

# **FREMONT ENVIRONMENTAL INC.**

May 4, 2023

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

Subject: **Wellhead & Flowline Closure Data Submittal**  
Wells Ranch AA 21-06  
API # 05-123-26812  
SENW Sec. 21, T6N, R63W  
Weld County, Colorado  
Fremont Project No. C023-107  
Facility # 296512, Remediation #25990

Dear Mr. Peterson:

As you requested, Fremont Environmental Inc. (Fremont) personnel conducted Wellhead and Flowline Closure activities for the Noble Energy Inc. (Noble) Well Ranch AA 21-06. Impacted soil encountered during abandonment activities. Details of the Wells Ranch AA 21-06 wellhead and flowline closure activities are documented in the attached Closure Report. Groundwater was not encountered during flowline abandonment activities.

Please contact me at (303) 956-8714 if you require any additional information. Fremont appreciates the opportunity to provide this service.

Sincerely,

**FREMONT ENVIRONMENTAL INC.**



Paul V. Henahan, P.E.  
Senior Consultant

Attachments:

Facility Closure Checklist  
Tables  
Figures  
Photos  
Laboratory Reports

**1759 REDWING LANE, BROOMFIELD, CO 80020  
(303) 956-8714 (DIRECT)**

Wellhead Closure Checklist							
COGCC Rule 911.a.(4) Environmental Site Closure Assessment Field Form							
Additional attachments (optional):		Pit Closure		Tank Battery Closure	X	Flowline Closure	Partially Buried Vault Closure
Site Name & COGCC Facility Number: WELLS RANCH AA T6N-R63N-S21 L01 Facility ID: 467649		Date: 04/13/2023				Remediation Project #: 25990	
Associated Wells: Wells Ranch AA 21-06 Facility ID: 296512 API: 05-123-26812		Age of Site: 2008				Number of Photos Attached: 6 Photos	
Location: (GPS coordinates of wellhead or southeastern most wellhead for multiple)					40.474192, -104.444680		Estimated Facility Size (acres): ~1 Acre
General Condition of Site: (General observations regarding housekeeping, corrosion, waste management, etc.) Good Housekeeping. General Condition of wellhead looked fine. Staining and odor noted at the wellhead cut and cap excavation							
USCS Soil Type: SC					Estimated Depth to Groundwater: N/A		
Hydrocarbon Impacted Soils / Spills: (Note estimated size and if impact appears to be surficial or extends to an unknown depth) An exceedance in 1,2,4-Trimethyl-Benzene (4.1mg/kg), 1,3,5-Trimethyl-Benzene (1.4mg/kg), Naphthalene (0.29mg/kg), 1-Methyl-Naphthalene (0.194mg/kg) and 2-Methyl-Naphthalene (0.251mg/kg) was discovered at the floor of the wellhead cut and cap excavation. Impacts extend to an unknown length, width and depth. Impacts were left in place. Additional investigation is required							
Salt Crusted Soils or Impacted Vegetation: (Note estimated size and if impact appears to be surficial or extends to an unknown depth) None Observed							
Wellhead(s)							
Well API	05-123-26812						
Age	2008						
Condition of surface around wellhead	No Impacts Noted						
PID Readings	N/A						
Condition of subsurface (staining present)	Staining and Odor Present						
PID Readings	High @ 370.1ppm WellB01 @5.5'						
Sample taken? Location/Sample ID#	WellB01 @5.5' WellNW01 @5.0'						
Photo Number(s)	Photos 1A-1E						
Other observations regarding wellheads: The northeastern sidewall was the flowline tie-in point of the wellhead. An exceedance in pH (8.57) was discovered at the floor of the wellhead cut and cap excavation (WellB01 @5.5'). Refer to the inorganic soil chemistry table (Table 3) for reference.							
Summary							
Was impacted soil identified? No Yes - less than 10 cubic yards Yes - more than 10 cubic yards							
Total number of samples field screened: 3 Samples				Total number of samples collected: 6 Samples			
Highest PID Reading: High @ 370.1ppm (WellB01 @5.5')				Total number of samples submitted to lab for analysis: 3 Samples			
If more than 10 cubic yards of impacted soil were observed:							
Vertical extent: N/A				Estimated spill volume: N/A			
Lateral extent: N/A				Volume of soil removed: N/A			
Is additional investigation required? N/A							
Was groundwater encountered during the investigation? No Yes - not impacted or in contact with impacted soils Yes - groundwater impacted and/or in contact with impacted soils							
Measured depth to groundwater: N/A				Was remedial groundwater removal conducted? Yes No			
Date Groundwater was encountered: N/A				Commencement date of removal: N/A			
Sheen on groundwater? Yes No				Volume of groundwater removed prior to sampling: N/A			
Free product observed? Yes No				Volume of groundwater removed post sampling: N/A			
Total number of samples collected: N/A				Total Volume of groundwater removed: N/A			
Total number of samples submitted to lab for analysis: N/A							

# Flowline Closure Checklist

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

Additional Attachments:		Tank Battery Closure	X	Wellhead Closure		Pit Closure		Partially Buried Vault Closure
Site Name & COGCC Facility Number: Wells Ranch AA T6N-R63W-S21 L01 Facility: 467649		Date: 04/13/2023						Remediation Project #: 25990
Associated Wells: Wells Ranch AA 21-06 Facility ID: 296512 API: 05-123-26812		Age of Site: 2008						Number of Photos Attached: 2 Photos
Starting point: (GPS coordinates and descriptions) 40.474204, -104.444661								
End point: (GPS coordinates and descriptions) 40.476701, -104.449929								
USCS Soil Type: SC					Estimated Depth to Groundwater: N/A			
Hydrocarbon Impacted Soils / Spills: (Note estimated size and if impact appears to be surficial or extends to an unknown depth)								
None observed								
Salt Crusted Soils or Impacted Vegetation: (Note estimated size and if impact appears to be surficial or extends to an unknown depth)								
None observed								
Flowlines								
Flowline type	2" Steel							
Depth	Roughly 3-4ft							
Age	2008							
Length	1,716ft							
Construction Material	Green TGF							
Were flowlines pulled?	Abandoned-in-place							
Visual Integrity of lines	No Damage							
Visual impacts if trenched	N/A							
PID Readings if trenched	High @ 0.4ppm							
Sample taken? Location/Sample ID#	FL01@4.0' FL02@4.0'							
Photo Number(s)	Photo 3A-3B							
Other observations regarding on loction flowlines:								
Summary								
Was impacted soil identified?								
No Yes - less than 10 cubic yards Yes - more than 10 cubic yards								
Total number of samples field screened: 0 samples					Total number of samples collected: 2 samples			
Highest PID Reading: High @ 0.4ppm (FL01@4.0')					Total number of samples submitted to lab for analysis: 2 Samples			
If more than 10 cubic yards of impacted soil were observed:								
Vertical extent: N/A					Estimated spill volume: N/A			
Lateral extent: N/A					Volume of soil removed: N/A			
Is additional investigation required? N/A								
Was groundwater encountered during the investigation?								
No Yes - not impacted or in contact with impacted soils Yes - groundwater impacted and/or in contact with impacted soils								
Measured depth to groundwater: N/A					Was remedial groundwater removal conducted? Yes No			
Date Groundwater was encountered: N/A					Commencement date of removal: N/A			
Sheen on groundwater? Yes No					Volume of groundwater removed prior to sampling: N/A			
Free product observed? Yes No					Volume of groundwater removed post sampling: N/A			
Total number of samples collected: N/A					Total Volume of groundwater removed: N/A			
Total number of samples submitted to lab for analysis: N/A								

TABLE 1  
SUMMARY OF VOLATILE ORGANIC SOIL CHEMISTRY DATA  
NOBLE ENERGY INC.  
WELLS RANCH AA 21-06, WELD COUNTY, COLORADO  
FREMONT PROJECT NO. C023-107

