

# **FREMONT ENVIRONMENTAL INC.**

February 23, 2023

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

Subject:           **Flowline Closure Data Submittal**  
Farr C 18-25  
API # 05-123-23727  
NESW Sec. 18, T4N, R64W  
Weld County, Colorado  
Fremont Project No. C022-201  
Remediation # 24172

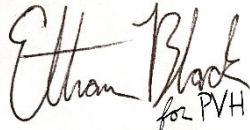
Dear Mr. Peterson:

As you requested, Fremont Environmental Inc. (Fremont) personnel conducted flowline abandonment activities for the Noble Energy Inc. (Noble) Farr C 18-25 flowline location. Details of the Farr C 18-25 flowline abandonment are documented in the attached Closure Report. Soil impacts were observed. Groundwater was not encountered.

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. Henehan, P.E.  
Senior Consultant

Attachments:

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

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

# Flowline Closure Checklist

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

Additional Attachments:		Tank Battery Closure		Wellhead Closure		Pit Closure		Partially Buried Vault Closure
Site Name & COGCC Facility Number: Farr C 18-25 (API: 05-123-23727)		Date: 12/8/22					Remediation Project #: 24172	
Associated Wells:		Age of Site: 2006					Number of Photos Attached: See Attached	
Starting point: (GPS coordinates and descriptions) FL01 2 Ft (40.3086812 -104.5973979)								
End point: (GPS coordinates and descriptions) SEP01 SURF (40.3105920 -104.5980250)								
USCS Soil Type: SP					Estimated Depth to Groundwater: > 25 Feet			
Hydrocarbon Impacted Soils / Spills: (Note estimated size and if impact appears to be surficial or extends to an unknown depth) <b>Lab analysis confirmed impacts a FL riser adjacent to former wellhead</b>								
Salt Crusted Soils or Impacted Vegetation: (Note estimated size and if impact appears to be surficial or extends to an unknown depth) <b>None observed</b>								
Flowlines								
Flowline type	Combine fluids							
Depth	3 feet							
Age	2006							
Length	~744 feet							
Construction Material	carbon steel							
Were flowlines pulled?	Yes							
Visual Integrity of lines	good							
Visual impacts if trenched	N/A							
PID Readings if trenched	N/A							
Sample taken? Location/Sample ID#	Yes, See Attached							
Photo Number(s)	See Attached							
Other observations regarding on location flowlines:								
Summary								
Was impacted soil identified? <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes - less than 10 cubic yards <input type="checkbox"/> Yes - more than 10 cubic yards								
Total number of samples field screened: 6					Total number of samples collected: 6			
Highest PID Reading: High @ 0.0ppm (All Samples)					Total number of samples submitted to lab for analysis: 2			
If more than 10 cubic yards of impacted soil were observed:								
Vertical extent: Unknown					Estimated spill volume: Unknown			
Lateral extent: Unknown					Volume of soil removed: Impact left in place			
Is additional investigation required? <b>Yes excavation is required</b>								
Was groundwater encountered during the investigation? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes - not impacted or in contact with impacted soils <input type="checkbox"/> Yes - groundwater impacted and/or in contact with impacted soils								
Measured depth to groundwater:					Was remedial groundwater removal conducted? Yes <input type="checkbox"/> No <input type="checkbox"/>			
Date Groundwater was encountered:					Commencement date of removal:			
Sheen on groundwater? <input type="checkbox"/> Yes <input type="checkbox"/> No					Volume of groundwater removed prior to sampling:			
Free product observed? <input type="checkbox"/> Yes <input type="checkbox"/> No					Volume of groundwater removed post sampling:			
Total number of samples collected:					Total Volume of groundwater removed:			
Total number of samples submitted to lab for analysis:								

**TABLE 1**  
**FIELD DATA SUMMARY TABLE**  
**NOBLE 100322**  
**FARR C 18-25, WELD COUNTY, COLORADO**  
**REM # 24172**

