

October 15, 2025

## Noble Energy, Inc – Markus 1 (Flowline and Wellhead)

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### Site Investigation

SESW Sec. 28, T5N, R65W

40.364880, -104.670780

Weld County, Colorado

Fremont Project No. C024-129

API # 05-123-10994, Remediation #30452

### Site Overview – Site History

The site consists of the former Markus 1 (Flowline and Wellhead). Groundwater impacts were identified at the wellhead flowline riser following decommissioning activities conducted between June 10, 2024 and June 11, 2024. A comprehensive site investigation was undertaken on July 21, 2025 to define the magnitude and extent of soil impacts and groundwater impacts. Soil impacts were encountered at the wellhead at three feet below ground surface during the July 21, 2025 supplemental site investigation. Groundwater was unimpacted. Impacted soil will be removed via excavation at and adjacent to the impacted sample location. The proposed dimensions of the wellhead excavation extent are estimated to be 25'x25'x4' deep. Groundwater was encountered at less than one foot below ground surface (bgs) during the site investigation.

### Conceptual Site Model\*

\*Data presented represents the most recent sampling event

- **Land Use** – Range
- **Lithology (USCS)** – SC
- **Potential Receptors within ¼ mile** – Riverine 0.11mi SW, 0.12mi SE, 0.24mi NW, Freshwater Emergent Wetland 0.02mi N, 0.13mi NW, 0.12mi W, 0.15mi/ 0.19mi SW. No other potential receptors are located within ¼ mile of the Site. Distances are approximations.
- **Groundwater Encountered** – yes
- **Estimated Depth to Groundwater** – < one foot
- **Impacted Media and Excavation Extent** – Soil and groundwater – 25'x25'x4' deep
- **Volume of Impacts Removed** – Impacts remain in situ
- **Waste Type** – Non-hazardous

### Contaminants of Concern (COC)

The laboratory data indicate organic and inorganic soil constituents exceed the ECMC Table 915-1 standards in two of the nine samples collected during the July 21, 2025 supplemental site investigation conducted at and adjacent to the former Markus 1 wellhead and along the associated flowline. COCs include benzene, 1,2,4-and-1,3,5 TMBs, TPH, barium, lead, and selenium. The soil analytical data are summarized in Tables 2-5.

Groundwater encountered at less than one foot below ground surface. Five monitoring wells were installed to delineate groundwater impacts. Groundwater was collected from MW-1 through MW-5 and sampled for Table 915-1 organic constituents in groundwater (BTEX, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, and naphthalene) and inorganic constituents, total dissolved solids (TDS), chloride, and sulfate. Groundwater was unimpacted. The groundwater analytical data are summarized in the associated quarterly monitoring report.

A copy of the laboratory's report, quality control data, and chain-of-custody documentation is attached as a standalone document.

## Remedial Actions

The source will be excavated, and confirmation soil samples will be collected and analyzed for the full Table 915-1 suite of constituents. Groundwater sample(s) will be collected for Table 915-1 organic constituents in groundwater (BTEX, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, and naphthalene) and Table 915-1 inorganic constituents, total dissolved solids (TDS), chloride, and sulfate. Should no additional active remediation be required following source removal at the location, a no further action (NFA) determination will be requested within 90 days following laboratory confirmation of the removal of impacted soils concerning the applicable Table 915-1 screening levels at the site.

Since groundwater impacts were observed during the initial decommissioning event, groundwater monitoring wells destroyed as a result of excavation will be reinstalled within 45 days of excavation completion. An NFA will be requested once four consecutive quarters of groundwater sampling have been completed and reported at the location with concentrations of Table 915-1 constituents below regulatory limits. As needed, soil and/or groundwater remediation plans will be developed and submitted to ECMC in a supplemental Form 27.

## Remarks

The discussion and conclusions contained in this report represent our professional opinions. These opinions are based on currently available information and are arrived at in accordance with currently accepted hydrogeologic and engineering practices at this time and location. Other than this, no warranty is implied or intended.