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		
WellB01@5.5'	4/13/2023	5.5 Ft	<0.0020	<0.0050	0.52	2.4	4.1	1.4	0.29	120	<50	<50
WellNW01@5.0'	4/13/2023	5.0 Ft	<0.0020	<0.00500	<0.00500	<0.010	<0.00500	<0.00500	<0.0038	<0.50	<50	<50
FL01@4.0'	4/13/2023	4.0 Ft	<0.0020	<0.00500	<0.00500	<0.010	<0.00500	<0.00500	<0.0038	<0.50	<50	<50
FL02@4.0'	4/14/2023	4.0 Ft	<0.0020	<0.00500	<0.00500	<0.010	<0.00500	<0.00500	<0.0038	<0.50	<50	<50

Bold faced values exceed the COGCC Table 915-1 concentrations

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

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

TABLE 2  
SUMMARY OF POLYCYCLIC AROMATIC HYDROCARBON SOIL CHEMISTRY DATA  
NOBLE ENERGY INC.  
WELLS RANCH AA 21-06, WELD COUNTY, COLORADO  
FREMONT PROJECT NO. C023-107

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
WellB01@5.5'	4/13/2023	5.5 Ft	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.0219	<0.00500	<0.00500	0.194	0.251
WellNW01@5.0'	4/13/2023	5.0 Ft	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
FL01@4.0'	4/13/2023	4.0 Ft	<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
FL02@4.0'	4/14/2023	4.0 Ft	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00571	<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)

**TABLE 3**  
**SUMMARY OF SOIL SUITABILITY FOR RECLAMATION**  
**NOBLE ENERGY INC.**  
**WELLS RANCH AA 21-06, WELD COUNTY, COLORADO**  
**FREMONT PROJECT NO. C023-107**

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
WellB01@5.5'	4/13/2023	5.5 Ft	<b>8.57</b>	0.436	1.57	0.449
WellNW01@5.0'	4/13/2023	5.0 Ft	7.50	1.30	3.82	0.335
FL01@4.0'	4/13/2023	4.0 Ft	7.54	1.90	2.45	0.242
FL02@4.0'	4/14/2023	4.0 Ft	8.04	0.328	0.506	0.169
BKG01@6.0"	4/13/2023	0.5 Ft	7.73	0.934	2.47	0.266

Bold faced values exceed the COGCC Table 915-1 concentrations

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

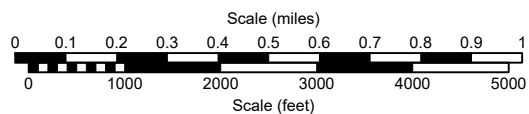
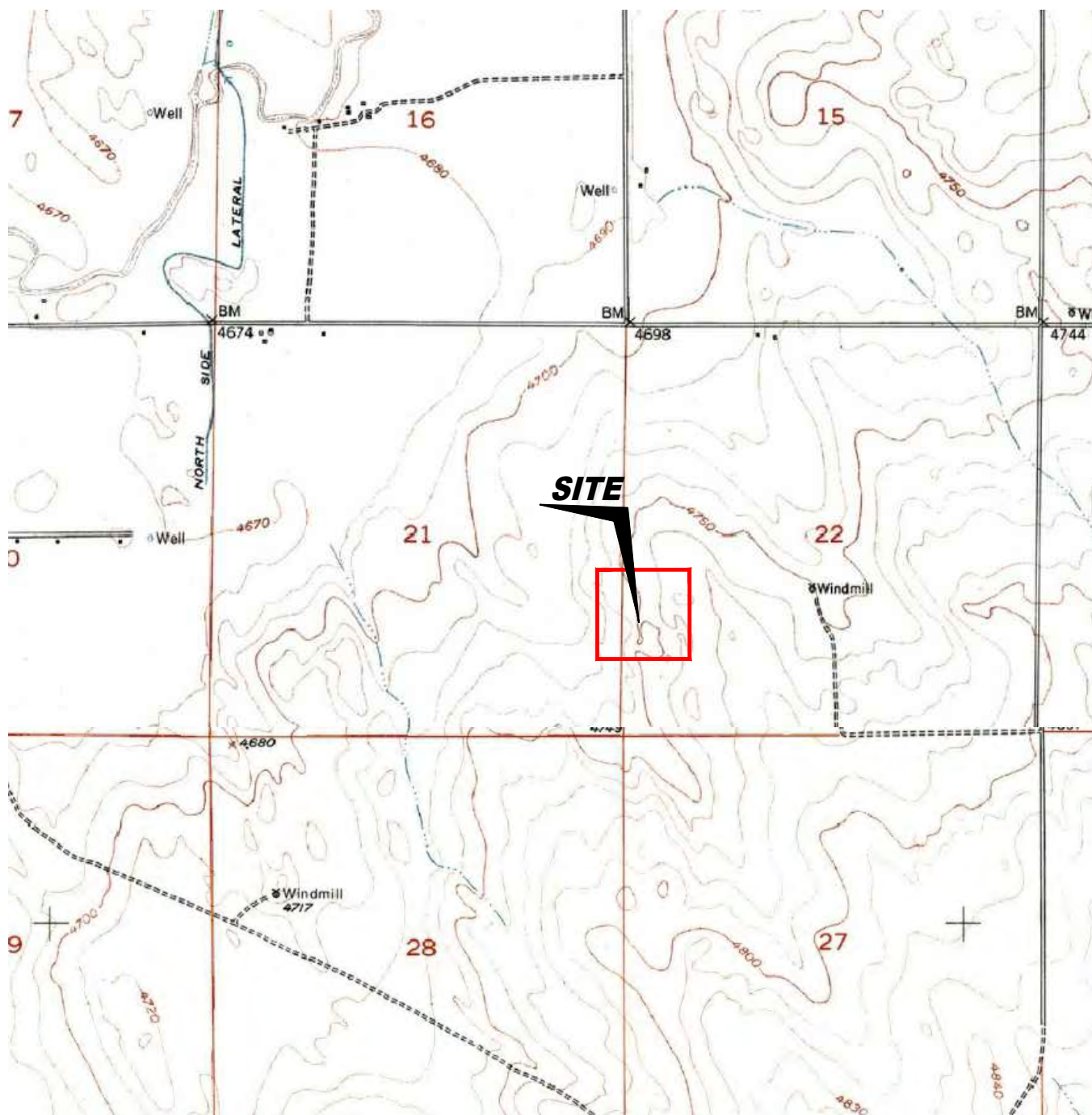
TABLE 4  
SUMMARY OF METALS IN SOIL CHEMISTRY DATA  
NOBLE ENERGY INC.  
WELLS RANCH AA 21-06, WELD COUNTY, COLORADO  
FREMONT PROJECT NO. C023-107

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
BKG01@6.0"	4/13/2023	0.5 Ft	<b>2.52</b>	<b>98.3</b>	0.299	<0.30	6.70	7.73	4.51	0.243	0.0360	24.1

Bold faced values exceed the COGCC Table 915-1 concentrations

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

NA - Not analyzed



USGS 7.5 MINUTE SERIES (TOPOGRAPHIC)

