

# FREMONT ENVIRONMENTAL INC.

October 16, 2023

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

Subject:       **Flowline Closure Data Submittal**  
Sauer G04-29D  
API # 05-123-30793  
SESW Sec. 33, T5N, R65W  
Weld County, Colorado  
Fremont Project No. C023-162  
Remediation # 29214

Dear Mr. Peterson:

As you requested, Fremont Environmental Inc. (Fremont) personnel conducted flowline closure activities for Noble Energy Inc. (Noble) Sauer G04-29D. Impacted soil was not encountered during abandonment activities. Details of the Sauer G04-29D flowline closure activities are documented in the attached closure report. Groundwater was not encountered during flowline abandonment activities.

Please contact me at (603) 477-6907 if you require any additional information. Fremont appreciates the opportunity to provide this service.

Sincerely,

**FREMONT ENVIRONMENTAL INC.**



Ethan D. Black, P.G.  
Consultant

Attachments:

- Facility Closure Checklist
- Tables
- Figures
- Photos

# 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 &amp; 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 ENERGY INC.**  
**SAUER G04-29D, WELD COUNTY, COLORADO**  
**FREMONT PROJECT NO. C023-163**

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)
ECMC Table 915-1 Limits (Residential SSL)			1.2	490	5.8	58	30	27	2	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**		
FL01 3ft	06/16/2023	3	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50
FL02 Combi 4FT	04/15/2024	4	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50
FL03 Combi 4FT	04/15/2024	4	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50

Bold faced values exceed the ECMC Table 915-1 concentrations

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

\* Indicates laboratory minimum detection limit in excess of SSL

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

NA - Not analyzed

TABLE 2  
SUMMARY OF POLYCYCLIC AROMATIC HYDROCARBON SOIL CHEMISTRY DATA  
NOBLE ENERGY INC.  
SAUER G04-29D, WELD COUNTY, COLORADO  
FREMONT PROJECT NO. C023-163

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 3ft	06/16/2023	3	<0.00500	<0.00500	0.00939	0.008	0.015	0.005	0.00907	<0.00500	0.019	<0.00500	0.007	0.018	<0.00500	<0.00500
FL02 Combi 4FT	04/15/2024	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
FL03 Combi 4FT	04/15/2024	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

