

FREMONT ENVIRONMENTAL INC.

October 30, 2024

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

Subject: **Flowline Closure Data Submittal**
Wells Ranch AA21-02 Flowline
API # 05-123-26818
NWNE Sec. 21, T6N, R63W
Weld County, Colorado
Fremont Project No. C023-064
Remediation # 26837

Dear Mr. Peterson:

As you requested, Fremont Environmental Inc. (Fremont) personnel conducted flowline closure activities for the Noble Energy Inc. (Noble) Wells Ranch AA21-02 Flowline. Impacted soil was not encountered during abandonment activities. Details of the Wells Ranch AA21-02 flowline closure activities are documented in the attached Closure Report. Groundwater was not encountered during flowline abandonment activities.

Please contact me at (336) 541-3048 if you require any additional information. Fremont appreciates the opportunity to provide this service.

Sincerely,

FREMONT ENVIRONMENTAL INC.



Aaron Otilar, Consultant

Attachments:

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

Flowline Closure Checklist

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

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

Starting point: (GPS coordinates and descriptions)

End point: (GPS coordinates and descriptions)

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

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

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

Flowlines

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

Other observations regarding on location flowlines:

Summary

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

TABLE 1
SUMMARY OF VOLATILE ORGANIC SOIL CHEMISTRY DATA
NOBLE 100322
WELLS RANCH AA21-02 FLOWLINE, WELD COUNTY, COLORADO
REM # 26837

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 (mg/kg)	TPH GRO (mg/kg)	TPH DRO (mg/kg)	TPH ORO (mg/kg)
ECMC Table 915-1 Limits (Residential SSL)			1.2	490	5.8	58	30	27	2	500	500**		
ECMC Table 915-1 Limits (Protection of Groundwater SSL)			0.0026	0.69	0.78	9.9	0.0081	0.0087	0.0038	500	500**		
FL01-02@4'	11/04/2023	4'	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50	<0.50	<50	<500
FLR01@4'	11/04/2023	4'	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50	<0.50	<50	<500
SEP01-FL@4'	11/04/2023	4'	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50	<0.50	<50	<500

3. * Indicates laboratory minimum detection limit in excess of SSL

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

NA - Not analyzed

 = Source material characterization sample, excavated and transported off site for disposal.

 = Material excavated and transported off site for disposal.

TABLE 2
SUMMARY OF POLYCYCLIC AROMATIC HYDROCARBON SOIL CHEMISTRY DATA
NOBLE 100322
WELLS RANCH AAZ1-02 FLOWLINE, WELD COUNTY, COLORADO
REM # 26837

Sample ID	Sample Date	Depth (ft)	Acenaphthene (mg/kg)	Anthracene (mg/kg)	Benzo (a) Anthracene (mg/kg)	Benzo (a) Pyrene (mg/kg)	Benzo (b) Fluoranthene (mg/kg)	Benzo (k) Fluoranthene (mg/kg)	Chrysene (mg/kg)	Dibenzo (a,h) Anthracene (mg/kg)	Fluoranthene (mg/kg)	Fluorene (mg/kg)	Indeno (1,2,3-cd) Pyrene (mg/kg)	Pyrene (mg/kg)	1-Methyl - Naphthalene (mg/kg)	2-Methyl- Naphthalene (mg/kg)
ECMC Table 915-1 Limits (Residential SSL)			360	1800	1.1	0.11	1.1	11	110	0.11	240	240	1.1	180	18	24
ECMC Table 915-1 Limits (Protection of Groundwater SSL)			0.55	5.8	0.011	0.24	0.3	2.9	9	0.096	8.9	0.54	0.98	1.3	0.006	0.019
FL01-02@4'	11/04/2023	4'	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00578	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
FLR01@4'	11/04/2023	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
SEP01-FL@4'	11/04/2023	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

1. Bold values exceed the ECMC Table 915-1 limit(s)

2. Red & blue highlighted soil analytical values indicate an exceedance of the referenced soil screening level (SSL)

3. * Indicates laboratory minimum detection limit in excess of SSL

NA - Not analyzed

= Source material characterization sample, excavated and transported off site for disposal.

= Material excavated and transported off site for disposal.

TABLE 3
SUMMARY OF SOIL SUITABILITY FOR RECLAMATION
NOBLE 100322
WELLS RANCH AA21-02 FLOWLINE, WELD COUNTY, COLORADO
REM # 26837

Sample ID	Sample Date	Depth (ft)	pH (Standard Units)	EC (mmhos/cm)	SAR (Standard Units)	Boron (mg/L)
ECMC Table 915-1 Soil Suitability Limits			6 - 8.3	<4	<6	2
FL01-02@4'	11/04/2023	4'	7.94	0.251	0.0929	<2.00
FLR01@4'	11/04/2023	4'	8.14	0.922	1.66	<2.00
SEP01-FL@4'	11/04/2023	4'	8.78	0.147	0.0411	<2.00
BKG01@4'	11/04/2023	4'	8.39	0.153	0.0915	<2.00
BKG02@4'	11/04/2023	4'	8.22	0.21	0.112	<2.00
Maximum Root Background Concentration (0 - 3 ft)			NA	NA	NA	NA
Average Root Background Concentration (0 - 3 ft)			NA	NA	NA	NA
Maximum Background Concentration			8.39	0.21	0.112	NA
Average Background Concentration			8.305	0.1815	0.10	NA

1. Bold faced values exceed the ECMC Table 915-1 limit(s)

2. Blue highlighted soil analytical values indicate a regulatory exceedance

NA - Not analyzed

= Source material characterization sample, excavated and transported off site for disposal.

= Material excavated and transported off site for disposal.

TABLE 4
SUMMARY OF METALS IN SOIL CHEMISTRY DATA
NOBLE 100322
WELLS RANCH AA21-02 FLOWLINE, WELD COUNTY, COLORADO
REM # 26837

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)
ECMC Table 915-1 Limits (Residential SSL)			0.68	15000	71	0.3	3100	400	1500	390	390	23000
ECMC Table 915-1 Limits (Protection of Groundwater SSL)			0.29	82	0.38	0.00067	46	14	26	0.26	0.8	370
FL01-02@4'	11/04/2023	4'	1.81	65.3	<0.200	<0.30	2.99	4.98	3.38	<0.260	<0.0200	13.2
FLR01@4'	11/04/2023	4'	2.08	79.2	<0.200	<0.30	3.79	11.5	3.44	<0.260	0.0231	14
SEP01-FL@4'	11/04/2023	4'	1.91	45.3	<0.200	<0.30	2.35	3.32	2.5	<0.260	<0.0200	9.19
BKG01@4'	11/04/2023	4'	1.33	44.5	<0.200	<0.30	2.61	3.77	2.87	<0.260	<0.0200	10.9
BKG02@4'	11/04/2023	4'	1.14	42.1	<0.200	<0.30	2.34	3.98	2.51	<0.260	<0.0200	9.59
Maximum Root Zone Background Concentration (0 - 3 ft)			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
125% Average Root Zone Background Concentration (0 - 3 ft)			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Maximum Background Concentration			1.33	44.5	NA	NA	2.61	3.98	2.87	NA	NA	10.9
125% Average Background Concentration			1.235	43.3	NA	NA	2.475	3.875	2.69	NA	NA	10.245