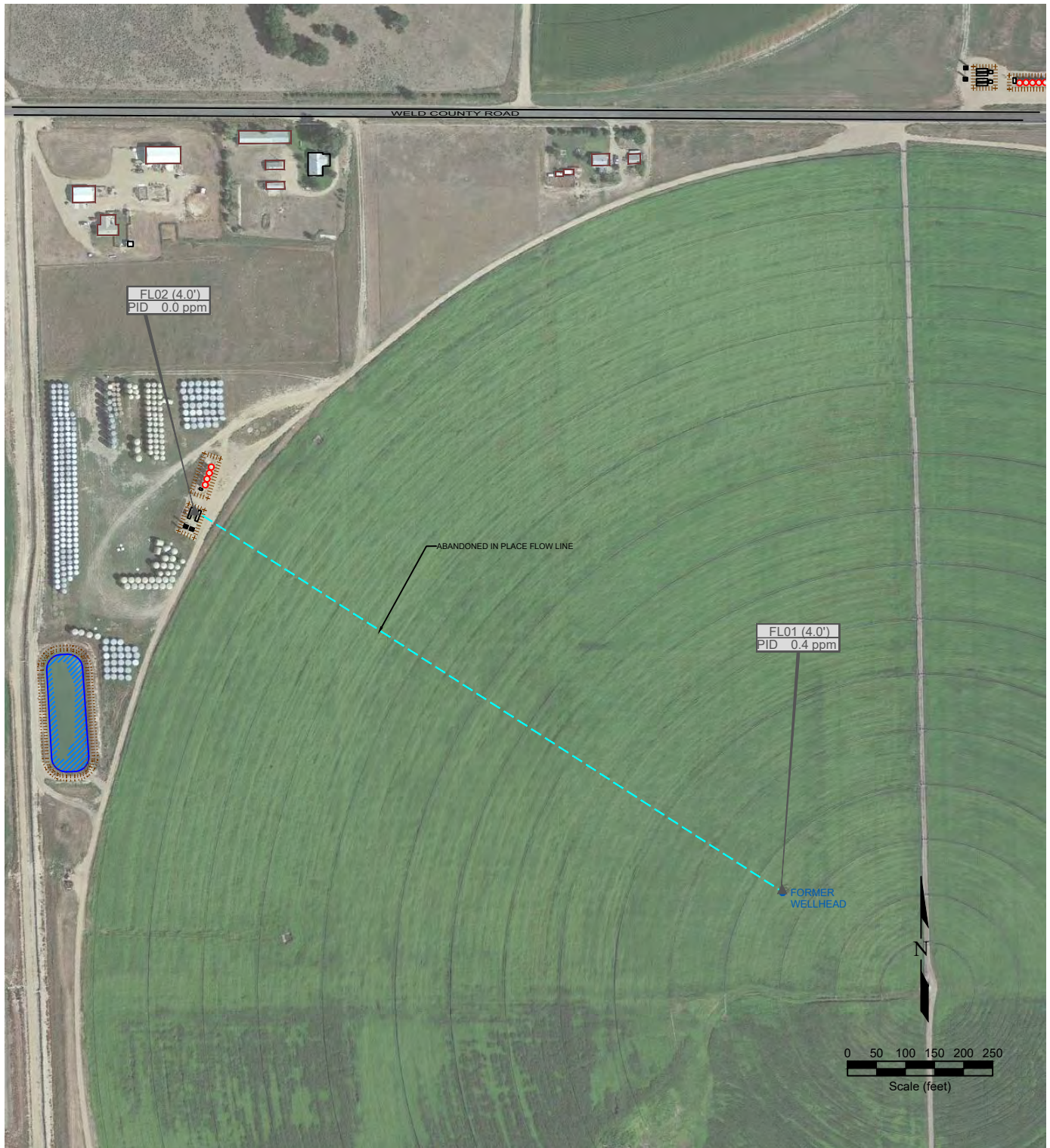
Figure 1  
SITE LOCATION MAP

**Noble Energy, Inc. ~ Wells Ranch AA 21-06**  
 SENW Sec. 21, T6N, R63W, 6th PM  
 Weld County, Colorado  
 40.474192°, -104.444680°

Project # <b>C023-107</b>	API # <b>05-123-26812</b>	Facility # <b>296512</b>
Date <b>5/2/23</b>	Remedation # <b>25990</b>	Filename <b>23107T</b>







#### LEGEND

● WELL HEAD LOCATION	○ ABOVE GROUND STORAGE TANK	FORMER FACILITY	CONTAINMENT BERM
▲ PID READING LOCATION		BUILDING	CONTAINMENT WALL
			FORMER FLOW LINE
			FENCE LINE

SAMPLE IDENTIFICATION and DEPTH (ft)  
 PID = photo ionization detection / ppm = parts per million

**Figure 2  
SITE MAP**

**Noble Energy, Inc. ~ Wells Ranch AA 21-06**  
 SENW Sec. 21, T6N, R63W, 6th PM  
 Weld County, Colorado  
 40.474192°, -104.444680°

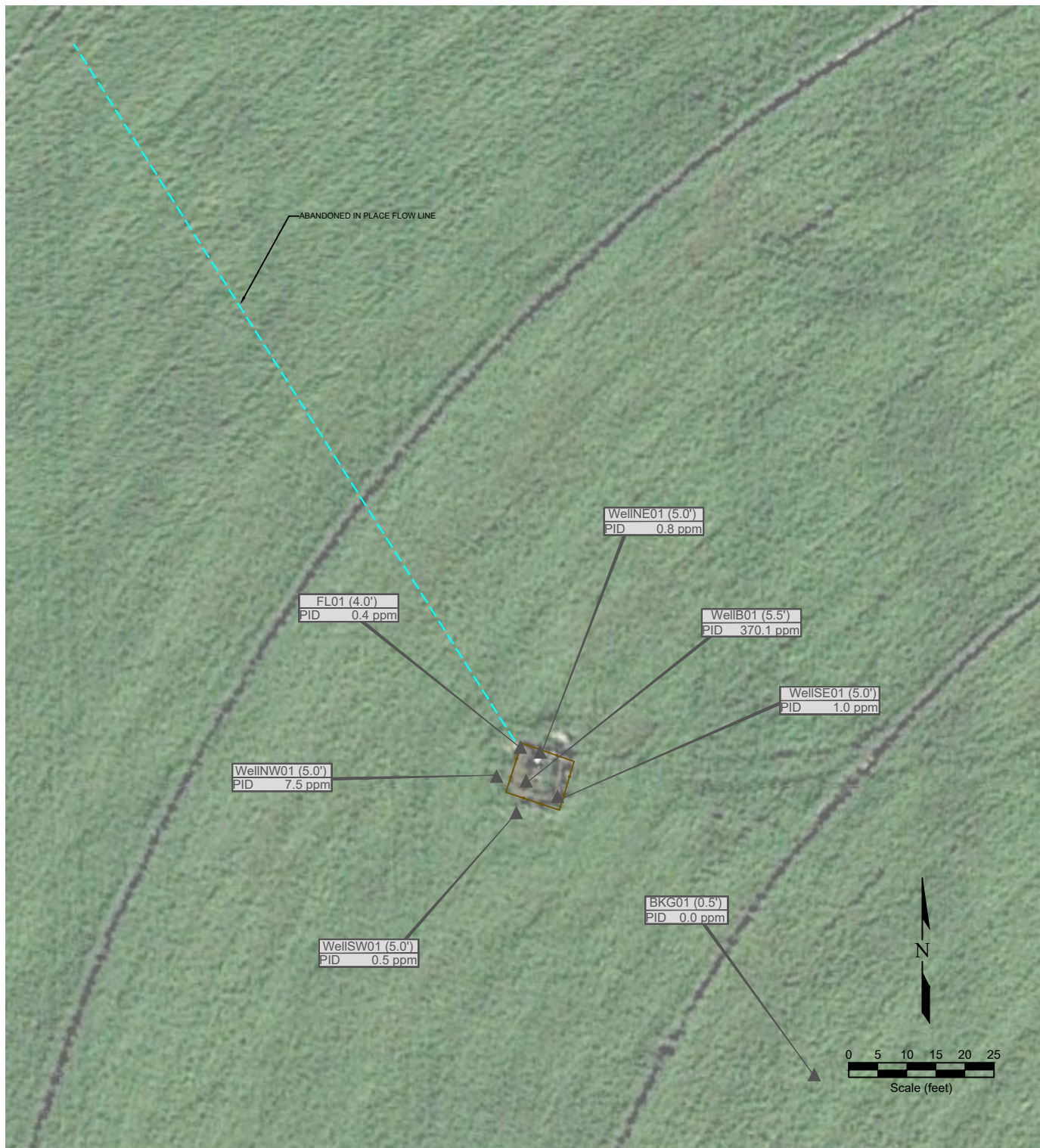
Project No. <b>C023-107</b>	API # <b>05-123-26812</b>	Facility # <b>296512</b>
Date <b>5/2/23</b>	Remediation # <b>25990</b>	Filename <b>23107Q</b>











#### LEGEND

● WELL HEAD LOCATION	○ ABOVE GROUND STORAGE TANK	FORMER FACILITY	CONTAINMENT BERM
▲ PID READING LOCATION		BUILDING	CONTAINMENT WALL
		FORMER FLOW LINE	FENCE LINE

