/03/22	06/03/22	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	13.7	110 %	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 A27-07 (Wellhead)

Project Number: [none]  
Project Manager: Paul Henchan

**Reported:**  
06/17/22 11:41

**SB-2 4ft**  
**2206045-02 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BFF0235	06/09/22	06/13/22	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: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0197	59.2 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0182	54.7 %	40-150		"	"	"	"	

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

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>0.0119</b>	0.0100	mg/L	1	BFF0222	06/08/22	06/13/22	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **05/27/22 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 - Howard A27-07 (Wellhead)

Project Number: [none]  
Project Manager: Paul Henchan

**Reported:**  
06/17/22 11:41

**SB-2 4ft**  
**2206045-02 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Arsenic	8.22	0.213	mg/kg dry	1	BFF0392	06/14/22	06/16/22	EPA 6020B
Barium	447	0.426	"	"	"	"	"	"
Cadmium	0.253	0.213	"	"	"	"	"	"
Copper	8.53	0.426	"	"	"	"	"	"
Lead	7.37	0.213	"	"	"	"	"	"
Nickel	15.8	0.426	"	"	"	"	"	"
Selenium	0.783	0.277	"	"	"	"	"	"
Silver	0.0256	0.0213	"	"	"	"	"	"
Zinc	35.5	0.426	"	"	"	"	"	"

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: 05/27/22 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BFF0318	06/12/22	06/12/22	EPA 7196A	

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

Date Sampled: 05/27/22 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	1400	0.0533	mg/L dry	1	BFF0296	06/10/22	06/11/22	EPA 6020B	
Magnesium	91.3	0.0533	"	"	"	"	"	"	
Sodium	36.1	0.0533	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: 05/27/22 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.252	0.00100	units	1	BFF0316	06/12/22	06/12/22	Calculation	

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

Date Sampled: 05/27/22 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 - Howard A27-07 (Wellhead)

Project Number: [none]  
 Project Manager: Paul Henchan

**Reported:**  
 06/17/22 11:41

**SB-2 4ft**  
**2206045-02 (Soil)**

**Summit Scientific**

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

<b>% Solids</b>	<b>93.9</b>	%	1	BFF0223	06/08/22	06/09/22	Calculation
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**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction**

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Specific Conductance (EC)</b>	<b>0.481</b>	0.0100	mmhos/cm	1	BFF0298	06/10/22	06/10/22	EPA 120.1	

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

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>pH</b>	<b>8.44</b>		pH Units	1	BFF0297	06/10/22	06/10/22	EPA 9045D	

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Howard A27-07 (Wellhead)

Project Number: [none]  
Project Manager: Paul Henchan

**Reported:**  
06/17/22 11:41

**SB-3 4ft**  
**2206045-03 (Soil)**

**Summit Scientific**

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

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	0.0020		mg/kg	1	BFF0081	06/03/22	06/03/22	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: **05/27/22 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4	0.0415	104 %		50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0364	91.0 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0370	92.6 %		50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
C10-C28 (DRO)	ND	50		mg/kg	1	BFF0083	06/03/22	06/03/22	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: o-Terphenyl	13.7	109 %		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 A27-07 (Wellhead)

Project Number: [none]  
Project Manager: Paul Henchan

**Reported:**  
06/17/22 11:41

**SB-3 4ft**  
**2206045-03 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BFF0235	06/09/22	06/13/22	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: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0193	57.9 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0184	55.3 %	40-150		"	"	"	"	

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

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>0.752</b>	0.0100	mg/L	1	BFF0222	06/08/22	06/13/22	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **05/27/22 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 - Howard A27-07 (Wellhead)

Project Number: [none]  
Project Manager: Paul Henchan

**Reported:**  
06/17/22 11:41

**SB-3 4ft**  
**2206045-03 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	7.70	0.211	mg/kg dry	1	BFF0392	06/14/22	06/16/22	EPA 6020B	
Barium	26.7	0.423	"	"	"	"	"	"	
Cadmium	ND	0.211	"	"	"	"	"	"	
Copper	8.29	0.423	"	"	"	"	"	"	
Lead	7.59	0.211	"	"	"	"	"	"	
Nickel	10.4	0.423	"	"	"	"	"	"	
Selenium	0.688	0.275	"	"	"	"	"	"	
Silver	ND	0.0211	"	"	"	"	"	"	
Zinc	53.2	0.423	"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BFF0318	06/12/22	06/12/22	EPA 7196A	

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

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	2050	0.0528	mg/L dry	1	BFF0296	06/10/22	06/11/22	EPA 6020B	
Magnesium	174	0.0528	"	"	"	"	"	"	
Sodium	142	0.0528	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.809	0.00100	units	1	BFF0316	06/12/22	06/12/22	Calculation	

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

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Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - Howard A27-07 (Wellhead)

Project Number: [none]  
 Project Manager: Paul Henchan

**Reported:**  
 06/17/22 11:41

**SB-3 4ft**  
**2206045-03 (Soil)**

**Summit Scientific**

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

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	94.7		%	1	BFF0223	06/08/22	06/09/22	Calculation	

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

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.659	0.0100	mmhos/cm	1	BFF0298	06/10/22	06/10/22	EPA 120.1	

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

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.35		pH Units	1	BFF0297	06/10/22	06/10/22	EPA 9045D	

Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Howard A27-07 (Wellhead)

Project Number: [none]  
Project Manager: Paul Henchan

**Reported:**  
06/17/22 11:41

**SB-4 4ft**  
**2206045-04 (Soil)**

**Summit Scientific**

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

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BFF0081	06/03/22	06/03/22	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: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	0.0464	116 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0370	92.6 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0368	92.1 %	50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BFF0083	06/03/22	06/03/22	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	13.7	110 %	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 A27-07 (Wellhead)

Project Number: [none]  
Project Manager: Paul Henchan

**Reported:**  
06/17/22 11:41

**SB-4 4ft**  
**2206045-04 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BFF0235	06/09/22	06/13/22	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: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0212	63.5 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0221	66.2 %	40-150		"	"	"	"	

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

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>0.0760</b>	0.0100	mg/L	1	BFF0222	06/08/22	06/13/22	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **05/27/22 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 - Howard A27-07 (Wellhead)

Project Number: [none]  
Project Manager: Paul Henchan

**Reported:**  
06/17/22 11:41

**SB-4 4ft**  
**2206045-04 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	5.24	0.209	mg/kg dry	1	BFF0392	06/14/22	06/16/22	EPA 6020B	
Barium	64.0	0.418	"	"	"	"	"	"	
Cadmium	ND	0.209	"	"	"	"	"	"	
Copper	5.32	0.418	"	"	"	"	"	"	
Lead	4.67	0.209	"	"	"	"	"	"	
Nickel	7.62	0.418	"	"	"	"	"	"	
Selenium	0.513	0.272	"	"	"	"	"	"	
Silver	ND	0.0209	"	"	"	"	"	"	
Zinc	25.3	0.418	"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BFF0318	06/12/22	06/12/22	EPA 7196A	

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

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	2690	0.0522	mg/L dry	1	BFF0296	06/10/22	06/11/22	EPA 6020B	
Magnesium	121	0.0522	"	"	"	"	"	"	
Sodium	16.2	0.0522	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.0830	0.00100	units	1	BFF0316	06/12/22	06/12/22	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 A27-07 (Wellhead)

Project Number: [none]  
 Project Manager: Paul Henchan

**Reported:**  
 06/17/22 11:41

**SB-4 4ft**  
**2206045-04 (Soil)**

**Summit Scientific**

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

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	95.7		%	1	BFF0223	06/08/22	06/09/22	Calculation	

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

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.324	0.0100	mmhos/cm	1	BFF0298	06/10/22	06/10/22	EPA 120.1	

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

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.54		pH Units	1	BFF0297	06/10/22	06/10/22	EPA 9045D	

Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Howard A27-07 (Wellhead)

Project Number: [none]  
Project Manager: Paul Henchan

**Reported:**  
06/17/22 11:41

**SB-5 4ft**  
**2206045-05 (Soil)**

**Summit Scientific**

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

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BFF0081	06/03/22	06/03/22	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: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	0.0442	110 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0363	90.7 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0367	91.8 %	50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BFF0083	06/03/22	06/03/22	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	13.9	111 %	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 A27-07 (Wellhead)

Project Number: [none]  
Project Manager: Paul Henchan

**Reported:**  
06/17/22 11:41

**SB-5 4ft**  
**2206045-05 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BFF0235	06/09/22	06/13/22	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: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0206	61.9 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0193	57.8 %	40-150		"	"	"	"	

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

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>0.0874</b>	0.0100	mg/L	1	BFF0222	06/08/22	06/13/22	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **05/27/22 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 - Howard A27-07 (Wellhead)

Project Number: [none]  
Project Manager: Paul Henchan

**Reported:**  
06/17/22 11:41

**SB-5 4ft**  
**2206045-05 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	3.86	0.210	mg/kg dry	1	BFF0392	06/14/22	06/16/22	EPA 6020B	
Barium	262	0.420	"	"	"	"	"	"	
Cadmium	ND	0.210	"	"	"	"	"	"	
Copper	4.26	0.420	"	"	"	"	"	"	
Lead	4.34	0.210	"	"	"	"	"	"	
Nickel	6.74	0.420	"	"	"	"	"	"	
Selenium	0.521	0.273	"	"	"	"	"	"	
Silver	ND	0.0210	"	"	"	"	"	"	
Zinc	22.7	0.420	"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BFF0318	06/12/22	06/12/22	EPA 7196A	

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

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	4730	0.0525	mg/L dry	1	BFF0296	06/10/22	06/12/22	EPA 6020B	
Magnesium	167	0.0525	"	"	"	"	"	"	
Sodium	98.5	0.0525	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.383	0.00100	units	1	BFF0316	06/12/22	06/12/22	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 A27-07 (Wellhead)

Project Number: [none]  
 Project Manager: Paul Henchan

**Reported:**  
 06/17/22 11:41

**SB-5 4ft**  
**2206045-05 (Soil)**

**Summit Scientific**

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

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	95.2		%	1	BFF0223	06/08/22	06/09/22	Calculation	

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

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.800	0.0100	mmhos/cm	1	BFF0298	06/10/22	06/10/22	EPA 120.1	

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

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.37		pH Units	1	BFF0297	06/10/22	06/10/22	EPA 9045D	

Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Howard A27-07 (Wellhead)

Project Number: [none]  
Project Manager: Paul Henchan

**Reported:**  
06/17/22 11:41

### 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 BFF0081 - EPA 5030 Soil MS

##### Blank (BFF0081-BLK1)

Prepared & Analyzed: 06/03/22

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>	0.0439		"	0.0400		110	50-150			
<i>Surrogate: Toluene-d8</i>	0.0365		"	0.0400		91.3	50-150			
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0371		"	0.0400		92.7	50-150			

##### LCS (BFF0081-BS1)

Prepared & Analyzed: 06/03/22

Benzene	0.141	0.0020	mg/kg	0.125		112	70-130			
Toluene	0.0950	0.0050	"	0.125		76.0	70-130			
Ethylbenzene	0.157	0.0050	"	0.125		125	70-130			
m,p-Xylene	0.278	0.010	"	0.250		111	70-130			
o-Xylene	0.134	0.0050	"	0.125		107	70-130			
1,2,4-Trimethylbenzene	0.154	0.0050	"	0.125		123	70-130			
1,3,5-Trimethylbenzene	0.155	0.0050	"	0.125		124	70-130			
Naphthalene	0.143	0.0038	"	0.125		114	70-130			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0440		"	0.0400		110	50-150			
<i>Surrogate: Toluene-d8</i>	0.0376		"	0.0400		94.1	50-150			
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0365		"	0.0400		91.2	50-150			

##### Matrix Spike (BFF0081-MS1)

Source: 2206012-01

Prepared & Analyzed: 06/03/22

Benzene	0.139	0.0020	mg/kg	0.125	ND	111	70-130			
Toluene	0.0944	0.0050	"	0.125	ND	75.5	70-130			
Ethylbenzene	0.152	0.0050	"	0.125	ND	122	70-130			
m,p-Xylene	0.270	0.010	"	0.250	ND	108	70-130			
o-Xylene	0.132	0.0050	"	0.125	ND	106	70-130			
1,2,4-Trimethylbenzene	0.154	0.0050	"	0.125	ND	123	70-130			
1,3,5-Trimethylbenzene	0.154	0.0050	"	0.125	ND	123	70-130			
Naphthalene	0.152	0.0038	"	0.125	ND	122	70-130			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0454		"	0.0400		113	50-150			
<i>Surrogate: Toluene-d8</i>	0.0374		"	0.0400		93.6	50-150			
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0376		"	0.0400		94.0	50-150			

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Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - Howard A27-07 (Wellhead)

Project Number: [none]  
 Project Manager: Paul Henchan

**Reported:**  
 06/17/22 11:41

**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 BFF0081 - EPA 5030 Soil MS**

<b>Matrix Spike Dup (BFF0081-MSD1)</b>	<b>Source: 2206012-01</b>			<b>Prepared &amp; Analyzed: 06/03/22</b>						
Benzene	0.137	0.0020	mg/kg	0.125	ND	110	70-130	1.39	30	
Toluene	0.0943	0.0050	"	0.125	ND	75.4	70-130	0.0954	30	
Ethylbenzene	0.156	0.0050	"	0.125	ND	124	70-130	2.16	30	
m,p-Xylene	0.278	0.010	"	0.250	ND	111	70-130	3.14	30	
o-Xylene	0.133	0.0050	"	0.125	ND	106	70-130	0.634	30	
1,2,4-Trimethylbenzene	0.158	0.0050	"	0.125	ND	126	70-130	2.39	30	
1,3,5-Trimethylbenzene	0.160	0.0050	"	0.125	ND	128	70-130	3.69	30	
Naphthalene	0.159	0.0038	"	0.125	ND	128	70-130	4.56	30	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0392</i>		<i>"</i>	<i>0.0400</i>		<i>97.9</i>	<i>50-150</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0375</i>		<i>"</i>	<i>0.0400</i>		<i>93.8</i>	<i>50-150</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0372</i>		<i>"</i>	<i>0.0400</i>		<i>93.0</i>	<i>50-150</i>			

Summit Scientific

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Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - Howard A27-07 (Wellhead)

Project Number: [none]  
 Project Manager: Paul Henchan

**Reported:**  
 06/17/22 11:41

**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 BFF0083 - EPA 3550A**

**Blank (BFF0083-BLK1)**

Prepared & Analyzed: 06/03/22

C10-C28 (DRO)	ND	50	mg/kg							
C28-C36 (ORO)	ND	50	"							

**LCS (BFF0083-BS1)**

Prepared & Analyzed: 06/03/22

C10-C28 (DRO)	560	50	mg/kg	500	112	70-130				
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**Matrix Spike (BFF0083-MS1)**

Source: 2206012-01

Prepared & Analyzed: 06/03/22

C10-C28 (DRO)	537	50	mg/kg	500	29.0	102	70-130			
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**Matrix Spike Dup (BFF0083-MSD1)**

Source: 2206012-01

Prepared & Analyzed: 06/03/22

C10-C28 (DRO)	539	50	mg/kg	500	29.0	102	70-130	0.319	20	
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Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Howard A27-07 (Wellhead)

Project Number: [none]  
Project Manager: Paul Henchan

**Reported:**  
06/17/22 11:41

**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 BFF0235 - EPA 5030 Soil MS**

**Blank (BFF0235-BLK1)**

Prepared: 06/09/22 Analyzed: 06/12/22

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>	0.0325		"	0.0333		97.5	40-150			
<i>Surrogate: Fluoranthene-d10</i>	0.0298		"	0.0333		89.5	40-150			

**LCS (BFF0235-BS1)**

Prepared: 06/09/22 Analyzed: 06/12/22

Acenaphthene	0.0306	0.00500	mg/kg	0.0333		91.9	31-137			
Anthracene	0.0324	0.00500	"	0.0333		97.2	30-120			
Benzo (a) anthracene	0.0281	0.00500	"	0.0333		84.2	30-120			
Benzo (a) pyrene	0.0302	0.00500	"	0.0333		90.6	30-120			
Benzo (b) fluoranthene	0.0310	0.00500	"	0.0333		93.1	30-120			
Benzo (k) fluoranthene	0.0353	0.00500	"	0.0333		106	30-120			
Chrysene	0.0307	0.00500	"	0.0333		92.1	30-120			
Dibenz (a,h) anthracene	0.0272	0.00500	"	0.0333		81.5	30-120			
Fluoranthene	0.0312	0.00500	"	0.0333		93.7	30-120			
Fluorene	0.0297	0.00500	"	0.0333		89.1	30-120			
Indeno (1,2,3-cd) pyrene	0.0170	0.00500	"	0.0333		51.1	30-120			
Pyrene	0.0292	0.00500	"	0.0333		87.7	35-142			
1-Methylnaphthalene	0.0232	0.00500	"	0.0333		69.6	35-142			
2-Methylnaphthalene	0.0354	0.00500	"	0.0333		106	35-142			
<i>Surrogate: 2-Methylnaphthalene-d10</i>	0.0310		"	0.0333		92.9	40-150			
<i>Surrogate: Fluoranthene-d10</i>	0.0299		"	0.0333		89.6	40-150			

Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Howard A27-07 (Wellhead)

Project Number: [none]  
Project Manager: Paul Henchan

**Reported:**  
06/17/22 11:41

**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 BFF0235 - EPA 5030 Soil MS**

<b>Matrix Spike (BFF0235-MS1)</b>		<b>Source: 2206044-01</b>			Prepared: 06/09/22 Analyzed: 06/12/22	
Acenaphthene	0.0178	0.00500	mg/kg	0.0333	ND	53.5 31-137
Anthracene	0.0167	0.00500	"	0.0333	ND	50.2 30-120
Benzo (a) anthracene	0.0149	0.00500	"	0.0333	ND	44.8 30-120
Benzo (a) pyrene	0.0145	0.00500	"	0.0333	ND	43.5 30-120
Benzo (b) fluoranthene	0.0150	0.00500	"	0.0333	ND	45.0 30-120
Benzo (k) fluoranthene	0.0172	0.00500	"	0.0333	ND	51.6 30-120
Chrysene	0.0160	0.00500	"	0.0333	ND	48.1 30-120
Dibenz (a,h) anthracene	0.0165	0.00500	"	0.0333	ND	49.5 30-120
Fluoranthene	0.0172	0.00500	"	0.0333	ND	51.6 30-120
Fluorene	0.0187	0.00500	"	0.0333	ND	56.1 30-120
Indeno (1,2,3-cd) pyrene	0.0148	0.00500	"	0.0333	ND	44.3 30-120
Pyrene	0.0178	0.00500	"	0.0333	ND	53.6 35-142
1-Methylnaphthalene	0.0182	0.00500	"	0.0333	ND	54.5 15-130
2-Methylnaphthalene	0.0190	0.00500	"	0.0333	ND	57.0 15-130
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0182</i>		<i>"</i>	<i>0.0333</i>		<i>54.5 40-150</i>
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0177</i>		<i>"</i>	<i>0.0333</i>		<i>53.1 40-150</i>