1. Bold values exceed the ECMC Table 915-1 limit(s)

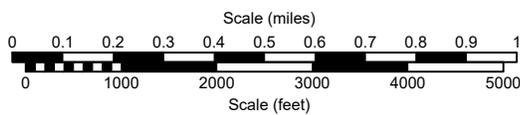
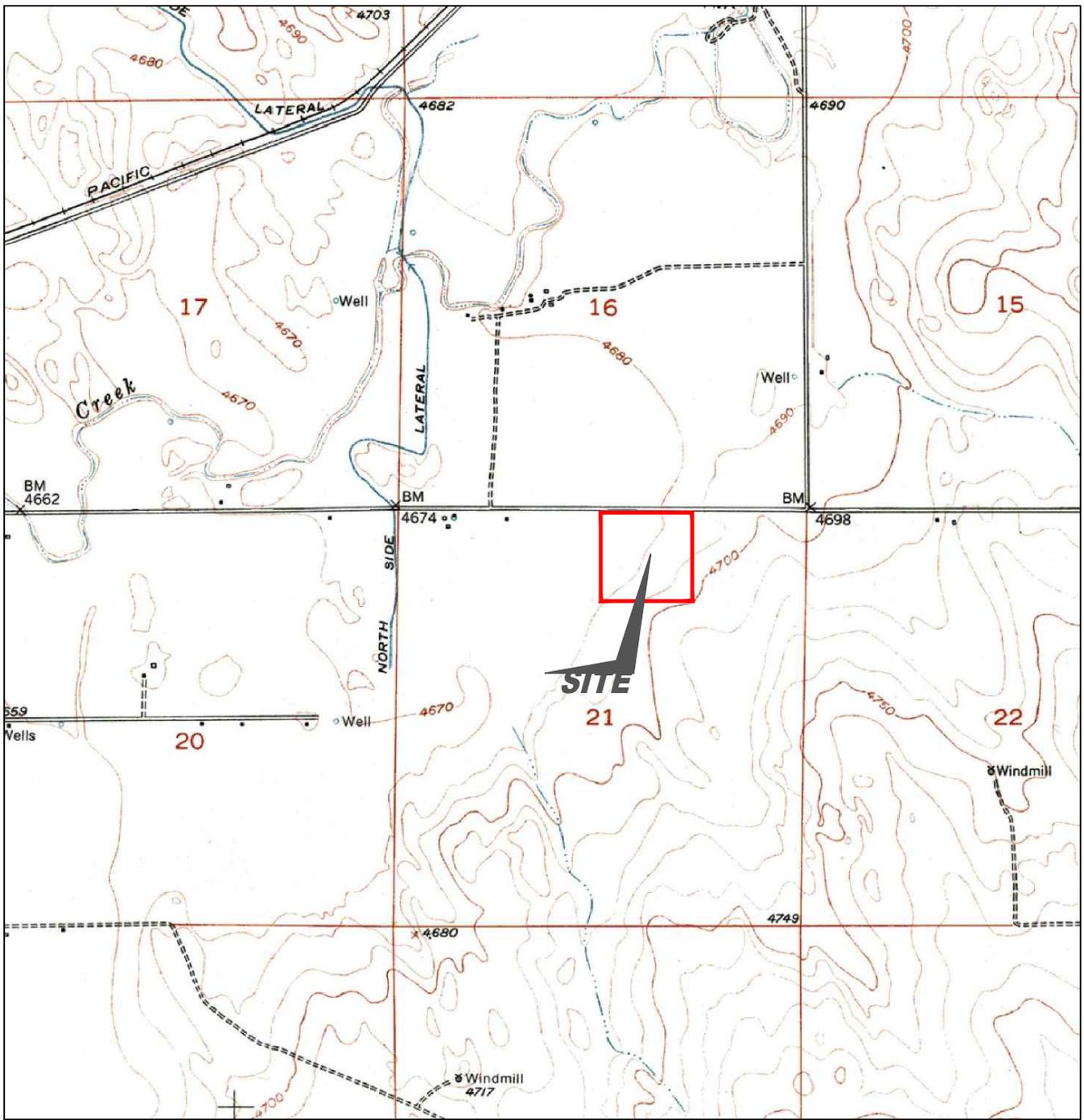
2. Red & blue highlighted soil analytical values indicate an exceedance of the referenced soil screening level (SSL)

* Indicates laboratory minimum detection limit in excess of SSL

NA - Not analyzed

= Source material characterization sample, excavated and transported off site for disposal.

= Material excavated and transported off site for disposal.



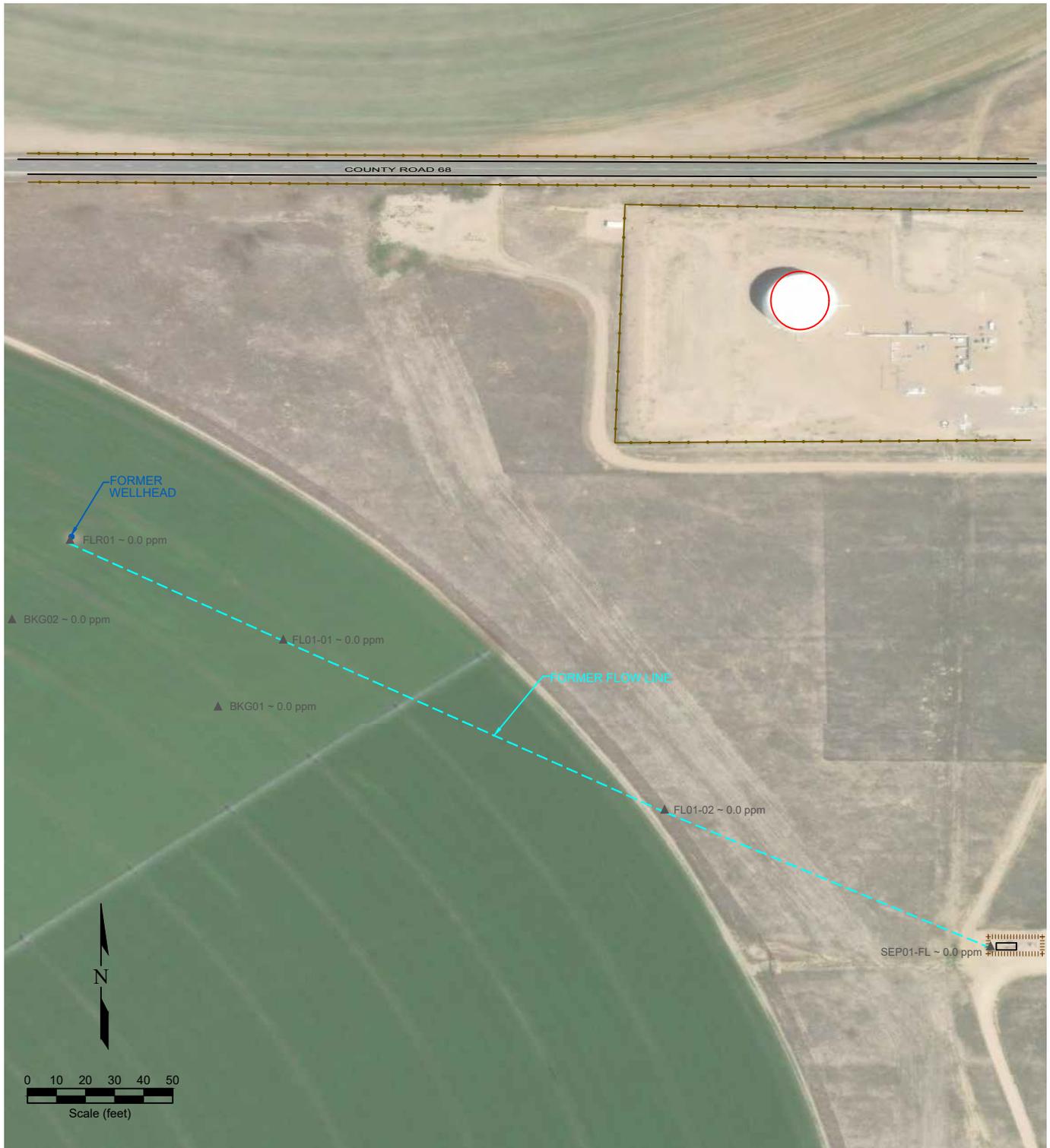
USGS 7.5 MINUTE SERIES (TOPOGRAPHIC)

Figure 1
SITE LOCATION MAP

NOBLE ENERGY INC - WELLS RANCH AA 21-02
 NWNE Sec. 21, T6N, R63W, 6th PM
 Weld County, Colorado
 40.477674°, -104.439623°

Project # CO23-064	API # 05-123-26818	Facility #
Date 8/9/24	Remediation # 26837	Filename 23064TFL