SAMPLE IDENTIFICATION and DEPTH (ft)  
PID = photo ionization detection / ppm = parts per million

Figure 4

#### WELLHEAD SITE MAP

**Noble Energy, Inc. ~ Wells Ranch AA 21-06**  
 SENW Sec. 21, T6N, R63W, 6th PM  
 Weld County, Colorado  
 40.474192°, -104.444680°

Project No. <b>C023-107</b>	API # <b>05-123-26812</b>	Facility # <b>296512</b>
Date <b>5/2/23</b>	Remediation # <b>25990</b>	Filename <b>23107Q1</b>







# Photo Log



***Description:***

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# Photo Log



***Description:***

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# Photo Log



***Description:***

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# Photo Log



***Description:***

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# Photo Log



***Description:***

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# Photo Log



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# Photo Log



***Description:***

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# Photo Log



***Description:***

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# Summit Scientific

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4653 Table Mountain Drive, Golden, Colorado 80401

303.277.9310

April 27, 2023

Paul Henehan

Fremont Environmental

PO Box 1289

Wellington, CO 80549

RE: Noble - Wells Ranch AA 21-06

Work Order # 2304320

Enclosed are the results of analyses for samples received by Summit Scientific on 04/14/23 13:27. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

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

Scott Sheely For Paul Shrewsbury

President



Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Wells Ranch AA 21-06

Project Number: [none]  
Project Manager: Paul Henehan

**Reported:**  
04/27/23 14:33

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
WELLB01@5.5'	2304320-01	Soil	04/13/23 00:00	04/14/23 13:27
WELLNW01@5.0'	2304320-02	Soil	04/13/23 00:00	04/14/23 13:27
FL01@4.0'	2304320-03	Soil	04/13/23 00:00	04/14/23 13:27
FL02@4.0'	2304320-04	Soil	04/14/23 00:00	04/14/23 13:27
BKG01@6.0"	2304320-05	Soil	04/13/23 00:00	04/14/23 13:27

Summit Scientific

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

# SUMMIT SCIENTIFIC

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

Lab ID	Page <u>1</u> of <u>1</u>
<b>2304320</b>	

Client: <u>Fremont Env</u>		Send Data To:		Send Invoice To:	
Address:		Project Manager: <u>Paul Henehan</u>		Company: <u>Noble</u>	
City/State/Zip:		E-Mail: <u>Paulh@fremontenv.com</u>		Project Name/Location:	
Phone:		<u>Jeffg@fremontenv.com</u> <u>Ethenb@fremontenv.com</u>		AFE#:	
Sampler Name: <u>JG</u>		Project Name: <u>Wells Ranch AA 21-06</u>		PO/Billing Codes:	
		Project Number:		Contact:	

					Preservative				Matrix				Analysis Requested						Special Instructions		
ID	Sample Description	Date Sampled	Time Sampled	# of containers	HCl	HNO3	None	Other _____	Water	Soil	Air-Canister #	Other _____	BTEX+N	TMBs (915)	DRO,ORO,GRO	PAHs (915)	EC,pH,SAR, BOD5	Metals (915)			
1	Well B01@5.5'	04/13/23		2			X			X			X	X	X	X	X				
2	Well Nw01@5.0'	1		1			—			—			X	X	X	X	X				
3	FL01@4.0'	04/13/23		1			—			—			X	X	X	X	X				
4	FL02@4.0'	04/14/23		2			—			—			X	X	X	X	X				
5	BK601@6.0"	04/13/23		1			↙			↙							X	X			
6	<del>Well B01@5.5'</del>																				
7																					
8																					
9																					
10																					
11																					
12																					
13																					
14																					
15																					

Relinquished by: <u>[Signature]</u> Date/Time: <u>04/14/23 1327</u>	Received by: <u>[Signature]</u> Date/Time: <u>4/14/23 13:27</u>	TAT Business Days	Field DO	Notes:  <u>Bill to Noble</u>
		Same Day	Field EC	
Relinquished by: _____ Date/Time: _____	Received by: _____ Date/Time: _____	1 Day	Field ORP	
		2 Days	Field pH	
Relinquished by: _____ Date/Time: _____	Received by: _____ Date/Time: _____	3 Days	Field Temp.	
Temperature Upon Receipt: <u>17.2</u>	Corrected Temperature _____	IR gun #: <u>2</u>	HNO3 lot #: _____	

S<sub>2</sub>

## Sample Receipt Checklist

S2 Work Order# 2304320Client: FremontClient Project ID: Wells Ranch AA 21-06Shipped Via: H.D./P.U./FedEx/UPS/USPS/Other ☐Airbill #: ☐
☒ ☐ ☐ ☐ ☐

Matrix (Check all that apply)

Air ☐Soil/Solid ☒Water ☐Other ☐

Temp (°C)

17.2

Thermometer #

Z

	Yes	No	N/A	Comments (if any)
If samples require cooling, is the temperature < 6°C? <sup>(1)</sup> <b>NOTE:</b> If samples are delivered the same day of sampling, this requirement is met if there is evidence that cooling has begun.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	On ice
If custody seals are present, are they intact? <sup>(1)</sup>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples due within 48 hours present?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are water samples with short hold times present? Note the short hold analysis in the comments column - pH, Nitrate/Nitrite, Ferrous Iron (Fe <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 type="checkbox"/>	<input checked="" 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):				

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

  
 Custodian Printed Name

4/14/23  
 Date/Time

13:27





Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Wells Ranch AA 21-06

Project Number: [none]  
Project Manager: Paul Henehan

**Reported:**  
04/27/23 14:33

**WELLB01@5.5'**  
**2304320-01 (Soil)**

**Summit Scientific**

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

Date Sampled: **04/13/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Benzene	ND	0.0020		mg/kg	1	BGD0529	04/17/23	04/19/23	EPA 8260B	
Toluene	ND	0.0050		"	"	"	"	"	"	
Ethylbenzene	<b>0.52</b>	0.050		"	10	"	"	04/18/23	"	
Xylenes (total)	<b>2.4</b>	0.10		"	"	"	"	"	"	
1,2,4-Trimethylbenzene	<b>4.1</b>	0.050		"	"	"	"	"	"	
1,3,5-Trimethylbenzene	<b>1.4</b>	0.050		"	"	"	"	"	"	
Naphthalene	<b>0.29</b>	0.038		"	"	"	"	"	"	
Gasoline Range Hydrocarbons	<b>120</b>	5.0		"	"	"	"	"	"	

Date Sampled: **04/13/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Surrogate: 1,2-Dichloroethane-d4		92.8 %		50-150		"	"	"	"	
Surrogate: Toluene-d8		118 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		109 %		50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **04/13/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
C10-C28 (DRO)	ND	50		mg/kg	1	BGD0530	04/17/23	04/19/23	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **04/13/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Surrogate: o-Terphenyl		97.9 %		30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Wells Ranch AA 21-06

Project Number: [none]  
Project Manager: Paul Henehan

**Reported:**  
04/27/23 14:33

**WELLB01@5.5'**  
**2304320-01 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **04/13/23 00:00**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500		mg/kg	1	BGD0507	04/17/23	04/18/23	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		"	"	"	"	"	"	
<b>Fluorene</b>	<b>0.0219</b>	0.00500		"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500		"	"	"	"	"	"	
Pyrene	ND	0.00500		"	"	"	"	"	"	
<b>1-Methylnaphthalene</b>	<b>0.194</b>	0.00500		"	"	"	"	"	"	E
<b>2-Methylnaphthalene</b>	<b>0.251</b>	0.00500		"	"	"	"	"	"	E

Date Sampled: **04/13/23 00:00**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		60.4 %		40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		95.9 %		40-150		"	"	"	"	

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

Date Sampled: **04/13/23 00:00**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>0.449</b>	0.0100		mg/L	1	BGD0631	04/20/23	04/26/23	EPA 6020B	

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

Date Sampled: **04/13/23 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 - Wells Ranch AA 21-06

