

FREMONT ENVIRONMENTAL INC.

March 8, 2024

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

Subject: **Flowline Closure Data Submittal**
Pappenheim 2-32
API # 05-123-11851
SENE Sec. 32, T7N, R65W
Weld County, Colorado
Fremont Project No. C023-174
Remediation # 28062

Dear Mr. Peterson:

As you requested, Fremont Environmental Inc. (Fremont) personnel conducted flowline closure activities for the Noble Energy Inc. (Noble) Pappenheim 2-32. Impacted soil was not encountered during abandonment activities. Details of the Pappenheim 2-32 flowline closure activities are documented in the attached Closure Report. Groundwater was not encountered during flowline abandonment activities.

Please contact me at (303) 261-6246 if you require any additional information. Fremont appreciates the opportunity to provide this service.

Sincerely,

FREMONT ENVIRONMENTAL INC.



Stanley Gilbert
Environmental Scientist

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

Was impacted soil identified?
 No Yes - less than 10 cubic yards Yes - more than 10 cubic yards

Total number of samples field screened: _____ *Total number of samples collected:* _____

Highest PID Reading: _____ *Total number of samples submitted to lab for analysis:* _____

If more than 10 cubic yards of impacted soil were observed:

Vertical extent: _____ *Estimated spill volume:* _____

Lateral extent: _____ *Volume of soil removed:* _____

Is additional investigation required?

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: _____ *Was remedial groundwater removal conducted?* Yes No

Date Groundwater was encountered: _____ *Commencement date of removal:* _____

Sheen on groundwater? Yes No *Volume of groundwater removed prior to sampling:* _____

Free product observed? Yes 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
SUMMARY OF VOLATILE ORGANIC SOIL CHEMISTRY DATA
NOBLE ENERGY INC.
PAPPENHEIM 02-32, WELD COUNTY, COLORADO
FREMONT PROJECT NO. C023-174

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**		
FL01 3feet	06/21/2023	3'	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50	<50	<50
FL02 3feet	06/21/2023	3'	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50	<50	<50

Bold faced values exceed the COGCC Table 915-1 concentrations

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

* Indicates laboratory minimum detection limit in excess of SSL

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

NA - Not analyzed

TABLE 2
SUMMARY OF POLYCYCLIC AROMATIC HYDROCARBON SOIL CHEMISTRY DATA
NOBLE ENERGY INC.
PAPPENHEIM 02-32, WELD COUNTY, COLORADO
FREMONT PROJECT NO. C023-174

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
FL01 3feet	06/21/2023	3'	<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 3feet	06/21/2023	3'	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500