This report was prepared by **FREMONT ENVIRONMENTAL INC.**



10/15/25

Date \_\_\_\_\_

\_\_\_\_\_  
Ethan D. Black, P.G.

Geologist

Reviewed by:



10/15/25

Date \_\_\_\_\_

\_\_\_\_\_  
Paul V. Henehan, P.E.

Senior Consultant

Attachments:

Tables

Flowline Soil Resampling and Wellhead Groundwater Monitoring Well Figures

## **ATTACHMENTS**

**TABLE 1  
FIELD DATA SUMMARY TABLE  
NOBLE 100322  
MARKUS 1, WELD COUNTY, COLORADO  
REM # 30452**

Sample ID	Sample Date	Depth (ft)	GPS Data Latitude/Longitude		PDOP Value	VOC Concentration (ppm)
FL02@3.0'	6/11/2024	3.0 Ft	40.3648169	-104.6704931	0.9	6.8 ppm
GW01	6/11/2024	3.0 Ft	40.3648518	-104.6707779	0.9	N/A
GW02	6/11/2024	3.0 Ft	40.3648169	-104.6704931	0.9	N/A
FL01@4.0'	6/11/2024	4.0 Ft	40.3648518	-104.6707779	0.9	2.5 ppm
FL03@4.0'	6/10/2024	4.0 Ft	40.3647492	-104.6700395	0.9	0.0 ppm
FL04@5.0'	6/10/2024	5.0 Ft	40.3648800	-104.6700074	0.9	0.0 ppm
MW-1	7/21/2025	3	40.3648526	-104.6707628	1.1	NM
MW-2	7/21/2025	3	40.3648852	-104.6707539	1.1	NM
MW-3	7/21/2025	3	40.3648480	-104.6707294	1.1	NM
MW-4	7/21/2025	3	40.3648278	-104.6707723	1.1	NM
MW-5	7/21/2025	3	40.3648704	-104.6707936	1.0	NM
BKG01	6/10/2024	0.5 Ft, 4.0 Ft, 5.0 Ft	40.3644874	-104.6700813	1.0	0.0 ppm
BKG02	6/10/2024	0.5 Ft, 4.0 Ft, 5.0 Ft	40.3653280	-104.6698019	0.9	0.0 ppm
BKG03	6/10/2024	0.5 Ft, 4.0 Ft, 5.0 Ft	40.3653489	-104.6699744	1.0	0.0 ppm
BKG04	6/10/2024	0.5 Ft, 4.0 Ft, 5.0 Ft	40.3647209	-104.6711974	0.8	0.0 ppm
BKG05	6/10/2024	0.5 Ft, 4.0 Ft, 5.0 Ft	40.3649293	-104.6711843	0.8	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  
MARKUS 1, WELD COUNTY, COLORADO  
REM # 30452

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**		
FL02@3.0'	6/11/2024	3.0 Ft	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<500	<0.50	<50	<50
FL01@4.0'	6/11/2024	4.0 Ft	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<500	<0.50	<50	<50
FL03@4.0'	6/10/2024	4.0 Ft	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<500	<0.50	<50	<50
FL04@5.0'	6/10/2024	5.0 Ft	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<500	<0.50	<50	<50
FL01 4FT	07/21/2025	4	<0.00100	<0.0100	<0.0100	<0.100	<0.00500	<0.00500	<0.00300	<500	<2.50	<4.00	<4.00
FL02 3FT	07/21/2025	3	<0.00100	<0.0100	<0.0100	<0.100	<0.00500	<0.00500	<0.00300	<500	<2.50	<4.00	4.41
FL03 4FT	07/21/2025	4	<0.00100	<0.0100	<0.0100	<0.100	<0.00500	<0.00500	<0.00300	<500	<2.50	<4.00	10.3
FL04 5FT	07/21/2025	5	<0.00100	<0.0100	<0.0100	<0.100	<0.00500	<0.00500	<0.00300	<500	<2.50	5.14	18.8
MW-1 3FT	07/21/2025	3	<b>0.00495</b>	<0.0100	<0.0100	<0.100	<b>0.0482</b>	<b>0.0154</b>	<0.00300	<b>523.1</b>	<b>11.1</b>	<b>227</b>	<b>285</b>
MW-2 3FT	07/21/2025	3	<0.00100	<0.0100	<0.0100	<0.100	<0.00500	<0.00500	<0.00300	<500	<2.50	<4.00	7.68
MW-3	07/21/2025	3	<0.00100	<0.0100	<0.0100	<0.100	<0.00500	<0.00500	<0.00300	<500	<2.50	9.95	38
MW-4	07/21/2025	3	<0.00100	<0.0100	<0.0100	<0.100	<0.00500	<0.00500	<0.00300	<500	<2.50	<4.00	10.2
MW-5	07/21/2025	3	<0.00100	<0.0100	<0.0100	<0.100	<0.00500	<0.00500	<0.00300	<500	<2.50	28.1	144