Sample ID	Sample Date	Depth (ft)	GPS Data Latitude/Longitude		PDOP Value	VOC Concentration (ppm)
SEP01 SURF	12/08/2022	0.5 Ft	40.3105920	-104.5980250	-	0.0 ppm
FL01 2 Ft	12/8/2022	2.0 Ft	40.3086812	-104.5973979	-	0.0 ppm
FL02 2 Ft	12/8/2022	2.0 Ft	40.3088911	-104.5976863	-	0.0 ppm
FL03 2 Ft	12/8/2022	2.0 Ft	40.3095024	-104.5977525	-	0.0 ppm
FL04 2 Ft	12/8/2022	2.0 Ft	40.3100603	-104.5979625	-	0.0 ppm
FL05 2 Ft	12/8/2022	2.0 Ft	40.3104074	-104.5980305	-	0.0 ppm

1. Global Positioning System (GPS) data is provided in decimal degrees using North American Datum (NAD) 83 UTMZone 13 North.

2. Volatile organic compound (VOC) concentrations are measured in the field using a photoionization detector (PID).

PDOP = Position Dilution of Precision

ppm = Parts per million

in. = Inches

ft. = Feet

bgs = Below ground surface

TABLE 2  
SUMMARY OF VOLATILE ORGANIC SOIL CHEMISTRY DATA  
NOBLE 100322  
FARR C 18-25, WELD COUNTY, COLORADO  
REM # 24172

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**		
SEP01 SURF	12/08/2022	0.5 Ft	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<500	<0.50	<50	<50
FL01 2ft	12/08/2022	2.0 Ft	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<500	<0.50	<50	<50

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
  4. \*\* Summation of GRO+DRO+ORO must be less than 500 mg/kg
- (<) = Analytical result is less than the indicated laboratory reporting limit.  
 TPH-GRO = Total petroleum hydrocarbons - gasoline range organics  
 TPH-DRO = Total petroleum hydrocarbons - diesel range organics  
 TPH-ORO = Total petroleum hydrocarbons - oil range organics  
 mg/kg = Milligrams per kilogram  
 ft. = Feet  
 bgs = Below ground surface  
 NA - Not analyzed

TABLE 3  
SUMMARY OF POLYCYCLIC AROMATIC HYDROCARBON SOIL CHEMISTRY DATA  
NOBLE 100322  
FARR C 18-25, WELD COUNTY, COLORADO  
REM # 24172

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
SEP01 SURF	12/08/2022	0.5 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 2ft	12/08/2022	2.0 Ft	<0.00500	<0.00500	0.0170	0.0118	0.0178	0.00704	0.0179	<0.00500	0.0333	<0.00500	0.00898	0.0299	<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  
4. \*\* Summation of GRO+DRO+ORO must be less than 500 mg/kg  
(<) = Analytical result is less than the indicated laboratory reporting limit.  
TPH-GRO = Total petroleum hydrocarbons - gasoline range organics  
TPH-DRO = Total petroleum hydrocarbons - diesel range organics  
TPH-ORO = Total petroleum hydrocarbons - oil range organics  
mg/kg = Milligrams per kilogram  
ft. = Feet  
bgs = Below ground surface  
NA - Not analyzed