Project Number: [none]  
Project Manager: Paul Henehan

**Reported:**  
04/27/23 14:33

**WELLB01@5.5'**  
**2304320-01 (Soil)**

**Summit Scientific**

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

Calcium	142	0.0653	mg/L dry	1	BGD0678	04/20/23	04/26/23	EPA 6020B
Magnesium	59.4	0.0653	"	"	"	"	"	"
Sodium	88.5	0.0653	"	"	"	"	"	"

**Calculated Analysis**

Date Sampled: **04/13/23 00:00**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	1.57	0.00100		units	1	BGD0928	04/27/23	04/27/23	Calculation	

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

Date Sampled: **04/13/23 00:00**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	76.6			%	1	BGD0562	04/18/23	04/18/23	Calculation	

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

Date Sampled: **04/13/23 00:00**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.436	0.0100		mmhos/cm	1	BGD0716	04/21/23	04/24/23	EPA 120.1	

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

Date Sampled: **04/13/23 00:00**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.57			pH Units	1	BGD0717	04/21/23	04/24/23	EPA 9045D	

Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Wells Ranch AA 21-06

Project Number: [none]  
Project Manager: Paul Henehan

**Reported:**  
04/27/23 14:33

**WELLNW01@5.0'**  
**2304320-02 (Soil)**

**Summit Scientific**

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

Date Sampled: **04/13/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Benzene	ND	0.0020		mg/kg	1	BGD0529	04/17/23	04/18/23	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: **04/13/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Surrogate: 1,2-Dichloroethane-d4		110 %		50-150		"	"	"	"	
Surrogate: Toluene-d8		102 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		105 %		50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **04/13/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
C10-C28 (DRO)	ND	50		mg/kg	1	BGD0530	04/17/23	04/19/23	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **04/13/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Surrogate: o-Terphenyl		99.8 %		30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Wells Ranch AA 21-06

Project Number: [none]  
Project Manager: Paul Henehan

**Reported:**  
04/27/23 14:33

**WELLNW01@5.0'**  
**2304320-02 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **04/13/23 00:00**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500		mg/kg	1	BGD0507	04/17/23	04/18/23	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: **04/13/23 00:00**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		53.0 %		40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		82.4 %		40-150		"	"	"	"	

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

Date Sampled: **04/13/23 00:00**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.335	0.0100		mg/L	1	BGD0631	04/20/23	04/26/23	EPA 6020B	

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

Date Sampled: **04/13/23 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 - Wells Ranch AA 21-06

Project Number: [none]  
Project Manager: Paul Henehan

**Reported:**  
04/27/23 14:33

**WELLNW01@5.0'**  
**2304320-02 (Soil)**

**Summit Scientific**

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

Calcium	41.7	0.0626	mg/L dry	1	BGD0678	04/20/23	04/26/23	EPA 6020B
Magnesium	18.5	0.0626	"	"	"	"	"	"
Sodium	118	0.0626	"	"	"	"	"	"

**Calculated Analysis**

Date Sampled: **04/13/23 00:00**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	3.82	0.00100		units	1	BGD0928	04/27/23	04/27/23	Calculation	

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

Date Sampled: **04/13/23 00:00**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	79.8			%	1	BGD0562	04/18/23	04/18/23	Calculation	

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

Date Sampled: **04/13/23 00:00**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	1.30	0.0100		mmhos/cm	1	BGD0716	04/21/23	04/24/23	EPA 120.1	

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

Date Sampled: **04/13/23 00:00**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.50			pH Units	1	BGD0717	04/21/23	04/24/23	EPA 9045D	

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Wells Ranch AA 21-06

Project Number: [none]  
Project Manager: Paul Henehan

**Reported:**  
04/27/23 14:33

**FL01@4.0'**  
**2304320-03 (Soil)**

**Summit Scientific**

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

Date Sampled: **04/13/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Benzene	ND	0.0020		mg/kg	1	BGD0529	04/17/23	04/18/23	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: **04/13/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Surrogate: 1,2-Dichloroethane-d4		109 %		50-150		"	"	"	"	
Surrogate: Toluene-d8		104 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		104 %		50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **04/13/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
C10-C28 (DRO)	ND	50		mg/kg	1	BGD0530	04/17/23	04/19/23	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **04/13/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Surrogate: o-Terphenyl		95.8 %		30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Wells Ranch AA 21-06

Project Number: [none]  
Project Manager: Paul Henehan

**Reported:**  
04/27/23 14:33

**FL01@4.0'**  
**2304320-03 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **04/13/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Acenaphthene	ND	0.00500		mg/kg	1	BGD0507	04/17/23	04/18/23	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: **04/13/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Surrogate: 2-Methylnaphthalene-d10		59.6 %		40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		72.9 %		40-150		"	"	"	"	

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

Date Sampled: **04/13/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
<b>Boron</b>	<b>0.242</b>	0.0100		mg/L	1	BGD0631	04/20/23	04/26/23	EPA 6020B	

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

Date Sampled: **04/13/23 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 - Wells Ranch AA 21-06

Project Number: [none]  
Project Manager: Paul Henehan

**Reported:**  
04/27/23 14:33

**FL01@4.0'**  
**2304320-03 (Soil)**

**Summit Scientific**

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

Calcium	105	0.0660	mg/L dry	1	BGD0678	04/20/23	04/26/23	EPA 6020B
Magnesium	48.9	0.0660	"	"	"	"	"	"
Sodium	121	0.0660	"	"	"	"	"	"

**Calculated Analysis**

Date Sampled: **04/13/23 00:00**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	2.45	0.00100		units	1	BGD0928	04/27/23	04/27/23	Calculation	

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

Date Sampled: **04/13/23 00:00**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	75.7			%	1	BGD0562	04/18/23	04/18/23	Calculation	

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

Date Sampled: **04/13/23 00:00**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	1.90	0.0100		mmhos/cm	1	BGD0716	04/21/23	04/24/23	EPA 120.1	

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

Date Sampled: **04/13/23 00:00**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.54			pH Units	1	BGD0717	04/21/23	04/24/23	EPA 9045D	

Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Wells Ranch AA 21-06

Project Number: [none]  
Project Manager: Paul Henehan

**Reported:**  
04/27/23 14:33

**FL02@4.0'**  
**2304320-04 (Soil)**

**Summit Scientific**

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

Date Sampled: **04/14/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Benzene	ND	0.0020		mg/kg	1	BGD0529	04/17/23	04/18/23	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: **04/14/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Surrogate: 1,2-Dichloroethane-d4		102 %		50-150		"	"	"	"	
Surrogate: Toluene-d8		101 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		101 %		50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **04/14/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
C10-C28 (DRO)	ND	50		mg/kg	1	BGD0530	04/17/23	04/19/23	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **04/14/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Surrogate: o-Terphenyl		73.5 %		30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Wells Ranch AA 21-06

Project Number: [none]  
Project Manager: Paul Henehan

**Reported:**  
04/27/23 14:33

**FL02@4.0'**  
**2304320-04 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **04/14/23 00:00**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500		mg/kg	1	BGD0507	04/17/23	04/18/23	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>0.00571</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: **04/14/23 00:00**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		68.6 %		40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		92.3 %		40-150		"	"	"	"	

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

Date Sampled: **04/14/23 00:00**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>0.169</b>	0.0100		mg/L	1	BGD0631	04/20/23	04/26/23	EPA 6020B	

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

Date Sampled: **04/14/23 00:00**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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PO Box 1289  
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Project: Noble - Wells Ranch AA 21-06

Project Number: [none]  
Project Manager: Paul Henehan

**Reported:**  
04/27/23 14:33

**FL02@4.0'**  
**2304320-04 (Soil)**

**Summit Scientific**

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

Calcium	15.8	0.0542	mg/L dry	1	BGD0678	04/20/23	04/26/23	EPA 6020B
Magnesium	8.71	0.0542	"	"	"	"	"	"
Sodium	10.1	0.0542	"	"	"	"	"	"

**Calculated Analysis**

Date Sampled: **04/14/23 00:00**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.506	0.00100		units	1	BGD0928	04/27/23	04/27/23	Calculation	