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  
MARKUS 1, WELD COUNTY, COLORADO  
REM # 30452

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
FL02@3.0'	6/11/2024	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
FL01@4.0'	6/11/2024	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@4.0'	6/10/2024	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
FL04@5.0'	6/10/2024	5	<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 4FT	07/21/2025	4	<0.0330	<0.0330	<0.00600	<0.0330	<0.0330	<0.0330	<0.0330	<0.0330	<0.0330	<0.0330	<0.0330	<0.0330	<0.00300	<0.0120
FL02 3FT	07/21/2025	3	<0.0330	<0.0330	<0.00600	<0.0330	<0.0330	<0.0330	<0.0330	<0.0330	<0.0330	<0.0330	<0.0330	<0.0330	<0.00300	<0.0120
FL03 4FT	07/21/2025	4	<0.0330	<0.0330	<0.00600	<0.0330	<0.0330	<0.0330	<0.0330	<0.0330	<0.0330	<0.0330	<0.0330	<0.0330	<0.00300	<0.0120
FL04 5FT	07/21/2025	5	<0.0330	<0.0330	<0.00600	<0.0330	<0.0330	<0.0330	<0.0330	<0.0330	<0.0330	<0.0330	<0.0330	<0.0330	<0.00300	<0.0120
MW-1 3FT	07/21/2025	3	<0.0330	<0.0330	<0.00600	<0.0330	<0.0330	<0.0330	<0.0330	<0.0330	<0.0330	<0.0330	<0.0330	<0.0330	0.00472	<0.0120
MW-2 3FT	07/21/2025	3	<0.0330	<0.0330	<0.00600	<0.0330	<0.0330	<0.0330	<0.0330	<0.0330	<0.0330	<0.0330	<0.0330	<0.0330	<0.00300	<0.0120
MW-3	07/21/2025	3	<0.0330	<0.0330	<0.00600	<0.0330	<0.0330	<0.0330	<0.0330	<0.0330	<0.0330	<0.0330	<0.0330	<0.0330	<0.00300	<0.0120
MW-4	07/21/2025	3	<0.0330	<0.0330	<0.00600	<0.0330	<0.0330	<0.0330	<0.0330	<0.0330	<0.0330	<0.0330	<0.0330	<0.0330	<0.00300	<0.0120
MW-5	07/21/2025	3	<0.0330	<0.0330	<0.00600	<0.0330	<0.0330	<0.0330	<0.0330	<0.0330	<0.0330	<0.0330	<0.0330	<0.0330	<0.00300	<0.0120

1. Bold values exceed the ECMC Table 915-1 limit(s)
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  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**  
**MARKUS 1, WELD COUNTY, COLORADO**  
**REM # 30452**