TABLE 4  
SUMMARY OF SOIL SUITABILITY FOR RECLAMATION  
NOBLE 100322  
FARR C 18-25, WELD COUNTY, COLORADO  
REM # 24172

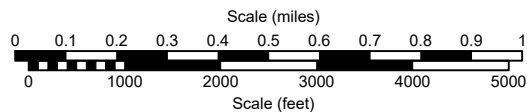
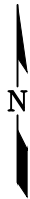
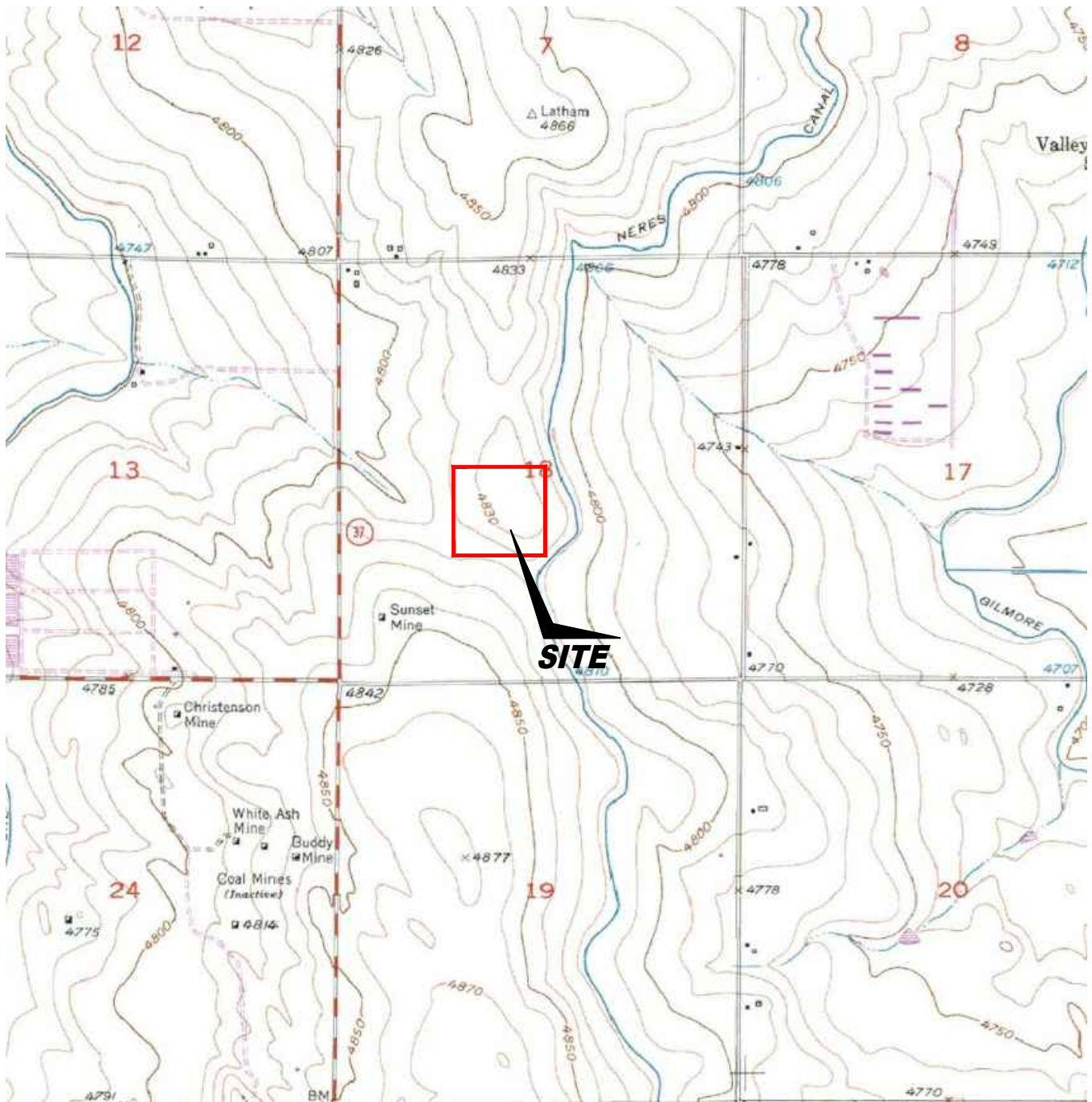
Sample ID	Sample Date	Depth (ft)	pH (Standard Units)	EC (mmhos/cm)	SAR (Standard Units)	Boron (mg/L)
ECMC Table 915-1 Soil Suitability Limits			6 - 8.3	4	6	2
SEP01 SURF	12/08/2022	0.5 Ft	7.65	0.554	1.06	1.13
FL01 2ft	12/08/2022	2.0 Ft	8.07	0.575	0.761	0.999

1. **Bold** faced values exceed the ECMC Table 915-1 limit(s), but are within background concentrations.