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

Date Sampled: **04/14/23 00:00**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	92.3			%	1	BGD0562	04/18/23	04/18/23	Calculation	

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

Date Sampled: **04/14/23 00:00**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.328	0.0100		mmhos/cm	1	BGD0716	04/21/23	04/24/23	EPA 120.1	

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

Date Sampled: **04/14/23 00:00**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.04			pH Units	1	BGD0717	04/21/23	04/24/23	EPA 9045D	

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Project: Noble - Wells Ranch AA 21-06

Project Number: [none]  
Project Manager: Paul Henehan

**Reported:**  
04/27/23 14:33

**BKG01@6.0"**  
**2304320-05 (Soil)**

**Summit Scientific**

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

Date Sampled: **04/13/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Boron	0.266	0.0100		mg/L	1	BGD0631	04/20/23	04/26/23	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **04/13/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Arsenic	2.52	0.234		mg/kg dry	1	BGD0642	04/20/23	04/25/23	EPA 6020B	
Barium	98.3	0.468		"	"	"	"	"	"	
Cadmium	0.299	0.234		"	"	"	"	"	"	
Copper	6.70	0.468		"	"	"	"	"	"	
Lead	7.73	0.234		"	"	"	"	"	"	
Nickel	4.51	0.468		"	"	"	"	"	"	
Selenium	0.243	0.260	0.175	"	"	"	"	"	"	
Silver	0.0360	0.0234		"	"	"	"	"	"	
Zinc	24.1	0.468		"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **04/13/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Chromium, Hexavalent	ND	0.30		mg/kg dry	1	BGD0577	04/18/23	04/18/23	EPA 7196A	

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

Date Sampled: **04/13/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Calcium	34.7	0.0585		mg/L dry	1	BGD0678	04/20/23	04/26/23	EPA 6020B	
Magnesium	20.8	0.0585		"	"	"	"	"	"	
Sodium	74.6	0.0585		"	"	"	"	"	"	

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Project: Noble - Wells Ranch AA 21-06

Project Number: [none]  
Project Manager: Paul Henehan

**Reported:**  
04/27/23 14:33

**BKG01@6.0"**  
**2304320-05 (Soil)**

**Summit Scientific**

**Calculated Analysis**

Date Sampled: **04/13/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Sodium Adsorption Ratio	2.47	0.00100		units	1	BGD0928	04/27/23	04/27/23	Calculation	

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

Date Sampled: **04/13/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
% Solids	85.5			%	1	BGD0562	04/18/23	04/18/23	Calculation	

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

Date Sampled: **04/13/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Specific Conductance (EC)	0.934	0.0100		mmhos/cm	1	BGD0716	04/21/23	04/24/23	EPA 120.1	

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

Date Sampled: **04/13/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
pH	7.73			pH Units	1	BGD0717	04/21/23	04/24/23	EPA 9045D	

Summit Scientific

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Project: Noble - Wells Ranch AA 21-06

Project Number: [none]  
Project Manager: Paul Henehan

**Reported:**  
04/27/23 14:33

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

### Summit Scientific

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

#### Batch BGD0529 - EPA 5030 Soil MS

##### Blank (BGD0529-BLK1)

Prepared: 04/17/23 Analyzed: 04/18/23

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	0.0374		"	0.0400		93.4	50-150			
Surrogate: Toluene-d8	0.0397		"	0.0400		99.2	50-150			
Surrogate: 4-Bromofluorobenzene	0.0398		"	0.0400		99.6	50-150			

##### LCS (BGD0529-BS1)

Prepared: 04/17/23 Analyzed: 04/18/23

Benzene	0.0882	0.0020	mg/kg	0.100		88.2	70-130			
Toluene	0.0936	0.0050	"	0.100		93.6	70-130			
Ethylbenzene	0.110	0.0050	"	0.100		110	70-130			
m,p-Xylene	0.215	0.010	"	0.200		108	70-130			
o-Xylene	0.102	0.0050	"	0.100		102	70-130			
1,2,4-Trimethylbenzene	0.106	0.0050	"	0.100		106	70-130			
1,3,5-Trimethylbenzene	0.108	0.0050	"	0.100		108	70-130			
Naphthalene	0.0843	0.0038	"	0.100		84.3	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0330		"	0.0400		82.5	50-150			
Surrogate: Toluene-d8	0.0391		"	0.0400		97.8	50-150			
Surrogate: 4-Bromofluorobenzene	0.0386		"	0.0400		96.4	50-150			

##### Matrix Spike (BGD0529-MS1)

Source: 2304317-01

Prepared: 04/17/23 Analyzed: 04/18/23

Benzene	0.0872	0.0020	mg/kg	0.100	ND	87.2	70-130			
Toluene	0.0951	0.0050	"	0.100	ND	95.1	70-130			
Ethylbenzene	0.110	0.0050	"	0.100	ND	110	70-130			
m,p-Xylene	0.217	0.010	"	0.200	ND	108	70-130			
o-Xylene	0.102	0.0050	"	0.100	ND	102	70-130			
1,2,4-Trimethylbenzene	0.107	0.0050	"	0.100	ND	107	70-130			
1,3,5-Trimethylbenzene	0.109	0.0050	"	0.100	ND	109	70-130			
Naphthalene	0.0870	0.0038	"	0.100	ND	87.0	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0340		"	0.0400		84.9	50-150			
Surrogate: Toluene-d8	0.0398		"	0.0400		99.4	50-150			
Surrogate: 4-Bromofluorobenzene	0.0391		"	0.0400		97.6	50-150			

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Project: Noble - Wells Ranch AA 21-06

Project Number: [none]  
Project Manager: Paul Henehan

**Reported:**  
04/27/23 14:33

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

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

**Batch BGD0529 - EPA 5030 Soil MS**

Matrix Spike Dup (BGD0529-MSD1)		Source: 2304317-01			Prepared: 04/17/23 Analyzed: 04/18/23					
Benzene	0.0872	0.0020	mg/kg	0.100	ND	87.2	70-130	0.0344	30	
Toluene	0.0940	0.0050	"	0.100	ND	94.0	70-130	1.17	30	
Ethylbenzene	0.108	0.0050	"	0.100	ND	108	70-130	2.20	30	
m,p-Xylene	0.212	0.010	"	0.200	ND	106	70-130	2.45	30	
o-Xylene	0.102	0.0050	"	0.100	ND	102	70-130	0.118	30	
1,2,4-Trimethylbenzene	0.106	0.0050	"	0.100	ND	106	70-130	1.15	30	
1,3,5-Trimethylbenzene	0.109	0.0050	"	0.100	ND	109	70-130	0.412	30	
Naphthalene	0.0898	0.0038	"	0.100	ND	89.8	70-130	3.16	30	
Surrogate: 1,2-Dichloroethane-d4		0.0352	"	0.0400		88.0	50-150			
Surrogate: Toluene-d8		0.0401	"	0.0400		100	50-150			
Surrogate: 4-Bromofluorobenzene		0.0382	"	0.0400		95.6	50-150			

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Project: Noble - Wells Ranch AA 21-06

Project Number: [none]  
Project Manager: Paul Henehan

**Reported:**  
04/27/23 14:33

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

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

**Batch BGD0530 - EPA 3550A**

**Blank (BGD0530-BLK1)**

Prepared: 04/17/23 Analyzed: 04/18/23

C10-C28 (DRO)	ND	50	mg/kg							
C28-C36 (ORO)	ND	50	"							
Surrogate: o-Terphenyl	9.19		"	12.5		73.5	30-150			

**LCS (BGD0530-BS1)**

Prepared: 04/17/23 Analyzed: 04/18/23

C10-C28 (DRO)	401	50	mg/kg	500		80.2	70-130			
Surrogate: o-Terphenyl	6.16		"	12.5		49.2	30-150			

**Matrix Spike (BGD0530-MS1)**

Source: 2304317-01

Prepared: 04/17/23 Analyzed: 04/18/23

C10-C28 (DRO)	392	50	mg/kg	500	15.2	75.5	70-130			
Surrogate: o-Terphenyl	9.31		"	12.5		74.5	30-150			