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
FL02@3.0'	6/11/2024	3	7.32	0.322	1.17	<2.00
FL01@4.0'	6/11/2024	4	<b>8.48</b>	0.241	0.964	<2.00
FL03@4.0'	6/10/2024	4	<b>8.95</b>	0.476	1.7	<2.00
FL04@5.0'	6/10/2024	5	7.87	0.0633	0.201	<2.00
FL01 4FT	07/21/2025	4	8.25	1.52	5.5	<0.100
FL02 3FT	07/21/2025	3	7.53	0.764	1.4	<0.100
FL03 4FT	07/21/2025	4	<b>8.32</b>	0.673	2.9	<0.100
FL04 5FT	07/21/2025	5	8.03	0.264	0.612	<0.100
MW-1 3FT	07/21/2025	3	7.76	1.57	4.02	0.129
MW-2 3FT	07/21/2025	3	7.13	1.48	0.862	<0.100
MW-3	07/21/2025	3	7.04	2.17	1.25	0.14
MW-4	07/21/2025	3	6.37	1.38	1.5	0.127
MW-5	07/21/2025	3	6.74	1.19	1.56	0.147
BKG01@6.0"	6/11/2024	0.5	<b>9.16</b>	2.14	<b>9.65</b>	<2.00
BKG02@6.0"	6/11/2024	0.5	<b>8.41</b>	0.656	0.996	<b>2.62</b>
BKG03@6.0"	6/11/2024	0.5	<b>8.75</b>	1.25	3.51	<0.0198
BKG04@6.0"	6/11/2024	0.5	<b>8.62</b>	0.875	4.12	<2.00
BKG05@6.0"	6/11/2024	0.5	<b>8.52</b>	0.546	2.03	<2.00
BKG01@4.0'	6/11/2024	4	<b>8.54</b>	0.573	2.01	<2.00
BKG02@4.0'	6/11/2024	4	<b>8.51</b>	1.01	5.57	<2.00
BKG03@4.0'	6/11/2024	4	<b>8.52</b>	0.789	2.86	<2.00
BKG04@4.0'	6/11/2024	4	8.15	0.289	0.709	<2.00
BKG05@4.0'	6/11/2024	4	<b>8.86</b>	0.343	1.6	<2.00
BKG01@5.0'	6/11/2024	5	<b>8.53</b>	0.364	1.72	<2.00
BKG02@5.0'	6/11/2024	5	<b>8.7</b>	0.309	1.23	<2.00
BKG03@5.0'	6/11/2024	5	<b>8.95</b>	0.466	2.22	<2.00
BKG04@5.0'	6/11/2024	5	8.25	0.293	1.04	<2.00

**TABLE 4**  
**SUMMARY OF SOIL SUITABILITY FOR RECLAMATION**  
**NOBLE 100322**  
**MARKUS 1, WELD COUNTY, COLORADO**  
**REM # 30452**

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
BKG05@5.0'	6/11/2024	5	8.23	0.614	1.88	<2.00
Maximum Background Concentration			9.16	2.14	9.65	2.62