<b>Matrix Spike Dup (BFF0235-MSD1)</b>		<b>Source: 2206044-01</b>			Prepared: 06/09/22 Analyzed: 06/12/22	
Acenaphthene	0.0188	0.00500	mg/kg	0.0333	ND	56.5 31-137 5.33 30
Anthracene	0.0190	0.00500	"	0.0333	ND	56.9 30-120 12.5 30
Benzo (a) anthracene	0.0172	0.00500	"	0.0333	ND	51.6 30-120 14.2 30
Benzo (a) pyrene	0.0171	0.00500	"	0.0333	ND	51.2 30-120 16.3 30
Benzo (b) fluoranthene	0.0172	0.00500	"	0.0333	ND	51.6 30-120 13.7 30
Benzo (k) fluoranthene	0.0192	0.00500	"	0.0333	ND	57.6 30-120 11.1 30
Chrysene	0.0183	0.00500	"	0.0333	ND	54.8 30-120 13.0 30
Dibenz (a,h) anthracene	0.0144	0.00500	"	0.0333	ND	43.3 30-120 13.3 30
Fluoranthene	0.0187	0.00500	"	0.0333	ND	56.0 30-120 8.13 30
Fluorene	0.0186	0.00500	"	0.0333	ND	55.7 30-120 0.708 30
Indeno (1,2,3-cd) pyrene	0.0136	0.00500	"	0.0333	ND	40.9 30-120 8.05 30
Pyrene	0.0192	0.00500	"	0.0333	ND	57.6 35-142 7.32 30
1-Methylnaphthalene	0.0192	0.00500	"	0.0333	ND	57.6 15-130 5.68 50
2-Methylnaphthalene	0.0217	0.00500	"	0.0333	ND	65.1 15-130 13.1 50
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0199</i>		<i>"</i>	<i>0.0333</i>		<i>59.7 40-150</i>
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0188</i>		<i>"</i>	<i>0.0333</i>		<i>56.5 40-150</i>

Summit Scientific

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Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - Howard A27-07 (Wellhead)

Project Number: [none]  
 Project Manager: Paul Henchan

**Reported:**  
 06/17/22 11:41

**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 BFF0222 - EPA 3050B**

**Blank (BFF0222-BLK1)**

Prepared: 06/08/22 Analyzed: 06/13/22

Boron ND 0.0100 mg/L

**LCS (BFF0222-BS1)**

Prepared: 06/08/22 Analyzed: 06/13/22

Boron 5.85 0.0100 mg/L 5.00 117 80-120

**Duplicate (BFF0222-DUP1)**

Source: 2206044-01

Prepared: 06/08/22 Analyzed: 06/13/22

Boron 0.415 0.0100 mg/L 0.415 0.0875 20

**Matrix Spike (BFF0222-MS1)**

Source: 2206044-01

Prepared: 06/08/22 Analyzed: 06/13/22

Boron 6.04 0.0100 mg/L 5.00 0.415 112 75-125

**Matrix Spike Dup (BFF0222-MSD1)**

Source: 2206044-01

Prepared: 06/08/22 Analyzed: 06/13/22

Boron 6.09 0.0100 mg/L 5.00 0.415 114 75-125 0.928 25

Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Howard A27-07 (Wellhead)

Project Number: [none]  
Project Manager: Paul Henchan

**Reported:**  
06/17/22 11:41

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

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

**Batch BFF0392 - EPA 3050B**

**Blank (BFF0392-BLK1)**

Prepared: 06/14/22 Analyzed: 06/16/22

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 (BFF0392-BS1)**

Prepared: 06/14/22 Analyzed: 06/16/22

Arsenic	43.8	0.200	mg/kg wet	40.0		109	80-120			
Barium	40.2	0.400	"	40.0		100	80-120			
Cadmium	1.97	0.200	"	2.00		98.4	80-120			
Copper	43.5	0.400	"	40.0		109	80-120			
Lead	18.7	0.200	"	20.0		93.7	80-120			
Nickel	42.0	0.400	"	40.0		105	80-120			
Selenium	3.77	0.260	"	4.00		94.2	80-120			
Silver	1.94	0.0200	"	2.00		97.1	80-120			
Zinc	44.4	0.400	"	40.0		111	80-120			

**Duplicate (BFF0392-DUP1)**

Source: 2206017-01

Prepared: 06/14/22 Analyzed: 06/16/22

Arsenic	3.64	0.232	mg/kg dry		3.38		7.41	20		
Barium	239	0.464	"		64.2		115	20		QM-02
Cadmium	0.294	0.232	"		0.256		13.6	20		
Copper	13.3	0.464	"		12.5		6.59	20		
Lead	9.53	0.232	"		8.93		6.50	20		
Nickel	15.0	0.464	"		14.0		6.99	20		
Selenium	0.813	0.301	"		0.840		3.26	20		
Silver	0.0531	0.0232	"		0.0489		8.36	20		
Zinc	50.5	0.464	"		46.6		8.02	20		

Summit Scientific

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Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - Howard A27-07 (Wellhead)

Project Number: [none]  
 Project Manager: Paul Henchan

**Reported:**  
 06/17/22 11:41

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

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

**Batch BFF0392 - EPA 3050B**

**Matrix Spike (BFF0392-MS1)**

Source: 2206017-01

Prepared: 06/14/22 Analyzed: 06/16/22

Arsenic	46.2	0.232	mg/kg dry	46.4	3.38	92.4	75-125			
Barium	91.5	0.464	"	46.4	64.2	58.9	75-125			QM-02
Cadmium	2.27	0.232	"	2.32	0.256	87.0	75-125			
Copper	56.6	0.464	"	46.4	12.5	95.3	75-125			
Lead	27.4	0.232	"	23.2	8.93	79.7	75-125			
Nickel	57.5	0.464	"	46.4	14.0	93.7	75-125			
Selenium	3.84	0.301	"	4.64	0.840	64.6	75-125			QM-05
Silver	1.96	0.0232	"	2.32	0.0489	82.4	75-125			
Zinc	93.5	0.464	"	46.4	46.6	101	75-125			

**Matrix Spike Dup (BFF0392-MSD1)**

Source: 2206017-01

Prepared: 06/14/22 Analyzed: 06/16/22

Arsenic	46.4	0.232	mg/kg dry	46.4	3.38	92.7	75-125	0.353	25	
Barium	138	0.464	"	46.4	64.2	160	75-125	40.7	25	QM-02
Cadmium	2.28	0.232	"	2.32	0.256	87.4	75-125	0.352	25	
Copper	57.1	0.464	"	46.4	12.5	96.3	75-125	0.834	25	
Lead	26.4	0.232	"	23.2	8.93	75.2	75-125	3.90	25	
Nickel	58.2	0.464	"	46.4	14.0	95.3	75-125	1.26	25	
Selenium	4.11	0.301	"	4.64	0.840	70.5	75-125	6.88	25	QM-05
Silver	1.97	0.0232	"	2.32	0.0489	82.8	75-125	0.491	25	
Zinc	95.2	0.464	"	46.4	46.6	105	75-125	1.78	25	

Summit Scientific

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Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - Howard A27-07 (Wellhead)

Project Number: [none]  
 Project Manager: Paul Henchan

**Reported:**  
 06/17/22 11:41

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

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

**Batch BFF0318 - 3060A Mod**

**Blank (BFF0318-BLK1)**

Prepared & Analyzed: 06/12/22

Chromium, Hexavalent      ND      0.30 mg/kg wet

**LCS (BFF0318-BS1)**

Prepared & Analyzed: 06/12/22

Chromium, Hexavalent      29.2      0.30 mg/kg wet      25.0      117      80-120

**Duplicate (BFF0318-DUP1)**

**Source: 2206017-01**

Prepared & Analyzed: 06/12/22

Chromium, Hexavalent      ND      0.30 mg/kg dry      ND      20

**Matrix Spike (BFF0318-MS1)**

**Source: 2206017-01**

Prepared & Analyzed: 06/12/22

Chromium, Hexavalent      35.8      0.30 mg/kg dry      29.0      ND      123      75-125

**Matrix Spike Dup (BFF0318-MSD1)**

**Source: 2206017-01**

Prepared & Analyzed: 06/12/22

Chromium, Hexavalent      35.1      0.30 mg/kg dry      29.0      ND      121      75-125      1.96      20

Summit Scientific

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Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - Howard A27-07 (Wellhead)

Project Number: [none]  
 Project Manager: Paul Henchan

**Reported:**  
 06/17/22 11:41

**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 BFF0296 - General Preparation**

**Blank (BFF0296-BLK1)**

Prepared: 06/10/22 Analyzed: 06/11/22

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

**LCS (BFF0296-BS1)**

Prepared: 06/10/22 Analyzed: 06/11/22

Calcium	579	0.0500	mg/L wet	500	116	70-130				
Magnesium	504	0.0500	"	500	101	70-130				
Sodium	481	0.0500	"	500	96.2	70-130				

Summit Scientific

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Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - Howard A27-07 (Wellhead)

Project Number: [none]  
 Project Manager: Paul Henchan

**Reported:**  
 06/17/22 11:41

**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 BFF0223 - General Preparation**

**Duplicate (BFF0223-DUP1)**

**Source: 2206044-01**

Prepared: 06/08/22 Analyzed: 06/09/22

% Solids	80.0		%		80.0			0.00		20	
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Summit Scientific

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Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - Howard A27-07 (Wellhead)

Project Number: [none]  
 Project Manager: Paul Henchan

**Reported:**  
 06/17/22 11:41

**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 BFF0298 - General Preparation**

**Blank (BFF0298-BLK1)**

Prepared & Analyzed: 06/10/22

Specific Conductance (EC) ND 0.0100 mmhos/cm

**LCS (BFF0298-BS1)**

Prepared & Analyzed: 06/10/22

Specific Conductance (EC) 0.158 0.0100 mmhos/cm 0.150 105 95-105

**Duplicate (BFF0298-DUP1)**

Source: 2206045-01

Prepared & Analyzed: 06/10/22

Specific Conductance (EC) 1.29 0.0100 mmhos/cm 1.30 0.848 20

Summit Scientific

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Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - Howard A27-07 (Wellhead)

Project Number: [none]  
 Project Manager: Paul Henchan

**Reported:**  
 06/17/22 11:41

**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 BFF0297 - General Preparation**

**LCS (BFF0297-BS1)**

Prepared & Analyzed: 06/10/22

pH 9.01 pH Units 9.18 98.1 95-105

**Duplicate (BFF0297-DUP1)**

Source: 2206045-01

Prepared & Analyzed: 06/10/22

pH 8.22 pH Units 8.19 0.366 20

Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Howard A27-07 (Wellhead)

Project Number: [none]  
Project Manager: Paul Henchan

**Reported:**  
06/17/22 11:41

### Notes and Definitions

- QM-05 The spike recovery was outside acceptance limits for the MS and/or MSD due to matrix interference. The associated LCS and/or LCSD were within acceptance limits, therefore the data are considered valid.
- QM-02 The RPD and/or percent recovery for this QC sample cannot be accurately calculated due to the high concentration of analyte inherent in the sample.
- 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

# Summit Scientific

---

4653 Table Mountain Drive, Golden, Colorado 80401

303.277.9310

June 21, 2023

Paul Henehan

Fremont Environmental

PO Box 1289

Wellington, CO 80549

RE: Noble - Howard A27-07 (Wellhead)

Work Order # 2306317

Enclosed are the results of analyses for samples received by Summit Scientific on 06/16/23 14:10. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Scott Sheely For Paul Shrewsbury

President



Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Howard A27-07 (Wellhead)

Project Number: [none]  
Project Manager: Paul Henehan

**Reported:**  
06/21/23 15:51

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
N01@2.5'	2306317-01	Soil	06/16/23 00:00	06/16/23 14:10
E01@2.5'	2306317-02	Soil	06/16/23 00:00	06/16/23 14:10
S01@2.5'	2306317-03	Soil	06/16/23 00:00	06/16/23 14:10
W01@2.5'	2306317-04	Soil	06/16/23 00:00	06/16/23 14:10
B01@2.5'	2306317-05	Soil	06/16/23 00:00	06/16/23 14:10
BKG01@3'	2306317-06	Soil	06/16/23 00:00	06/16/23 14:10
BKG02@3'	2306317-07	Soil	06/16/23 00:00	06/16/23 14:10

Summit Scientific

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2306317

# Summit Scientific

S<sub>2</sub>

4653 Table Mountain Drive ♦ Golden, Colorado 80403  
303-277-9310 ♦ 303-374-5933 (f)

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 A27-F WH

Sampler Name: Chris Lattes

Project Number:

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested						Special Instructions	
					HCl	HNO3	None	Other	Water	Soil	Air-Canister #	Other	TPH, BTEX, TMS, Naph.	PAH (915)	EC, SAR, pH, Boron	Metals (915)	TDS, Chloride, Sulfate	Full 915 Site		HOLD
1	N01 @ 2.5'	6/16/23		2														X		
2	E01 @ 2.5'	↓		2														X		
3	S01 @ 2.5'	↓		2														X		
4	N01 @ 2.5'	↓		2														X		
5	B01 @ 3.5'	6/16/23		2														X		
6	BK601 @ 3'	↓		1												X	X			
7	BK602 @ 3'	6/16/23		1												X	X			
8																				
9																				
10																				

Relinquished by: <u>Chris Lattes</u>	Date/Time: <u>6/16/23 14:10</u>	Received by: <u>[Signature]</u>	Date/Time: <u>6/16/23 1410</u>	Turn Around Time (Check)	Notes:
Relinquished by:	Date/Time:	Received by:	Date/Time:	Same Day <input checked="" type="checkbox"/> 72 hours <input type="checkbox"/>	
Relinquished by:	Date/Time:	Received by:	Date/Time:	24 hours <input type="checkbox"/> Standard <input type="checkbox"/>	
Relinquished by:	Date/Time:	Received by:	Date/Time:	48 hours <input type="checkbox"/>	Temperature Upon Receipt: <u>11.4</u>
Relinquished by:	Date/Time:	Received by:	Date/Time:	Sample Integrity:	
Relinquished by:	Date/Time:	Received by:	Date/Time:	Samples Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

S<sub>2</sub>

Sample Receipt Checklist

S2 Work Order# 2306317

Client: Fremont

Client Project ID: Howard AZT-7 WH

Shipped 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

Water

Other

Temp (°C)

Thermometer #

	Yes	No	N/A	Comments (if any)
If samples require cooling, is the temperature < 6°C? <sup>(1)</sup> 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? <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 type="checkbox"/>	<input checked="" 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? If yes, contact client and note in narrative.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples preserved that require preservation (excluding cooling)? <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

6/16/23

Date/Time



Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Howard A27-07 (Wellhead)

Project Number: [none]  
Project Manager: Paul Henehan

Reported:  
06/21/23 15:51

**N01@2.5'**  
**2306317-01 (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	MDL							
Benzene	ND	0.0020		mg/kg	1	BGF0622	06/16/23	06/16/23	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	MDL							
Surrogate: 1,2-Dichloroethane-d4		126 %		50-150		"	"	"	"	
Surrogate: Toluene-d8		89.0 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		104 %		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	MDL							
C10-C28 (DRO)	ND	50		mg/kg	1	BGF0624	06/16/23	06/16/23	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	MDL							
Surrogate: o-Terphenyl		126 %		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 A27-07 (Wellhead)

Project Number: [none]  
Project Manager: Paul Henehan

**Reported:**  
06/21/23 15:51

**N01@2.5'**  
**2306317-01 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

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

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500		mg/kg	1	BGF0636	06/19/23	06/19/23	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		"	"	"	"	"	"	
<b>Fluoranthene</b>	<b>0.00617</b>	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: **06/16/23 00:00**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		57.4 %		40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		67.5 %		40-150		"	"	"	"	

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

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

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>0.213</b>	0.0100		mg/L	1	BGF0647	06/19/23	06/20/23	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **06/16/23 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 A27-07 (Wellhead)

Project Number: [none]  
 Project Manager: Paul Henehan

**Reported:**  
 06/21/23 15:51

**N01@2.5'**  
**2306317-01 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Analyte	Result	Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	7.20	0.228		mg/kg dry	1	BGF0635	06/19/23	06/19/23	EPA 6020B	
Barium	282	0.456		"	"	"	"	"	"	
Cadmium	0.411	0.228		"	"	"	"	"	"	
Copper	4.95	0.456		"	"	"	"	"	"	
Lead	38.7	0.228		"	"	"	"	"	"	
Nickel	4.37	0.456		"	"	"	"	"	"	
Selenium	0.263	0.296	0.199	"	"	"	"	"	"	
Silver	0.0629	0.0228		"	"	"	"	"	"	
Zinc	22.1	0.456		"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

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

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30		mg/kg dry	1	BGF0633	06/19/23	06/19/23	EPA 7196A	

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

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

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	64.5	0.0570		mg/L dry	1	BGF0651	06/19/23	06/21/23	EPA 6020B	
Magnesium	26.6	0.0570		"	"	"	"	"	"	
Sodium	67.3	0.0570		"	"	"	"	"	"	

**Calculated Analysis**

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

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	1.78	0.00100		units	1	BGF0752	06/21/23	06/21/23	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 A27-07 (Wellhead)

Project Number: [none]  
 Project Manager: Paul Henehan

**Reported:**  
 06/21/23 15:51

**N01@2.5'**  
**2306317-01 (Soil)**

**Summit Scientific**

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

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

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
% Solids	87.8			%	1	BGF0631	06/19/23	06/19/23	Calculation	

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

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

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Specific Conductance (EC)	1.35	0.0100		mmhos/cm	1	BGF0691	06/20/23	06/20/23	EPA 120.1	

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

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

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
pH	7.67			pH Units	1	BGF0690	06/20/23	06/20/23	EPA 9045D	

Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Howard A27-07 (Wellhead)

Project Number: [none]  
Project Manager: Paul Henehan

**Reported:**  
06/21/23 15:51

**E01@2.5'**  
**2306317-02 (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	MDL							
Benzene	ND	0.0020		mg/kg	1	BGF0622	06/16/23	06/16/23	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	MDL							
Surrogate: 1,2-Dichloroethane-d4		126 %		50-150		"	"	"	"	
Surrogate: Toluene-d8		89.7 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		108 %		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	MDL							
C10-C28 (DRO)	ND	50		mg/kg	1	BGF0624	06/16/23	06/16/23	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	MDL							
Surrogate: o-Terphenyl		128 %		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 A27-07 (Wellhead)

Project Number: [none]  
Project Manager: Paul Henehan

**Reported:**  
06/21/23 15:51

**E01@2.5'**  
**2306317-02 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

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

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500		mg/kg	1	BGF0636	06/19/23	06/19/23	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: **06/16/23 00:00**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		56.9 %		40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		66.6 %		40-150		"	"	"	"	

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

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

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>0.239</b>	0.0100		mg/L	1	BGF0647	06/19/23	06/20/23	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **06/16/23 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 A27-07 (Wellhead)