**Matrix Spike Dup (BGD0530-MSD1)**

Source: 2304317-01

Prepared: 04/17/23 Analyzed: 04/18/23

C10-C28 (DRO)	403	50	mg/kg	500	15.2	77.6	70-130	2.74	20	
Surrogate: o-Terphenyl	5.22		"	12.5		41.8	30-150			

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Project: Noble - Wells Ranch AA 21-06

Project Number: [none]  
Project Manager: Paul Henehan

**Reported:**  
04/27/23 14:33

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

### Summit Scientific

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

#### Batch BGD0507 - EPA 5030 Soil MS

##### Blank (BGD0507-BLK1)

Prepared: 04/17/23 Analyzed: 04/18/23

Acenaphthene	ND	0.00500	mg/kg							
Anthracene	ND	0.00500	"							
Benzo (a) anthracene	ND	0.00500	"							
Benzo (a) pyrene	ND	0.00500	"							
Benzo (b) fluoranthene	ND	0.00500	"							
Benzo (k) fluoranthene	ND	0.00500	"							
Chrysene	ND	0.00500	"							
Dibenz (a,h) anthracene	ND	0.00500	"							
Fluoranthene	ND	0.00500	"							
Fluorene	ND	0.00500	"							
Indeno (1,2,3-cd) pyrene	ND	0.00500	"							
Pyrene	ND	0.00500	"							
1-Methylnaphthalene	ND	0.00500	"							
2-Methylnaphthalene	ND	0.00500	"							
Surrogate: 2-Methylnaphthalene-d10	0.0258		"	0.0333		77.5	40-150			
Surrogate: Fluoranthene-d10	0.0264		"	0.0333		79.1	40-150			

##### LCS (BGD0507-BS1)

Prepared: 04/17/23 Analyzed: 04/18/23

Acenaphthene	0.0277	0.00500	mg/kg	0.0333		83.2	31-137			
Anthracene	0.0243	0.00500	"	0.0333		72.9	30-120			
Benzo (a) anthracene	0.0309	0.00500	"	0.0333		92.6	30-120			
Benzo (a) pyrene	0.0270	0.00500	"	0.0333		80.9	30-120			
Benzo (b) fluoranthene	0.0324	0.00500	"	0.0333		97.2	30-120			
Benzo (k) fluoranthene	0.0226	0.00500	"	0.0333		67.7	30-120			
Chrysene	0.0194	0.00500	"	0.0333		58.1	30-120			
Dibenz (a,h) anthracene	0.0298	0.00500	"	0.0333		89.5	30-120			
Fluoranthene	0.0244	0.00500	"	0.0333		73.3	30-120			
Fluorene	0.0257	0.00500	"	0.0333		77.2	30-120			
Indeno (1,2,3-cd) pyrene	0.0305	0.00500	"	0.0333		91.5	30-120			
Pyrene	0.0313	0.00500	"	0.0333		93.9	35-142			
1-Methylnaphthalene	0.0288	0.00500	"	0.0333		86.3	35-142			
2-Methylnaphthalene	0.0277	0.00500	"	0.0333		83.1	35-142			
Surrogate: 2-Methylnaphthalene-d10	0.0287		"	0.0333		86.2	40-150			
Surrogate: Fluoranthene-d10	0.0262		"	0.0333		78.5	40-150			

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Project: Noble - Wells Ranch AA 21-06

Project Number: [none]  
Project Manager: Paul Henehan

**Reported:**  
04/27/23 14:33

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

### Summit Scientific

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

#### Batch BGD0507 - EPA 5030 Soil MS

##### Matrix Spike (BGD0507-MS1)

Source: 2304288-14

Prepared: 04/17/23 Analyzed: 04/18/23

Acenaphthene	0.0247	0.00500	mg/kg	0.0333	ND	74.2	31-137		
Anthracene	0.0230	0.00500	"	0.0333	ND	68.9	30-120		
Benzo (a) anthracene	0.0279	0.00500	"	0.0333	ND	83.7	30-120		
Benzo (a) pyrene	0.0241	0.00500	"	0.0333	ND	72.4	30-120		
Benzo (b) fluoranthene	0.0276	0.00500	"	0.0333	ND	82.8	30-120		
Benzo (k) fluoranthene	0.0195	0.00500	"	0.0333	ND	58.5	30-120		
Chrysene	0.0173	0.00500	"	0.0333	ND	51.8	30-120		
Dibenz (a,h) anthracene	0.0254	0.00500	"	0.0333	ND	76.3	30-120		
Fluoranthene	0.0256	0.00500	"	0.0333	0.00583	59.2	30-120		
Fluorene	0.0234	0.00500	"	0.0333	ND	70.1	30-120		
Indeno (1,2,3-cd) pyrene	0.0298	0.00500	"	0.0333	ND	89.4	30-120		
Pyrene	0.0289	0.00500	"	0.0333	0.00102	83.8	35-142		
1-Methylnaphthalene	0.0247	0.00500	"	0.0333	ND	74.2	15-130		
2-Methylnaphthalene	0.0239	0.00500	"	0.0333	ND	71.8	15-130		
Surrogate: 2-Methylnaphthalene-d10	0.0257		"	0.0333		77.1	40-150		
Surrogate: Fluoranthene-d10	0.0284		"	0.0333		85.3	40-150		

##### Matrix Spike Dup (BGD0507-MSD1)

Source: 2304288-14

Prepared: 04/17/23 Analyzed: 04/18/23

Acenaphthene	0.0240	0.00500	mg/kg	0.0333	ND	72.0	31-137	3.01	30
Anthracene	0.0216	0.00500	"	0.0333	ND	64.9	30-120	6.03	30
Benzo (a) anthracene	0.0262	0.00500	"	0.0333	ND	78.7	30-120	6.20	30
Benzo (a) pyrene	0.0236	0.00500	"	0.0333	ND	70.7	30-120	2.47	30
Benzo (b) fluoranthene	0.0263	0.00500	"	0.0333	ND	78.9	30-120	4.92	30
Benzo (k) fluoranthene	0.0190	0.00500	"	0.0333	ND	56.9	30-120	2.79	30
Chrysene	0.0165	0.00500	"	0.0333	ND	49.5	30-120	4.68	30
Dibenz (a,h) anthracene	0.0240	0.00500	"	0.0333	ND	71.9	30-120	5.92	30
Fluoranthene	0.0239	0.00500	"	0.0333	0.00583	54.1	30-120	6.94	30
Fluorene	0.0227	0.00500	"	0.0333	ND	68.1	30-120	3.00	30
Indeno (1,2,3-cd) pyrene	0.0265	0.00500	"	0.0333	ND	79.6	30-120	11.7	30
Pyrene	0.0268	0.00500	"	0.0333	0.00102	77.2	35-142	7.87	30
1-Methylnaphthalene	0.0235	0.00500	"	0.0333	ND	70.4	15-130	5.19	50
2-Methylnaphthalene	0.0242	0.00500	"	0.0333	ND	72.7	15-130	1.18	50
Surrogate: 2-Methylnaphthalene-d10	0.0246		"	0.0333		73.9	40-150		
Surrogate: Fluoranthene-d10	0.0266		"	0.0333		79.7	40-150		

Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Wells Ranch AA 21-06

Project Number: [none]  
Project Manager: Paul Henehan

**Reported:**  
04/27/23 14:33

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

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

**Batch BGD0631 - EPA 3050B**

**Blank (BGD0631-BLK1)**

Prepared: 04/20/23 Analyzed: 04/26/23

Boron ND 0.0100 mg/L

**LCS (BGD0631-BS1)**

Prepared: 04/20/23 Analyzed: 04/26/23

Boron 5.65 0.0100 mg/L 5.00 113 80-120

**Duplicate (BGD0631-DUP1)**

**Source: 2304320-01**

Prepared: 04/20/23 Analyzed: 04/26/23

Boron 0.486 0.0100 mg/L 0.449 7.90 20

**Matrix Spike (BGD0631-MS1)**

**Source: 2304320-01**

Prepared: 04/20/23 Analyzed: 04/26/23

Boron 5.57 0.0100 mg/L 5.00 0.449 102 75-125

**Matrix Spike Dup (BGD0631-MSD1)**

**Source: 2304320-01**

Prepared: 04/20/23 Analyzed: 04/26/23

Boron 5.50 0.0100 mg/L 5.00 0.449 101 75-125 1.24 25

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Wells Ranch AA 21-06

Project Number: [none]  
Project Manager: Paul Henehan

**Reported:**  
04/27/23 14:33

## Total Metals by EPA 6020B - Quality Control

### Summit Scientific

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

#### Batch BGD0642 - EPA 3050B

##### Blank (BGD0642-BLK1)

Prepared: 04/20/23 Analyzed: 04/25/23

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 (BGD0642-BS1)