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

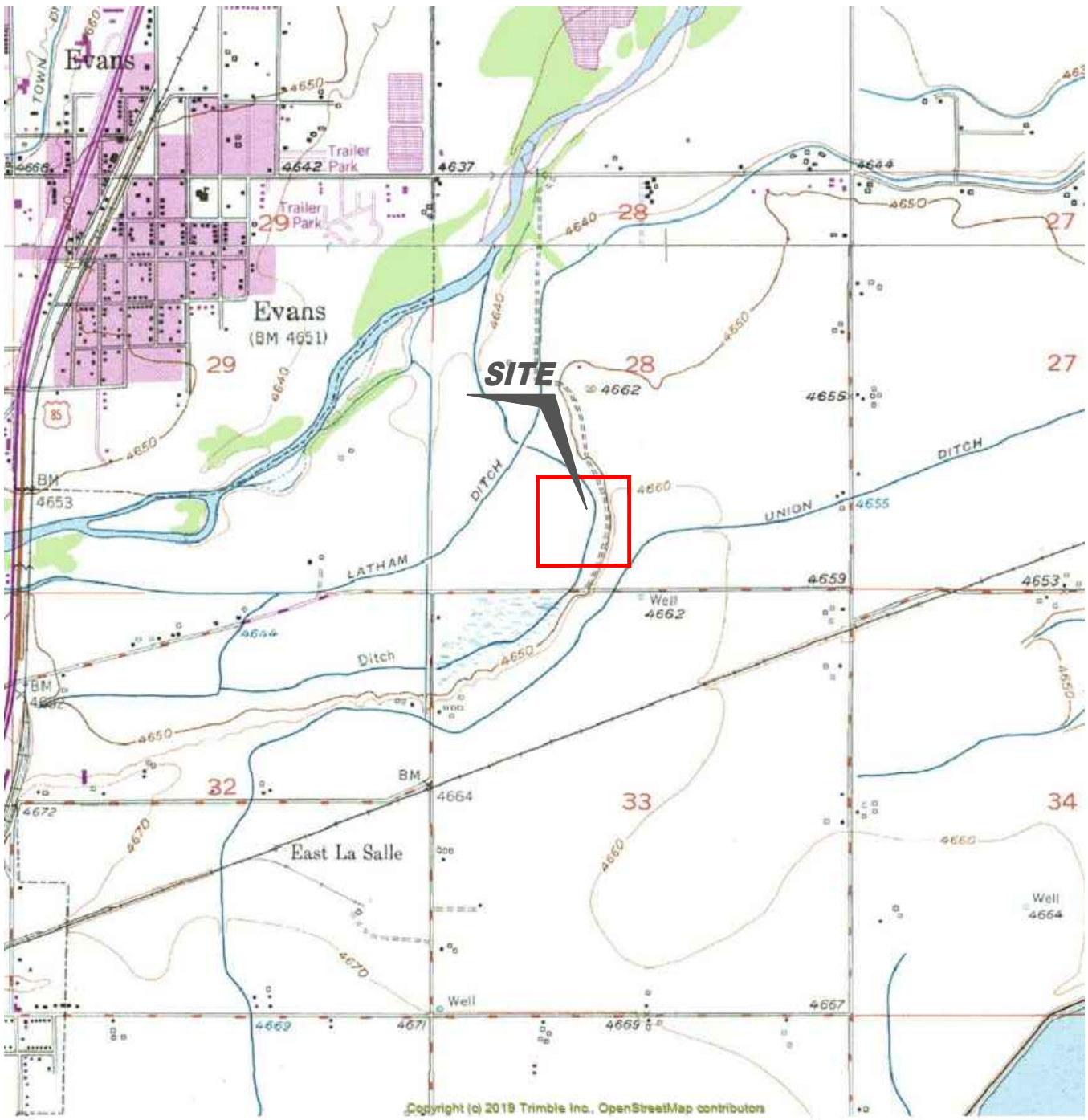
TABLE 5  
SUMMARY OF METALS IN SOIL CHEMISTRY DATA  
NOBLE 100322  
MARKUS 1, WELD COUNTY, COLORADO  
REM # 30452