Bold faced values exceed the COGCC Table 915-1 concentrations

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

* Indicates laboratory minimum detection limit in excess of SSL

NA - Not analyzed

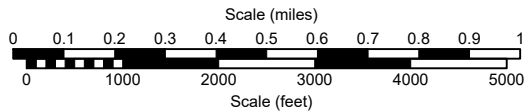
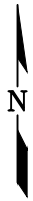
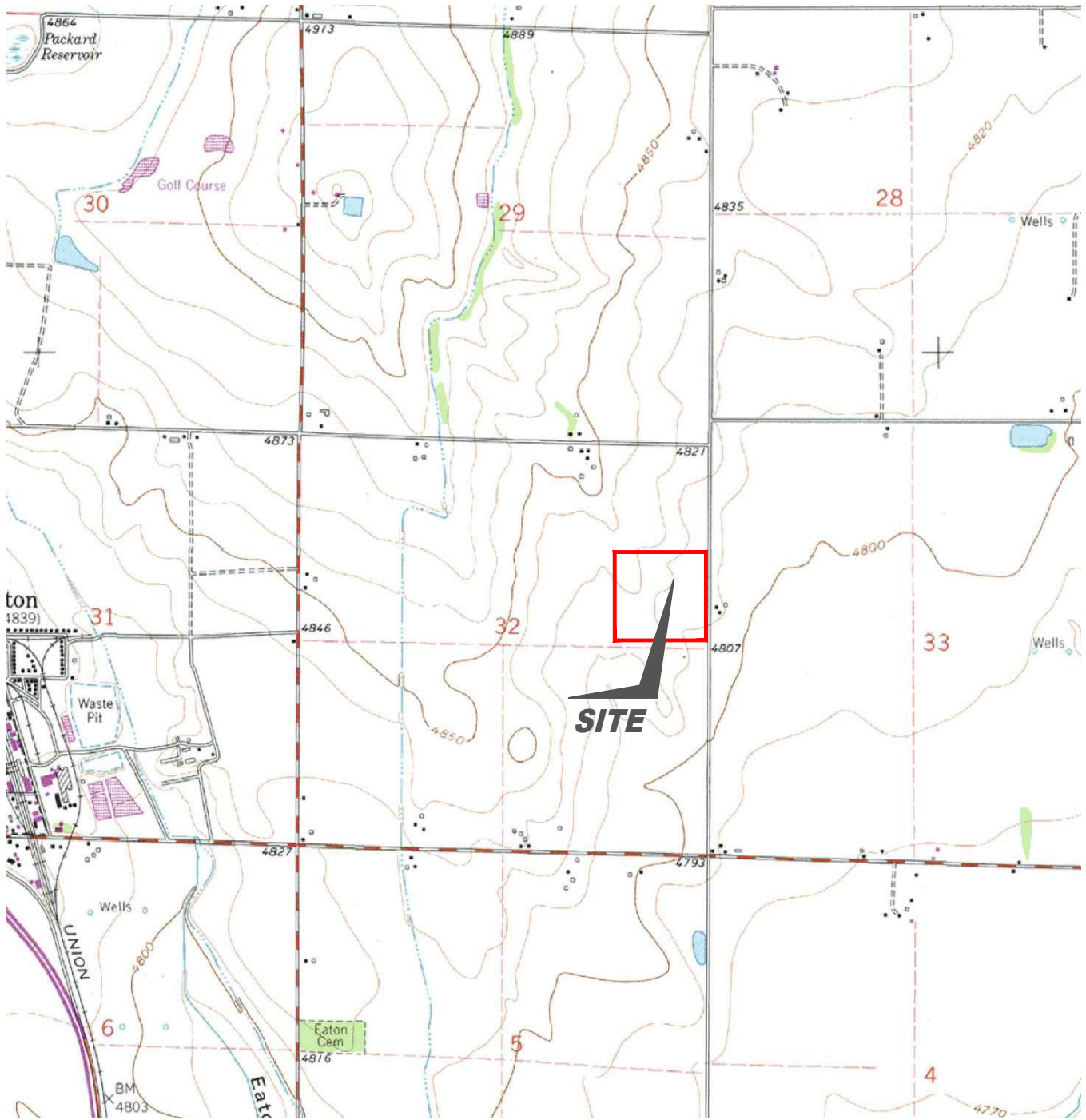
TABLE 3
SUMMARY OF SOIL SUITABILITY FOR RECLAMATION
NOBLE ENERGY INC.
PAPPENHEIM 02-32, WELD COUNTY, COLORADO
FREMONT PROJECT NO. C023-174

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
FL01 3feet	06/21/2023	3'	7.66	0.724	0.328	0.121
FL02 3feet	06/21/2023	3'	7.83	0.268	0.0812	0.186