2. **Bold** faced values exceed the ECMC Table 915-1 limit(s) and native background concentrations.

3. Brown highlighted soil analytical values indicate a regulatory exceedance.

NA - Not analyzed/Not applicable



USGS 7.5 MINUTE SERIES (TOPOGRAPHIC)

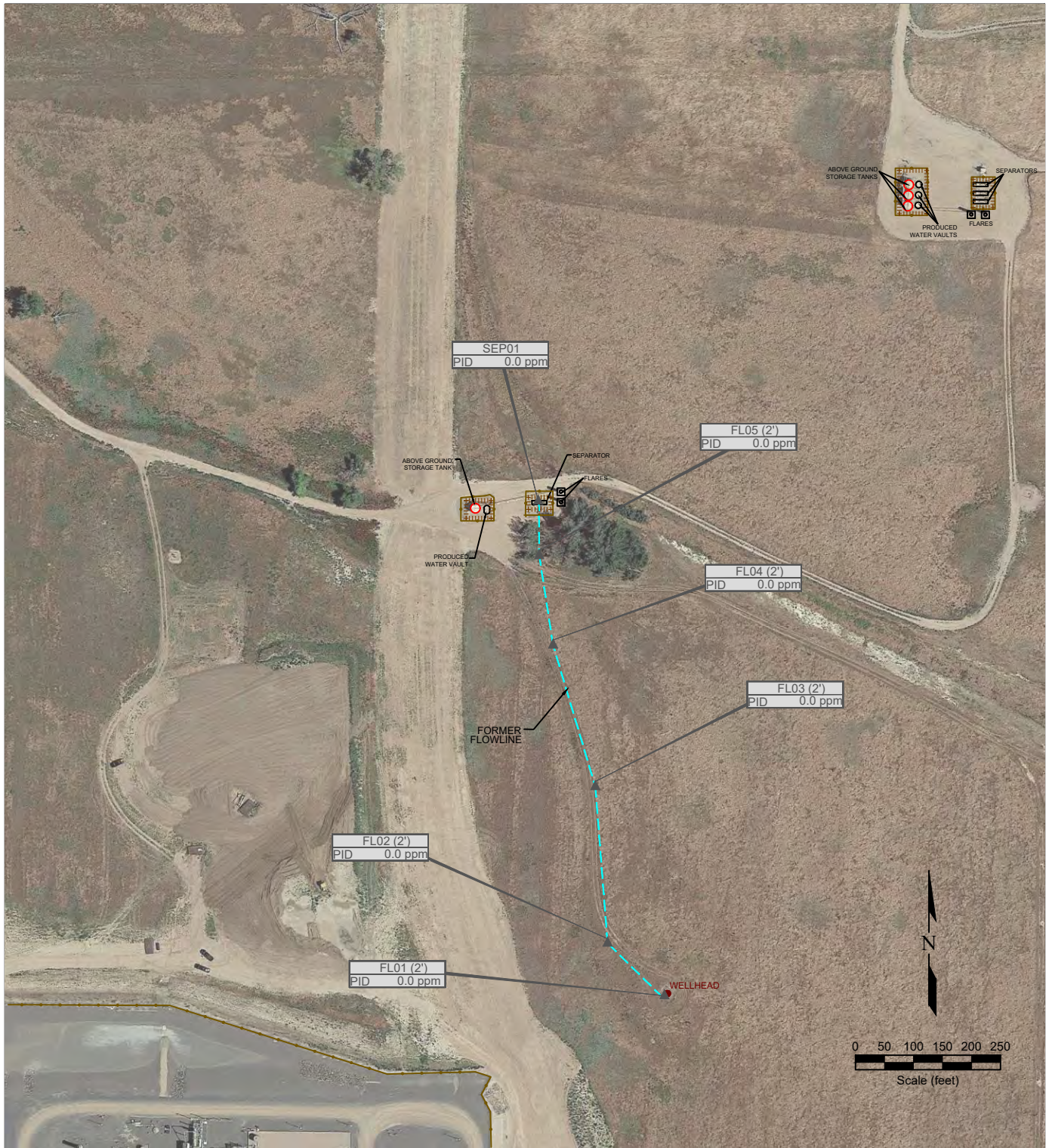
Figure 1  
SITE LOCATION MAP

**Noble Energy, Inc. ~ Farr C 18-25**  
 NESW Sec. 18, T4N, R64W, 6th PM  
 Weld County, Colorado  
 40.308718°, -104.597412°