Bold faced values exceed the ECMC Table 915-1 concentrations

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

\* Indicates laboratory minimum detection limit in excess of SSL

NA - Not analyzed

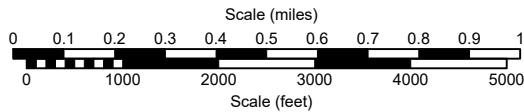
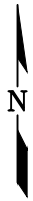
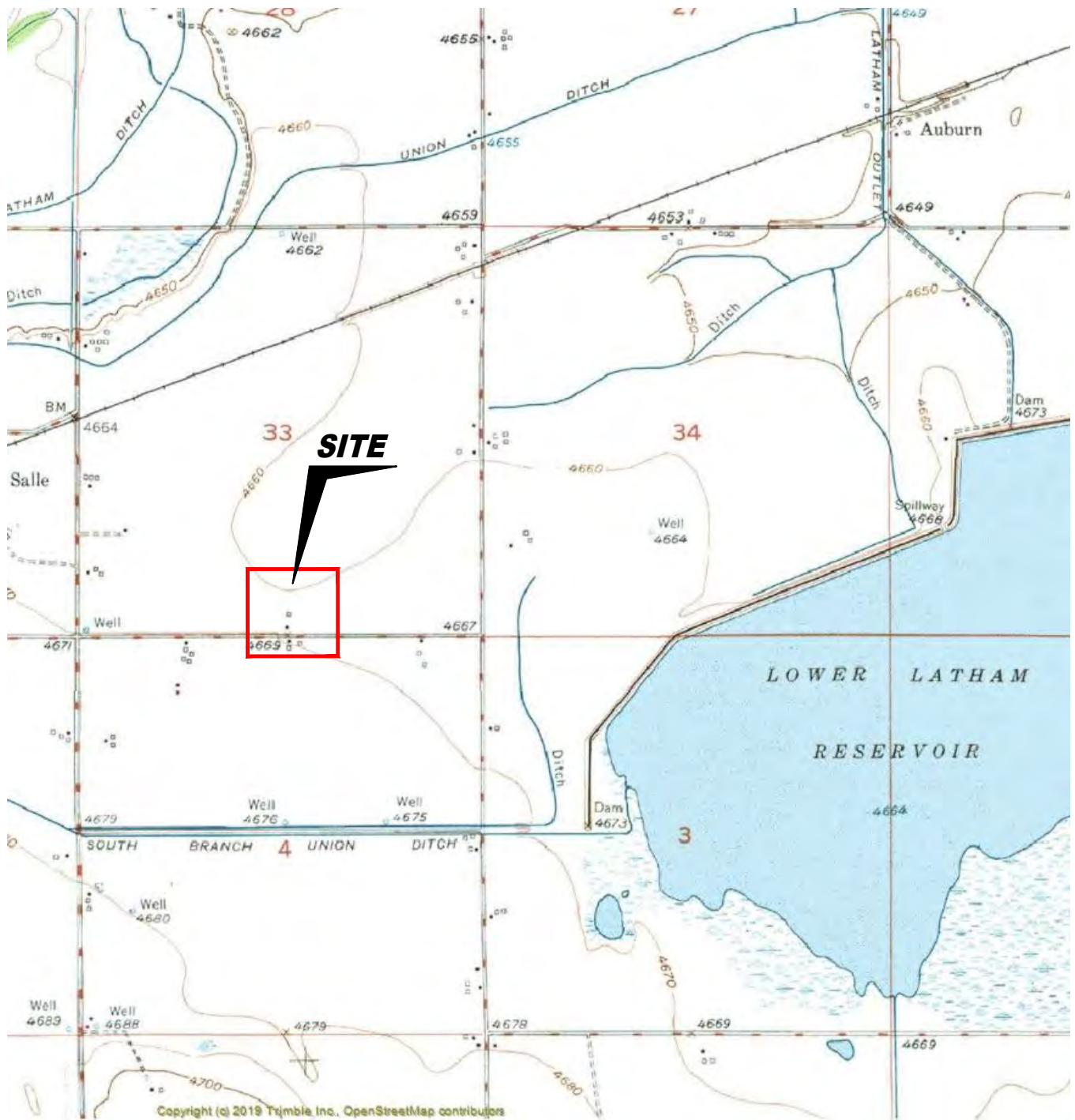
**TABLE 3**  
**SUMMARY OF SOIL SUITABILITY FOR RECLAMATION**  
**NOBLE ENERGY INC.**  
**SAUER G04-29D, WELD COUNTY, COLORADO**  
**FREMONT PROJECT NO. C023-163**

Sample ID	Sample Date	Depth (ft)	pH	EC (mmhos/cm)	SAR	Boron (mg/L)
ECMC Table 915-1 Soil Suitability Limits			6 - 8.3	<4	<6	2
FL01 3ft	06/16/2023	3	7.88	1.32	4.57	0.127
FL02 Combi 4FT	04/15/2024	4	<b>8.5</b>	0.428	1.5	<2.00
FL03 Combi 4FT	04/15/2024	4	<b>8.74</b>	0.271	0.829	<2.00
BKG 1 3FT	04/15/2024	3	<b>8.82</b>	0.171	0.201	<2.00
BKG 2 3FT	04/15/2024	3	<b>8.97</b>	0.139	0.116	<2.00
BKG 3 3FT	04/15/2024	3	<b>9.07</b>	0.159	0.205	<2.00
BKG 4 3FT	04/15/2024	3	<b>8.83</b>	0.201	0.273	<2.00
BKG 5 3FT	04/15/2024	3	<b>8.98</b>	0.131	0.0756	<2.00
BKG 6 3FT	04/15/2024	3	<b>8.79</b>	0.161	0.0888	<2.00