Project Number: [none]  
 Project Manager: Paul Henehan

**Reported:**  
 06/21/23 15:51

**E01@2.5'**  
**2306317-02 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Analyte	Result	Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	10.8	0.234		mg/kg dry	1	BGF0635	06/19/23	06/19/23	EPA 6020B	
Barium	604	0.468		"	"	"	"	"	"	
Cadmium	0.319	0.234		"	"	"	"	"	"	
Copper	5.87	0.468		"	"	"	"	"	"	
Lead	17.9	0.234		"	"	"	"	"	"	
Nickel	4.47	0.468		"	"	"	"	"	"	
Selenium	0.331	0.304	0.205	"	"	"	"	"	"	
Silver	0.0459	0.0234		"	"	"	"	"	"	
Zinc	26.8	0.468		"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

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

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30		mg/kg dry	1	BGF0633	06/19/23	06/19/23	EPA 7196A	

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

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

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	101	0.0585		mg/L dry	1	BGF0651	06/19/23	06/21/23	EPA 6020B	
Magnesium	41.8	0.0585		"	"	"	"	"	"	
Sodium	135	0.0585		"	"	"	"	"	"	

**Calculated Analysis**

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

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	2.85	0.00100		units	1	BGF0752	06/21/23	06/21/23	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 A27-07 (Wellhead)

Project Number: [none]  
 Project Manager: Paul Henehan

**Reported:**  
 06/21/23 15:51

**E01@2.5'**  
**2306317-02 (Soil)**

**Summit Scientific**

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

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

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
% Solids	85.5			%	1	BGF0631	06/19/23	06/19/23	Calculation	

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

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

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Specific Conductance (EC)	1.60	0.0100		mmhos/cm	1	BGF0691	06/20/23	06/20/23	EPA 120.1	

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

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

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
pH	7.86			pH Units	1	BGF0690	06/20/23	06/20/23	EPA 9045D	

Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Howard A27-07 (Wellhead)

Project Number: [none]  
Project Manager: Paul Henehan

Reported:  
06/21/23 15:51

**S01@2.5'**  
**2306317-03 (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	MDL							
Benzene	ND	0.0020		mg/kg	1	BGF0622	06/16/23	06/16/23	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	MDL							
Surrogate: 1,2-Dichloroethane-d4		127 %		50-150		"	"	"	"	
Surrogate: Toluene-d8		91.0 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		107 %		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	MDL							
C10-C28 (DRO)	ND	50		mg/kg	1	BGF0624	06/16/23	06/16/23	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	MDL							
Surrogate: o-Terphenyl		129 %		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 A27-07 (Wellhead)

Project Number: [none]  
 Project Manager: Paul Henehan

**Reported:**  
 06/21/23 15:51

**S01@2.5'**  
**2306317-03 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

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

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500		mg/kg	1	BGF0636	06/19/23	06/19/23	EPA 8270D SIM	
Anthracene	ND	0.00500		"	"	"	"	"	"	"
<b>Benzo (a) anthracene</b>	<b>0.0109</b>	0.00500		"	"	"	"	"	"	"
<b>Benzo (a) pyrene</b>	<b>0.00614</b>	0.00500		"	"	"	"	"	"	"
<b>Benzo (b) fluoranthene</b>	<b>0.00887</b>	0.00500		"	"	"	"	"	"	"
Benzo (k) fluoranthene	ND	0.00500		"	"	"	"	"	"	"
<b>Chrysene</b>	<b>0.00878</b>	0.00500		"	"	"	"	"	"	"
Dibenz (a,h) anthracene	ND	0.00500		"	"	"	"	"	"	"
<b>Fluoranthene</b>	<b>0.0183</b>	0.00500		"	"	"	"	"	"	"
Fluorene	ND	0.00500		"	"	"	"	"	"	"
<b>Indeno (1,2,3-cd) pyrene</b>	<b>0.00690</b>	0.00500		"	"	"	"	"	"	"
<b>Pyrene</b>	<b>0.0156</b>	0.00500		"	"	"	"	"	"	"
1-Methylnaphthalene	ND	0.00500		"	"	"	"	"	"	"
2-Methylnaphthalene	ND	0.00500		"	"	"	"	"	"	"

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

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		47.0 %		40-150		"	"	"	"	"
Surrogate: Fluoranthene-d10		44.0 %		40-150		"	"	"	"	"

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

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

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>0.340</b>	0.0100		mg/L	1	BGF0647	06/19/23	06/20/23	EPA 6020B	

**Total Metals by EPA 6020B**

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

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

Project: Noble - Howard A27-07 (Wellhead)

Project Number: [none]  
 Project Manager: Paul Henehan

**Reported:**  
 06/21/23 15:51

**S01@2.5'**  
**2306317-03 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Analyte	Result	Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	6.50	0.226		mg/kg dry	1	BGF0635	06/19/23	06/19/23	EPA 6020B	
Barium	166	0.453		"	"	"	"	"	"	
Cadmium	0.283	0.226		"	"	"	"	"	"	
Copper	4.65	0.453		"	"	"	"	"	"	
Lead	28.7	0.226		"	"	"	"	"	"	
Nickel	4.66	0.453		"	"	"	"	"	"	
Selenium	0.389	0.294	0.198	"	"	"	"	"	"	
Silver	0.0589	0.0226		"	"	"	"	"	"	
Zinc	23.6	0.453		"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

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

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30		mg/kg dry	1	BGF0633	06/19/23	06/19/23	EPA 7196A	

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

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

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	52.4	0.0566		mg/L dry	1	BGF0651	06/19/23	06/21/23	EPA 6020B	
Magnesium	28.4	0.0566		"	"	"	"	"	"	
Sodium	87.7	0.0566		"	"	"	"	"	"	

**Calculated Analysis**

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

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	2.42	0.00100		units	1	BGF0752	06/21/23	06/21/23	Calculation	

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

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Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - Howard A27-07 (Wellhead)

Project Number: [none]  
 Project Manager: Paul Henehan

**Reported:**  
 06/21/23 15:51

**S01@2.5'**  
**2306317-03 (Soil)**

**Summit Scientific**

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

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

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
% Solids	88.3			%	1	BGF0631	06/19/23	06/19/23	Calculation	

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

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

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Specific Conductance (EC)	1.66	0.0100		mmhos/cm	1	BGF0691	06/20/23	06/20/23	EPA 120.1	

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

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

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
pH	7.85			pH Units	1	BGF0690	06/20/23	06/20/23	EPA 9045D	

Summit Scientific

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PO Box 1289  
Wellington CO, 80549

Project: Noble - Howard A27-07 (Wellhead)

Project Number: [none]  
Project Manager: Paul Henehan

**Reported:**  
06/21/23 15:51

**W01@2.5'**  
**2306317-04 (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	MDL							
Benzene	ND	0.0020		mg/kg	1	BGF0622	06/16/23	06/16/23	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	MDL							
Surrogate: 1,2-Dichloroethane-d4		128 %		50-150		"	"	"	"	
Surrogate: Toluene-d8		91.6 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		110 %		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	MDL							
C10-C28 (DRO)	ND	50		mg/kg	1	BGF0624	06/16/23	06/16/23	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	MDL							
Surrogate: o-Terphenyl		128 %		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 A27-07 (Wellhead)

Project Number: [none]  
 Project Manager: Paul Henehan

**Reported:**  
 06/21/23 15:51

**W01@2.5'**  
**2306317-04 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

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

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500		mg/kg	1	BGF0636	06/19/23	06/19/23	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: **06/16/23 00:00**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		45.2 %		40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		50.1 %		40-150		"	"	"	"	

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

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

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>0.201</b>	0.0100		mg/L	1	BGF0647	06/19/23	06/20/23	EPA 6020B	

**Total Metals by EPA 6020B**

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

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

Project: Noble - Howard A27-07 (Wellhead)

Project Number: [none]  
 Project Manager: Paul Henehan

**Reported:**  
 06/21/23 15:51

**W01@2.5'**  
**2306317-04 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Analyte	Result	Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	4.86	0.218		mg/kg dry	1	BGF0635	06/19/23	06/19/23	EPA 6020B	
Barium	234	0.436		"	"	"	"	"	"	
Cadmium	0.237	0.218		"	"	"	"	"	"	
Copper	4.56	0.436		"	"	"	"	"	"	
Lead	27.6	0.218		"	"	"	"	"	"	
Nickel	4.09	0.436		"	"	"	"	"	"	
Selenium	0.199	0.283	0.191	"	"	"	"	"	"	
Silver	0.0531	0.0218		"	"	"	"	"	"	
Zinc	20.0	0.436		"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

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

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30		mg/kg dry	1	BGF0633	06/19/23	06/19/23	EPA 7196A	

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

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

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	45.7	0.0545		mg/L dry	1	BGF0651	06/19/23	06/21/23	EPA 6020B	
Magnesium	19.3	0.0545		"	"	"	"	"	"	
Sodium	61.4	0.0545		"	"	"	"	"	"	

**Calculated Analysis**

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

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	1.92	0.00100		units	1	BGF0752	06/21/23	06/21/23	Calculation	

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

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Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - Howard A27-07 (Wellhead)

Project Number: [none]  
 Project Manager: Paul Henehan

**Reported:**  
 06/21/23 15:51

**W01@2.5'**  
**2306317-04 (Soil)**

**Summit Scientific**

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

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

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
% Solids	91.8			%	1	BGF0631	06/19/23	06/19/23	Calculation	

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

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

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Specific Conductance (EC)	1.21	0.0100		mmhos/cm	1	BGF0691	06/20/23	06/20/23	EPA 120.1	

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

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

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
pH	7.76			pH Units	1	BGF0690	06/20/23	06/20/23	EPA 9045D	

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Howard A27-07 (Wellhead)

Project Number: [none]  
Project Manager: Paul Henehan

Reported:  
06/21/23 15:51

**B01@2.5'**  
**2306317-05 (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	MDL							
Benzene	ND	0.0020		mg/kg	1	BGF0622	06/16/23	06/16/23	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	MDL							
Surrogate: 1,2-Dichloroethane-d4		131 %		50-150		"	"	"	"	
Surrogate: Toluene-d8		91.3 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		108 %		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	MDL							
C10-C28 (DRO)	ND	50		mg/kg	1	BGF0624	06/16/23	06/16/23	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	MDL							
Surrogate: o-Terphenyl		128 %		30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

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Project: Noble - Howard A27-07 (Wellhead)

Project Number: [none]  
Project Manager: Paul Henehan

**Reported:**  
06/21/23 15:51

**B01@2.5'**  
**2306317-05 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

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

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500		mg/kg	1	BGF0636	06/19/23	06/19/23	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		"	"	"	"	"	"	"
<b>Fluoranthene</b>	<b>0.00621</b>	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: **06/16/23 00:00**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		58.0 %		40-150		"	"	"	"	"
Surrogate: Fluoranthene-d10		74.6 %		40-150		"	"	"	"	"

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

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

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>0.238</b>	0.0100		mg/L	1	BGF0647	06/19/23	06/20/23	EPA 6020B	

**Total Metals by EPA 6020B**

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

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Fremont Environmental  
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Project: Noble - Howard A27-07 (Wellhead)

Project Number: [none]  
 Project Manager: Paul Henehan

**Reported:**  
 06/21/23 15:51

**B01@2.5'**  
**2306317-05 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Analyte	Result	Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	5.80	0.233		mg/kg dry	1	BGF0635	06/19/23	06/19/23	EPA 6020B	
Barium	220	0.467		"	"	"	"	"	"	
Cadmium	0.272	0.233		"	"	"	"	"	"	
Copper	6.22	0.467		"	"	"	"	"	"	
Lead	46.1	0.233		"	"	"	"	"	"	
Nickel	4.38	0.467		"	"	"	"	"	"	
Selenium	0.232	0.303	0.204	"	"	"	"	"	"	
Silver	0.0793	0.0233		"	"	"	"	"	"	
Zinc	24.5	0.467		"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

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

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30		mg/kg dry	1	BGF0633	06/19/23	06/19/23	EPA 7196A	

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

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

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	89.4	0.0583		mg/L dry	1	BGF0651	06/19/23	06/21/23	EPA 6020B	
Magnesium	35.3	0.0583		"	"	"	"	"	"	
Sodium	103	0.0583		"	"	"	"	"	"	

**Calculated Analysis**

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

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	2.33	0.00100		units	1	BGF0752	06/21/23	06/21/23	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 A27-07 (Wellhead)

Project Number: [none]  
 Project Manager: Paul Henehan

**Reported:**  
 06/21/23 15:51

**B01@2.5'**  
**2306317-05 (Soil)**

**Summit Scientific**

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

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

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
% Solids	85.7			%	1	BGF0631	06/19/23	06/19/23	Calculation	

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

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

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Specific Conductance (EC)	1.50	0.0100		mmhos/cm	1	BGF0691	06/20/23	06/20/23	EPA 120.1	

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

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

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
pH	7.78			pH Units	1	BGF0690	06/20/23	06/20/23	EPA 9045D	

Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Howard A27-07 (Wellhead)

Project Number: [none]  
Project Manager: Paul Henehan

**Reported:**  
06/21/23 15:51

**BKG01@3'**  
**2306317-06 (Soil)**

**Summit Scientific**

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

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

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
<b>Boron</b>	<b>0.295</b>	0.0100		mg/L	1	BGF0647	06/19/23	06/20/23	EPA 6020B	

**Total Metals by EPA 6020B**

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

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
<b>Arsenic</b>	<b>5.38</b>	0.217		mg/kg dry	1	BGF0635	06/19/23	06/19/23	EPA 6020B	
<b>Barium</b>	<b>162</b>	0.434		"	"	"	"	"	"	
<b>Cadmium</b>	<b>0.231</b>	0.217		"	"	"	"	"	"	
<b>Copper</b>	<b>5.15</b>	0.434		"	"	"	"	"	"	
<b>Lead</b>	<b>7.57</b>	0.217		"	"	"	"	"	"	
<b>Nickel</b>	<b>4.71</b>	0.434		"	"	"	"	"	"	
<b>Selenium</b>	<b>0.200</b>	0.282	0.190	"	"	"	"	"	"	
<b>Silver</b>	<b>0.0451</b>	0.0217		"	"	"	"	"	"	
<b>Zinc</b>	<b>16.6</b>	0.434		"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

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

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Chromium, Hexavalent	ND	0.30		mg/kg dry	1	BGF0633	06/19/23	06/19/23	EPA 7196A	

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

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

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
<b>Calcium</b>	<b>110</b>	0.0542		mg/L dry	1	BGF0651	06/19/23	06/21/23	EPA 6020B	
<b>Magnesium</b>	<b>37.7</b>	0.0542		"	"	"	"	"	"	
<b>Sodium</b>	<b>251</b>	0.0542		"	"	"	"	"	"	

Summit Scientific

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Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - Howard A27-07 (Wellhead)

Project Number: [none]  
 Project Manager: Paul Henehan

**Reported:**  
 06/21/23 15:51

**BKG01@3'**  
**2306317-06 (Soil)**

**Summit Scientific**

**Calculated Analysis**

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

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	5.27	0.00100		units	1	BGF0752	06/21/23	06/21/23	Calculation	

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

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

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	92.2			%	1	BGF0631	06/19/23	06/19/23	Calculation	

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

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

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	2.63	0.0100		mmhos/cm	1	BGF0691	06/20/23	06/20/23	EPA 120.1	

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

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

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.81			pH Units	1	BGF0690	06/20/23	06/20/23	EPA 9045D	

Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Howard A27-07 (Wellhead)

Project Number: [none]  
Project Manager: Paul Henehan

**Reported:**  
06/21/23 15:51

**BKG02@3'**  
**2306317-07 (Soil)**

**Summit Scientific**

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

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

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
<b>Boron</b>	<b>0.0732</b>	0.0100		mg/L	1	BGF0647	06/19/23	06/20/23	EPA 6020B	

**Total Metals by EPA 6020B**

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

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
<b>Arsenic</b>	<b>5.08</b>	0.220		mg/kg dry	1	BGF0635	06/19/23	06/19/23	EPA 6020B	
<b>Barium</b>	<b>75.9</b>	0.439		"	"	"	"	"	"	
<b>Cadmium</b>	<b>0.293</b>	0.220		"	"	"	"	"	"	
<b>Copper</b>	<b>2.62</b>	0.439		"	"	"	"	"	"	
<b>Lead</b>	<b>6.19</b>	0.220		"	"	"	"	"	"	
<b>Nickel</b>	<b>3.50</b>	0.439		"	"	"	"	"	"	
Selenium	ND	0.285	0.192	"	"	"	"	"	"	
Silver	ND	0.0220		"	"	"	"	"	"	
<b>Zinc</b>	<b>15.5</b>	0.439		"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

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

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Chromium, Hexavalent	ND	0.30		mg/kg dry	1	BGF0633	06/19/23	06/19/23	EPA 7196A	

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

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

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
<b>Calcium</b>	<b>16.9</b>	0.0549		mg/L dry	1	BGF0651	06/19/23	06/21/23	EPA 6020B	
<b>Magnesium</b>	<b>5.99</b>	0.0549		"	"	"	"	"	"	
<b>Sodium</b>	<b>39.6</b>	0.0549		"	"	"	"	"	"	

Summit Scientific

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Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - Howard A27-07 (Wellhead)

Project Number: [none]  
 Project Manager: Paul Henehan

**Reported:**  
 06/21/23 15:51

**BKG02@3'**  
**2306317-07 (Soil)**

**Summit Scientific**

**Calculated Analysis**

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

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	2.11	0.00100		units	1	BGF0752	06/21/23	06/21/23	Calculation	

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

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

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	91.1			%	1	BGF0631	06/19/23	06/19/23	Calculation	

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

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

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.343	0.0100		mmhos/cm	1	BGF0691	06/20/23	06/20/23	EPA 120.1	

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

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

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.45			pH Units	1	BGF0690	06/20/23	06/20/23	EPA 9045D	

Summit Scientific

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Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - Howard A27-07 (Wellhead)

Project Number: [none]  
 Project Manager: Paul Henehan

**Reported:**  
 06/21/23 15:51

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

**Summit Scientific**

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

**Batch BGF0622 - EPA 5030 Soil MS**

**Blank (BGF0622-BLK1)**

Prepared: 06/16/23 Analyzed: 06/17/23

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	0.0575		"	0.0400		144	50-150			
Surrogate: Toluene-d8	0.0404		"	0.0400		101	50-150			
Surrogate: 4-Bromofluorobenzene	0.0444		"	0.0400		111	50-150			

**LCS (BGF0622-BS1)**

Prepared: 06/16/23 Analyzed: 06/17/23

Benzene	0.0937	0.0020	mg/kg	0.100		93.7	70-130			
Toluene	0.0832	0.0050	"	0.100		83.2	70-130			
Ethylbenzene	0.0794	0.0050	"	0.100		79.4	70-130			
m,p-Xylene	0.144	0.010	"	0.200		72.0	70-130			
o-Xylene	0.0881	0.0050	"	0.100		88.1	70-130			
1,2,4-Trimethylbenzene	0.0934	0.0050	"	0.100		93.4	70-130			
1,3,5-Trimethylbenzene	0.0787	0.0050	"	0.100		78.7	70-130			
Naphthalene	0.0919	0.0038	"	0.100		91.9	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0474		"	0.0400		119	50-150			
Surrogate: Toluene-d8	0.0403		"	0.0400		101	50-150			
Surrogate: 4-Bromofluorobenzene	0.0437		"	0.0400		109	50-150			