Bold faced values exceed the COGCC Table 915-1 concentrations

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

NA - Not analyzed



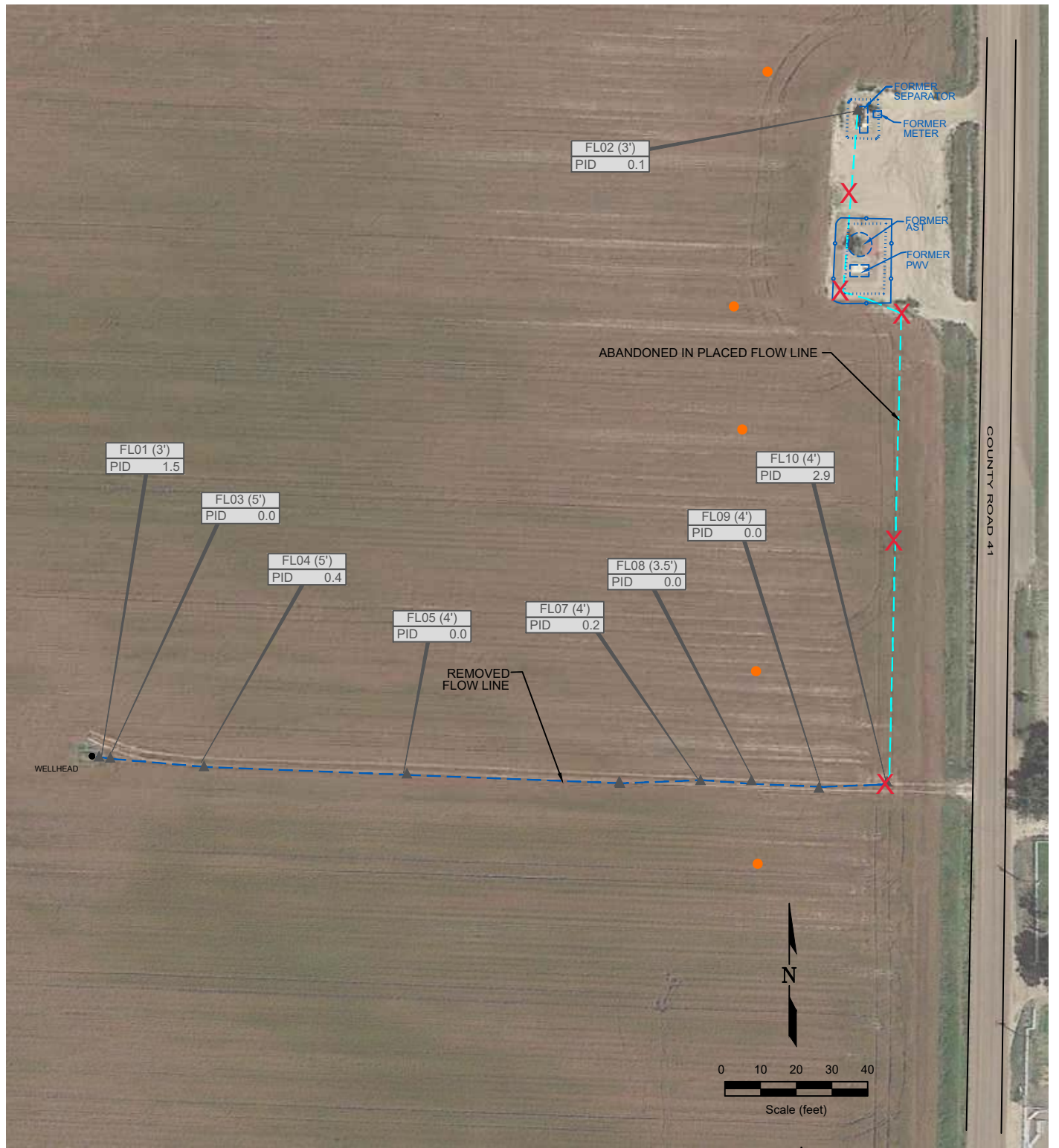
USGS 7.5 MINUTE SERIES (TOPOGRAPHIC)

Figure 1
SITE LOCATION MAP

Noble Energy, Inc. ~ Pappenheim 2-32
 SENE Sec. 32, T7N, R65W, 6th PM
 Weld County, Colorado
 40.532940°, -104.680130°

Project # CO23-174	API # 05-123-11851	Facility #
Date 3/10/24	Remediation # 28062	Filename 23174TFL





LEGEND

- WELLHEAD LOCATION
 - ▲ PID READING LOCATION
 - ABOVE-GROUND STORAGE TANK
 - FORMER FACILITY
 - BUILDING
 - CONTAINMENT BERM
 - FENCE LINE
 - ABANDONED IN PLACED FLOW LINE
 - REMOVED FLOW LINE
- FL01
PID 0.1
PID READING SAMPLE IDENTIFICATION AND DEPTH (ft)
PHOTO IONIZATION DETECTION / PARTS PER MILLION