Bold faced values exceed the ECMC Table 915-1 concentrations

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

NA - Not analyzed



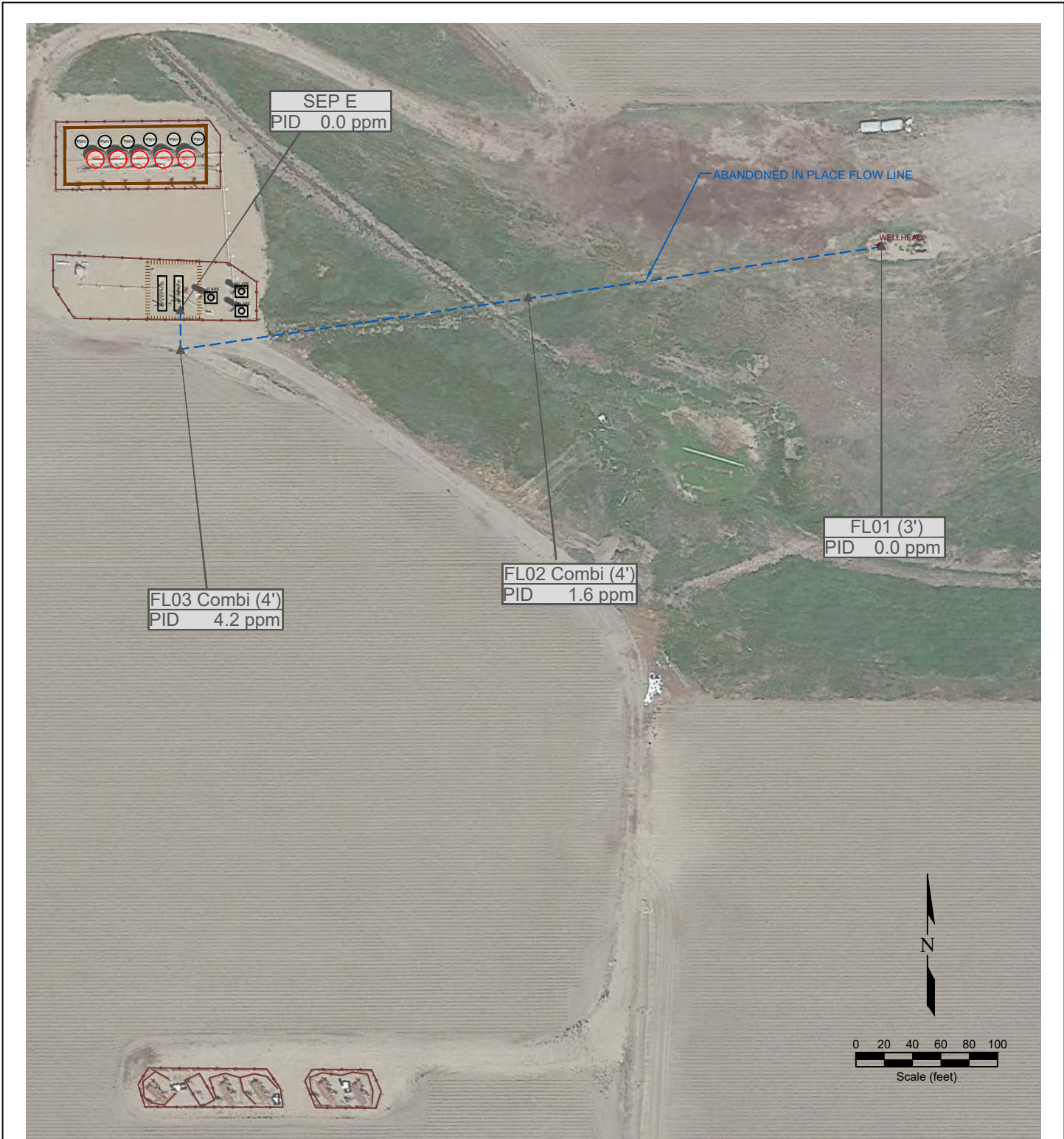
USGS 7.5 MINUTE SERIES (TOPOGRAPHIC)

Figure 1  
SITE LOCATION MAP

**Noble Energy Inc. ~ Sauer G 04-29D**  
 SESW Sec. 33, T5N, R65W, 6th PM  
 Weld County, Colorado  
 40.350691°, -104.670613°

Project # <b>C023-163</b>	API # <b>05-123-30793</b>	Facility #
Date <b>8/17/24</b>	Remediation # <b>29214</b>	Filename <b>23163T</b>





**LEGEND**

- WELL HEAD LOCATION
- ▲ PID READING LOCATION
- ABOVE GROUND STORAGE TANK
- FORMER FACILITY
- BUILDING
- FORMER FACILITY
- BUILDING
- FENCE LINE
- ||||| CONTAINMENT BERM
- CONTAINMENT WALL
- FORMER FLOW LINE
- ABANDONED IN PLACE