LEGEND

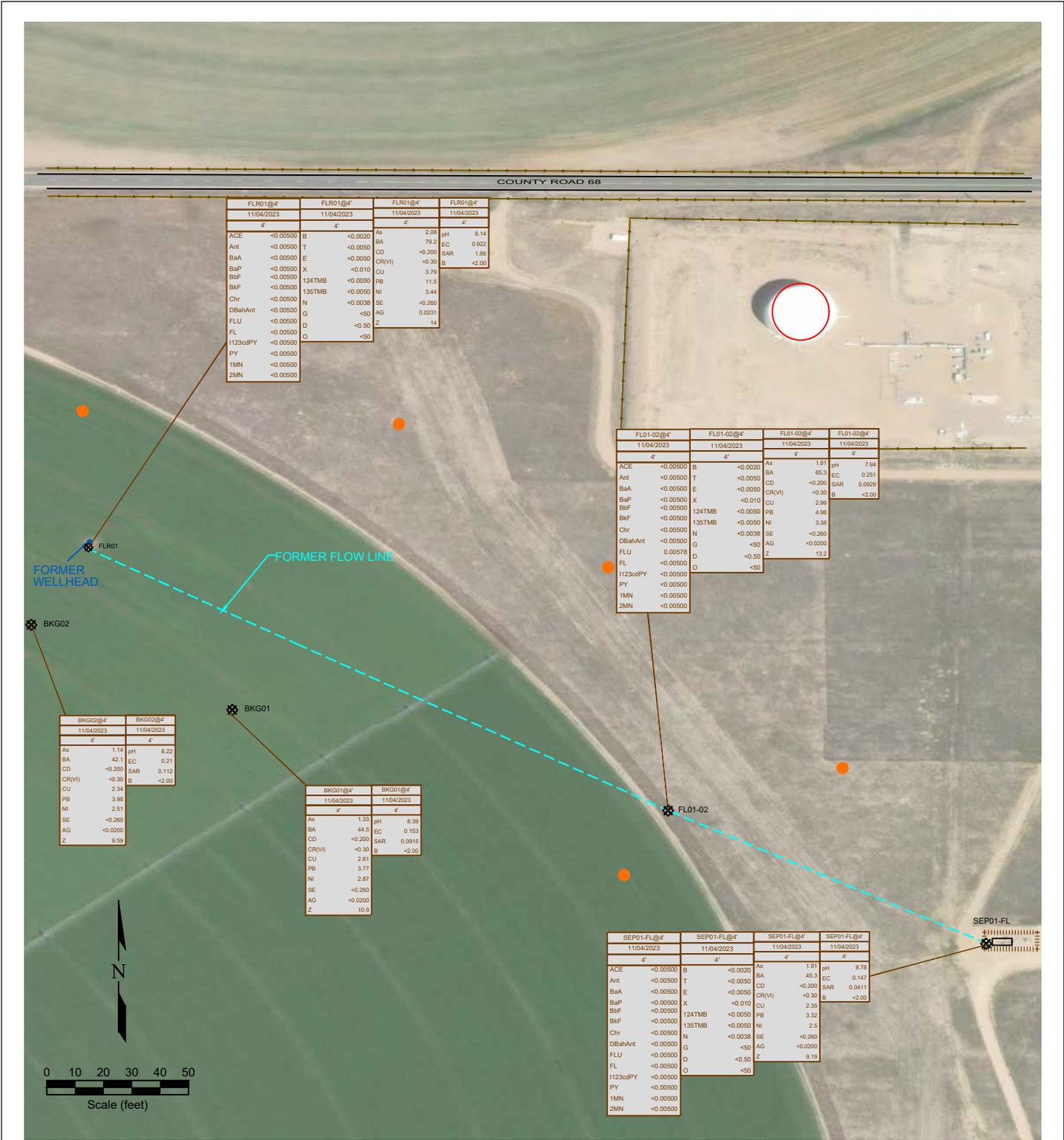
- WELL HEAD LOCATION
- ▲ PID READING LOCATION
- ABOVE GROUND STORAGE TANK
- FORMER FACILITY
- FORMER FLOW LINE
- FENCE LINE
- CONTAINMENT BERM
- CONTAINMENT WALL

**Figure 2
SITE MAP**

NOBLE ENERGY INC - WELLS RANCH AA 21-02
 NWNE Sec. 21, T6N, R63W, 6th PM
 Weld County, Colorado
 40.477674°, -104.439623°

Project No. CO23-064	API # 05-123-26818	Facility #
Date 8/9/24	Remediation # 26837	Filename 23064QFL





FLR01@4'		FLR01@4'		FLR01@4'		FLR01@4'	
11/04/2023		11/04/2023		11/04/2023		11/04/2023	
4'		4'		4'		4'	
ACE	<0.0050	B	<0.0020	As	2.08	pH	8.14
Ant	<0.0050	T	<0.0050	BA	79.2	EC	0.922
BAA	<0.0050	E	<0.0050	CD	<0.200	SAR	1.66
BaP	<0.0050	X	<0.010	CR(V)	<0.30	B	<2.00
BaF	<0.0050	124TMB	<0.0050	CU	3.79		
BKF	<0.0050	135TMB	<0.0050	PB	11.5		
Chr	<0.0050	N	<0.0038	SE	<0.260		
DBahAnt	<0.0050	G	<0.50	AG	0.0231		
FLU	<0.0050	D	<0.50	Z	14		
FL	<0.0050	O	<0.50				
1123cdPY	<0.0050						
PY	<0.0050						
1MN	<0.0050						
2MN	<0.0050						

FL01-02@4'		FL01-02@4'		FL01-02@4'		FL01-02@4'	
11/04/2023		11/04/2023		11/04/2023		11/04/2023	
4'		4'		4'		4'	
ACE	<0.0050	B	<0.0020	As	1.81	pH	7.94
Ant	<0.0050	T	<0.0050	BA	65.3	EC	0.261
BaA	<0.0050	E	<0.0050	CD	<0.200	SAR	0.929
BaP	<0.0050	X	<0.010	CR(V)	<0.30	B	<2.00
BaF	<0.0050	124TMB	<0.0050	CU	2.99		
BKF	<0.0050	135TMB	<0.0050	PB	4.98		
Chr	<0.0050	N	<0.0038	SE	3.38		
DBahAnt	<0.0050	G	<0.50	AG	<0.260		
FLU	0.00578	D	<0.50	Z	13.2		
FL	<0.0050	O	<0.50				
1123cdPY	<0.0050						
PY	<0.0050						
1MN	<0.0050						
2MN	<0.0050						

BKG002@4'		BKG002@4'	
11/04/2023		11/04/2023	
4'		4'	
As	1.14	pH	8.22
BA	42.1	EC	0.21
CD	<0.200	SAR	0.112
CR(V)	<0.30	B	<2.00
CU	2.34		
PB	3.98		
NI	2.51		
SE	<0.260		
AG	<0.0200		
Z	9.53		

BKG01@4'		BKG01@4'	
11/04/2023		11/04/2023	
4'		4'	
As	1.33	pH	8.39
BA	44.2	EC	0.153
CD	<0.200	SAR	0.0915
CR(V)	<0.30	B	<2.00
CU	2.61		
PB	3.77		
NI	2.87		
SE	<0.260		
AG	<0.0200		
Z	10.9		

SEP01-FL@4'		SEP01-FL@4'		SEP01-FL@4'		SEP01-FL@4'	
11/04/2023		11/04/2023		11/04/2023		11/04/2023	
4'		4'		4'		4'	
ACE	<0.0050	B	<0.0020	As	1.91	pH	8.78
Ant	<0.0050	T	<0.0050	BA	45.3	EC	0.147
BaA	<0.0050	E	<0.0050	CD	<0.200	SAR	0.0411
BaP	<0.0050	X	<0.010	CR(V)	<0.30	B	<2.00
BaF	<0.0050	124TMB	<0.0050	CU	2.35		
BKF	<0.0050	135TMB	<0.0050	PB	3.32		
Chr	<0.0050	N	<0.0038	SE	2.5		
DBahAnt	<0.0050	G	<0.50	AG	<0.260		
FLU	<0.0050	D	<0.50	Z	9.19		
FL	<0.0050	O	<0.50				
1123cdPY	<0.0050						
PY	<0.0050						
1MN	<0.0050						
2MN	<0.0050						

LEGEND

- WELL HEAD LOCATION
- ABOVE GROUND STORAGE TANK
- ⊗ SOIL SAMPLE LOCATION
- FORMER FLOW LINE
- FENCE LINE
- CONTAINMENT BERM
- CONTAINMENT WALL
- Proposed Background Sample Locations
- NOT ANALYZED

SAMPLE ID	SAMPLE ID	SAMPLE ID	SAMPLE ID	SAMPLE ID	SAMPLE ID
DATE	DATE	DATE	DATE	DATE	DATE
DEPTH	DEPTH	DEPTH	DEPTH	DEPTH	DEPTH
ACE	As	BA	BA	BA	BA
ADENANTHRENE (mg/kg)	ARSENIC (mg/kg)	BA	BARIIUM (mg/kg)	BA	BARIUM (mg/kg)
Ant	CD	CD	CADMIUM (mg/kg)	CD	CADMIUM (mg/kg)
ANTHRACENE (mg/kg)	CR(V)	CR(V)	CHROMIUM (mg/kg)	CR(V)	CHROMIUM (mg/kg)
BAA	CU	CU	COPPER (mg/kg)	CU	COPPER (mg/kg)
BENZO (A) ANTHRACENE (mg/kg)	PB	PB	LEAD (mg/kg)	PB	LEAD (mg/kg)
BaP	124TMB	124TMB	1,2,4-TRIMETHYLBENZENE (mg/kg)	124TMB	1,2,4-TRIMETHYLBENZENE (mg/kg)
BaF	135TMB	135TMB	1,3,5-TRIMETHYLBENZENE (mg/kg)	135TMB	1,3,5-TRIMETHYLBENZENE (mg/kg)
BKF	Ni	Ni	NICKEL (mg/kg)	Ni	NICKEL (mg/kg)
CHR	SE	SE	SELENIUM (mg/kg)	SE	SELENIUM (mg/kg)
CHRYSENE (mg/kg)	TPH-GR0	TPH-GR0	SILVER (mg/kg)	TPH-GR0	SILVER (mg/kg)
DBahAnt	AG	AG	ZINC (mg/kg)	AG	ZINC (mg/kg)
DIBENZ (A,H) ANTHRACENE (mg/kg)	Z	Z		Z	
FLU					
FLUORANTHRENE (mg/kg)					
FL					
FLUCRENE (mg/kg)					
1123cdPY					
INDENO (1,2,3-CD) PYRENE (mg/kg)					
PY					
1-METHYLNAPHTHALENE (mg/kg)					
2MN					
2-METHYLNAPHTHALENE (mg/kg)					