Prepared: 04/20/23 Analyzed: 04/25/23

Arsenic	43.0	0.200	mg/kg wet	40.0	108	80-120
Barium	43.9	0.400	"	40.0	110	80-120
Cadmium	2.17	0.200	"	2.00	108	80-120
Copper	46.0	0.400	"	40.0	115	80-120
Lead	21.7	0.200	"	20.0	108	80-120
Nickel	44.9	0.400	"	40.0	112	80-120
Selenium	4.71	0.260	"	4.00	118	80-120
Silver	2.17	0.0200	"	2.00	108	80-120
Zinc	43.7	0.400	"	40.0	109	80-120

##### Duplicate (BGD0642-DUP1)

Source: 2304320-05

Prepared: 04/20/23 Analyzed: 04/25/23

Arsenic	2.78	0.234	mg/kg dry	2.52	9.59	20
Barium	114	0.468	"	98.3	14.8	20
Cadmium	0.331	0.234	"	0.299	10.3	20
Copper	7.58	0.468	"	6.70	12.3	20
Lead	8.64	0.234	"	7.73	11.1	20
Nickel	4.90	0.468	"	4.51	8.30	20
Selenium	0.266	0.260	"	0.243	9.00	20
Silver	0.0412	0.0234	"	0.0360	13.3	20
Zinc	29.5	0.468	"	24.1	20.4	20

QR-04

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Wells Ranch AA 21-06

Project Number: [none]  
Project Manager: Paul Henehan

**Reported:**  
04/27/23 14:33

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

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

**Batch BGD0642 - EPA 3050B**

**Matrix Spike (BGD0642-MS1)**

**Source: 2304320-05**

Prepared: 04/20/23 Analyzed: 04/25/23

Arsenic	47.9	0.234	mg/kg dry	46.8	2.52	97.0	75-125			
Barium	151	0.468	"	46.8	98.3	113	75-125			
Cadmium	2.64	0.234	"	2.34	0.299	100	75-125			
Copper	40.6	0.468	"	46.8	6.70	72.4	75-125			QM-07
Lead	30.5	0.234	"	23.4	7.73	97.4	75-125			
Nickel	38.5	0.468	"	46.8	4.51	72.7	75-125			QM-07
Selenium	5.36	0.260	"	4.68	0.243	109	75-125			
Silver	2.36	0.0234	"	2.34	0.0360	99.2	75-125			
Zinc	60.8	0.468	"	46.8	24.1	78.4	75-125			

**Matrix Spike Dup (BGD0642-MSD1)**

**Source: 2304320-05**

Prepared: 04/20/23 Analyzed: 04/25/23

Arsenic	47.8	0.234	mg/kg dry	46.8	2.52	96.8	75-125	0.266	25	
Barium	151	0.468	"	46.8	98.3	112	75-125	0.274	25	
Cadmium	2.64	0.234	"	2.34	0.299	100	75-125	0.0531	25	
Copper	40.6	0.468	"	46.8	6.70	72.4	75-125	0.0715	25	QM-07
Lead	30.6	0.234	"	23.4	7.73	97.9	75-125	0.367	25	
Nickel	38.5	0.468	"	46.8	4.51	72.7	75-125	0.0109	25	QM-07
Selenium	5.41	0.260	"	4.68	0.243	110	75-125	0.931	25	
Silver	2.39	0.0234	"	2.34	0.0360	101	75-125	1.36	25	
Zinc	60.7	0.468	"	46.8	24.1	78.3	75-125	0.0878	25	

Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Wells Ranch AA 21-06

Project Number: [none]  
Project Manager: Paul Henehan

**Reported:**  
04/27/23 14:33

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

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

**Batch BGD0577 - 3060A Mod**

**Blank (BGD0577-BLK1)**

Prepared & Analyzed: 04/18/23

Chromium, Hexavalent ND 0.30 mg/kg wet

**LCS (BGD0577-BS1)**

Prepared & Analyzed: 04/18/23

Chromium, Hexavalent 22.2 0.30 mg/kg wet 25.0 88.8 80-120

**Duplicate (BGD0577-DUP1)**

**Source: 2304336-01**

Prepared & Analyzed: 04/18/23

Chromium, Hexavalent ND 0.30 mg/kg dry ND 20

**Matrix Spike (BGD0577-MS1)**

**Source: 2304336-01**

Prepared & Analyzed: 04/18/23

Chromium, Hexavalent 21.0 0.30 mg/kg dry 27.0 ND 77.8 75-125

**Matrix Spike Dup (BGD0577-MSD1)**

**Source: 2304336-01**

Prepared & Analyzed: 04/18/23

Chromium, Hexavalent 24.4 0.30 mg/kg dry 27.0 ND 90.4 75-125 15.0 20

Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Wells Ranch AA 21-06

Project Number: [none]  
Project Manager: Paul Henehan

**Reported:**  
04/27/23 14:33

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

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

**Batch BGD0678 - General Preparation**

**Blank (BGD0678-BLK1)**

Prepared: 04/20/23 Analyzed: 04/26/23

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

**LCS (BGD0678-BS1)**

Prepared: 04/20/23 Analyzed: 04/26/23

Calcium	5.10	0.0500	mg/L wet	5.00	102	70-130
Magnesium	5.69	0.0500	"	5.00	114	70-130
Sodium	6.31	0.0500	"	5.00	126	70-130

Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Wells Ranch AA 21-06

Project Number: [none]  
Project Manager: Paul Henehan

**Reported:**  
04/27/23 14:33

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

#### Summit Scientific

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

#### Batch BGD0562 - General Preparation

Duplicate (BGD0562-DUP1)

Source: 2304300-01

Prepared & Analyzed: 04/18/23

% Solids	79.9	%	79.2	0.784	20
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Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Wells Ranch AA 21-06

Project Number: [none]  
Project Manager: Paul Henehan

**Reported:**  
04/27/23 14:33

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

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

**Batch BGD0716 - General Preparation**

**Blank (BGD0716-BLK1)**

Prepared: 04/21/23 Analyzed: 04/24/23

Specific Conductance (EC) ND 0.0100 mmhos/cm

**LCS (BGD0716-BS1)**

Prepared: 04/21/23 Analyzed: 04/24/23

Specific Conductance (EC) 0.151 0.0100 mmhos/cm 0.150 100 95-105

**Duplicate (BGD0716-DUP1)**

**Source: 2304317-01**

Prepared: 04/21/23 Analyzed: 04/24/23

Specific Conductance (EC) 0.436 0.0100 mmhos/cm 0.436 0.0458 20

Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Wells Ranch AA 21-06

Project Number: [none]  
Project Manager: Paul Henehan

**Reported:**  
04/27/23 14:33

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

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

**Batch BGD0717 - General Preparation**

**LCS (BGD0717-BS1)**

Prepared: 04/21/23 Analyzed: 04/24/23

pH	9.08	pH Units	9.18	98.9	95-105
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**Duplicate (BGD0717-DUP1)**

**Source: 2304317-01**

Prepared: 04/21/23 Analyzed: 04/24/23

pH	7.49	pH Units	7.42	0.939	20
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Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Wells Ranch AA 21-06

Project Number: [none]  
Project Manager: Paul Henehan

**Reported:**  
04/27/23 14:33

### 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.
E	The concentration indicated for this analyte is an estimated value above the calibration range of the instrument.
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