**Matrix Spike (BGF0622-MS1)**

Source: 2306317-01

Prepared: 06/16/23 Analyzed: 06/17/23

Benzene	0.102	0.0020	mg/kg	0.100	ND	102	70-130			
Toluene	0.0907	0.0050	"	0.100	ND	90.7	70-130			
Ethylbenzene	0.0906	0.0050	"	0.100	ND	90.6	70-130			
m,p-Xylene	0.165	0.010	"	0.200	ND	82.3	70-130			
o-Xylene	0.0796	0.0050	"	0.100	ND	79.6	70-130			
1,2,4-Trimethylbenzene	0.0740	0.0050	"	0.100	ND	74.0	70-130			
1,3,5-Trimethylbenzene	0.0912	0.0050	"	0.100	ND	91.2	70-130			
Naphthalene	0.0797	0.0038	"	0.100	ND	79.7	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0515		"	0.0400		129	50-150			
Surrogate: Toluene-d8	0.0395		"	0.0400		98.8	50-150			
Surrogate: 4-Bromofluorobenzene	0.0429		"	0.0400		107	50-150			

Summit Scientific

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Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - Howard A27-07 (Wellhead)

Project Number: [none]  
 Project Manager: Paul Henehan

**Reported:**  
 06/21/23 15:51

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

**Summit Scientific**

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

**Batch BGF0622 - EPA 5030 Soil MS**

Matrix Spike Dup (BGF0622-MSD1)	Source: 2306317-01			Prepared: 06/16/23 Analyzed: 06/17/23						
Benzene	0.102	0.0020	mg/kg	0.100	ND	102	70-130	0.147	30	
Toluene	0.0918	0.0050	"	0.100	ND	91.8	70-130	1.25	30	
Ethylbenzene	0.0948	0.0050	"	0.100	ND	94.8	70-130	4.53	30	
m,p-Xylene	0.173	0.010	"	0.200	ND	86.3	70-130	4.79	30	
o-Xylene	0.0840	0.0050	"	0.100	ND	84.0	70-130	5.35	30	
1,2,4-Trimethylbenzene	0.0787	0.0050	"	0.100	ND	78.7	70-130	6.13	30	
1,3,5-Trimethylbenzene	0.0965	0.0050	"	0.100	ND	96.5	70-130	5.69	30	
Naphthalene	0.0883	0.0038	"	0.100	ND	88.3	70-130	10.3	30	
Surrogate: 1,2-Dichloroethane-d4	0.0529		"	0.0400		132	50-150			
Surrogate: Toluene-d8	0.0392		"	0.0400		98.0	50-150			
Surrogate: 4-Bromofluorobenzene	0.0417		"	0.0400		104	50-150			

Summit Scientific

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Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - Howard A27-07 (Wellhead)

Project Number: [none]  
 Project Manager: Paul Henehan

**Reported:**  
 06/21/23 15:51

**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 BGF0624 - EPA 3550A**

**Blank (BGF0624-BLK1)**

Prepared & Analyzed: 06/16/23

C10-C28 (DRO)	ND	50	mg/kg								
C28-C36 (ORO)	ND	50	"								
Surrogate: <i>o</i> -Terphenyl	16.3		"	12.5		130		30-150			

**LCS (BGF0624-BS1)**

Prepared & Analyzed: 06/16/23

C10-C28 (DRO)	562	50	mg/kg	500		112		70-130			
Surrogate: <i>o</i> -Terphenyl	16.5		"	12.5		132		30-150			

**Matrix Spike (BGF0624-MS1)**

Source: 2306317-01

Prepared & Analyzed: 06/16/23

C10-C28 (DRO)	536	50	mg/kg	500	9.53	105		70-130			
Surrogate: <i>o</i> -Terphenyl	15.2		"	12.5		122		30-150			

**Matrix Spike Dup (BGF0624-MSD1)**

Source: 2306317-01

Prepared & Analyzed: 06/16/23

C10-C28 (DRO)	555	50	mg/kg	500	9.53	109		70-130	3.54	20	
Surrogate: <i>o</i> -Terphenyl	14.4		"	12.5		115		30-150			

Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Howard A27-07 (Wellhead)

Project Number: [none]  
Project Manager: Paul Henehan

**Reported:**  
06/21/23 15:51

**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>			

Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Howard A27-07 (Wellhead)

Project Number: [none]  
Project Manager: Paul Henehan

Reported:  
06/21/23 15:51

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			
Surrogate: 2-Methylnaphthalene-d10	0.0194		"	0.0333		58.2	40-150			
Surrogate: Fluoranthene-d10	0.0294		"	0.0333		88.3	40-150			

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	
Surrogate: 2-Methylnaphthalene-d10	0.0227		"	0.0333		68.1	40-150			
Surrogate: Fluoranthene-d10	0.0340		"	0.0333		102	40-150			

Summit Scientific

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Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - Howard A27-07 (Wellhead)

Project Number: [none]  
 Project Manager: Paul Henehan

**Reported:**  
 06/21/23 15:51

**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 BGF0647 - EPA 3050B**

**Blank (BGF0647-BLK1)**

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

Boron ND 0.0100 mg/L

**LCS (BGF0647-BS1)**

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

Boron 5.48 0.0100 mg/L 5.00 110 80-120

**Duplicate (BGF0647-DUP1)**

Source: 2306317-01

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

Boron 0.210 0.0100 mg/L 0.213 1.27 20

**Matrix Spike (BGF0647-MS1)**

Source: 2306317-01

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

Boron 5.21 0.0100 mg/L 5.00 0.213 99.9 75-125

**Matrix Spike Dup (BGF0647-MSD1)**

Source: 2306317-01

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

Boron 5.27 0.0100 mg/L 5.00 0.213 101 75-125 1.11 25

Summit Scientific

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Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - Howard A27-07 (Wellhead)

Project Number: [none]  
 Project Manager: Paul Henehan

**Reported:**  
 06/21/23 15:51

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

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

**Batch BGF0635 - EPA 3050B**

**Blank (BGF0635-BLK1)**

Prepared & Analyzed: 06/19/23

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 (BGF0635-BS1)**

Prepared & Analyzed: 06/19/23

Arsenic	40.4	0.200	mg/kg wet	40.0	101	80-120
Barium	41.5	0.400	"	40.0	104	80-120
Cadmium	2.08	0.200	"	2.00	104	80-120
Copper	41.7	0.400	"	40.0	104	80-120
Lead	20.7	0.200	"	20.0	103	80-120
Nickel	39.1	0.400	"	40.0	97.7	80-120
Selenium	4.43	0.260	"	4.00	111	80-120
Silver	2.11	0.0200	"	2.00	106	80-120
Zinc	39.6	0.400	"	40.0	99.0	80-120

**Duplicate (BGF0635-DUP1)**

Source: 2305662-01

Prepared & Analyzed: 06/19/23

Arsenic	1.20	0.240	mg/kg dry	1.27	5.36	20
Barium	37.4	0.479	"	37.8	1.21	20
Cadmium	0.165	0.240	"	0.172	3.70	20
Copper	3.55	0.479	"	3.43	3.46	20
Lead	4.67	0.240	"	4.67	0.0616	20
Nickel	1.56	0.479	"	1.66	5.83	20
Selenium	ND	0.312	"	ND		20
Silver	0.0225	0.0240	"	0.0230	2.11	20
Zinc	11.8	0.479	"	12.5	5.39	20

Summit Scientific

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Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - Howard A27-07 (Wellhead)

Project Number: [none]  
 Project Manager: Paul Henehan

**Reported:**  
 06/21/23 15:51

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

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

**Batch BGF0635 - EPA 3050B**

<b>Matrix Spike (BGF0635-MS1)</b>	<b>Source: 2305662-01</b>			<b>Prepared &amp; Analyzed: 06/19/23</b>								
Arsenic	51.5	0.240	mg/kg dry	47.9	1.27	105	75-125					
Barium	92.1	0.479	"	47.9	37.8	113	75-125					
Cadmium	2.79	0.240	"	2.40	0.172	109	75-125					
Copper	42.9	0.479	"	47.9	3.43	82.3	75-125					
Lead	31.2	0.240	"	24.0	4.67	110	75-125					
Nickel	40.1	0.479	"	47.9	1.66	80.3	75-125					
Selenium	5.47	0.312	"	4.79	ND	114	75-125					
Silver	2.63	0.0240	"	2.40	0.0230	109	75-125					
Zinc	51.2	0.479	"	47.9	12.5	80.8	75-125					

<b>Matrix Spike Dup (BGF0635-MSD1)</b>	<b>Source: 2305662-01</b>			<b>Prepared &amp; Analyzed: 06/19/23</b>								
Arsenic	52.1	0.240	mg/kg dry	47.9	1.27	106	75-125	1.03	25			
Barium	90.4	0.479	"	47.9	37.8	110	75-125	1.83	25			
Cadmium	2.82	0.240	"	2.40	0.172	110	75-125	0.871	25			
Copper	43.8	0.479	"	47.9	3.43	84.1	75-125	2.00	25			
Lead	31.0	0.240	"	24.0	4.67	110	75-125	0.365	25			
Nickel	41.3	0.479	"	47.9	1.66	82.7	75-125	2.90	25			
Selenium	5.82	0.312	"	4.79	ND	121	75-125	6.14	25			
Silver	2.64	0.0240	"	2.40	0.0230	109	75-125	0.109	25			
Zinc	52.6	0.479	"	47.9	12.5	83.8	75-125	2.75	25			

Summit Scientific

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Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - Howard A27-07 (Wellhead)

Project Number: [none]  
 Project Manager: Paul Henehan

**Reported:**  
 06/21/23 15:51

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

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

**Batch BGF0633 - 3060A Mod**

**Blank (BGF0633-BLK1)**

Prepared & Analyzed: 06/19/23

Chromium, Hexavalent      ND      0.30 mg/kg wet

**LCS (BGF0633-BS1)**

Prepared & Analyzed: 06/19/23

Chromium, Hexavalent      20.8      0.30 mg/kg wet      25.0      83.0      80-120

**Duplicate (BGF0633-DUP1)**

**Source: 2305601-01**

Prepared & Analyzed: 06/19/23

Chromium, Hexavalent      ND      0.30 mg/kg dry      ND      20

**Matrix Spike (BGF0633-MS1)**

**Source: 2305601-01**

Prepared & Analyzed: 06/19/23

Chromium, Hexavalent      23.0      0.30 mg/kg dry      27.5      ND      83.8      75-125

**Matrix Spike Dup (BGF0633-MSD1)**

**Source: 2305601-01**

Prepared & Analyzed: 06/19/23

Chromium, Hexavalent      24.3      0.30 mg/kg dry      27.5      ND      88.4      75-125      5.34      20

Summit Scientific

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Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - Howard A27-07 (Wellhead)

Project Number: [none]  
 Project Manager: Paul Henehan

**Reported:**  
 06/21/23 15:51

**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 BGF0651 - General Preparation**

**Blank (BGF0651-BLK1)**

Prepared: 06/19/23 Analyzed: 06/21/23

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

**LCS (BGF0651-BS1)**

Prepared: 06/19/23 Analyzed: 06/21/23

Calcium	5.16	0.0500	mg/L wet	5.00	103	70-130
Magnesium	5.08	0.0500	"	5.00	102	70-130
Sodium	5.72	0.0500	"	5.00	114	70-130

Summit Scientific

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Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - Howard A27-07 (Wellhead)

Project Number: [none]  
 Project Manager: Paul Henehan

**Reported:**  
 06/21/23 15:51

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

**Summit Scientific**

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

**Batch BGF0631 - General Preparation**

**Duplicate (BGF0631-DUP1)**

**Source: 2306317-01**

Prepared & Analyzed: 06/19/23

% Solids	87.9		%		87.8			0.203		20	
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Summit Scientific

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Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - Howard A27-07 (Wellhead)

Project Number: [none]  
 Project Manager: Paul Henehan

**Reported:**  
 06/21/23 15:51

**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 BGF0691 - General Preparation**

**Blank (BGF0691-BLK1)**

Prepared & Analyzed: 06/20/23

Specific Conductance (EC) ND 0.0100 mmhos/cm

**LCS (BGF0691-BS1)**

Prepared & Analyzed: 06/20/23

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

**Duplicate (BGF0691-DUP1)**

Source: 2306279-01

Prepared & Analyzed: 06/20/23

Specific Conductance (EC) 0.0805 0.0100 mmhos/cm 0.0824 2.32 20

Summit Scientific

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Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - Howard A27-07 (Wellhead)

Project Number: [none]  
 Project Manager: Paul Henehan

**Reported:**  
 06/21/23 15:51

**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 BGF0690 - General Preparation**

**LCS (BGF0690-BS1)**

Prepared & Analyzed: 06/20/23

pH	8.94	pH Units	9.18	97.4	95-105
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**Duplicate (BGF0690-DUP1)**

Source: 2306279-01

Prepared & Analyzed: 06/20/23

pH	7.06	pH Units	7.03	0.426	20
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Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Howard A27-07 (Wellhead)

Project Number: [none]  
Project Manager: Paul Henehan

**Reported:**  
06/21/23 15:51

### 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

# Summit Scientific

---

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

June 16, 2022

Paul Henchan  
Fremont Environmental  
PO Box 1289  
Wellington, CO 80549

RE: Noble - Howard A27-07 (Sep)

Work Order #2206044

Enclosed are the results of analyses for samples received by Summit Scientific on 06/02/22 16:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Paul Shrewsbury  
President



Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Howard A27-07 (Sep)

Project Number: [none]  
Project Manager: Paul Henchan

**Reported:**  
06/16/22 14:56

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SB-1 5ft	2206044-01	Soil	05/27/22 00:00	06/02/22 16:00
SB-2 5ft	2206044-02	Soil	05/27/22 00:00	06/02/22 16:00
SB-3 5ft	2206044-03	Soil	05/27/22 00:00	06/02/22 16:00
SB-4 5ft	2206044-04	Soil	05/27/22 00:00	06/02/22 16:00
SB-5 5ft	2206044-05	Soil	05/27/22 00:00	06/02/22 16:00

Summit Scientific

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# Summit Scientific

S<sub>2</sub>

2206044

4653 Table Mountain Drive ♦ Golden, Colorado 80403  
303-277-9310

Page 1 of 1

Client: Fremont

Project Manager: Honehan

Address:

E-Mail: ethanh, paulh, jeffg

City/State/Zip:

Bill To: Noble - Erica and Dan

Phone:

Project Name: Noble - Howard A 27-7 (Sep)

Sampler Name: EB

Project Number:

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested							Special Instructions	
					HCl	HNO <sub>3</sub>	None	Other	Water	Soil	Air-Canister #	Other	NITEX	TPH	TMBS	Metals	SAR/EC/pH	Boron	PAHS		
1	SB-1 SET	5/27/22		3			X			X				X	X	X	X	X	X	X	
2	SB-2 SET	I		I										I	I	I	I	I	I	I	
3	SB-3 SET	I		I										I	I	I	I	I	I	I	
4	SB-4 SET	I		I										I	I	I	I	I	I	I	
5	SB-5 SET	I		I										I	I	I	I	I	I	I	
6																					
7																					
8																					
9																					
10																					

Relinquished by: <u>ETHAN BLAD</u>	Date/Time: <u>5/27/22</u>	Received by: <u>[Signature]</u>	Date/Time: <u>6:22 1000</u>	Turn Around Time (Check) Same Day <input type="checkbox"/> 72 hours 24 hours <input type="checkbox"/> Standard <input checked="" type="checkbox"/> 48 hours <input type="checkbox"/>	Notes:
Relinquished by:	Date/Time:	Received by:	Date/Time:		
Temperature Upon Receipt: <u>S.O</u>	Corrected Temperature <u>S.O</u>	HNO <sub>3</sub> lot #			
IR gun correction: <u>0</u>	IR gun #: <u>1</u>			Sample Integrity: Samples Intact: <input checked="" type="radio"/> Yes <input type="radio"/> No	





Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Howard A27-07 (Sep)

Project Number: [none]  
Project Manager: Paul Henchan

**Reported:**  
06/16/22 14:56

**SB-1 5ft**  
**2206044-01 (Soil)**

**Summit Scientific**

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

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BFF0082	06/03/22	06/04/22	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: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	0.0364	90.9 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0369	92.2 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0367	91.7 %	50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BFF0084	06/03/22	06/04/22	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	14.2	114 %	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 A27-07 (Sep)

Project Number: [none]  
Project Manager: Paul Henchan

**Reported:**  
06/16/22 14:56

**SB-1 5ft**  
**2206044-01 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BFF0235	06/09/22	06/12/22	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: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0245	73.5 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0234	70.1 %	40-150		"	"	"	"	

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

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>0.415</b>	0.0100	mg/L	1	BFF0222	06/08/22	06/13/22	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **05/27/22 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 - Howard A27-07 (Sep)

Project Number: [none]  
Project Manager: Paul Henchan

**Reported:**  
06/16/22 14:56

**SB-1 5ft**  
**2206044-01 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Arsenic	0.904	0.250	mg/kg dry	1	BFF0391	06/14/22	06/16/22	EPA 6020B
Barium	10.2	0.500	"	"	"	"	"	"
Cadmium	ND	0.250	"	"	"	"	"	"
Copper	13.8	0.500	"	"	"	"	"	"
Lead	6.05	0.250	"	"	"	"	"	"
Nickel	1.68	0.500	"	"	"	"	"	"
Selenium	0.913	0.325	"	"	"	"	"	"
Silver	0.0738	0.0250	"	"	"	"	"	"
Zinc	12.2	0.500	"	"	"	"	"	"

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BFF0312	06/11/22	06/11/22	EPA 7196A	

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

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	4080	0.0625	mg/L dry	1	BFF0272	06/09/22	06/14/22	EPA 6020B	
Magnesium	746	0.0625	"	"	"	"	"	"	
Sodium	722	0.0625	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	2.73	0.00100	units	1	BFF0380	06/14/22	06/14/22	Calculation	

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

Date Sampled: **05/27/22 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 - Howard A27-07 (Sep)

Project Number: [none]  
 Project Manager: Paul Henchan

**Reported:**  
 06/16/22 14:56

**SB-1 5ft**  
**2206044-01 (Soil)**

**Summit Scientific**

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

<b>% Solids</b>	<b>80.0</b>	%	1	BFF0223	06/08/22	06/09/22	Calculation
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**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction**

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Specific Conductance (EC)</b>	<b>3.74</b>	0.0100	mmhos/cm	1	BFF0274	06/09/22	06/13/22	EPA 120.1	

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

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>pH</b>	<b>7.81</b>		pH Units	1	BFF0273	06/09/22	06/13/22	EPA 9045D	

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Howard A27-07 (Sep)

Project Number: [none]  
Project Manager: Paul Henchan

**Reported:**  
06/16/22 14:56

**SB-2 5ft**  
**2206044-02 (Soil)**

**Summit Scientific**

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

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	0.0020		mg/kg	1	BFF0082	06/03/22	06/04/22	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: **05/27/22 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4	0.0366	91.5 %		50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0364	91.0 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0364	91.0 %		50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
C10-C28 (DRO)	ND	50		mg/kg	1	BFF0084	06/03/22	06/04/22	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: o-Terphenyl	15.1	121 %		30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