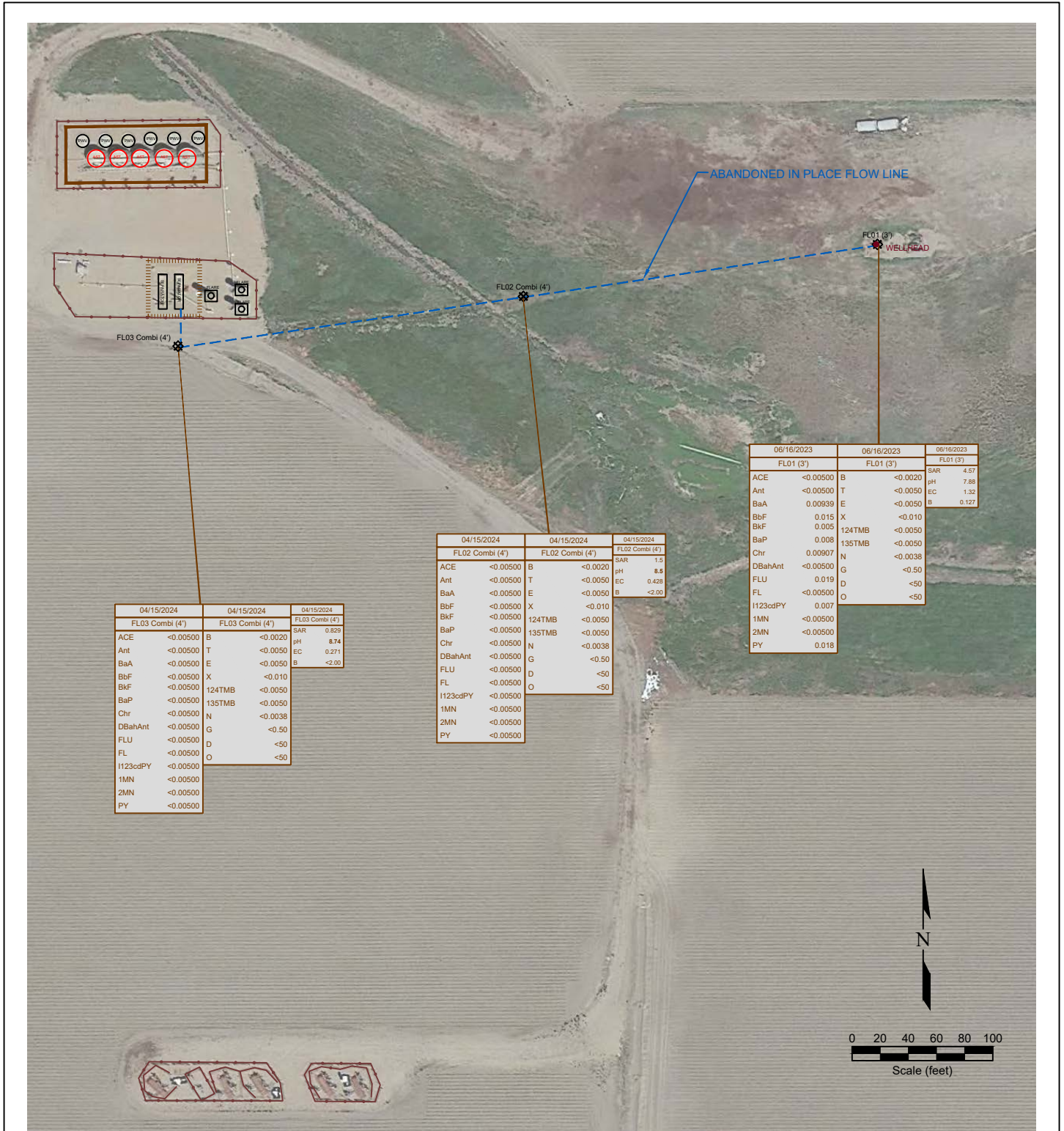
PID = photo ionization detection  
ppm = parts per million

**Figure 2  
SITE MAP**

**Noble Energy Inc. ~ Sauer G 04-29D**  
 SESW Sec. 33, T5N, R65W, 6th PM  
 Weld County, Colorado  
 40.350691°, -104.670613°