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
FL02@3.0'	6/11/2024	3	2.34	115	0.222	<0.30	4.82	7.78	3.47	1.95	0.0636	19.4
FL01@4.0'	6/11/2024	4	1.42	140	0.203	<0.30	4.57	8.52	3.37	0.804	0.0475	21.1
FL03@4.0'	6/10/2024	4	1.18	50.9	<0.179	<0.30	3.13	4.5	2.45	<0.232	0.0276	14.1
FL04@5.0'	6/10/2024	5	0.806	50.6	<0.200	<0.30	2.74	3.34	2.4	<0.260	<0.0200	13.2
FL01 4FT	07/21/2025	4	0.651	15.4	<0.100	<0.195	<10.0	<10.0	<10.0	0.321	<0.500	<50.0
FL02 3FT	07/21/2025	3	1.77	92.3	0.103	<0.198	<10.0	<10.0	<10.0	1.42	<0.500	<50.0
FL03 4FT	07/21/2025	4	1.64	48.6	0.102	<0.196	<10.0	<10.0	<10.0	0.645	<0.500	<50.0
FL04 5FT	07/21/2025	5	1.34	34.4	0.1	<0.193	<10.0	<10.0	<10.0	0.5	<0.500	<50.0
MW-1 3FT	07/21/2025	3	2.24	1700	0.196	<0.198	11.7	73.6	<10.0	1.12	<0.500	55.4
MW-2 3FT	07/21/2025	3	1.51	71.6	<0.100	<0.200	<10.0	<10.0	<10.0	2.6	<0.500	<50.0
MW-3	07/21/2025	3	1.71	86.3	<0.100	<0.192	<10.0	<10.0	<10.0	1.93	<0.500	<50.0
MW-4	07/21/2025	3	1.88	72.8	<0.100	0.23	<10.0	<10.0	<10.0	1.24	<0.500	<50.0
MW-5	07/21/2025	3	2.03	112	0.136	<0.196	<10.0	<10.0	<10.0	1.06	<0.500	<50.0
BKG01@6.0"	6/11/2024	0.5	1.72	35.4	<0.200	<0.30	3.38	7.02	1.95	<0.260	0.0213	16
BKG02@6.0"	6/11/2024	0.5	1.89	98	0.491	<0.30	9.73	17	3.56	0.539	0.105	40.2
BKG03@6.0"	6/11/2024	0.5	1.59	48.4	<0.200	<0.30	5.2	6.18	3.24	<0.260	0.0248	20
BKG04@6.0"	6/11/2024	0.5	3.16	72.1	0.385	<0.30	5.8	12.5	3.12	<0.234	0.175	25
BKG05@6.0"	6/11/2024	0.5	3.69	129	0.335	<0.30	5.53	7.47	4.76	<0.260	0.0697	24.6
BKG01@4.0'	6/11/2024	4	0.978	41.3	<0.200	<0.30	2.85	2.5	2.13	<0.260	<0.0200	12.7
BKG02@4.0'	6/11/2024	4	0.618	66.1	<0.200	<0.30	4.32	3	2.19	0.728	0.0215	10.1
BKG03@4.0'	6/11/2024	4	2.9	73.4	<0.200	<0.30	4.56	6.17	4.13	<0.260	0.0331	16.5
BKG04@4.0'	6/11/2024	4	0.816	75.6	<0.200	<0.30	3	3.84	2.66	1.61	0.0206	13.9
BKG05@4.0'	6/11/2024	4	0.611	14.7	<0.181	<0.30	0.686	1.34	0.801	<0.236	<0.0181	4.11

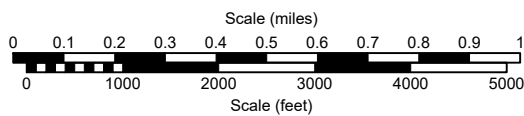
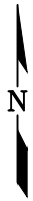
TABLE 5  
SUMMARY OF METALS IN SOIL CHEMISTRY DATA  
NOBLE 100322  
MARKUS 1, WELD COUNTY, COLORADO  
REM # 30452

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
BKG01@5.0'	6/11/2024	5	<b>0.88</b>	31	<0.200	<0.30	3.82	2.62	2.04	<0.260	<0.0200	12
BKG02@5.0'	6/11/2024	5	0.205	25.7	<0.179	<0.30	1.54	1.63	0.678	<0.232	<0.0179	4.45
BKG03@5.0'	6/11/2024	5	<b>2.43</b>	<b>88.3</b>	<0.200	<0.30	3.6	4.15	3.29	<0.260	0.0262	14.5
BKG04@5.0'	6/11/2024	5	<b>0.334</b>	19.7	<0.200	<0.30	0.966	1.13	0.682	<b>1.14</b>	<0.0200	3.93
BKG05@5.0'	6/11/2024	5	<b>1.32</b>	64.3	<0.200	<0.30	3.68	5.66	2.1	<b>1.35</b>	0.0367	14.8
1.25x Maximum Background Concentration			4.61	161	0.614	0.375	12.16	21.3	5.95	2.01	0.21875	50.25