Figure 3
SOIL CHEMISTRY MAP

NOBLE ENERGY INC - WELLS RANCH AA 21-02
 NWNE Sec. 21, T6N, R63W, 6th PM
 Weld County, Colorado
 40.477674°, -104.439623°

Project No. CO23-064	API # 05-123-26818	Facility #	
Date 8/9/24	Remediation # 26837	Filename 23064QFL	

Photo Log



Description:

#1 Wells Ranch AA21-02 Flowline - SEP01-FL@4 Ft - No Visual Staining or Odor

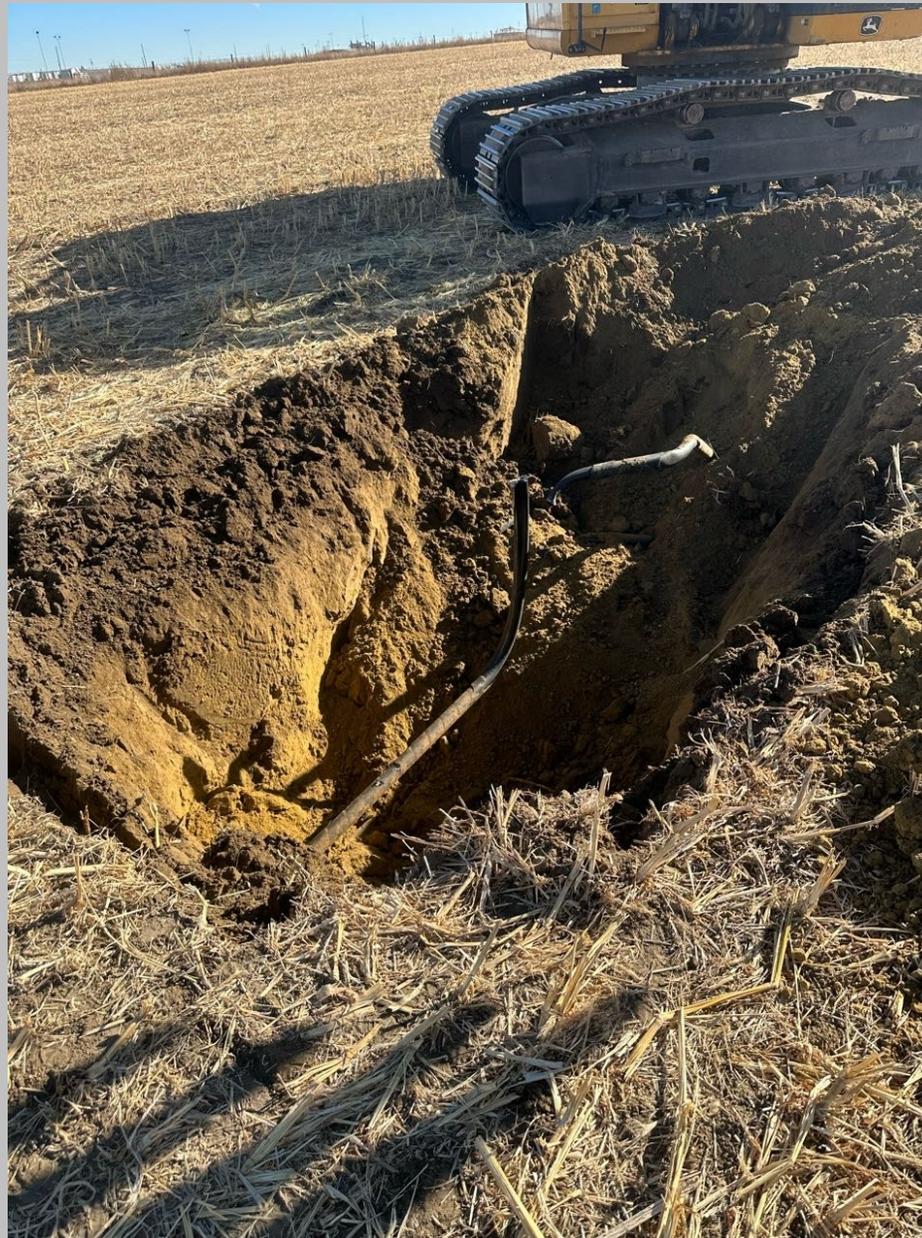
Photo Log



Description:

#2 Wells Ranch AA21-02 Flowline - FL01-02@4 Ft - No Visual Staining or Odor

Photo Log



Description:

#3 Wells Ranch AA21-02 Flowline - FLR01 @4Ft - No Visual Staining or Odor

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

November 20, 2023

Paul Henchan

Fremont Environmental

PO Box 1289

Wellington, CO 80549

RE: Noble - Wells Ranch AA 21-02 Flowline

Work Order #2311152

Enclosed are the results of analyses for samples received by Summit Scientific on 11/07/23 16:30. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Jacob Wood". The signature is written in a cursive style with a large initial 'J' and a distinct 'W'.

Jacob Wood For Paul Shrewsbury

President



Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: Noble - Wells Ranch AA 21-02 Flowline
Project Number: UWRWE-A2964-ABN
Project Manager: Paul Henchan

Reported:
11/20/23 08:36

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FLR01@4'	2311152-01	Soil	11/04/23 09:45	11/07/23 16:30
FL01-02@4'	2311152-02	Soil	11/04/23 09:55	11/07/23 16:30
SEP01-FL@4'	2311152-03	Soil	11/04/23 10:30	11/07/23 16:30
BKG01@4'	2311152-04	Soil	11/04/23 11:00	11/07/23 16:30
BKG02@4'	2311152-05	Soil	11/04/23 11:20	11/07/23 16:30

Summit Scientific

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

SUMMIT SCIENTIFIC

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

Lab ID	Page 1 of 1
231152	

Send Data To:		Send Invoice To:
Client: Fremont Environmental	Project Manager: Paul Henehan	Company: Noble/Chevron
Address: 8305 th Street	E-Mail: Fremont Distribution List	Project Name/Location: Wells Ranch AA 21-02 Flowline
City/State/Zip: Wellington, CO, 80549		AFE#: UWRWE-2964-ABN
Phone: 603-477-6907	Project Name: Wells Ranch AA 21-02 Flowline	PO/Billing Codes:
Sampler Name: Aaron Otilar	Project Number: C023-278	Contact: Mike Montoya

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix			Analysis Requested							Special Instructions
					HCl	HNO3	None	Other	Water	Soil	Air-Canister #	Other	BTEXN - 915	TPH (C6-C36)	PAH	TMB's - 915	Metals (915-1)	SAR, EC, pH, Boron	
1	FLR014'	11/4/23	0945	2			X			X			X	X	X	X	X		
2	FL01-0204'		0955	2															
3	SEPA-FL04'		1030	2															
4	BK6014'		1100	1												X	X		
5	BK60204'		1120	1												X	X		
6																			
7																			
8																			
9																			
10																			
11																			
12																			
13																			
14																			
15																			

Relinquished by: <i>Aaron Otilar</i>	Date/Time: 11/4/23 1116 1700	Received by: Summit North Office	Date/Time: 11/4/23 1116 1700	TAT Business Days	Field DO	Notes:
				Same Day	Field EC	
Relinquished by: JL	Date/Time: 11/7/23 1030	Received by: <i>[Signature]</i>	Date/Time: 11/7/23 1030	1 Day	Field ORP	
				2 Days	Field pH	
Relinquished by:	Date/Time:	Received by:	Date/Time:	3 Days	Field Temp.	
				Standard	X Field Turb.	
Temperature Upon Receipt: 12.0 9.1	Corrected Temperature: 8	IR gun #: 1	HNO3 lot #:			

PC4

S₂

Sample Receipt Checklist

S2 Work Order# 231152

Client: Fremont

Client Project ID: Wells Ranch AA21-02 Flowline

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

Airbill #:

-

Matrix (Check all that apply)

Air

Soil/Solid

Water

Other

Temp (°C)

9.1

Thermometer #

1

	Yes	No	N/A	Comments (If any)
If samples require cooling, is the temperature < 6°C? ⁽¹⁾ NOTE: If samples are delivered the same day of sampling, this requirement is met if there is evidence that cooling has begun.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
If custody seals are present, are they intact? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>OUT OF</u>
Are samples due within 48 hours present?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Are water samples with short hold times present? Note the short hold analysis in the comments column - pH, Nitrate/Nitrite, Ferrous Iron (Fe ²⁺), Hexavalent Chromium (Cr ⁶⁺ , Cr VI), COD/BOD, Total Coliform, E. Coli, Total Residual Chlorine (TRC), Dissolved Oxygen	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Is a chain-of-custody (COC) form present and filled out Completely? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client w/ date and time recorded? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all samples received intact? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples preserved that require preservation (excluding cooling)? ⁽¹⁾ Note the type of preservative in the comments column – HCl, H ₂ SO ₄ , NaOH, HNO ₃ , etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If samples are acid preserved for metals, is the pH ≤ 2? ⁽¹⁾ Record the pH in Comments.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If dissolved metals are requested, were samples field filtered?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
<u>Additional Comments (if any):</u>				
⁽¹⁾ If NO, then contact the client before proceeding with analysis and note in case narrative.				