Project No. <b>C023-163</b>	API # <b>05-123-30793</b>	Facility #
Date <b>8/17/24</b>	Remediation # <b>29214</b>	Filename <b>23163Q</b>

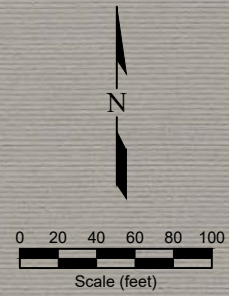




06/16/2023 FL01 (3')		06/16/2023 FL01 (3')		06/16/2023 FL01 (3')	
ACE	<0.00500	B	<0.0020	SAR	4.57
Ant	<0.00500	T	<0.0050	pH	7.86
BaA	0.00939	E	<0.0050	EC	1.32
BbF	0.015	X	<0.010	B	0.127
BkF	0.005	124TMB	<0.0050		
BaP	0.008	135TMB	<0.0050		
Chr	0.00907	N	<0.0038		
DBahAnt	<0.00500	G	<0.50		
FLU	<0.00500	D	<50		
FL	<0.00500	O	<50		
1123cdPY	0.007				
1MN	<0.00500				
2MN	<0.00500				
PY	0.018				

04/15/2024 FL02 Combi (4')		04/15/2024 FL02 Combi (4')		04/15/2024 FL02 Combi (4')	
ACE	<0.00500	B	<0.0020	SAR	1.5
Ant	<0.00500	T	<0.0050	pH	8.6
BaA	<0.00500	E	<0.0050	EC	0.428
BbF	<0.00500	X	<0.010	B	<2.00
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				

04/15/2024 FL03 Combi (4')		04/15/2024 FL03 Combi (4')		04/15/2024 FL03 Combi (4')	
ACE	<0.00500	B	<0.0020	SAR	0.929
Ant	<0.00500	T	<0.0050	pH	8.74
BaA	<0.00500	E	<0.0050	EC	0.271
BbF	<0.00500	X	<0.010	B	<2.00
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**

- WELL HEAD LOCATION
- ⊗ SOIL SAMPLE LOCATION
- ABOVE GROUND STORAGE TANK
- FORMER FACILITY
- FORMER BUILDING
- FENCE LINE
- CONTAINMENT BERM
- CONTAINMENT WALL
- FORMER FLOW LINE
- ABANDONED IN PLACE