- Bold** faced values exceed the ECMC Table 915-1 limit(s), but are within 1.25x background concentrations.
  - Bold** faced values exceed the ECMC Table 915-1 limit(s) and native background concentrations.
  - Red & blue highlighted soil analytical values indicate an exceedance of the referenced soil screening level (SSL).
  - Non-detect background results accounted for in the highest background concentration by using the reporting limit.
- ECMC = Energy & Carbon Management Commission  
(<) = Analytical result is less than the indicated laboratory reporting limit.  
mg/kg = Milligrams per kilogram  
ft. = Feet  
bgs = Below ground surface  
\* Indicates laboratory minimum detection limit in excess of SSL  
NA - Not analyzed/Not applicable




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USGS 7.5 MINUTE SERIES (TOPOGRAPHIC)

Figure 1  
**SITE LOCATION MAP**  
**Noble Energy, Inc. ~ Markus 1**

SESW Sec. 28, T5N, R65W, 6th PM  
 Weld County, Colorado  
 40.364880°, -104.670780°

Project # <b>CO24-129</b>	API # <b>05-123-10994</b>	Facility #	
Date <b>10/15/25</b>	Remediation # <b>30452</b>	Filename <b>24129T</b>	



**LEGEND**

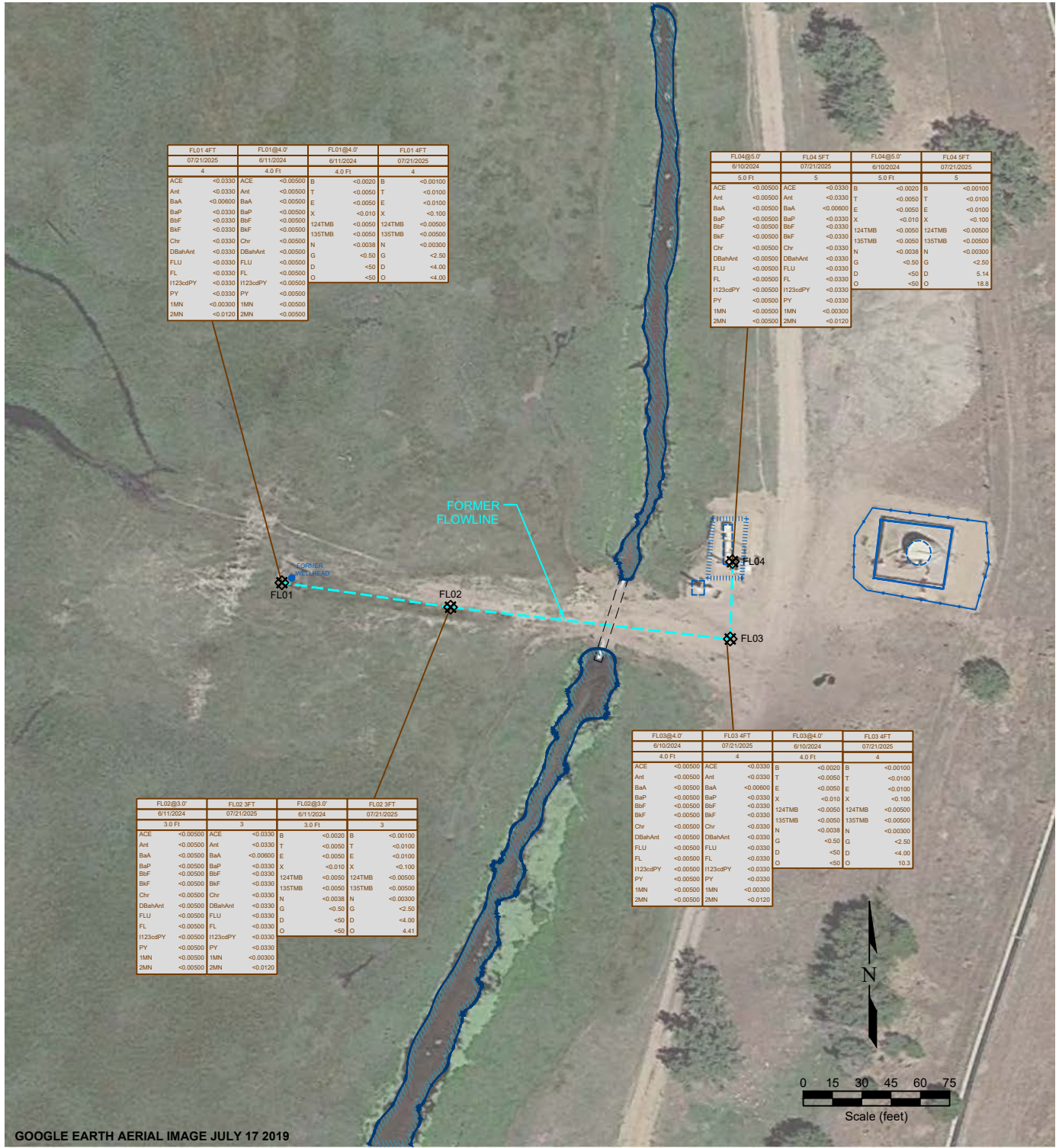
- WELL HEAD LOCATION
- ▲ PID READING LOCATION
- ABOVE GROUND STORAGE TANK
- FORMER FACILITY
- FORMER FLOW LINE
- FENCE LINE
- CONTAINMENT BERM
- CONTAINMENT WALL