AS

Custodian Printed Name

11/7/23

Date/Time

4 4 2



Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: Noble - Wells Ranch AA 21-02 Flowline
Project Number: UWRWE-A2964-ABN
Project Manager: Paul Henchan

Reported:
11/20/23 08:36

FLR01@4'
2311152-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/04/23 09:45**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	0.0020		mg/kg	1	BGK0347	11/09/23	11/10/23	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: **11/04/23 09:45**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4	0.0396	99.0 %		50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0438	110 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0426	106 %		50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **11/04/23 09:45**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
C10-C28 (DRO)	ND	50		mg/kg	1	BGK0350	11/09/23	11/12/23	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **11/04/23 09:45**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: o-Terphenyl	10.4	83.5 %		30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

Summit Scientific

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Project: Noble - Wells Ranch AA 21-02 Flowline

Project Number: UWRWE-A2964-ABN
Project Manager: Paul Henchan

Reported:
11/20/23 08:36

FLR01@4'
2311152-01 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **11/04/23 09:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGK0374	11/10/23	11/11/23	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: **11/04/23 09:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0157	47.2 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0155	46.5 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **11/04/23 09:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BGK0449	11/13/23	11/14/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **11/04/23 09:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Fremont Environmental
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Project: Noble - Wells Ranch AA 21-02 Flowline
Project Number: UWRWE-A2964-ABN
Project Manager: Paul Henchan

Reported:
11/20/23 08:36

FLR01@4'
2311152-01 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	2.08	0.200	mg/kg dry	1	BGK0620	11/16/23	11/17/23	EPA 6020B	
Barium	79.2	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Copper	3.79	0.400	"	"	"	"	"	"	
Lead	11.5	0.200	"	"	"	"	"	"	
Nickel	3.44	0.400	"	"	"	"	"	"	
Silver	0.0231	0.0200	"	"	"	"	"	"	
Zinc	14.0	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: 11/04/23 09:45

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGK0475	11/13/23	11/14/23	EPA 7196A	

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

Date Sampled: 11/04/23 09:45

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	89.7	0.0500	mg/L dry	1	BGK0562	11/15/23	11/17/23	EPA 6020B	
Magnesium	14.9	0.0500	"	"	"	"	"	"	
Sodium	64.3	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: 11/04/23 09:45

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	1.66	0.00100	units	1	BGK0667	11/17/23	11/17/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Summit Scientific

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Fremont Environmental
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 Wellington CO, 80549

Project: Noble - Wells Ranch AA 21-02 Flowline
 Project Number: UWRWE-A2964-ABN
 Project Manager: Paul Henchan

Reported:
 11/20/23 08:36

FLR01@4'
2311152-01 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **11/04/23 09:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	86.8		%	1	BGK0356	11/09/23	11/09/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **11/04/23 09:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.922	0.0100	mmhos/cm	1	BGK0590	11/16/23	11/17/23	EPA 120.1	

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

Date Sampled: **11/04/23 09:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.14		pH Units	1	BGK0589	11/16/23	11/17/23	EPA 9045D	

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Project: Noble - Wells Ranch AA 21-02 Flowline
Project Number: UWRWE-A2964-ABN
Project Manager: Paul Henchan

Reported:
11/20/23 08:36

FL01-02@4'
2311152-02 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/04/23 09:55**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	0.0020		mg/kg	1	BGK0347	11/09/23	11/10/23	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: **11/04/23 09:55**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4	0.0391	97.6 %		50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0429	107 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0438	109 %		50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **11/04/23 09:55**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
C10-C28 (DRO)	ND	50		mg/kg	1	BGK0350	11/09/23	11/12/23	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **11/04/23 09:55**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: o-Terphenyl	15.2	121 %		30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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 Project Number: UWRWE-A2964-ABN
 Project Manager: Paul Henchan

Reported:
 11/20/23 08:36

FL01-02@4'
2311152-02 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **11/04/23 09:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGK0374	11/10/23	11/11/23	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	0.00578	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: **11/04/23 09:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0179	53.7 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0183	54.8 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **11/04/23 09:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BGK0449	11/13/23	11/14/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **11/04/23 09:55**

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

Project: Noble - Wells Ranch AA 21-02 Flowline
Project Number: UWRWE-A2964-ABN
Project Manager: Paul Henchan

Reported:
11/20/23 08:36

FL01-02@4'
2311152-02 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	1.81	0.200	mg/kg dry	1	BGK0620	11/16/23	11/17/23	EPA 6020B	
Barium	65.3	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Copper	2.99	0.400	"	"	"	"	"	"	
Lead	4.98	0.200	"	"	"	"	"	"	
Nickel	3.38	0.400	"	"	"	"	"	"	
Silver	ND	0.0200	"	"	"	"	"	"	
Zinc	13.2	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **11/04/23 09:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGK0475	11/13/23	11/14/23	EPA 7196A	

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

Date Sampled: **11/04/23 09:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	38.0	0.0500	mg/L dry	1	BGK0562	11/15/23	11/17/23	EPA 6020B	
Magnesium	3.67	0.0500	"	"	"	"	"	"	
Sodium	2.24	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **11/04/23 09:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.0929	0.00100	units	1	BGK0667	11/17/23	11/17/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Summit Scientific

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Fremont Environmental
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 Wellington CO, 80549

Project: Noble - Wells Ranch AA 21-02 Flowline
 Project Number: UWRWE-A2964-ABN
 Project Manager: Paul Henchan

Reported:
 11/20/23 08:36

FL01-02@4'
2311152-02 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **11/04/23 09:55**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
% Solids	94.5			%	1	BGK0356	11/09/23	11/09/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **11/04/23 09:55**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Specific Conductance (EC)	0.251	0.0100		mmhos/cm	1	BGK0590	11/16/23	11/17/23	EPA 120.1	

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

Date Sampled: **11/04/23 09:55**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	7.94			pH Units	1	BGK0589	11/16/23	11/17/23	EPA 9045D	

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Wellington CO, 80549

Project: Noble - Wells Ranch AA 21-02 Flowline

Project Number: UWRWE-A2964-ABN
Project Manager: Paul Henchan

Reported:
11/20/23 08:36

SEP01-FL@4'
2311152-03 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/04/23 10:30**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	0.0020	mg/kg	1	BGK0347	11/09/23	11/10/23	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: **11/04/23 10:30**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4	0.0397	99.2 %	50-150	"	"	"	"	"	
Surrogate: Toluene-d8	0.0445	111 %	50-150	"	"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0443	111 %	50-150	"	"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **11/04/23 10:30**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
C10-C28 (DRO)	ND	50	mg/kg	1	BGK0350	11/09/23	11/12/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **11/04/23 10:30**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: o-Terphenyl	16.9	135 %	30-150	"	"	"	"	"	

PAH by EPA Method 8270D SIM

Summit Scientific

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Project: Noble - Wells Ranch AA 21-02 Flowline
Project Number: UWRWE-A2964-ABN
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Reported:
11/20/23 08:36

SEP01-FL@4'
2311152-03 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **11/04/23 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGK0374	11/10/23	11/11/23	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: **11/04/23 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0159	47.7 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0176	52.7 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **11/04/23 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BGK0449	11/13/23	11/14/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **11/04/23 10:30**

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 - Wells Ranch AA 21-02 Flowline