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Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - Howard A27-07 (Sep)

Project Number: [none]  
 Project Manager: Paul Henchan

**Reported:**  
 06/16/22 14:56

**SB-2 5ft**  
**2206044-02 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BFF0235	06/09/22	06/13/22	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: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0182	54.7 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0164	49.3 %	40-150		"	"	"	"	

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

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>1.34</b>	0.0100	mg/L	1	BFF0222	06/08/22	06/13/22	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Fremont Environmental  
 PO Box 1289  
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Project: Noble - Howard A27-07 (Sep)

Project Number: [none]  
 Project Manager: Paul Henchan

**Reported:**  
 06/16/22 14:56

**SB-2 5ft**  
**2206044-02 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	12.5	0.254	mg/kg dry	1	BFF0391	06/14/22	06/16/22	EPA 6020B	
Barium	25.5	0.508	"	"	"	"	"	"	
Cadmium	ND	0.254	"	"	"	"	"	"	
Copper	17.8	0.508	"	"	"	"	"	"	
Lead	34.8	0.254	"	"	"	"	"	"	
Nickel	11.7	0.508	"	"	"	"	"	"	
Selenium	2.50	0.330	"	"	"	"	"	"	
Silver	0.0796	0.0254	"	"	"	"	"	"	
Zinc	99.4	0.508	"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BFF0312	06/11/22	06/11/22	EPA 7196A	

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

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	193	0.0635	mg/L dry	1	BFF0272	06/09/22	06/14/22	EPA 6020B	
Magnesium	124	0.0635	"	"	"	"	"	"	
Sodium	467	0.0635	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	6.45	0.00100	units	1	BFF0380	06/14/22	06/14/22	Calculation	

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

Date Sampled: **05/27/22 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 - Howard A27-07 (Sep)

Project Number: [none]  
 Project Manager: Paul Henchan

**Reported:**  
 06/16/22 14:56

**SB-2 5ft**  
**2206044-02 (Soil)**

**Summit Scientific**

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

% Solids	78.7	%	1	BFF0223	06/08/22	06/09/22	Calculation
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**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction**

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	3.67	0.0100	mmhos/cm	1	BFF0274	06/09/22	06/13/22	EPA 120.1	

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

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.21		pH Units	1	BFF0273	06/09/22	06/13/22	EPA 9045D	

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Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - Howard A27-07 (Sep)

Project Number: [none]  
 Project Manager: Paul Henchan

**Reported:**  
 06/16/22 14:56

**SB-3 5ft**  
**2206044-03 (Soil)**

**Summit Scientific**

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

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BFF0082	06/03/22	06/04/22	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: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	0.0352	88.1 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0366	91.6 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0365	91.4 %	50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BFF0084	06/03/22	06/04/22	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **05/27/22 00:00**

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

**PAH by EPA Method 8270D SIM**

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Howard A27-07 (Sep)

Project Number: [none]  
Project Manager: Paul Henchan

**Reported:**  
06/16/22 14:56

**SB-3 5ft**  
**2206044-03 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BFF0235	06/09/22	06/13/22	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: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0228	68.3 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0202	60.7 %	40-150		"	"	"	"	

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

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>0.0287</b>	0.0100	mg/L	1	BFF0222	06/08/22	06/13/22	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **05/27/22 00:00**

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

Project: Noble - Howard A27-07 (Sep)

Project Number: [none]  
Project Manager: Paul Henchan

**Reported:**  
06/16/22 14:56

**SB-3 5ft**  
**2206044-03 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Arsenic	9.54	0.234	mg/kg dry	1	BFF0391	06/14/22	06/16/22	EPA 6020B
Barium	13.5	0.469	"	"	"	"	"	"
Cadmium	0.330	0.234	"	"	"	"	"	"
Copper	16.9	0.469	"	"	"	"	"	"
Lead	11.4	0.234	"	"	"	"	"	"
Nickel	20.5	0.469	"	"	"	"	"	"
Selenium	1.43	0.305	"	"	"	"	"	"
Silver	0.0433	0.0234	"	"	"	"	"	"
Zinc	104	0.469	"	"	"	"	"	"

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: 05/27/22 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BFF0312	06/11/22	06/11/22	EPA 7196A	

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

Date Sampled: 05/27/22 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	1980	0.0586	mg/L dry	1	BFF0272	06/09/22	06/14/22	EPA 6020B	
Magnesium	379	0.0586	"	"	"	"	"	"	
Sodium	432	0.0586	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: 05/27/22 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	2.33	0.00100	units	1	BFF0380	06/14/22	06/14/22	Calculation	

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

Date Sampled: 05/27/22 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 - Howard A27-07 (Sep)

Project Number: [none]  
 Project Manager: Paul Henchan

**Reported:**  
 06/16/22 14:56

**SB-3 5ft**  
**2206044-03 (Soil)**

**Summit Scientific**

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

<b>% Solids</b>	<b>85.3</b>	%	1	BFF0223	06/08/22	06/09/22	Calculation
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**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction**

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Specific Conductance (EC)</b>	<b>3.66</b>	0.0100	mmhos/cm	1	BFF0274	06/09/22	06/13/22	EPA 120.1	

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

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>pH</b>	<b>7.62</b>		pH Units	1	BFF0273	06/09/22	06/13/22	EPA 9045D	

Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Howard A27-07 (Sep)

Project Number: [none]  
Project Manager: Paul Henchan

**Reported:**  
06/16/22 14:56

**SB-4 5ft**  
**2206044-04 (Soil)**

**Summit Scientific**

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

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BFF0082	06/03/22	06/04/22	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: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	0.0356	88.9 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0365	91.2 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0367	91.6 %	50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BFF0084	06/03/22	06/04/22	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	14.9	119 %	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 A27-07 (Sep)

Project Number: [none]  
Project Manager: Paul Henchan

**Reported:**  
06/16/22 14:56

**SB-4 5ft**  
**2206044-04 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BFF0235	06/09/22	06/13/22	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: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0208	62.5 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0193	57.8 %	40-150		"	"	"	"	

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

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>0.0213</b>	0.0100	mg/L	1	BFF0222	06/08/22	06/13/22	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **05/27/22 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 - Howard A27-07 (Sep)

Project Number: [none]  
 Project Manager: Paul Henchan

**Reported:**  
 06/16/22 14:56

**SB-4 5ft**  
**2206044-04 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	9.64	0.235	mg/kg dry	1	BFF0391	06/14/22	06/16/22	EPA 6020B	
Barium	14.0	0.470	"	"	"	"	"	"	
Cadmium	0.587	0.235	"	"	"	"	"	"	
Copper	20.9	0.470	"	"	"	"	"	"	
Lead	10.6	0.235	"	"	"	"	"	"	
Nickel	34.9	0.470	"	"	"	"	"	"	
Selenium	2.14	0.305	"	"	"	"	"	"	
Silver	0.0527	0.0235	"	"	"	"	"	"	
Zinc	138	0.470	"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: 05/27/22 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BFF0312	06/11/22	06/11/22	EPA 7196A	

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

Date Sampled: 05/27/22 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	6190	0.0587	mg/L dry	1	BFF0272	06/09/22	06/14/22	EPA 6020B	
Magnesium	726	0.0587	"	"	"	"	"	"	
Sodium	511	0.0587	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: 05/27/22 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	1.64	0.00100	units	1	BFF0380	06/14/22	06/14/22	Calculation	

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

Date Sampled: 05/27/22 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 - Howard A27-07 (Sep)

Project Number: [none]  
 Project Manager: Paul Henchan

**Reported:**  
 06/16/22 14:56

**SB-4 5ft**  
**2206044-04 (Soil)**

**Summit Scientific**

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

<b>% Solids</b>	<b>85.2</b>	%	1	BFF0223	06/08/22	06/09/22	Calculation
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**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction**

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Specific Conductance (EC)</b>	<b>3.49</b>	0.0100	mmhos/cm	1	BFF0274	06/09/22	06/13/22	EPA 120.1	

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

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>pH</b>	<b>7.36</b>		pH Units	1	BFF0273	06/09/22	06/13/22	EPA 9045D	

Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Howard A27-07 (Sep)

Project Number: [none]  
Project Manager: Paul Henchan

**Reported:**  
06/16/22 14:56

**SB-5 5ft**  
**2206044-05 (Soil)**

**Summit Scientific**

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

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	0.0020		mg/kg	1	BFF0082	06/03/22	06/04/22	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: **05/27/22 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4	0.0361	90.2 %		50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0370	92.5 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0362	90.5 %		50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
C10-C28 (DRO)	ND	50		mg/kg	1	BFF0084	06/03/22	06/04/22	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: o-Terphenyl	16.6	133 %		30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Howard A27-07 (Sep)

Project Number: [none]  
Project Manager: Paul Henchan

**Reported:**  
06/16/22 14:56

**SB-5 5ft**  
**2206044-05 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BFF0235	06/09/22	06/13/22	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: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0227	68.1 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0217	65.0 %	40-150		"	"	"	"	

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

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>0.733</b>	0.0100	mg/L	1	BFF0222	06/08/22	06/13/22	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **05/27/22 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 - Howard A27-07 (Sep)

Project Number: [none]  
Project Manager: Paul Henchan

**Reported:**  
06/16/22 14:56

**SB-5 5ft**  
**2206044-05 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	8.10	0.229	mg/kg dry	1	BFF0391	06/14/22	06/16/22	EPA 6020B	
Barium	18.6	0.458	"	"	"	"	"	"	
Cadmium	0.251	0.229	"	"	"	"	"	"	
Copper	13.4	0.458	"	"	"	"	"	"	
Lead	11.7	0.229	"	"	"	"	"	"	
Nickel	19.2	0.458	"	"	"	"	"	"	
Selenium	0.925	0.298	"	"	"	"	"	"	
Silver	0.0410	0.0229	"	"	"	"	"	"	
Zinc	71.7	0.458	"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: 05/27/22 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BFF0312	06/11/22	06/11/22	EPA 7196A	

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

Date Sampled: 05/27/22 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	7670	0.0573	mg/L dry	1	BFF0272	06/09/22	06/14/22	EPA 6020B	
Magnesium	808	0.0573	"	"	"	"	"	"	
Sodium	555	0.0573	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: 05/27/22 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	1.61	0.00100	units	1	BFF0380	06/14/22	06/14/22	Calculation	

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

Date Sampled: 05/27/22 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 - Howard A27-07 (Sep)

Project Number: [none]  
 Project Manager: Paul Henchan

**Reported:**  
 06/16/22 14:56

**SB-5 5ft**  
**2206044-05 (Soil)**

**Summit Scientific**

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

<b>% Solids</b>	<b>87.3</b>	%	1	BFF0223	06/08/22	06/09/22	Calculation
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**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction**

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Specific Conductance (EC)</b>	<b>3.54</b>	0.0100	mmhos/cm	1	BFF0274	06/09/22	06/13/22	EPA 120.1	

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

Date Sampled: **05/27/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>pH</b>	<b>7.73</b>		pH Units	1	BFF0273	06/09/22	06/13/22	EPA 9045D	

Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Howard A27-07 (Sep)

Project Number: [none]  
Project Manager: Paul Henchan

**Reported:**  
06/16/22 14:56

### 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 BFF0082 - EPA 5030 Soil MS

##### Blank (BFF0082-BLK1)

Prepared: 06/03/22 Analyzed: 06/04/22

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>	0.0363		"	0.0400		90.8	50-150			
<i>Surrogate: Toluene-d8</i>	0.0363		"	0.0400		90.8	50-150			
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0364		"	0.0400		91.0	50-150			

##### LCS (BFF0082-BS1)

Prepared: 06/03/22 Analyzed: 06/04/22

Benzene	0.134	0.0020	mg/kg	0.125		107	70-130			
Toluene	0.0909	0.0050	"	0.125		72.7	70-130			
Ethylbenzene	0.149	0.0050	"	0.125		119	70-130			
m,p-Xylene	0.263	0.010	"	0.250		105	70-130			
o-Xylene	0.129	0.0050	"	0.125		103	70-130			
1,2,4-Trimethylbenzene	0.144	0.0050	"	0.125		116	70-130			
1,3,5-Trimethylbenzene	0.150	0.0050	"	0.125		120	70-130			
Naphthalene	0.134	0.0038	"	0.125		107	70-130			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0349		"	0.0400		87.2	50-150			
<i>Surrogate: Toluene-d8</i>	0.0374		"	0.0400		93.6	50-150			
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0368		"	0.0400		92.0	50-150			

##### Matrix Spike (BFF0082-MS1)

Source: 2206035-01

Prepared: 06/03/22 Analyzed: 06/04/22

Benzene	0.133	0.0020	mg/kg	0.125	ND	107	70-130			
Toluene	0.0904	0.0050	"	0.125	ND	72.3	70-130			
Ethylbenzene	0.152	0.0050	"	0.125	ND	121	70-130			
m,p-Xylene	0.269	0.010	"	0.250	ND	108	70-130			
o-Xylene	0.132	0.0050	"	0.125	ND	106	70-130			
1,2,4-Trimethylbenzene	0.151	0.0050	"	0.125	ND	121	70-130			
1,3,5-Trimethylbenzene	0.155	0.0050	"	0.125	ND	124	70-130			
Naphthalene	0.148	0.0038	"	0.125	ND	118	70-130			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0352		"	0.0400		88.0	50-150			
<i>Surrogate: Toluene-d8</i>	0.0371		"	0.0400		92.8	50-150			
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0365		"	0.0400		91.3	50-150			

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Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - Howard A27-07 (Sep)

Project Number: [none]  
 Project Manager: Paul Henchan

**Reported:**  
 06/16/22 14:56

**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		

**Batch BFF0082 - EPA 5030 Soil MS**

Matrix Spike Dup (BFF0082-MSD1)	Source: 2206035-01			Prepared: 06/03/22 Analyzed: 06/04/22						
Benzene	0.136	0.0020	mg/kg	0.125	ND	109	70-130	2.25	30	
Toluene	0.0938	0.0050	"	0.125	ND	75.1	70-130	3.78	30	
Ethylbenzene	0.159	0.0050	"	0.125	ND	127	70-130	4.75	30	
m,p-Xylene	0.281	0.010	"	0.250	ND	112	70-130	4.36	30	
o-Xylene	0.136	0.0050	"	0.125	ND	109	70-130	3.13	30	
1,2,4-Trimethylbenzene	0.155	0.0050	"	0.125	ND	124	70-130	2.42	30	
1,3,5-Trimethylbenzene	0.158	0.0050	"	0.125	ND	127	70-130	1.93	30	
Naphthalene	0.154	0.0038	"	0.125	ND	124	70-130	4.31	30	
Surrogate: 1,2-Dichloroethane-d4	0.0356		"	0.0400		89.0	50-150			
Surrogate: Toluene-d8	0.0374		"	0.0400		93.4	50-150			
Surrogate: 4-Bromofluorobenzene	0.0364		"	0.0400		91.0	50-150			

Summit Scientific

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Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - Howard A27-07 (Sep)

Project Number: [none]  
 Project Manager: Paul Henchan

**Reported:**  
 06/16/22 14:56

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

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

**Batch BFF0084 - EPA 3550A**

**Blank (BFF0084-BLK1)**

Prepared & Analyzed: 06/03/22

C10-C28 (DRO)	ND	50	mg/kg							
C28-C36 (ORO)	ND	50	"							

**LCS (BFF0084-BS1)**

Prepared & Analyzed: 06/03/22

C10-C28 (DRO)	509	50	mg/kg	500	102	70-130				
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**Matrix Spike (BFF0084-MS1)**

Source: 2206035-01

Prepared & Analyzed: 06/03/22

C10-C28 (DRO)	507	50	mg/kg	500	7.68	99.8	70-130			
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**Matrix Spike Dup (BFF0084-MSD1)**

Source: 2206035-01

Prepared & Analyzed: 06/03/22

C10-C28 (DRO)	532	50	mg/kg	500	7.68	105	70-130	4.84	20	
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Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Howard A27-07 (Sep)

Project Number: [none]  
Project Manager: Paul Henchan

**Reported:**  
06/16/22 14:56

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

**Summit Scientific**

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

**Batch BFF0235 - EPA 5030 Soil MS**

**Blank (BFF0235-BLK1)**

Prepared: 06/09/22 Analyzed: 06/12/22

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>	0.0325		"	0.0333		97.5	40-150			
<i>Surrogate: Fluoranthene-d10</i>	0.0298		"	0.0333		89.5	40-150			

**LCS (BFF0235-BS1)**

Prepared: 06/09/22 Analyzed: 06/12/22

Acenaphthene	0.0306	0.00500	mg/kg	0.0333		91.9	31-137			
Anthracene	0.0324	0.00500	"	0.0333		97.2	30-120			
Benzo (a) anthracene	0.0281	0.00500	"	0.0333		84.2	30-120			
Benzo (a) pyrene	0.0302	0.00500	"	0.0333		90.6	30-120			
Benzo (b) fluoranthene	0.0310	0.00500	"	0.0333		93.1	30-120			
Benzo (k) fluoranthene	0.0353	0.00500	"	0.0333		106	30-120			
Chrysene	0.0307	0.00500	"	0.0333		92.1	30-120			
Dibenz (a,h) anthracene	0.0272	0.00500	"	0.0333		81.5	30-120			
Fluoranthene	0.0312	0.00500	"	0.0333		93.7	30-120			
Fluorene	0.0297	0.00500	"	0.0333		89.1	30-120			
Indeno (1,2,3-cd) pyrene	0.0170	0.00500	"	0.0333		51.1	30-120			
Pyrene	0.0292	0.00500	"	0.0333		87.7	35-142			
1-Methylnaphthalene	0.0232	0.00500	"	0.0333		69.6	35-142			
2-Methylnaphthalene	0.0354	0.00500	"	0.0333		106	35-142			
<i>Surrogate: 2-Methylnaphthalene-d10</i>	0.0310		"	0.0333		92.9	40-150			
<i>Surrogate: Fluoranthene-d10</i>	0.0299		"	0.0333		89.6	40-150			

Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Howard A27-07 (Sep)

Project Number: [none]  
Project Manager: Paul Henchan

**Reported:**  
06/16/22 14:56

**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 BFF0235 - EPA 5030 Soil MS**

<b>Matrix Spike (BFF0235-MS1)</b>		<b>Source: 2206044-01</b>			Prepared: 06/09/22 Analyzed: 06/12/22	
Acenaphthene	0.0178	0.00500	mg/kg	0.0333	ND	53.5 31-137
Anthracene	0.0167	0.00500	"	0.0333	ND	50.2 30-120
Benzo (a) anthracene	0.0149	0.00500	"	0.0333	ND	44.8 30-120
Benzo (a) pyrene	0.0145	0.00500	"	0.0333	ND	43.5 30-120
Benzo (b) fluoranthene	0.0150	0.00500	"	0.0333	ND	45.0 30-120
Benzo (k) fluoranthene	0.0172	0.00500	"	0.0333	ND	51.6 30-120
Chrysene	0.0160	0.00500	"	0.0333	ND	48.1 30-120
Dibenz (a,h) anthracene	0.0165	0.00500	"	0.0333	ND	49.5 30-120
Fluoranthene	0.0172	0.00500	"	0.0333	ND	51.6 30-120
Fluorene	0.0187	0.00500	"	0.0333	ND	56.1 30-120
Indeno (1,2,3-cd) pyrene	0.0148	0.00500	"	0.0333	ND	44.3 30-120
Pyrene	0.0178	0.00500	"	0.0333	ND	53.6 35-142
1-Methylnaphthalene	0.0182	0.00500	"	0.0333	ND	54.5 15-130
2-Methylnaphthalene	0.0190	0.00500	"	0.0333	ND	57.0 15-130
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0182</i>		<i>"</i>	<i>0.0333</i>		<i>54.5 40-150</i>
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0177</i>		<i>"</i>	<i>0.0333</i>		<i>53.1 40-150</i>