Project # <b>C022-201</b>	API # <b>05-123-23727</b>	Facility # <b>283986</b>
Date <b>7/9/25</b>	Remediation # <b>24172</b>	Filename <b>22201TFL</b>







#### LEGEND

	WELL HEAD LOCATION		ABOVE GROUND STORAGE TANK		FLOWLINE
	PID READING LOCATION		FORMER FACILITY		FENCE LINE
	SAMPLE IDENTIFICATION AND DEPTH (ft)		CONTAINMENT BERM		CONTAINMENT WALL
	PID READING PPM (parts per million)				

Figure 2  
SITE MAP

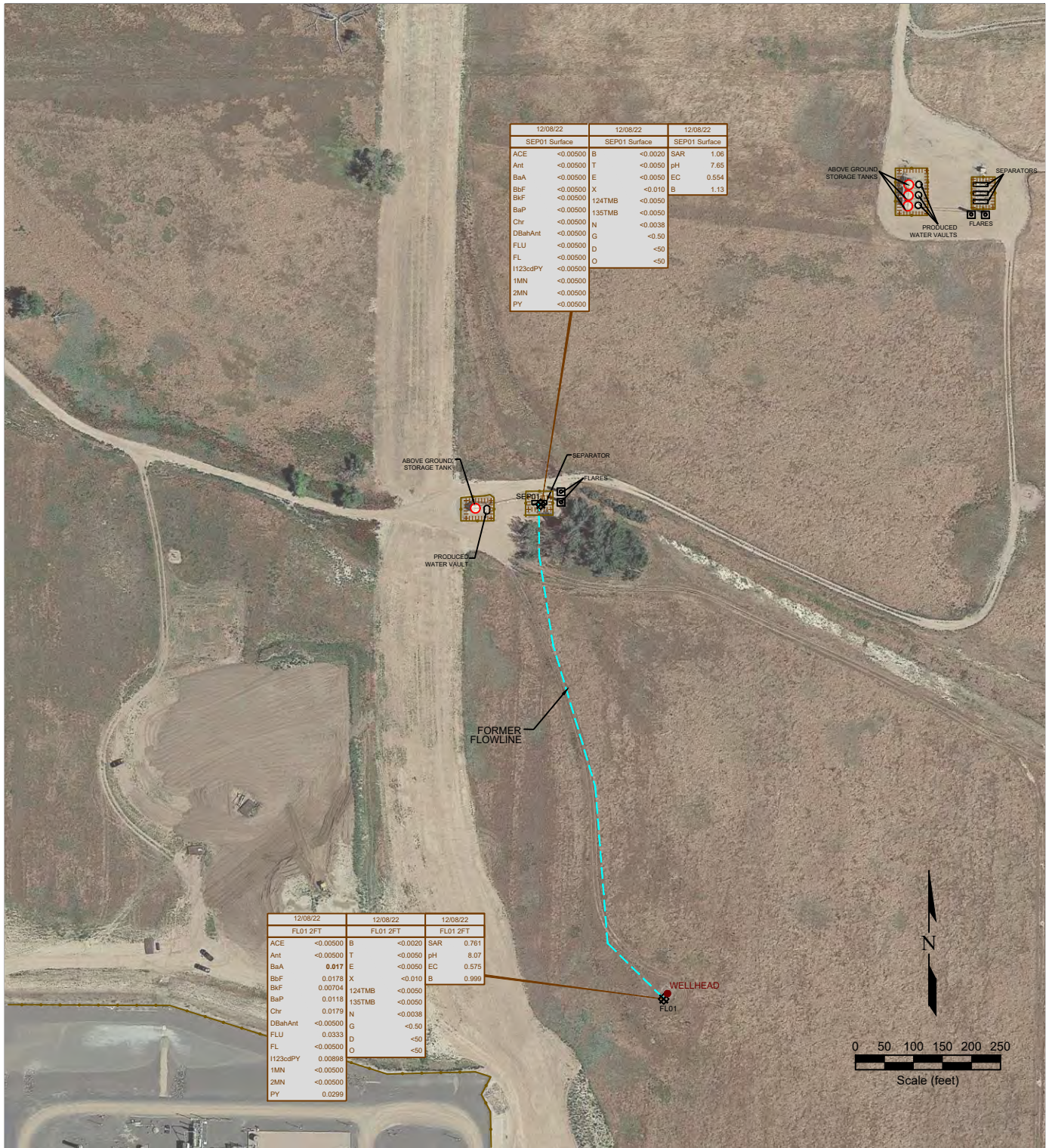
NOBLE ENERGY INC ~ FARR C 18-25

NESW Sec. 18, T4N, R64W, 6th PM  
Weld County, Colorado  
40.308680°, -104.597450°

Project No. <b>C022-201</b>	API # <b>05-123-23727</b>	Facility #
Date <b>7/9/25</b>	Remediation # <b>24172</b>	Filename <b>22201Q</b>







12/08/22	DATE SAMPLED	12/08/22	DATE SAMPLED	12/08/22	DATE SAMPLED
FL01 2FT	SAMPLE ID and DEPTH (ft)	FL01 2FT	SAMPLE ID and DEPTH (ft)	FL01 2FT	SAMPLE ID and DEPTH (ft)
ACE	ACENAPHTHENE (mg/kg)	B	BENZENE (mg/kg)	SAR	SAR (units)
Ant	ANTHRACENE (mg/kg)	T	TOLUENE (mg/kg)	pH	pH (units)
BaA	BENZO (A) ANTHRACENE (mg/kg)	E	ETHYLBENZENE (mg/kg)	EC	EC (mmhos/cm)
BbF	BENZO (K) FLUORANTHENE (mg/kg)	X	TOTAL XYLENES (mg/kg)	B	BORON (mg/L)