Project Number: UWRWE-A2964-ABN
Project Manager: Paul Henchan

Reported:
11/20/23 08:36

SEP01-FL@4'
2311152-03 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	1.91	0.200	mg/kg dry	1	BGK0620	11/16/23	11/17/23	EPA 6020B	
Barium	45.3	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Copper	2.35	0.400	"	"	"	"	"	"	
Lead	3.32	0.200	"	"	"	"	"	"	
Nickel	2.50	0.400	"	"	"	"	"	"	
Silver	ND	0.0200	"	"	"	"	"	"	
Zinc	9.19	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **11/04/23 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGK0475	11/13/23	11/14/23	EPA 7196A	

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

Date Sampled: **11/04/23 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	96.1	0.0500	mg/L dry	1	BGK0562	11/15/23	11/17/23	EPA 6020B	
Magnesium	3.94	0.0500	"	"	"	"	"	"	
Sodium	1.51	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **11/04/23 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.0411	0.00100	units	1	BGK0667	11/17/23	11/17/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

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Project: Noble - Wells Ranch AA 21-02 Flowline
Project Number: UWRWE-A2964-ABN
Project Manager: Paul Henchan

Reported:
11/20/23 08:36

SEP01-FL@4'
2311152-03 (Soil)

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Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **11/04/23 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	94.0		%	1	BGK0356	11/09/23	11/09/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **11/04/23 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.147	0.0100	mmhos/cm	1	BGK0590	11/16/23	11/17/23	EPA 120.1	

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

Date Sampled: **11/04/23 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.78		pH Units	1	BGK0589	11/16/23	11/17/23	EPA 9045D	

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Project: Noble - Wells Ranch AA 21-02 Flowline

Project Number: UWRWE-A2964-ABN
Project Manager: Paul Henchan

Reported:
11/20/23 08:36

BKG01@4'
2311152-04 (Soil)

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Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **11/04/23 11:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Boron	ND	2.00	mg/L	1	BGK0449	11/13/23	11/14/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **11/04/23 11:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	1.33	0.200	mg/kg dry	1	BGK0620	11/16/23	11/17/23	EPA 6020B	
Barium	44.5	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Copper	2.61	0.400	"	"	"	"	"	"	
Lead	3.77	0.200	"	"	"	"	"	"	
Nickel	2.87	0.400	"	"	"	"	"	"	
Silver	ND	0.0200	"	"	"	"	"	"	
Zinc	10.9	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **11/04/23 11:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGK0475	11/13/23	11/14/23	EPA 7196A	

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

Date Sampled: **11/04/23 11:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	26.3	0.0500	mg/L dry	1	BGK0562	11/15/23	11/17/23	EPA 6020B	
Magnesium	2.43	0.0500	"	"	"	"	"	"	
Sodium	1.83	0.0500	"	"	"	"	"	"	

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Project: Noble - Wells Ranch AA 21-02 Flowline
Project Number: UWRWE-A2964-ABN
Project Manager: Paul Henchan

Reported:
11/20/23 08:36

BKG01@4'
2311152-04 (Soil)

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Calculated Analysis

Date Sampled: **11/04/23 11:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.0915	0.00100	units	1	BGK0667	11/17/23	11/17/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **11/04/23 11:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	95.9		%	1	BGK0356	11/09/23	11/09/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **11/04/23 11:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.153	0.0100	mmhos/cm	1	BGK0590	11/16/23	11/17/23	EPA 120.1	

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

Date Sampled: **11/04/23 11:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.39		pH Units	1	BGK0589	11/16/23	11/17/23	EPA 9045D	

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Project: Noble - Wells Ranch AA 21-02 Flowline

Project Number: UWRWE-A2964-ABN
Project Manager: Paul Henchan

Reported:
11/20/23 08:36

BKG02@4'
2311152-05 (Soil)

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Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **11/04/23 11:20**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Boron	ND	2.00	mg/L	1	BGK0449	11/13/23	11/14/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **11/04/23 11:20**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	1.14	0.200	mg/kg dry	1	BGK0620	11/16/23	11/17/23	EPA 6020B	
Barium	42.1	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Copper	2.34	0.400	"	"	"	"	"	"	
Lead	3.98	0.200	"	"	"	"	"	"	
Nickel	2.51	0.400	"	"	"	"	"	"	
Silver	ND	0.0200	"	"	"	"	"	"	
Zinc	9.59	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **11/04/23 11:20**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGK0475	11/13/23	11/14/23	EPA 7196A	

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

Date Sampled: **11/04/23 11:20**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	31.6	0.0500	mg/L dry	1	BGK0562	11/15/23	11/17/23	EPA 6020B	
Magnesium	2.84	0.0500	"	"	"	"	"	"	
Sodium	2.44	0.0500	"	"	"	"	"	"	

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Project: Noble - Wells Ranch AA 21-02 Flowline
 Project Number: UWRWE-A2964-ABN
 Project Manager: Paul Henchan

Reported:
 11/20/23 08:36

BKG02@4'
2311152-05 (Soil)

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Calculated Analysis

Date Sampled: **11/04/23 11:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.112	0.00100	units	1	BGK0667	11/17/23	11/17/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **11/04/23 11:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	95.3		%	1	BGK0356	11/09/23	11/09/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **11/04/23 11:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.210	0.0100	mmhos/cm	1	BGK0590	11/16/23	11/17/23	EPA 120.1	

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

Date Sampled: **11/04/23 11:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.22		pH Units	1	BGK0589	11/16/23	11/17/23	EPA 9045D	

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Project: Noble - Wells Ranch AA 21-02 Flowline

Project Number: UWRWE-A2964-ABN
Project Manager: Paul Henchan

Reported:
11/20/23 08:36

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 BGK0347 - EPA 5030 Soil MS

Blank (BGK0347-BLK1)

Prepared & Analyzed: 11/09/23

Benzene	ND	0.0020	mg/kg							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
1,2,4-Trimethylbenzene	ND	0.0050	"							
1,3,5-Trimethylbenzene	ND	0.0050	"							
Naphthalene	ND	0.0038	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0429		"	0.0400		107	50-150			
<i>Surrogate: Toluene-d8</i>	0.0428		"	0.0400		107	50-150			
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0429		"	0.0400		107	50-150			

LCS (BGK0347-BS1)

Prepared & Analyzed: 11/09/23

Benzene	0.138	0.0020	mg/kg	0.100		138	70-130			QLCS-01
Toluene	0.138	0.0050	"	0.100		138	70-130			QLCS-01
Ethylbenzene	0.105	0.0050	"	0.100		105	70-130			
m,p-Xylene	0.210	0.010	"	0.200		105	70-130			
o-Xylene	0.0986	0.0050	"	0.100		98.6	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	0.116	0.0038	"	0.100		116	70-130			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0406		"	0.0400		102	50-150			
<i>Surrogate: Toluene-d8</i>	0.0421		"	0.0400		105	50-150			
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0423		"	0.0400		106	50-150			

Matrix Spike (BGK0347-MS1)

Source: 2311149-01

Prepared & Analyzed: 11/09/23

Benzene	0.127	0.0020	mg/kg	0.100	ND	127	70-130			
Toluene	0.130	0.0050	"	0.100	ND	130	70-130			
Ethylbenzene	0.0947	0.0050	"	0.100	ND	94.7	70-130			
m,p-Xylene	0.191	0.010	"	0.200	ND	95.4	70-130			
o-Xylene	0.0891	0.0050	"	0.100	ND	89.1	70-130			
1,2,4-Trimethylbenzene	0.0912	0.0050	"	0.100	ND	91.2	70-130			
1,3,5-Trimethylbenzene	0.0934	0.0050	"	0.100	ND	93.4	70-130			
Naphthalene	0.0904	0.0038	"	0.100	ND	90.4	70-130			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0415		"	0.0400		104	50-150			
<i>Surrogate: Toluene-d8</i>	0.0441		"	0.0400		110	50-150			
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0415		"	0.0400		104	50-150			

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Project: Noble - Wells Ranch AA 21-02 Flowline

Project Number: UWRWE-A2964-ABN
 Project Manager: Paul Henchan

Reported:
 11/20/23 08:36

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 BGK0347 - EPA 5030 Soil MS

Matrix Spike Dup (BGK0347-MSD1)	Source: 2311149-01			Prepared & Analyzed: 11/09/23						
Benzene	0.120	0.0020	mg/kg	0.100	ND	120	70-130	6.16	30	
Toluene	0.118	0.0050	"	0.100	ND	118	70-130	9.28	30	
Ethylbenzene	0.0852	0.0050	"	0.100	ND	85.2	70-130	10.6	30	
m,p-Xylene	0.172	0.010	"	0.200	ND	85.8	70-130	10.6	30	
o-Xylene	0.0827	0.0050	"	0.100	ND	82.7	70-130	7.47	30	
1,2,4-Trimethylbenzene	0.0845	0.0050	"	0.100	ND	84.5	70-130	7.65	30	
1,3,5-Trimethylbenzene	0.0850	0.0050	"	0.100	ND	85.0	70-130	9.42	30	
Naphthalene	0.0930	0.0038	"	0.100	ND	93.0	70-130	2.75	30	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0418</i>		<i>"</i>	<i>0.0400</i>		<i>104</i>	<i>50-150</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0433</i>		<i>"</i>	<i>0.0400</i>		<i>108</i>	<i>50-150</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0427</i>		<i>"</i>	<i>0.0400</i>		<i>107</i>	<i>50-150</i>			