<b>Matrix Spike Dup (BFF0235-MSD1)</b>		<b>Source: 2206044-01</b>			Prepared: 06/09/22 Analyzed: 06/12/22	
Acenaphthene	0.0188	0.00500	mg/kg	0.0333	ND	56.5 31-137 5.33 30
Anthracene	0.0190	0.00500	"	0.0333	ND	56.9 30-120 12.5 30
Benzo (a) anthracene	0.0172	0.00500	"	0.0333	ND	51.6 30-120 14.2 30
Benzo (a) pyrene	0.0171	0.00500	"	0.0333	ND	51.2 30-120 16.3 30
Benzo (b) fluoranthene	0.0172	0.00500	"	0.0333	ND	51.6 30-120 13.7 30
Benzo (k) fluoranthene	0.0192	0.00500	"	0.0333	ND	57.6 30-120 11.1 30
Chrysene	0.0183	0.00500	"	0.0333	ND	54.8 30-120 13.0 30
Dibenz (a,h) anthracene	0.0144	0.00500	"	0.0333	ND	43.3 30-120 13.3 30
Fluoranthene	0.0187	0.00500	"	0.0333	ND	56.0 30-120 8.13 30
Fluorene	0.0186	0.00500	"	0.0333	ND	55.7 30-120 0.708 30
Indeno (1,2,3-cd) pyrene	0.0136	0.00500	"	0.0333	ND	40.9 30-120 8.05 30
Pyrene	0.0192	0.00500	"	0.0333	ND	57.6 35-142 7.32 30
1-Methylnaphthalene	0.0192	0.00500	"	0.0333	ND	57.6 15-130 5.68 50
2-Methylnaphthalene	0.0217	0.00500	"	0.0333	ND	65.1 15-130 13.1 50
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0199</i>		<i>"</i>	<i>0.0333</i>		<i>59.7 40-150</i>
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0188</i>		<i>"</i>	<i>0.0333</i>		<i>56.5 40-150</i>

Summit Scientific

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Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - Howard A27-07 (Sep)

Project Number: [none]  
 Project Manager: Paul Henchan

**Reported:**  
 06/16/22 14:56

**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 BFF0222 - EPA 3050B**

**Blank (BFF0222-BLK1)**

Prepared: 06/08/22 Analyzed: 06/13/22

Boron ND 0.0100 mg/L

**LCS (BFF0222-BS1)**

Prepared: 06/08/22 Analyzed: 06/13/22

Boron 5.85 0.0100 mg/L 5.00 117 80-120

**Duplicate (BFF0222-DUP1)**

Source: 2206044-01

Prepared: 06/08/22 Analyzed: 06/13/22

Boron 0.415 0.0100 mg/L 0.415 0.0875 20

**Matrix Spike (BFF0222-MS1)**

Source: 2206044-01

Prepared: 06/08/22 Analyzed: 06/13/22

Boron 6.04 0.0100 mg/L 5.00 0.415 112 75-125

**Matrix Spike Dup (BFF0222-MSD1)**

Source: 2206044-01

Prepared: 06/08/22 Analyzed: 06/13/22

Boron 6.09 0.0100 mg/L 5.00 0.415 114 75-125 0.928 25

Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Howard A27-07 (Sep)

Project Number: [none]  
Project Manager: Paul Henchan

**Reported:**  
06/16/22 14:56

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

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

**Batch BFF0391 - EPA 3050B**

**Blank (BFF0391-BLK1)**

Prepared: 06/14/22 Analyzed: 06/15/22

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 (BFF0391-BS1)**

Prepared: 06/14/22 Analyzed: 06/15/22

Arsenic	47.3	0.200	mg/kg wet	40.0		118	80-120			
Barium	47.9	0.400	"	40.0		120	80-120			
Cadmium	2.33	0.200	"	2.00		116	80-120			
Copper	48.0	0.400	"	40.0		120	80-120			
Lead	22.7	0.200	"	20.0		113	80-120			
Nickel	46.3	0.400	"	40.0		116	80-120			
Selenium	4.60	0.260	"	4.00		115	80-120			
Silver	2.27	0.0200	"	2.00		113	80-120			
Zinc	45.3	0.400	"	40.0		113	80-120			

**Duplicate (BFF0391-DUP1)**

Source: 2205470-01

Prepared: 06/14/22 Analyzed: 06/15/22

Arsenic	3.61	0.213	mg/kg dry		3.41		5.70	20		
Barium	104	0.426	"		90.1		14.0	20		
Cadmium	0.208	0.213	"		0.192		8.13	20		
Copper	13.8	0.426	"		12.7		8.81	20		
Lead	11.2	0.213	"		10.2		9.08	20		
Nickel	15.5	0.426	"		13.1		17.3	20		
Selenium	0.899	0.277	"		0.901		0.284	20		
Silver	0.0570	0.0213	"		0.0498		13.5	20		
Zinc	50.5	0.426	"		43.8		14.3	20		

Summit Scientific

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Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - Howard A27-07 (Sep)

Project Number: [none]  
 Project Manager: Paul Henchan

**Reported:**  
 06/16/22 14:56

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

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

**Batch BFF0391 - EPA 3050B**

**Matrix Spike (BFF0391-MS1)**

Source: 2205470-01

Prepared: 06/14/22 Analyzed: 06/15/22

Arsenic	49.0	0.213	mg/kg dry	42.6	3.41	107	75-125				
Barium	149	0.426	"	42.6	90.1	137	75-125				QM-05
Cadmium	2.45	0.213	"	2.13	0.192	106	75-125				
Copper	59.9	0.426	"	42.6	12.7	111	75-125				
Lead	30.2	0.213	"	21.3	10.2	93.8	75-125				
Nickel	61.2	0.426	"	42.6	13.1	113	75-125				
Selenium	4.38	0.277	"	4.26	0.901	81.7	75-125				
Silver	2.16	0.0213	"	2.13	0.0498	99.3	75-125				
Zinc	99.7	0.426	"	42.6	43.8	131	75-125				QM-05

**Matrix Spike Dup (BFF0391-MSD1)**

Source: 2205470-01

Prepared: 06/14/22 Analyzed: 06/15/22

Arsenic	48.3	0.213	mg/kg dry	42.6	3.41	105	75-125	1.46	25		
Barium	145	0.426	"	42.6	90.1	129	75-125	2.41	25		QM-05
Cadmium	2.36	0.213	"	2.13	0.192	102	75-125	3.72	25		
Copper	59.6	0.426	"	42.6	12.7	110	75-125	0.469	25		
Lead	29.0	0.213	"	21.3	10.2	88.2	75-125	4.01	25		
Nickel	60.0	0.426	"	42.6	13.1	110	75-125	1.97	25		
Selenium	4.31	0.277	"	4.26	0.901	80.0	75-125	1.68	25		
Silver	2.09	0.0213	"	2.13	0.0498	96.0	75-125	3.25	25		
Zinc	98.4	0.426	"	42.6	43.8	128	75-125	1.34	25		QM-05

Summit Scientific

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Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - Howard A27-07 (Sep)

Project Number: [none]  
 Project Manager: Paul Henchan

**Reported:**  
 06/16/22 14:56

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

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

**Batch BFF0312 - 3060A Mod**

**Blank (BFF0312-BLK1)**

Prepared & Analyzed: 06/11/22

Chromium, Hexavalent      ND      0.30 mg/kg wet

**LCS (BFF0312-BS1)**

Prepared & Analyzed: 06/11/22

Chromium, Hexavalent      27.2      0.30 mg/kg wet      25.0      109      80-120

**Duplicate (BFF0312-DUP1)**

**Source: 2206044-01**

Prepared & Analyzed: 06/11/22

Chromium, Hexavalent      ND      0.30 mg/kg dry      ND      20

**Matrix Spike (BFF0312-MS1)**

**Source: 2206044-01**

Prepared & Analyzed: 06/11/22

Chromium, Hexavalent      38.6      0.30 mg/kg dry      31.3      ND      123      75-125

**Matrix Spike Dup (BFF0312-MSD1)**

**Source: 2206044-01**

Prepared & Analyzed: 06/11/22

Chromium, Hexavalent      36.1      0.30 mg/kg dry      31.3      ND      116      75-125      6.53      20

Summit Scientific

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Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - Howard A27-07 (Sep)

Project Number: [none]  
 Project Manager: Paul Henchan

**Reported:**  
 06/16/22 14:56

**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 BFF0272 - General Preparation**

**Blank (BFF0272-BLK1)**

Prepared: 06/09/22 Analyzed: 06/14/22

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

**LCS (BFF0272-BS1)**

Prepared: 06/09/22 Analyzed: 06/14/22

Calcium	630	0.0500	mg/L wet	500	126	70-130				
Magnesium	586	0.0500	"	500	117	70-130				
Sodium	533	0.0500	"	500	107	70-130				

Summit Scientific

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Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - Howard A27-07 (Sep)

Project Number: [none]  
 Project Manager: Paul Henchan

**Reported:**  
 06/16/22 14:56

**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 BFF0223 - General Preparation**

**Duplicate (BFF0223-DUP1)**

**Source: 2206044-01**

Prepared: 06/08/22 Analyzed: 06/09/22

% Solids	80.0		%		80.0			0.00		20	
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Summit Scientific

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Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - Howard A27-07 (Sep)

Project Number: [none]  
 Project Manager: Paul Henchan

**Reported:**  
 06/16/22 14:56

**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 BFF0274 - General Preparation**

**Blank (BFF0274-BLK1)**

Prepared: 06/09/22 Analyzed: 06/13/22

Specific Conductance (EC) ND 0.0100 mmhos/cm

**LCS (BFF0274-BS1)**

Prepared: 06/09/22 Analyzed: 06/13/22

Specific Conductance (EC) 0.154 0.0100 mmhos/cm 0.150 103 95-105

**Duplicate (BFF0274-DUP1)**

**Source: 2205119-01**

Prepared: 06/09/22 Analyzed: 06/13/22

Specific Conductance (EC) 0.490 0.0100 mmhos/cm 0.515 4.99 20

Summit Scientific

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Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - Howard A27-07 (Sep)

Project Number: [none]  
 Project Manager: Paul Henchan

**Reported:**  
 06/16/22 14:56

**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 BFF0273 - General Preparation**

**LCS (BFF0273-BS1)**

Prepared: 06/09/22 Analyzed: 06/13/22

pH	9.28	pH Units	9.18	101	95-105
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**Duplicate (BFF0273-DUP1)**

Source: 2205119-01

Prepared: 06/09/22 Analyzed: 06/13/22

pH	8.56	pH Units	8.57	0.117	20
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Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Howard A27-07 (Sep)

Project Number: [none]  
Project Manager: Paul Henchan

**Reported:**  
06/16/22 14:56

### Notes and Definitions

- QM-05 The spike recovery was outside acceptance limits for the MS and/or MSD due to matrix interference. The associated LCS and/or LCSD were within acceptance limits, therefore the data are considered valid.
- 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

# Summit Scientific

---

4653 Table Mountain Drive, Golden, Colorado 80401

303.277.9310

June 26, 2023

Paul Henehan

Fremont Environmental

PO Box 1289

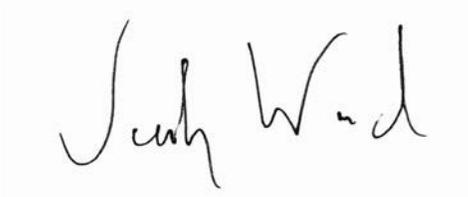
Wellington, CO 80549

RE: Noble - Howard A27-7 FL

Work Order # 2306354

Enclosed are the results of analyses for samples received by Summit Scientific on 06/19/23 14:00. 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 style with a large initial "J" and a long, sweeping underline.

Jacob Wood For Paul Shrewsbury

President



Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Howard A27-7 FL

Project Number: [none]  
Project Manager: Paul Henehan

**Reported:**  
06/26/23 08:41

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
N01@3.5'	2306354-01	Soil	06/19/23 00:00	06/19/23 14:00
E01@3.5'	2306354-02	Soil	06/19/23 00:00	06/19/23 14:00
S01@3.5'	2306354-03	Soil	06/19/23 00:00	06/19/23 14:00
W01@3.5'	2306354-04	Soil	06/19/23 00:00	06/19/23 14:00
B01@4.5'	2306354-05	Soil	06/19/23 00:00	06/19/23 14:00
BKG03@4'	2306354-06	Soil	06/16/23 00:00	06/19/23 14:00
BKG04@4'	2306354-07	Soil	06/16/23 00:00	06/19/23 14:00

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

2306354

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 A27-7 FL

Sampler Name: Chris Lattes

Project Number:

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix			Analysis Requested						Special Instructions
					HCl	HNO <sub>3</sub>	None	Other	Water	Soil	Air-Canister #	Other	TPH, BTEX, TMS, Naph	PAH (915)	EC, SAR, pH, Boron	Metals (915)	TDS, Chloride, Sulfate	
1	NØ1@3.5'	6/19/23		2			X			X							X	
2	EØ1@3.5'			2			X			X							X	
3	SØ1@3.5'			2			X			X							X	
4	WØ1@3.5'			2			X			X							X	
5	BØ1@4.5'	6/19/23		2			X			X							X	
6	BK6ØB@4'			1			X			X				X	X			
7	BK6Ø4@4'	6/19/23		1			X			X				X	X			
8																		
9																		
10																		

Relinquished by: Chris Lattes	Date/Time: 6/19/23 14:00	Received by: S2	Date/Time: 6/19/23 14:00	<b>Turn Around Time (Check)</b> Same Day <input checked="" type="checkbox"/> 72 hours <input type="checkbox"/> 24 hours <input type="checkbox"/> Standard <input type="checkbox"/> 48 hours <input type="checkbox"/> <b>Sample Integrity:</b> Temperature Upon Receipt: 9.7 Samples Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Notes:</b>
Relinquished by: S2	Date/Time: 6/19/23 14:00	Received by: [Signature]	Date/Time: 6/19/23 14:00		
Relinquished by:	Date/Time:	Received by:	Date/Time:		

S<sub>2</sub>

Sample Receipt Checklist

S2 Work Order# 2306354

Client: Fremont Client Project ID: Howard AZ7-7 FL

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

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

Temp (°C) 9.7 Thermometer # 1

	Yes	No	N/A	Comments (if any)
If samples require cooling, is the temperature < 6°C? <sup>(1)</sup> 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"/>	or 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? If yes, contact client and note in narrative.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples preserved that require preservation (excluding cooling)? <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): <u>marked wrong analysis for last 2 samples. should be EC, SAR, PH, Boron not TDS, Chloride, sulfate. logged appropriately</u>				
<sup>(1)</sup> If NO, then contact the client before proceeding with analysis and note in case narrative.				

AS  
Custodian Printed Name

6/19/23  
Date/Time



Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - Howard A27-7 FL

Project Number: [none]  
 Project Manager: Paul Henehan

**Reported:**  
 06/26/23 08:41

**N01@3.5'**  
**2306354-01 (Soil)**

**Summit Scientific**

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

Date Sampled: **06/19/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Benzene	ND	0.0020		mg/kg	1	BGF0679	06/19/23	06/19/23	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: **06/19/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Surrogate: 1,2-Dichloroethane-d4		93.7 %		50-150		"	"	"	"	
Surrogate: Toluene-d8		95.7 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		103 %		50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **06/19/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
C10-C28 (DRO)	ND	50		mg/kg	1	BGF0678	06/19/23	06/19/23	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **06/19/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Surrogate: o-Terphenyl		96.8 %		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 A27-7 FL

Project Number: [none]  
 Project Manager: Paul Henehan

**Reported:**  
 06/26/23 08:41

**N01@3.5'**  
**2306354-01 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **06/19/23 00:00**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500		mg/kg	1	BGF0686	06/20/23	06/21/23	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: **06/19/23 00:00**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		56.6 %		40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		74.1 %		40-150		"	"	"	"	

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

Date Sampled: **06/19/23 00:00**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>0.353</b>	0.0100		mg/L	1	BGF0706	06/20/23	06/23/23	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **06/19/23 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 A27-7 FL

Project Number: [none]  
Project Manager: Paul Henehan

**Reported:**  
06/26/23 08:41

**N01@3.5'**  
**2306354-01 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Analyte	Result	Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	11.1	0.229		mg/kg dry	1	BGF0684	06/20/23	06/21/23	EPA 6020B	
Barium	19.2	0.458		"	"	"	"	"	"	
Cadmium	0.343	0.229		"	"	"	"	"	"	
Copper	7.74	0.458		"	"	"	"	"	"	
Lead	12.8	0.229		"	"	"	"	"	"	
Nickel	7.42	0.458		"	"	"	"	"	"	
Selenium	0.218	0.298	0.200	"	"	"	"	"	"	
Silver	0.0490	0.0229		"	"	"	"	"	"	
Zinc	33.1	0.458		"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **06/19/23 00:00**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30		mg/kg dry	1	BGF0682	06/20/23	06/20/23	EPA 7196A	

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

Date Sampled: **06/19/23 00:00**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	349	0.0573		mg/L dry	1	BGF0677	06/19/23	06/21/23	EPA 6020B	
Magnesium	122	0.0573		"	"	"	"	"	"	
Sodium	126	0.0573		"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **06/19/23 00:00**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	1.48	0.00100		units	1	BGF0754	06/21/23	06/21/23	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 A27-7 FL

Project Number: [none]  
 Project Manager: Paul Henehan

**Reported:**  
 06/26/23 08:41

**N01@3.5'**  
**2306354-01 (Soil)**

**Summit Scientific**

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

Date Sampled: **06/19/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
% Solids	87.3			%	1	BGF0681	06/20/23	06/20/23	Calculation	

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

Date Sampled: **06/19/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Specific Conductance (EC)	4.54	0.0100		mmhos/cm	1	BGF0692	06/20/23	06/20/23	EPA 120.1	

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

Date Sampled: **06/19/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
pH	7.55			pH Units	1	BGF0693	06/20/23	06/20/23	EPA 9045D	

Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Howard A27-7 FL

Project Number: [none]  
Project Manager: Paul Henehan

**Reported:**  
06/26/23 08:41

**E01@3.5'**  
**2306354-02 (Soil)**

**Summit Scientific**

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

Date Sampled: **06/19/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Benzene	ND	0.0020		mg/kg	1	BGF0679	06/19/23	06/19/23	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: **06/19/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Surrogate: 1,2-Dichloroethane-d4		94.7 %		50-150		"	"	"	"	
Surrogate: Toluene-d8		96.2 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		101 %		50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **06/19/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
C10-C28 (DRO)	ND	50		mg/kg	1	BGF0678	06/19/23	06/19/23	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **06/19/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Surrogate: o-Terphenyl		92.6 %		30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Howard A27-7 FL

Project Number: [none]  
Project Manager: Paul Henehan

**Reported:**  
06/26/23 08:41

**E01@3.5'**  
**2306354-02 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **06/19/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Acenaphthene	ND	0.00500		mg/kg	1	BGF0686	06/20/23	06/21/23	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: **06/19/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Surrogate: 2-Methylnaphthalene-d10		52.7 %		40-150		"	"	"	"	"
Surrogate: Fluoranthene-d10		85.3 %		40-150		"	"	"	"	"

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

Date Sampled: **06/19/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
<b>Boron</b>	<b>0.235</b>	0.0100		mg/L	1	BGF0706	06/20/23	06/23/23	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **06/19/23 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 A27-7 FL

Project Number: [none]  
 Project Manager: Paul Henehan

**Reported:**  
 06/26/23 08:41

**E01@3.5'**  
**2306354-02 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Analyte	Result	Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	12.8	0.226		mg/kg dry	1	BGF0684	06/20/23	06/21/23	EPA 6020B	
Barium	24.6	0.452		"	"	"	"	"	"	
Cadmium	0.399	0.226		"	"	"	"	"	"	
Copper	7.81	0.452		"	"	"	"	"	"	
Lead	15.1	0.226		"	"	"	"	"	"	
Nickel	9.52	0.452		"	"	"	"	"	"	
Selenium	0.203	0.294	0.198	"	"	"	"	"	"	
Silver	0.0574	0.0226		"	"	"	"	"	"	
Zinc	30.7	0.452		"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **06/19/23 00:00**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30		mg/kg dry	1	BGF0682	06/20/23	06/20/23	EPA 7196A	

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

Date Sampled: **06/19/23 00:00**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	296	0.0564		mg/L dry	1	BGF0677	06/19/23	06/21/23	EPA 6020B	
Magnesium	116	0.0564		"	"	"	"	"	"	
Sodium	186	0.0564		"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **06/19/23 00:00**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	2.32	0.00100		units	1	BGF0754	06/21/23	06/21/23	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 A27-7 FL

Project Number: [none]  
 Project Manager: Paul Henehan

**Reported:**  
 06/26/23 08:41

**E01@3.5'**  
**2306354-02 (Soil)**

**Summit Scientific**

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

Date Sampled: **06/19/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
% Solids	88.6			%	1	BGF0681	06/20/23	06/20/23	Calculation	

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

Date Sampled: **06/19/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Specific Conductance (EC)	5.26	0.0100		mmhos/cm	1	BGF0692	06/20/23	06/20/23	EPA 120.1	

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

Date Sampled: **06/19/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
pH	7.52			pH Units	1	BGF0693	06/20/23	06/20/23	EPA 9045D	

Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Howard A27-7 FL

Project Number: [none]  
Project Manager: Paul Henehan

**Reported:**  
06/26/23 08:41

**S01@3.5'**  
**2306354-03 (Soil)**

**Summit Scientific**

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

Date Sampled: **06/19/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Benzene	ND	0.0020		mg/kg	1	BGF0679	06/19/23	06/19/23	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: **06/19/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Surrogate: 1,2-Dichloroethane-d4		104 %		50-150		"	"	"	"	
Surrogate: Toluene-d8		97.6 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		97.6 %		50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **06/19/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
C10-C28 (DRO)	ND	50		mg/kg	1	BGF0678	06/19/23	06/19/23	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **06/19/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Surrogate: o-Terphenyl		89.1 %		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 A27-7 FL

Project Number: [none]  
 Project Manager: Paul Henehan

**Reported:**  
 06/26/23 08:41

**S01@3.5'**  
**2306354-03 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **06/19/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Acenaphthene	ND	0.00500		mg/kg	1	BGF0686	06/20/23	06/21/23	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: **06/19/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Surrogate: 2-Methylnaphthalene-d10		57.0 %		40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		77.0 %		40-150		"	"	"	"	

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

Date Sampled: **06/19/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
<b>Boron</b>	<b>0.465</b>	0.0100		mg/L	1	BGF0706	06/20/23	06/23/23	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **06/19/23 00:00**

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

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Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - Howard A27-7 FL

Project Number: [none]  
 Project Manager: Paul Henehan

**Reported:**  
 06/26/23 08:41

**S01@3.5'**  
**2306354-03 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Analyte	Result	Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	9.89	0.228		mg/kg dry	1	BGF0684	06/20/23	06/22/23	EPA 6020B	
Barium	21.0	0.456		"	"	"	"	"	"	
Cadmium	0.346	0.228		"	"	"	"	"	"	
Copper	7.47	0.456		"	"	"	"	"	"	
Lead	13.1	0.228		"	"	"	"	"	"	
Nickel	7.40	0.456		"	"	"	"	"	"	
Selenium	ND	0.296	0.199	"	"	"	"	"	"	
Silver	0.0497	0.0228		"	"	"	"	"	"	
Zinc	28.9	0.456		"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **06/19/23 00:00**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30		mg/kg dry	1	BGF0682	06/20/23	06/20/23	EPA 7196A	

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

Date Sampled: **06/19/23 00:00**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	577	0.0570		mg/L dry	1	BGF0677	06/19/23	06/21/23	EPA 6020B	
Magnesium	223	0.0570		"	"	"	"	"	"	
Sodium	223	0.0570		"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **06/19/23 00:00**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	2.00	0.00100		units	1	BGF0754	06/21/23	06/21/23	Calculation	

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

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Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - Howard A27-7 FL

Project Number: [none]  
 Project Manager: Paul Henehan

**Reported:**  
 06/26/23 08:41

**S01@3.5'**  
**2306354-03 (Soil)**

**Summit Scientific**

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

Date Sampled: **06/19/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
% Solids	87.8			%	1	BGF0681	06/20/23	06/20/23	Calculation	

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

Date Sampled: **06/19/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Specific Conductance (EC)	4.98	0.0100		mmhos/cm	1	BGF0692	06/20/23	06/20/23	EPA 120.1	

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

Date Sampled: **06/19/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
pH	7.50			pH Units	1	BGF0693	06/20/23	06/20/23	EPA 9045D	

Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Howard A27-7 FL

Project Number: [none]  
Project Manager: Paul Henehan

**Reported:**  
06/26/23 08:41

**W01@3.5'**  
**2306354-04 (Soil)**

**Summit Scientific**

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

Date Sampled: **06/19/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Benzene	ND	0.0020		mg/kg	1	BGF0679	06/19/23	06/19/23	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: **06/19/23 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		96.4 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		105 %		50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **06/19/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
C10-C28 (DRO)	ND	50		mg/kg	1	BGF0678	06/19/23	06/19/23	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **06/19/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Surrogate: o-Terphenyl		97.6 %		30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

Summit Scientific

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Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - Howard A27-7 FL

Project Number: [none]  
 Project Manager: Paul Henehan

**Reported:**  
 06/26/23 08:41

**W01@3.5'**  
**2306354-04 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **06/19/23 00:00**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500		mg/kg	1	BGF0686	06/20/23	06/21/23	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: **06/19/23 00:00**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		67.4 %		40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		105 %		40-150		"	"	"	"	

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

Date Sampled: **06/19/23 00:00**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>0.844</b>	0.0100		mg/L	1	BGF0706	06/20/23	06/23/23	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **06/19/23 00:00**

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

Project: Noble - Howard A27-7 FL

Project Number: [none]  
 Project Manager: Paul Henehan

**Reported:**  
 06/26/23 08:41

**W01@3.5'**  
**2306354-04 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Analyte	Result	Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	10.9	0.229		mg/kg dry	1	BGF0684	06/20/23	06/22/23	EPA 6020B	
Barium	21.5	0.458		"	"	"	"	"	"	
Cadmium	0.346	0.229		"	"	"	"	"	"	
Copper	7.69	0.458		"	"	"	"	"	"	
Lead	13.2	0.229		"	"	"	"	"	"	
Nickel	8.27	0.458		"	"	"	"	"	"	
Selenium	0.207	0.298	0.200	"	"	"	"	"	"	
Silver	0.0449	0.0229		"	"	"	"	"	"	
Zinc	30.4	0.458		"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **06/19/23 00:00**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30		mg/kg dry	1	BGF0682	06/20/23	06/20/23	EPA 7196A	

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

Date Sampled: **06/19/23 00:00**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	522	0.0572		mg/L dry	1	BGF0677	06/19/23	06/21/23	EPA 6020B	
Magnesium	303	0.0572		"	"	"	"	"	"	
Sodium	365	0.0572		"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **06/19/23 00:00**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	3.14	0.00100		units	1	BGF0754	06/21/23	06/21/23	Calculation	

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

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Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - Howard A27-7 FL

Project Number: [none]  
 Project Manager: Paul Henehan

**Reported:**  
 06/26/23 08:41

**W01@3.5'**  
**2306354-04 (Soil)**

**Summit Scientific**

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

Date Sampled: **06/19/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
% Solids	87.4			%	1	BGF0681	06/20/23	06/20/23	Calculation	

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

Date Sampled: **06/19/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Specific Conductance (EC)	5.94	0.0100		mmhos/cm	1	BGF0692	06/20/23	06/20/23	EPA 120.1	

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

Date Sampled: **06/19/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
pH	7.64			pH Units	1	BGF0693	06/20/23	06/20/23	EPA 9045D	

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Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - Howard A27-7 FL

Project Number: [none]  
 Project Manager: Paul Henehan

**Reported:**  
 06/26/23 08:41

**B01@4.5'**  
**2306354-05 (Soil)**

**Summit Scientific**

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

Date Sampled: **06/19/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Benzene	ND	0.0020		mg/kg	1	BGF0679	06/19/23	06/19/23	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: **06/19/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Surrogate: 1,2-Dichloroethane-d4		98.4 %		50-150		"	"	"	"	
Surrogate: Toluene-d8		95.7 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		106 %		50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **06/19/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
C10-C28 (DRO)	ND	50		mg/kg	1	BGF0678	06/19/23	06/19/23	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **06/19/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Surrogate: o-Terphenyl		95.4 %		30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Howard A27-7 FL

Project Number: [none]  
Project Manager: Paul Henehan

**Reported:**  
06/26/23 08:41

**B01@4.5'**  
**2306354-05 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **06/19/23 00:00**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500		mg/kg	1	BGF0686	06/20/23	06/21/23	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: **06/19/23 00:00**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		51.6 %		40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		78.1 %		40-150		"	"	"	"	

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

Date Sampled: **06/19/23 00:00**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>0.782</b>	0.0100		mg/L	1	BGF0706	06/20/23	06/23/23	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **06/19/23 00:00**

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

Project: Noble - Howard A27-7 FL

Project Number: [none]  
 Project Manager: Paul Henehan

**Reported:**  
 06/26/23 08:41

**B01@4.5'**  
**2306354-05 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Analyte	Result	Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	10.7	0.226		mg/kg dry	1	BGF0684	06/20/23	06/22/23	EPA 6020B	
Barium	22.4	0.451		"	"	"	"	"	"	
Cadmium	0.484	0.226		"	"	"	"	"	"	
Copper	8.63	0.451		"	"	"	"	"	"	
Lead	12.7	0.226		"	"	"	"	"	"	
Nickel	10.4	0.451		"	"	"	"	"	"	
Selenium	ND	0.293	0.197	"	"	"	"	"	"	
Silver	0.0568	0.0226		"	"	"	"	"	"	
Zinc	38.2	0.451		"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **06/19/23 00:00**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30		mg/kg dry	1	BGF0682	06/20/23	06/20/23	EPA 7196A	

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

Date Sampled: **06/19/23 00:00**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	495	0.0564		mg/L dry	1	BGF0677	06/19/23	06/21/23	EPA 6020B	
Magnesium	317	0.0564		"	"	"	"	"	"	
Sodium	393	0.0564		"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **06/19/23 00:00**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	3.39	0.00100		units	1	BGF0754	06/21/23	06/21/23	Calculation	

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

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Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - Howard A27-7 FL

Project Number: [none]  
 Project Manager: Paul Henehan

**Reported:**  
 06/26/23 08:41

**B01@4.5'**  
**2306354-05 (Soil)**

**Summit Scientific**

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

Date Sampled: **06/19/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
% Solids	88.7			%	1	BGF0681	06/20/23	06/20/23	Calculation	

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

Date Sampled: **06/19/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Specific Conductance (EC)	6.13	0.0100		mmhos/cm	1	BGF0692	06/20/23	06/20/23	EPA 120.1	

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

Date Sampled: **06/19/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
pH	7.55			pH Units	1	BGF0693	06/20/23	06/20/23	EPA 9045D	

Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Howard A27-7 FL

Project Number: [none]  
Project Manager: Paul Henehan

**Reported:**  
06/26/23 08:41

**BKG03@4'**  
**2306354-06 (Soil)**

**Summit Scientific**

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

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

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
<b>Boron</b>	<b>0.318</b>	0.0100		mg/L	1	BGF0706	06/20/23	06/23/23	EPA 6020B	

**Total Metals by EPA 6020B**

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

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
<b>Arsenic</b>	<b>11.3</b>	0.225		mg/kg dry	1	BGF0684	06/20/23	06/22/23	EPA 6020B	
<b>Barium</b>	<b>23.2</b>	0.450		"	"	"	"	"	"	
<b>Cadmium</b>	<b>0.342</b>	0.225		"	"	"	"	"	"	
<b>Copper</b>	<b>7.61</b>	0.450		"	"	"	"	"	"	
<b>Lead</b>	<b>11.4</b>	0.225		"	"	"	"	"	"	
<b>Nickel</b>	<b>8.49</b>	0.450		"	"	"	"	"	"	
Selenium	ND	0.293	0.197	"	"	"	"	"	"	
<b>Silver</b>	<b>0.0455</b>	0.0225		"	"	"	"	"	"	
<b>Zinc</b>	<b>31.0</b>	0.450		"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

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

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Chromium, Hexavalent	ND	0.30		mg/kg dry	1	BGF0682	06/20/23	06/20/23	EPA 7196A	

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

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

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
<b>Calcium</b>	<b>519</b>	0.0563		mg/L dry	1	BGF0677	06/19/23	06/21/23	EPA 6020B	
<b>Magnesium</b>	<b>177</b>	0.0563		"	"	"	"	"	"	
<b>Sodium</b>	<b>256</b>	0.0563		"	"	"	"	"	"	

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Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - Howard A27-7 FL

Project Number: [none]  
 Project Manager: Paul Henehan

**Reported:**  
 06/26/23 08:41

**BKG03@4'**  
**2306354-06 (Soil)**

**Summit Scientific**

**Calculated Analysis**

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

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	2.48	0.00100		units	1	BGF0754	06/21/23	06/21/23	Calculation	

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

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

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	88.8			%	1	BGF0681	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	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	4.84	0.0100		mmhos/cm	1	BGF0692	06/20/23	06/20/23	EPA 120.1	

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

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

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.38			pH Units	1	BGF0693	06/20/23	06/20/23	EPA 9045D	

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Project: Noble - Howard A27-7 FL

Project Number: [none]  
 Project Manager: Paul Henehan

**Reported:**  
 06/26/23 08:41

**BKG04@4'**  
**2306354-07 (Soil)**

**Summit Scientific**

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

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

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
<b>Boron</b>	<b>0.366</b>	0.0100		mg/L	1	BGF0706	06/20/23	06/23/23	EPA 6020B	

**Total Metals by EPA 6020B**

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

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
<b>Arsenic</b>	<b>10.3</b>	0.240		mg/kg dry	1	BGF0684	06/20/23	06/22/23	EPA 6020B	
<b>Barium</b>	<b>40.1</b>	0.480		"	"	"	"	"	"	
<b>Cadmium</b>	<b>0.420</b>	0.240		"	"	"	"	"	"	
<b>Copper</b>	<b>7.83</b>	0.480		"	"	"	"	"	"	
<b>Lead</b>	<b>13.4</b>	0.240		"	"	"	"	"	"	
<b>Nickel</b>	<b>9.19</b>	0.480		"	"	"	"	"	"	
<b>Selenium</b>	ND	0.312	0.210	"	"	"	"	"	"	
<b>Silver</b>	<b>0.0595</b>	0.0240		"	"	"	"	"	"	
<b>Zinc</b>	<b>34.2</b>	0.480		"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

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

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Chromium, Hexavalent	ND	0.30		mg/kg dry	1	BGF0682	06/20/23	06/20/23	EPA 7196A	

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

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

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
<b>Calcium</b>	<b>387</b>	0.0600		mg/L dry	1	BGF0677	06/19/23	06/21/23	EPA 6020B	
<b>Magnesium</b>	<b>102</b>	0.0600		"	"	"	"	"	"	
<b>Sodium</b>	<b>135</b>	0.0600		"	"	"	"	"	"	

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PO Box 1289  
Wellington CO, 80549

Project: Noble - Howard A27-7 FL

Project Number: [none]  
Project Manager: Paul Henehan

**Reported:**  
06/26/23 08:41

**BKG04@4'**  
**2306354-07 (Soil)**

**Summit Scientific**

**Calculated Analysis**

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

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	1.58	0.00100		units	1	BGF0754	06/21/23	06/21/23	Calculation	

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

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

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	83.3			%	1	BGF0681	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	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	3.79	0.0100		mmhos/cm	1	BGF0692	06/20/23	06/20/23	EPA 120.1	

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

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

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.31			pH Units	1	BGF0693	06/20/23	06/20/23	EPA 9045D	

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Howard A27-7 FL

Project Number: [none]  
Project Manager: Paul Henehan

**Reported:**  
06/26/23 08:41

### 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 BGF0679 - EPA 5030 Soil MS

##### Blank (BGF0679-BLK1)

Prepared & Analyzed: 06/19/23

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>	<i>0.0384</i>		<i>"</i>	<i>0.0400</i>		<i>95.9</i>	<i>50-150</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0387</i>		<i>"</i>	<i>0.0400</i>		<i>96.8</i>	<i>50-150</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0412</i>		<i>"</i>	<i>0.0400</i>		<i>103</i>	<i>50-150</i>			

##### LCS (BGF0679-BS1)

Prepared & Analyzed: 06/19/23

Benzene	0.0879	0.0020	mg/kg	0.100		87.9	70-130			
Toluene	0.0916	0.0050	"	0.100		91.6	70-130			
Ethylbenzene	0.0975	0.0050	"	0.100		97.5	70-130			
m,p-Xylene	0.195	0.010	"	0.200		97.6	70-130			
o-Xylene	0.0888	0.0050	"	0.100		88.8	70-130			
1,2,4-Trimethylbenzene	0.0903	0.0050	"	0.100		90.3	70-130			
1,3,5-Trimethylbenzene	0.104	0.0050	"	0.100		104	70-130			
Naphthalene	0.0920	0.0038	"	0.100		92.0	70-130			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0369</i>		<i>"</i>	<i>0.0400</i>		<i>92.3</i>	<i>50-150</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0393</i>		<i>"</i>	<i>0.0400</i>		<i>98.2</i>	<i>50-150</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0400</i>		<i>"</i>	<i>0.0400</i>		<i>100</i>	<i>50-150</i>			