● Proposed BKG Sample Location

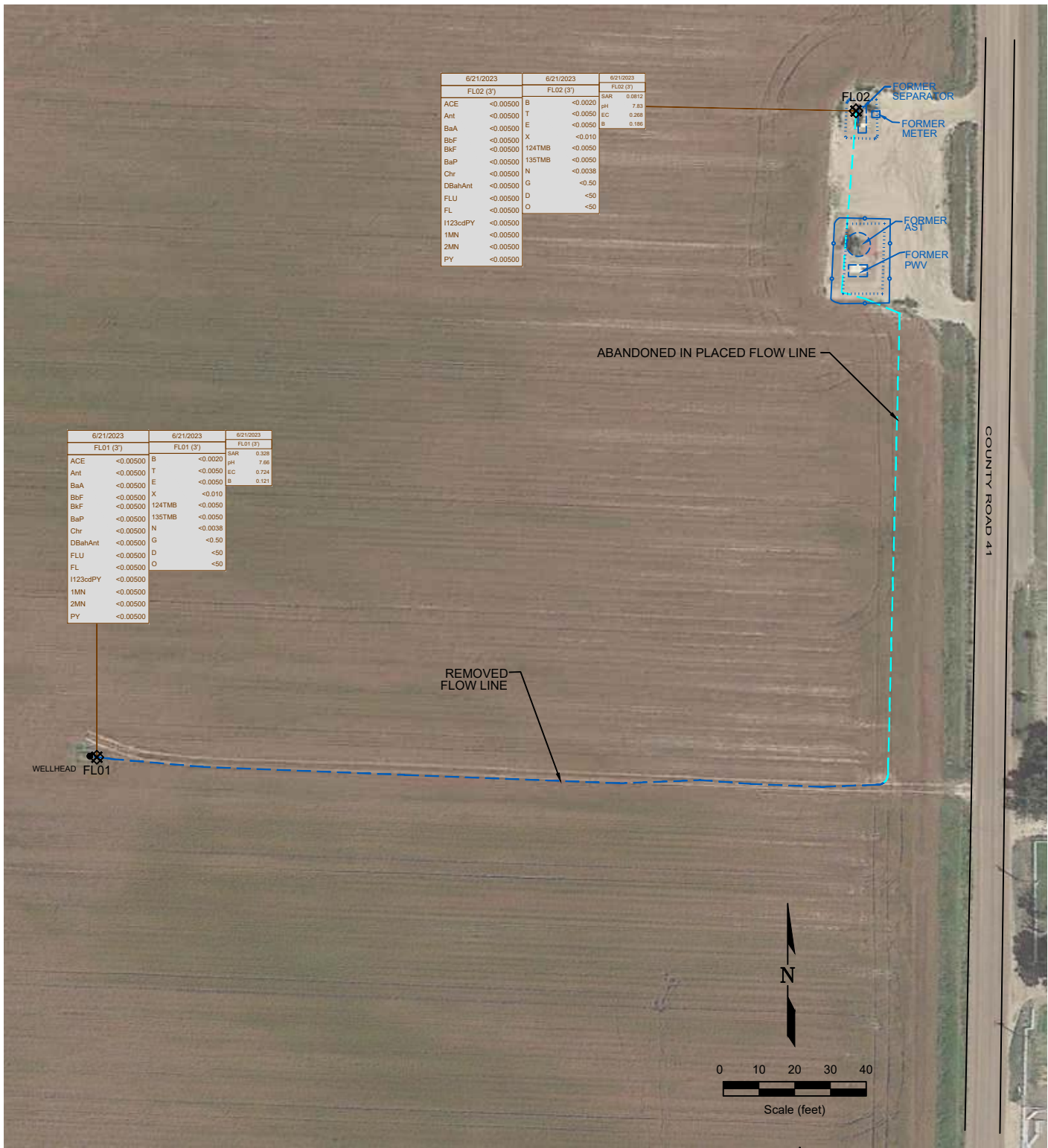
X Proposed Additional SI Sample Locations

**Figure 2
SITE MAP**

Noble Energy, Inc. ~ Pappenheim 2-32
 SENE Sec. 32, T7N, R65W, 6th PM
 Weld County, Colorado
 40.532940°, -104.680130°

Project # CO23-174	API # 05-123-11851	Facility #
Date 3/10/24	Remediation # 28062	Filename 23174QFL