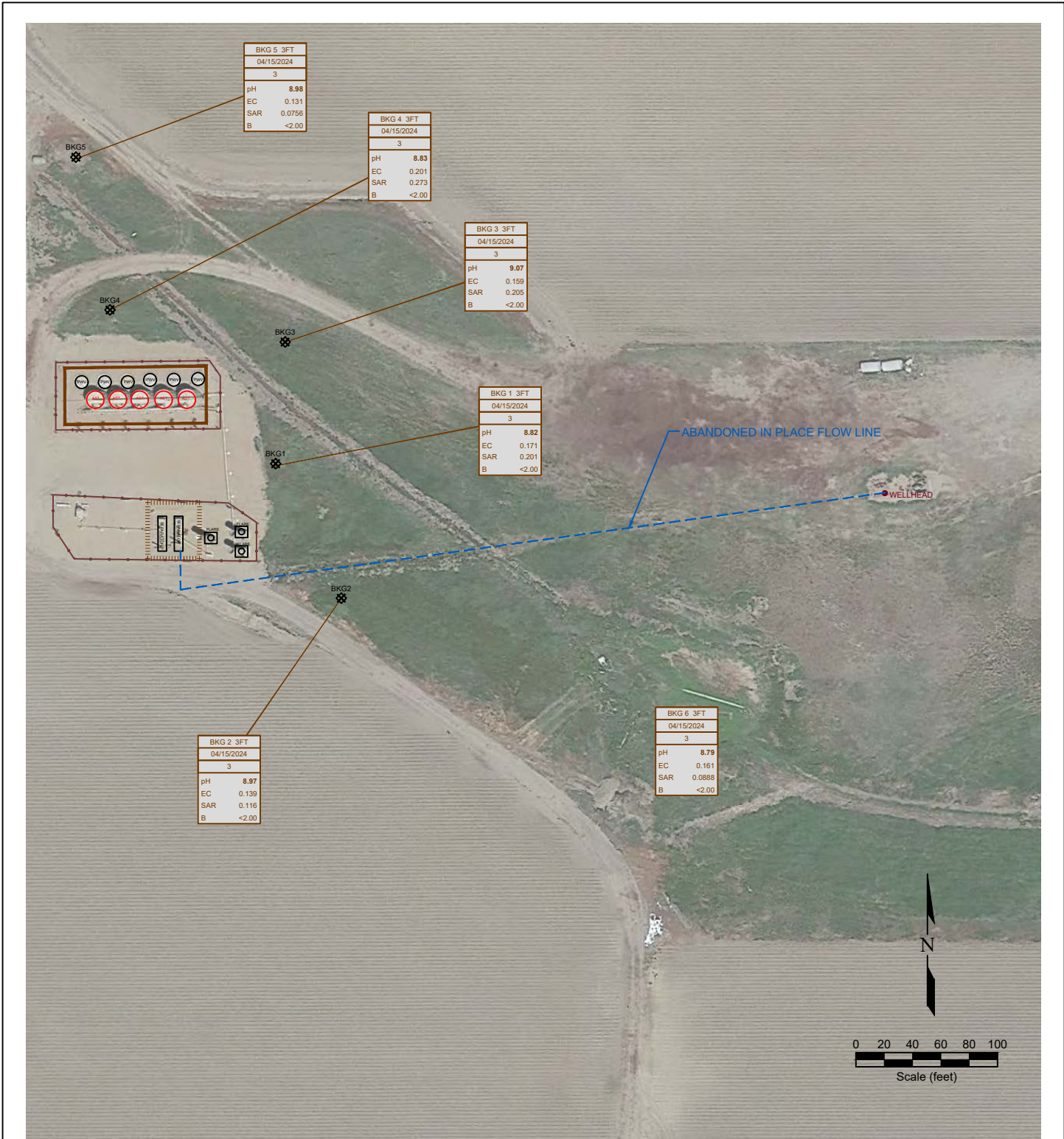
06/16/2023	DATE SAMPLED	06/16/2023	DATE SAMPLED	06/16/2023	DATE SAMPLED
FL01 (3')	SAMPLE ID and DEPTH (ft)	FL01 (3')	SAMPLE ID and DEPTH (ft)	FL01 (3')	SAMPLE ID & DEPTH (ft)
ACE	<0.00500	B	<0.0020	SAR	4.57
Ant	<0.00500	T	<0.0050	pH	7.86
BaA	<0.00500	E	<0.0050	EC	1.32
BbF	<0.00500	X	<0.010	B	0.127
BkF	<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				

**Figure 3  
SOIL CHEMISTRY MAP**

**Noble Energy Inc. ~ Sauer G 04-29D**  
 SESW Sec. 33, T5N, R65W, 6th PM  
 Weld County, Colorado  
 40.350691°, -104.670613°

Project No. <b>C023-163</b>	API # <b>05-123-30793</b>	Facility #
Date <b>8/17/24</b>	Remediation # <b>29214</b>	Filename <b>23163Q</b>





**LEGEND**

- WELL HEAD LOCATION
- ⊗ SOIL SAMPLE LOCATION
- ABOVE GROUND STORAGE TANK
- FORMER FACILITY
- FORMER BUILDING
- FORMER FENCE LINE
- FORMER CONTAINMENT BERM
- FORMER CONTAINMENT WALL
- FORMER FLOW LINE
- ABANDONED IN PLACE FLOW LINE

SAMPLE	SAMPLE ID	DATE	DATE SAMPLED	DEPTH	DEPTH (ft)	pH	pH (pH units)	EC	EC (µmhos/cm)	SAR	SAR	B	B (mg/L)
	BKG 5 3FT	04/15/2024		3		8.98		0.131		0.0756		<2.00	

**Figure 4  
BACKGROUND SAMPLE SOIL CHEMISTRY MAP**

**Noble Energy Inc. ~ Sauer G 04-29D**  
 SESW Sec. 33, T5N, R65W, 6th PM  
 Weld County, Colorado  
 40.350691°, -104.670613°

Project No. <b>C023-163</b>	API # <b>05-123-30793</b>	Facility #
Date <b>10/17/23</b>	Remediation # <b>29214</b>	Filename <b>23163QFL1</b>



# Photo Log



*Description:*

--

# Photo Log



*Description:*

--

# Photo Log



*Description:*

--