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Project: Noble - Wells Ranch AA 21-02 Flowline
 Project Number: UWRWE-A2964-ABN
 Project Manager: Paul Henchan

Reported:
 11/20/23 08:36

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 BGK0350 - EPA 3550A

Blank (BGK0350-BLK1)

Prepared: 11/09/23 Analyzed: 11/11/23

C10-C28 (DRO)	ND	50	mg/kg								
C28-C36 (ORO)	ND	50	"								
Surrogate: <i>o</i> -Terphenyl	13.6		"	12.5		108		30-150			

LCS (BGK0350-BS1)

Prepared: 11/09/23 Analyzed: 11/11/23

C10-C28 (DRO)	444	50	mg/kg	500		88.8		70-130			
Surrogate: <i>o</i> -Terphenyl	10.8		"	12.5		86.6		30-150			

Matrix Spike (BGK0350-MS1)

Source: 2311149-01

Prepared: 11/09/23 Analyzed: 11/11/23

C10-C28 (DRO)	449	50	mg/kg	500	31.3	83.5		70-130			
Surrogate: <i>o</i> -Terphenyl	9.71		"	12.5		77.7		30-150			

Matrix Spike Dup (BGK0350-MSD1)

Source: 2311149-01

Prepared: 11/09/23 Analyzed: 11/11/23

C10-C28 (DRO)	470	50	mg/kg	500	31.3	87.6		70-130	4.53	20	
Surrogate: <i>o</i> -Terphenyl	8.90		"	12.5		71.2		30-150			

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Project: Noble - Wells Ranch AA 21-02 Flowline
Project Number: UWRWE-A2964-ABN
Project Manager: Paul Henchan

Reported:
11/20/23 08:36

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 BGK0374 - EPA 5030 Soil MS

Blank (BGK0374-BLK1)

Prepared: 11/10/23 Analyzed: 11/11/23

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>	0.0277		"	0.0333		83.2	40-150			
<i>Surrogate: Fluoranthene-d10</i>	0.0290		"	0.0333		87.0	40-150			

LCS (BGK0374-BS1)

Prepared: 11/10/23 Analyzed: 11/11/23

Acenaphthene	0.0229	0.00500	mg/kg	0.0333		68.7	31-137			
Anthracene	0.0247	0.00500	"	0.0333		74.0	30-120			
Benzo (a) anthracene	0.0254	0.00500	"	0.0333		76.3	30-120			
Benzo (a) pyrene	0.0234	0.00500	"	0.0333		70.1	30-120			
Benzo (b) fluoranthene	0.0235	0.00500	"	0.0333		70.6	30-120			
Benzo (k) fluoranthene	0.0215	0.00500	"	0.0333		64.6	30-120			
Chrysene	0.0234	0.00500	"	0.0333		70.1	30-120			
Dibenz (a,h) anthracene	0.0236	0.00500	"	0.0333		70.8	30-120			
Fluoranthene	0.0244	0.00500	"	0.0333		73.1	30-120			
Fluorene	0.0228	0.00500	"	0.0333		68.3	30-120			
Indeno (1,2,3-cd) pyrene	0.0187	0.00500	"	0.0333		56.1	30-120			
Pyrene	0.0254	0.00500	"	0.0333		76.2	35-142			
1-Methylnaphthalene	0.0241	0.00500	"	0.0333		72.3	35-142			
2-Methylnaphthalene	0.0242	0.00500	"	0.0333		72.7	35-142			
<i>Surrogate: 2-Methylnaphthalene-d10</i>	0.0253		"	0.0333		75.8	40-150			
<i>Surrogate: Fluoranthene-d10</i>	0.0246		"	0.0333		73.8	40-150			

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PO Box 1289
Wellington CO, 80549

Project: Noble - Wells Ranch AA 21-02 Flowline

Project Number: UWRWE-A2964-ABN
Project Manager: Paul Henchan

Reported:
11/20/23 08:36

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 BGK0374 - EPA 5030 Soil MS

Matrix Spike (BGK0374-MS1)

Source: 2311149-01

Prepared: 11/10/23 Analyzed: 11/11/23

Acenaphthene	0.0163	0.00500	mg/kg	0.0333	ND	48.9	31-137			
Anthracene	0.0171	0.00500	"	0.0333	ND	51.4	30-120			
Benzo (a) anthracene	0.0170	0.00500	"	0.0333	ND	50.9	30-120			
Benzo (a) pyrene	0.0144	0.00500	"	0.0333	ND	43.1	30-120			
Benzo (b) fluoranthene	0.0151	0.00500	"	0.0333	ND	45.4	30-120			
Benzo (k) fluoranthene	0.0148	0.00500	"	0.0333	ND	44.5	30-120			
Chrysene	0.0172	0.00500	"	0.0333	ND	51.7	30-120			
Dibenz (a,h) anthracene	0.0140	0.00500	"	0.0333	ND	41.9	30-120			
Fluoranthene	0.0176	0.00500	"	0.0333	ND	52.9	30-120			
Fluorene	0.0166	0.00500	"	0.0333	ND	49.8	30-120			
Indeno (1,2,3-cd) pyrene	0.0154	0.00500	"	0.0333	ND	46.3	30-120			
Pyrene	0.0176	0.00500	"	0.0333	ND	52.8	35-142			
1-Methylnaphthalene	0.0173	0.00500	"	0.0333	ND	52.0	15-130			
2-Methylnaphthalene	0.0175	0.00500	"	0.0333	ND	52.6	15-130			
Surrogate: 2-Methylnaphthalene-d10	0.0174		"	0.0333		52.2	40-150			
Surrogate: Fluoranthene-d10	0.0173		"	0.0333		51.8	40-150			

Matrix Spike Dup (BGK0374-MSD1)

Source: 2311149-01

Prepared: 11/10/23 Analyzed: 11/11/23

Acenaphthene	0.0167	0.00500	mg/kg	0.0333	ND	50.0	31-137	2.33	30
Anthracene	0.0143	0.00500	"	0.0333	ND	42.9	30-120	18.1	30
Benzo (a) anthracene	0.0157	0.00500	"	0.0333	ND	47.0	30-120	7.98	30
Benzo (a) pyrene	0.0149	0.00500	"	0.0333	ND	44.7	30-120	3.57	30
Benzo (b) fluoranthene	0.0141	0.00500	"	0.0333	ND	42.3	30-120	7.03	30
Benzo (k) fluoranthene	0.0150	0.00500	"	0.0333	ND	45.1	30-120	1.50	30
Chrysene	0.0135	0.00500	"	0.0333	ND	40.5	30-120	24.2	30
Dibenz (a,h) anthracene	0.0136	0.00500	"	0.0333	ND	40.9	30-120	2.27	30
Fluoranthene	0.0145	0.00500	"	0.0333	ND	43.4	30-120	19.8	30
Fluorene	0.0160	0.00500	"	0.0333	ND	48.0	30-120	3.69	30
Indeno (1,2,3-cd) pyrene	0.0150	0.00500	"	0.0333	ND	45.1	30-120	2.52	30
Pyrene	0.0140	0.00500	"	0.0333	ND	41.9	35-142	23.1	30
1-Methylnaphthalene	0.0148	0.00500	"	0.0333	ND	44.3	15-130	16.1	50
2-Methylnaphthalene	0.0140	0.00500	"	0.0333	ND	41.9	15-130	22.5	50
Surrogate: 2-Methylnaphthalene-d10	0.0138		"	0.0333		41.3	40-150		
Surrogate: Fluoranthene-d10	0.0136		"	0.0333		40.9	40-150		

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 Wellington CO, 80549

Project: Noble - Wells Ranch AA 21-02 Flowline
 Project Number: UWRWE-A2964-ABN
 Project Manager: Paul Henchan

Reported:
 11/20/23 08:36

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

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

Batch BGK0449 - EPA 3050B

Blank (BGK0449-BLK1)

Prepared: 11/13/23 Analyzed: 11/14/23

Boron ND 2.00 mg/L

LCS (BGK0449-BS1)

Prepared: 11/13/23 Analyzed: 11/14/23

Boron 5.12 2.00 mg/L 5.00 102 80-120

Duplicate (BGK0449-DUP1)

Source: 2311148-01

Prepared: 11/13/23 Analyzed: 11/14/23

Boron 0.147 2.00 mg/L 0.166 12.2 20

Matrix Spike (BGK0449-MS1)