##### Matrix Spike (BGF0679-MS1)

Source: 2306358-01

Prepared & Analyzed: 06/19/23

Benzene	0.0953	0.0020	mg/kg	0.100	ND	95.3	70-130			
Toluene	0.102	0.0050	"	0.100	ND	102	70-130			
Ethylbenzene	0.102	0.0050	"	0.100	ND	102	70-130			
m,p-Xylene	0.194	0.010	"	0.200	ND	97.2	70-130			
o-Xylene	0.0964	0.0050	"	0.100	ND	96.4	70-130			
1,2,4-Trimethylbenzene	0.0911	0.0050	"	0.100	ND	91.1	70-130			
1,3,5-Trimethylbenzene	0.0845	0.0050	"	0.100	ND	84.5	70-130			
Naphthalene	0.0920	0.0038	"	0.100	ND	92.0	70-130			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0369</i>		<i>"</i>	<i>0.0400</i>		<i>92.2</i>	<i>50-150</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0389</i>		<i>"</i>	<i>0.0400</i>		<i>97.2</i>	<i>50-150</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0395</i>		<i>"</i>	<i>0.0400</i>		<i>98.7</i>	<i>50-150</i>			

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Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - Howard A27-7 FL

Project Number: [none]  
 Project Manager: Paul Henehan

**Reported:**  
 06/26/23 08:41

**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 BGF0679 - EPA 5030 Soil MS**

<b>Matrix Spike Dup (BGF0679-MSD1)</b>	<b>Source: 2306358-01</b>			<b>Prepared &amp; Analyzed: 06/19/23</b>						
Benzene	0.0963	0.0020	mg/kg	0.100	ND	96.3	70-130	1.03	30	
Toluene	0.0905	0.0050	"	0.100	ND	90.5	70-130	11.7	30	
Ethylbenzene	0.103	0.0050	"	0.100	ND	103	70-130	0.205	30	
m,p-Xylene	0.205	0.010	"	0.200	ND	102	70-130	5.11	30	
o-Xylene	0.0913	0.0050	"	0.100	ND	91.3	70-130	5.53	30	
1,2,4-Trimethylbenzene	0.0947	0.0050	"	0.100	ND	94.7	70-130	3.91	30	
1,3,5-Trimethylbenzene	0.0972	0.0050	"	0.100	ND	97.2	70-130	13.9	30	
Naphthalene	0.0961	0.0038	"	0.100	ND	96.1	70-130	4.34	30	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0429</i>		<i>"</i>	<i>0.0400</i>		<i>107</i>	<i>50-150</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0400</i>		<i>"</i>	<i>0.0400</i>		<i>100</i>	<i>50-150</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0425</i>		<i>"</i>	<i>0.0400</i>		<i>106</i>	<i>50-150</i>			

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Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - Howard A27-7 FL

Project Number: [none]  
 Project Manager: Paul Henehan

**Reported:**  
 06/26/23 08:41

**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 BGF0678 - EPA 3550A**

**Blank (BGF0678-BLK1)**

Prepared & Analyzed: 06/19/23

C10-C28 (DRO)	ND	50	mg/kg								
C28-C36 (ORO)	ND	50	"								
Surrogate: <i>o</i> -Terphenyl	11.1		"	12.5		89.1		30-150			

**LCS (BGF0678-BS1)**

Prepared & Analyzed: 06/19/23

C10-C28 (DRO)	465	50	mg/kg					70-130			
Surrogate: <i>o</i> -Terphenyl	12.9		"	12.5		103		30-150			

**Matrix Spike (BGF0678-MS1)**

Source: 2306354-01

Prepared & Analyzed: 06/19/23

C10-C28 (DRO)	426	50	mg/kg			11.8		70-130			
Surrogate: <i>o</i> -Terphenyl	13.0		"	12.5		104		30-150			

**Matrix Spike Dup (BGF0678-MSD1)**

Source: 2306354-01

Prepared & Analyzed: 06/19/23

C10-C28 (DRO)	450	50	mg/kg			11.8		70-130	5.36	20	
Surrogate: <i>o</i> -Terphenyl	14.0		"	12.5		112		30-150			

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Fremont Environmental  
 PO Box 1289  
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Project: Noble - Howard A27-7 FL

Project Number: [none]  
 Project Manager: Paul Henehan

**Reported:**  
 06/26/23 08:41

**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 BGF0686 - EPA 5030 Soil MS**

**Blank (BGF0686-BLK1)**

Prepared & Analyzed: 06/20/23

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>0.0320</i>		"	<i>0.0333</i>		<i>95.9</i>	<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0472</i>		"	<i>0.0333</i>		<i>142</i>	<i>40-150</i>			

**LCS (BGF0686-BS1)**

Prepared & Analyzed: 06/20/23

Acenaphthene	0.0341	0.00500	mg/kg	0.0333	102	31-137
Anthracene	0.0386	0.00500	"	0.0333	116	30-120
Benzo (a) anthracene	0.0386	0.00500	"	0.0333	116	30-120
Benzo (a) pyrene	0.0370	0.00500	"	0.0333	111	30-120
Benzo (b) fluoranthene	0.0364	0.00500	"	0.0333	109	30-120
Benzo (k) fluoranthene	0.0320	0.00500	"	0.0333	96.0	30-120
Chrysene	0.0334	0.00500	"	0.0333	100	30-120
Dibenz (a,h) anthracene	0.0382	0.00500	"	0.0333	115	30-120
Fluoranthene	0.0384	0.00500	"	0.0333	115	30-120
Fluorene	0.0351	0.00500	"	0.0333	105	30-120
Indeno (1,2,3-cd) pyrene	0.0392	0.00500	"	0.0333	117	30-120
Pyrene	0.0377	0.00500	"	0.0333	113	35-142
1-Methylnaphthalene	0.0381	0.00500	"	0.0333	114	35-142
2-Methylnaphthalene	0.0365	0.00500	"	0.0333	109	35-142
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0381</i>		"	<i>0.0333</i>	<i>114</i>	<i>40-150</i>
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0378</i>		"	<i>0.0333</i>	<i>113</i>	<i>40-150</i>

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 PO Box 1289  
 Wellington CO, 80549

Project: Noble - Howard A27-7 FL

Project Number: [none]  
 Project Manager: Paul Henehan

Reported:  
 06/26/23 08:41

**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 BGF0686 - EPA 5030 Soil MS**

<b>Matrix Spike (BGF0686-MS1)</b>	<b>Source: 2306311-21</b>			<b>Prepared &amp; Analyzed: 06/20/23</b>						
Acenaphthene	0.0234	0.00500	mg/kg	0.0333	ND	70.3	31-137			
Anthracene	0.0247	0.00500	"	0.0333	ND	74.1	30-120			
Benzo (a) anthracene	0.0262	0.00500	"	0.0333	ND	78.5	30-120			
Benzo (a) pyrene	0.0202	0.00500	"	0.0333	ND	60.5	30-120			
Benzo (b) fluoranthene	0.0239	0.00500	"	0.0333	ND	71.7	30-120			
Benzo (k) fluoranthene	0.0227	0.00500	"	0.0333	ND	68.0	30-120			
Chrysene	0.0255	0.00500	"	0.0333	ND	76.4	30-120			
Dibenz (a,h) anthracene	0.0198	0.00500	"	0.0333	ND	59.4	30-120			
Fluoranthene	0.0257	0.00500	"	0.0333	ND	77.0	30-120			
Fluorene	0.0232	0.00500	"	0.0333	ND	69.6	30-120			
Indeno (1,2,3-cd) pyrene	0.0230	0.00500	"	0.0333	ND	69.1	30-120			
Pyrene	0.0285	0.00500	"	0.0333	ND	85.5	35-142			
1-Methylnaphthalene	0.0231	0.00500	"	0.0333	ND	69.2	15-130			
2-Methylnaphthalene	0.0220	0.00500	"	0.0333	ND	65.9	15-130			
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0237</i>		<i>"</i>	<i>0.0333</i>		<i>71.2</i>	<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0244</i>		<i>"</i>	<i>0.0333</i>		<i>73.1</i>	<i>40-150</i>			

<b>Matrix Spike Dup (BGF0686-MSD1)</b>	<b>Source: 2306311-21</b>			<b>Prepared &amp; Analyzed: 06/20/23</b>						
Acenaphthene	0.0181	0.00500	mg/kg	0.0333	ND	54.2	31-137	25.8	30	
Anthracene	0.0203	0.00500	"	0.0333	ND	61.0	30-120	19.3	30	
Benzo (a) anthracene	0.0225	0.00500	"	0.0333	ND	67.4	30-120	15.2	30	
Benzo (a) pyrene	0.0170	0.00500	"	0.0333	ND	51.1	30-120	16.7	30	
Benzo (b) fluoranthene	0.0264	0.00500	"	0.0333	ND	79.3	30-120	10.1	30	
Benzo (k) fluoranthene	0.0221	0.00500	"	0.0333	ND	66.3	30-120	2.41	30	
Chrysene	0.0245	0.00500	"	0.0333	ND	73.6	30-120	3.66	30	
Dibenz (a,h) anthracene	0.0169	0.00500	"	0.0333	ND	50.8	30-120	15.6	30	
Fluoranthene	0.0195	0.00500	"	0.0333	ND	58.6	30-120	27.2	30	
Fluorene	0.0184	0.00500	"	0.0333	ND	55.1	30-120	23.3	30	
Indeno (1,2,3-cd) pyrene	0.0223	0.00500	"	0.0333	ND	66.8	30-120	3.41	30	
Pyrene	0.0228	0.00500	"	0.0333	ND	68.5	35-142	22.1	30	
1-Methylnaphthalene	0.0143	0.00500	"	0.0333	ND	42.8	15-130	47.1	50	
2-Methylnaphthalene	0.0141	0.00500	"	0.0333	ND	42.3	15-130	43.6	50	
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0148</i>		<i>"</i>	<i>0.0333</i>		<i>44.4</i>	<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0178</i>		<i>"</i>	<i>0.0333</i>		<i>53.4</i>	<i>40-150</i>			

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Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - Howard A27-7 FL

Project Number: [none]  
 Project Manager: Paul Henehan

**Reported:**  
 06/26/23 08:41

**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 BGF0706 - EPA 3050B**

**Blank (BGF0706-BLK1)**

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

Boron ND 0.0100 mg/L

**LCS (BGF0706-BS1)**

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

Boron 5.02 0.0100 mg/L 5.00 100 80-120

**Duplicate (BGF0706-DUP1)**

Source: 2306311-04

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

Boron 3.39 0.0100 mg/L 2.88 16.2 20

**Matrix Spike (BGF0706-MS1)**

Source: 2306311-04

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

Boron 7.86 0.0100 mg/L 5.00 2.88 99.5 75-125

**Matrix Spike Dup (BGF0706-MSD1)**

Source: 2306311-04

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

Boron 8.59 0.0100 mg/L 5.00 2.88 114 75-125 8.87 25

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Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - Howard A27-7 FL

Project Number: [none]  
 Project Manager: Paul Henehan

**Reported:**  
 06/26/23 08:41

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

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

**Batch BGF0684 - EPA 3050B**

**Blank (BGF0684-BLK1)**

Prepared: 06/20/23 Analyzed: 06/21/23

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 (BGF0684-BS1)**

Prepared: 06/20/23 Analyzed: 06/21/23

Arsenic	36.6	0.200	mg/kg wet	40.0	91.5	80-120
Barium	36.6	0.400	"	40.0	91.4	80-120
Cadmium	1.82	0.200	"	2.00	91.0	80-120
Copper	38.6	0.400	"	40.0	96.5	80-120
Lead	18.2	0.200	"	20.0	90.8	80-120
Nickel	37.8	0.400	"	40.0	94.5	80-120
Selenium	3.83	0.260	"	4.00	95.8	80-120
Silver	1.84	0.0200	"	2.00	92.1	80-120
Zinc	37.7	0.400	"	40.0	94.2	80-120

**Duplicate (BGF0684-DUP1)**

Source: 2306311-05

Prepared: 06/20/23 Analyzed: 06/21/23

Arsenic	1.90	0.217	mg/kg dry	2.30	18.7	20
Barium	65.3	0.433	"	66.7	2.17	20
Cadmium	0.110	0.217	"	0.127	14.3	20
Copper	2.57	0.433	"	2.84	9.82	20
Lead	3.78	0.217	"	4.10	7.92	20
Nickel	3.24	0.433	"	3.65	11.8	20
Selenium	ND	0.282	"	ND		20
Silver	0.0130	0.0217	"	0.0208	46.2	20
Zinc	11.1	0.433	"	12.0	7.93	20

QR-04

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Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - Howard A27-7 FL

Project Number: [none]  
 Project Manager: Paul Henehan

**Reported:**  
 06/26/23 08:41

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

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

**Batch BGF0684 - EPA 3050B**

**Matrix Spike (BGF0684-MS1)**

Source: 2306311-05

Prepared: 06/20/23 Analyzed: 06/21/23

Arsenic	40.7	0.217	mg/kg dry	43.3	2.30	88.7	75-125			
Barium	138	0.433	"	43.3	66.7	164	75-125			QM-07
Cadmium	2.02	0.217	"	2.17	0.127	87.4	75-125			
Copper	32.1	0.433	"	43.3	2.84	67.5	75-125			QM-07
Lead	22.3	0.217	"	21.7	4.10	84.2	75-125			
Nickel	32.9	0.433	"	43.3	3.65	67.5	75-125			QM-07
Selenium	3.90	0.282	"	4.33	ND	90.0	75-125			
Silver	1.89	0.0217	"	2.17	0.0208	86.5	75-125			
Zinc	42.1	0.433	"	43.3	12.0	69.3	75-125			QM-07

**Matrix Spike Dup (BGF0684-MSD1)**

Source: 2306311-05

Prepared: 06/20/23 Analyzed: 06/21/23

Arsenic	40.5	0.217	mg/kg dry	43.3	2.30	88.2	75-125	0.589	25	
Barium	138	0.433	"	43.3	66.7	165	75-125	0.255	25	QM-07
Cadmium	2.04	0.217	"	2.17	0.127	88.3	75-125	0.982	25	
Copper	32.0	0.433	"	43.3	2.84	67.2	75-125	0.421	25	QM-07
Lead	22.8	0.217	"	21.7	4.10	86.4	75-125	2.04	25	
Nickel	32.8	0.433	"	43.3	3.65	67.2	75-125	0.438	25	QM-07
Selenium	3.81	0.282	"	4.33	ND	87.9	75-125	2.43	25	
Silver	1.94	0.0217	"	2.17	0.0208	88.4	75-125	2.13	25	
Zinc	41.7	0.433	"	43.3	12.0	68.4	75-125	0.948	25	QM-07

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Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - Howard A27-7 FL

Project Number: [none]  
 Project Manager: Paul Henehan

**Reported:**  
 06/26/23 08:41

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

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

**Batch BGF0682 - 3060A Mod**

**Blank (BGF0682-BLK1)**

Prepared & Analyzed: 06/20/23

Chromium, Hexavalent      ND      0.30 mg/kg wet

**LCS (BGF0682-BS1)**

Prepared & Analyzed: 06/20/23

Chromium, Hexavalent      21.2      0.30 mg/kg wet      25.0      84.8      80-120

**Duplicate (BGF0682-DUP1)**

**Source: 2306299-01**

Prepared & Analyzed: 06/20/23

Chromium, Hexavalent      ND      0.30 mg/kg dry      ND      20

**Matrix Spike (BGF0682-MS1)**

**Source: 2306299-01**

Prepared & Analyzed: 06/20/23

Chromium, Hexavalent      26.4      0.30 mg/kg dry      28.6      ND      92.0      75-125

**Matrix Spike Dup (BGF0682-MSD1)**

**Source: 2306299-01**

Prepared & Analyzed: 06/20/23

Chromium, Hexavalent      23.3      0.30 mg/kg dry      28.6      ND      81.4      75-125      12.2      20

Summit Scientific

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Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - Howard A27-7 FL

Project Number: [none]  
 Project Manager: Paul Henehan

**Reported:**  
 06/26/23 08:41

**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 BGF0677 - General Preparation**

**Blank (BGF0677-BLK1)**

Prepared: 06/19/23 Analyzed: 06/21/23

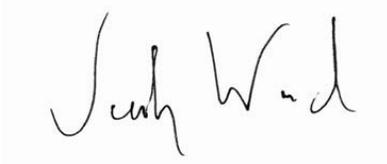
Calcium	ND	0.0500	mg/L wet							
Magnesium	ND	0.0500	"							
Sodium	ND	0.0500	"							

**LCS (BGF0677-BS1)**

Prepared: 06/19/23 Analyzed: 06/21/23

Calcium	5.04	0.0500	mg/L wet	5.00	101	70-130				
Magnesium	4.82	0.0500	"	5.00	96.3	70-130				
Sodium	4.86	0.0500	"	5.00	97.2	70-130				

Summit Scientific



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Fremont Environmental PO Box 1289 Wellington CO, 80549	Project: Noble - Howard A27-7 FL Project Number: [none] Project Manager: Paul Henehan	<b>Reported:</b> 06/26/23 08:41
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**Physical Parameters by APHA/ASTM/EPA Methods - Quality Control**

**Summit Scientific**

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

**Batch BGF0681 - General Preparation**

<b>Duplicate (BGF0681-DUP1)</b>	<b>Source: 2306299-01</b>		<b>Prepared &amp; Analyzed: 06/20/23</b>								
% Solids	87.4		%		87.3				0.162		20

Summit Scientific



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Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - Howard A27-7 FL

Project Number: [none]  
 Project Manager: Paul Henehan

**Reported:**  
 06/26/23 08:41

**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 BGF0692 - General Preparation**

**Blank (BGF0692-BLK1)**

Prepared & Analyzed: 06/20/23

Specific Conductance (EC)      ND      0.0100    mmhos/cm

**LCS (BGF0692-BS1)**

Prepared & Analyzed: 06/20/23

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

**Duplicate (BGF0692-DUP1)**

**Source: 2304636-01**

Prepared & Analyzed: 06/20/23

Specific Conductance (EC)      0.776      0.0100    mmhos/cm      0.777      0.0773      20

Summit Scientific

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Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - Howard A27-7 FL

Project Number: [none]  
 Project Manager: Paul Henehan

**Reported:**  
 06/26/23 08:41

**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 BGF0693 - General Preparation**

**LCS (BGF0693-BS1)**

Prepared & Analyzed: 06/20/23

pH 8.99 pH Units 9.18 97.9 95-105

**Duplicate (BGF0693-DUP1)**

Source: 2306354-01

Prepared & Analyzed: 06/20/23

pH 7.53 pH Units 7.55 0.265 20

Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Howard A27-7 FL

Project Number: [none]  
Project Manager: Paul Henehan

**Reported:**  
06/26/23 08:41

### 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.
- 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