6/21/2023		6/21/2023		6/21/2023	
FL02 (3')		FL02 (3')		FL02 (3')	
ACE	<0.00500	B	<0.0020	SAR	0.2812
Ant	<0.00500	T	<0.0050	pH	7.83
BaA	<0.00500	E	<0.0050	EC	0.268
BbF	<0.00500	X	<0.010	B	0.186
BkF	<0.00500	124TMB	<0.0050		
BaP	<0.00500	135TMB	<0.0050		
Chr	<0.00500	N	<0.0038		
DBahAnt	<0.00500	G	<0.50		
FLU	<0.00500	D	<50		
FL	<0.00500	O	<50		
1123cdPY	<0.00500				
1MN	<0.00500				
2MN	<0.00500				
PY	<0.00500				

6/21/2023		6/21/2023		6/21/2023	
FL01 (3')		FL01 (3')		FL01 (3')	
ACE	<0.00500	B	<0.0020	SAR	0.328
Ant	<0.00500	T	<0.0050	pH	7.66
BaA	<0.00500	E	<0.0050	EC	0.724
BbF	<0.00500	X	<0.010	B	0.121
BkF	<0.00500	124TMB	<0.0050		
BaP	<0.00500	135TMB	<0.0050		
Chr	<0.00500	N	<0.0038		
DBahAnt	<0.00500	G	<0.50		
FLU	<0.00500	D	<50		
FL	<0.00500	O	<50		
1123cdPY	<0.00500				
1MN	<0.00500				
2MN	<0.00500				
PY	<0.00500				

LEGEND

- WELLHEAD LOCATION
- ⊗ SOIL SAMPLE LOCATION
- ABOVE GROUND STORAGE TANK
- FORMER FACILITY
- BUILDING
- ABANDONED IN PLACED FLOW LINE
- REMOVED FLOW LINE
- CONTAINMENT BERM
- FENCE LINE

6/21/2023		6/21/2023		6/21/2023		6/21/2023	
FL01 (3')		FL01 (3')		FL01 (3')		FL01 (3')	
ACE	<0.00500	B	<0.0020	SAR	0.328		
Ant	<0.00500	T	<0.0050	pH	7.66		
BaA	<0.00500	E	<0.0050	EC	0.724		
BbF	<0.00500	X	<0.010	B	0.121		
BkF	<0.00500	124TMB	<0.0050				
BaP	<0.00500	135TMB	<0.0050				
Chr	<0.00500	N	<0.0038				
DBahAnt	<0.00500	G	<0.50				
FLU	<0.00500	D	<50				
FL	<0.00500	O	<50				
1123cdPY	<0.00500						
1MN	<0.00500						
2MN	<0.00500						
PY	<0.00500						

Project #
CO23-174

API #
05-123-11851

Facility #

Date
3/10/24

Remediation #
28062

Filename
23174QFL

REMONTE ENVIRONMENTAL



Description:

#1A - Pappenheim 2-32 (Flowline) - FL01 3 Feet - No Impacts Noted - PID: 1.5ppm

Photo Log



Description:

#1B - Pappenheim 2-32 (Flowline) - FL03@5.0' - No Impacts Noted - PID: 0.0ppm

Photo Log



Description:

#1C - Pappenheim 2-32 (Flowline) - FL04@5.0' - No Impacts Noted - PID: 0.4ppm

Photo Log



Description:

#1D - Pappenheim 2-32 (Flowline) - FL05@4.0' - No Impacts Noted - PID: 0.0ppm

Photo Log



Description:

#1E - Pappenheim 2-32 (Flowline) - FL06@4.0' - No Impacts Noted - PID: 0.0ppm

Photo Log



Description:

#1F - Pappenheim 2-32 (Flowline) - FL07@4.0' - No Impacts Noted - PID: 0.2ppm

Photo Log



Description:

#1G - Pappenheim 2-32 (Flowline) - FL08@3.5' - No Impacts Noted - PID: 0.0ppm

Photo Log



Description:

#1H - Pappenheim 2-32 (Flowline) - FL09@4.0' - No Impacts Noted - PID: 0.0ppm

Photo Log



Description:

#11 - Pappenheim 2-32 (Flowline) - FL10@4.0' - Cut and Capped - No Impacts Noted - PID: 2.9ppm

Photo Log



Description:

#1J - Pappenheim 2-32 (Flowline) - FL02 3 Feet - Cut and Capped - No Impacts Noted - PID: 0.1ppm