BaP	BENZO (A) PYRENE (mg/kg)	124TMB	1,2,4-TRIMETHYLBENZENE (mg/kg)		
Chr	CHRYSENE (mg/kg)	135TMB	1,3,5-TRIMETHYLBENZENE (mg/kg)		
DBahAnt	DIBENZ (A,H) ANTHRACENE (mg/kg)	N	NAPHTHALENE (mg/kg)		
FLU	FLUORANTHENE (mg/kg)	G	TPH-GRO (mg/kg)		
FL	FLUORENE (mg/kg)	D	TPH-DRO (mg/kg)		
1123cdPY	INDENO (1,2,3-CD) PYRENE (mg/kg)	O	TPH-ORO (mg/kg)		
1MN	1-METHYLNAPHTHALENE (mg/kg)				
2MN	2-METHYLNAPHTHALENE (mg/kg)				
PY	PYRENE (mg/kg)				

Figure 3  
**SOIL CHEMISTRY MAP**  
**NOBLE ENERGY INC ~ FARR C 18-25**

NESW Sec. 18, T4N, R64W, 6th PM  
 Weld County, Colorado  
 40.308680°, -104.597450°

Project No. <b>C022-201</b>	API # <b>05-123-23727</b>	Facility #	<b>REMONT ENVIRONMENTAL</b>
Date <b>7/9/25</b>	Remediation # <b>24172</b>	Filename <b>22201Q</b>	



## Photo Log



***Description:***

1 - Farr C 18-25 FL01 bellhole, looking NW





***Description:***

2 - Farr C 18-25 FL02 bellhole, looking N





***Description:***

3 - Farr C 18-25 FL03 bellhole, looking N



## Photo Log



***Description:***

4 - Farr C 18-25 FL04 bellhole, looking N



## Photo Log



***Description:***

5 - Farr C 18-25 FL05 bellhole, looking SW