Source: 2311148-01

Prepared: 11/13/23 Analyzed: 11/14/23

Boron 5.32 2.00 mg/L 5.00 0.166 103 75-125

Matrix Spike Dup (BGK0449-MSD1)

Source: 2311148-01

Prepared: 11/13/23 Analyzed: 11/14/23

Boron 5.48 2.00 mg/L 5.00 0.166 106 75-125 2.98 25

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Project: Noble - Wells Ranch AA 21-02 Flowline

Project Number: UWRWE-A2964-ABN
 Project Manager: Paul Henchan

Reported:
 11/20/23 08:36

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 BGK0620 - EPA 3050B

Blank (BGK0620-BLK1)

Prepared: 11/16/23 Analyzed: 11/17/23

Arsenic	ND	0.200	mg/kg wet							
Barium	ND	0.400	"							
Cadmium	ND	0.200	"							
Copper	ND	0.400	"							
Lead	ND	0.200	"							
Nickel	ND	0.400	"							
Silver	ND	0.0200	"							
Zinc	ND	0.400	"							
Selenium	ND	0.260	"							

LCS (BGK0620-BS1)

Prepared: 11/16/23 Analyzed: 11/17/23

Arsenic	38.3	0.200	mg/kg wet	40.0	95.7	80-120
Barium	38.3	0.400	"	40.0	95.7	80-120
Cadmium	1.91	0.200	"	2.00	95.5	80-120
Copper	32.6	0.400	"	40.0	81.5	80-120
Lead	23.0	0.200	"	20.0	115	80-120
Nickel	32.1	0.400	"	40.0	80.2	80-120
Silver	1.93	0.0200	"	2.00	96.7	80-120
Zinc	32.2	0.400	"	40.0	80.5	80-120
Selenium	3.38	0.260	"	4.00	84.4	80-120

Duplicate (BGK0620-DUP1)

Source: 2311152-01

Prepared: 11/16/23 Analyzed: 11/17/23

Arsenic	2.07	0.200	mg/kg dry	2.08	0.688	20
Barium	76.6	0.400	"	79.2	3.33	20
Cadmium	0.184	0.200	"	0.176	4.87	20
Copper	4.21	0.400	"	3.79	10.6	20
Lead	13.2	0.200	"	11.5	13.6	20
Nickel	3.67	0.400	"	3.44	6.40	20
Silver	0.0235	0.0200	"	0.0231	1.98	20
Zinc	14.7	0.400	"	14.0	5.37	20
Selenium	ND	0.260	"	ND		20

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Project: Noble - Wells Ranch AA 21-02 Flowline

Project Number: UWRWE-A2964-ABN
 Project Manager: Paul Henchan

Reported:
 11/20/23 08:36

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 BGK0620 - EPA 3050B

Matrix Spike (BGK0620-MS1)

Source: 2311152-01

Prepared: 11/16/23 Analyzed: 11/17/23

Arsenic	34.3	0.200	mg/kg dry	46.1	2.08	69.8	75-125				QM-07
Barium	115	0.400	"	46.1	79.2	77.2	75-125				
Cadmium	1.84	0.200	"	2.31	0.176	72.3	75-125				QM-07
Copper	29.0	0.400	"	46.1	3.79	54.6	75-125				QM-07
Lead	30.1	0.200	"	23.1	11.5	80.7	75-125				
Nickel	28.4	0.400	"	46.1	3.44	54.2	75-125				QM-07
Silver	1.65	0.0200	"	2.31	0.0231	70.8	75-125				QM-07
Zinc	41.6	0.400	"	46.1	14.0	59.9	75-125				QM-07
Selenium	3.59	0.260	"	4.61	ND	77.9	75-125				

Matrix Spike Dup (BGK0620-MSD1)

Source: 2311152-01

Prepared: 11/16/23 Analyzed: 11/17/23

Arsenic	38.4	0.200	mg/kg dry	46.1	2.08	78.7	75-125	11.2	25		
Barium	119	0.400	"	46.1	79.2	85.7	75-125	3.33	25		
Cadmium	2.10	0.200	"	2.31	0.176	83.6	75-125	13.2	25		
Copper	31.2	0.400	"	46.1	3.79	59.4	75-125	7.42	25		QM-07
Lead	45.7	0.200	"	23.1	11.5	149	75-125	41.2	25		QM-07
Nickel	30.9	0.400	"	46.1	3.44	59.5	75-125	8.21	25		QM-07
Silver	1.85	0.0200	"	2.31	0.0231	79.2	75-125	11.1	25		
Zinc	43.9	0.400	"	46.1	14.0	64.9	75-125	5.31	25		QM-07
Selenium	4.24	0.260	"	4.61	ND	91.9	75-125	16.5	25		

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Project: Noble - Wells Ranch AA 21-02 Flowline
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 Project Manager: Paul Henchan

Reported:
 11/20/23 08:36

Hexavalent Chromium by EPA Method 7196 - Quality Control
Summit Scientific

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

Batch BGK0475 - 3060A Mod

Blank (BGK0475-BLK1)			Prepared: 11/13/23 Analyzed: 11/14/23								
Chromium, Hexavalent	ND	0.30	mg/kg wet								
LCS (BGK0475-BS1)			Prepared: 11/13/23 Analyzed: 11/14/23								
Chromium, Hexavalent	26.2	0.30	mg/kg wet	25.0		105	80-120				
Duplicate (BGK0475-DUP1)			Source: 2311151-01 Prepared: 11/13/23 Analyzed: 11/14/23								
Chromium, Hexavalent	ND	0.30	mg/kg dry		ND					20	
Matrix Spike (BGK0475-MS1)			Source: 2311151-01 Prepared: 11/13/23 Analyzed: 11/14/23								
Chromium, Hexavalent	34.5	0.30	mg/kg dry	31.8	ND	109	75-125				
Matrix Spike Dup (BGK0475-MSD1)			Source: 2311151-01 Prepared: 11/13/23 Analyzed: 11/14/23								
Chromium, Hexavalent	34.4	0.30	mg/kg dry	31.8	ND	108	75-125	0.369		20	

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Project: Noble - Wells Ranch AA 21-02 Flowline

Project Number: UWRWE-A2964-ABN
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Reported:
 11/20/23 08:36

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 BGK0562 - General Preparation

Blank (BGK0562-BLK1)

Prepared: 11/15/23 Analyzed: 11/17/23

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

LCS (BGK0562-BS1)

Prepared: 11/15/23 Analyzed: 11/17/23

Calcium	5.33	0.0500	mg/L wet	5.00		107	70-130			
Magnesium	4.98	0.0500	"	5.00		99.5	70-130			
Sodium	4.93	0.0500	"	5.00		98.5	70-130			

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Reported:
 11/20/23 08:36

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

Summit Scientific

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

Batch BGK0356 - General Preparation

Duplicate (BGK0356-DUP1)

Source: 2311151-06

Prepared & Analyzed: 11/09/23

% Solids	76.1		%		77.3			1.54	20	
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Reported:
 11/20/23 08:36

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 BGK0590 - General Preparation

Blank (BGK0590-BLK1)

Prepared: 11/16/23 Analyzed: 11/17/23

Specific Conductance (EC) ND 0.0100 mmhos/cm

LCS (BGK0590-BS1)

Prepared: 11/16/23 Analyzed: 11/17/23

Specific Conductance (EC) 0.155 0.0100 mmhos/cm 0.150 103 95-105

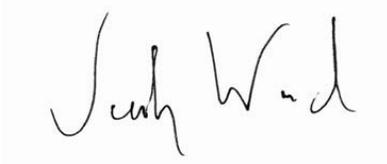
Duplicate (BGK0590-DUP1)

Source: 2311151-01

Prepared: 11/16/23 Analyzed: 11/17/23

Specific Conductance (EC) 0.382 0.0100 mmhos/cm 0.383 0.105 20

Summit Scientific



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Project: Noble - Wells Ranch AA 21-02 Flowline

Project Number: UWRWE-A2964-ABN
 Project Manager: Paul Henchan

Reported:
 11/20/23 08:36

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 BGK0589 - General Preparation

LCS (BGK0589-BS1)

Prepared: 11/16/23 Analyzed: 11/17/23

pH	9.11	pH Units	9.18	99.2	95-105
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Duplicate (BGK0589-DUP1)

Source: 2311151-01

Prepared: 11/16/23 Analyzed: 11/17/23

pH	9.87	pH Units	9.87	0.00	20
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Reported:
11/20/23 08:36

Notes and Definitions

- 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.
- QLCS-01 The spike recovery was outside acceptance limits for this analyte indicating a potential high bias. The corresponding samples did not exhibit concentrations above reporting level for this analyte. Data quality is not affected.
- 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