**Figure 2**  
**SITE MAP**  
**Noble Energy, Inc. ~ Markus 1**

SESW Sec. 28, T5N, R65W, 6th PM  
 Weld County, Colorado  
 40.364880°, -104.670780°

Project No. <b>CO24-129</b>	API # <b>05-123-10994</b>	Facility #
Date <b>10/15/25</b>	Remediation # <b>30452</b>	Filename <b>24129Q</b>





FL01 4FT		FL01@4.0'		FL01@4.0'		FL01 4FT	
07/21/2025		8/11/2024		8/11/2024		07/21/2025	
4		4.0 Ft		4.0 Ft		4	
ACE	<0.0330	ACE	<0.0500	B	<0.0020	B	<0.00100
Ant	<0.0330	Ant	<0.0500	T	<0.0050	T	<0.0100
BaA	<0.00500	BaA	<0.00500	E	<0.0050	E	<0.0100
BaP	<0.0330	BaP	<0.00500	X	<0.010	X	<0.100
BbF	<0.0330	BbF	<0.00500	124TMB	<0.0050	124TMB	<0.00500
BkF	<0.0330	BkF	<0.00500	135TMB	<0.0050	135TMB	<0.00500
Chr	<0.0330	Chr	<0.00500	N	<0.0038	N	<0.00300
DBahAnt	<0.0330	DBahAnt	<0.00500	G	<0.50	G	<2.50
FLU	<0.0330	FLU	<0.00500	D	<50	D	<4.00
FL	<0.0330	FL	<0.00500	O	<50	O	<4.00
H123cdPY	<0.0330	H123cdPY	<0.00500				
PY	<0.0330	PY	<0.00500				
1MN	<0.00300	1MN	<0.00500				
2MN	<0.0120	2MN	<0.00500				

FL04@5.0'		FL04 5FT		FL04@5.0'		FL04 5FT	
8/10/2024		07/21/2025		8/10/2024		07/21/2025	
5.0 Ft		5		5.0 Ft		5	
ACE	<0.00500	ACE	<0.0330	B	<0.0020	B	<0.00100
Ant	<0.00500	Ant	<0.0330	T	<0.0050	T	<0.0100
BaA	<0.00500	BaA	<0.00600	E	<0.0050	E	<0.0100
BaP	<0.00500	BaP	<0.0330	X	<0.010	X	<0.100
BbF	<0.00500	BbF	<0.0330	124TMB	<0.0050	124TMB	<0.00500
BkF	<0.00500	BkF	<0.0330	135TMB	<0.0050	135TMB	<0.00500
Chr	<0.00500	Chr	<0.0330	N	<0.0038	N	<0.00300
DBahAnt	<0.00500	DBahAnt	<0.0330	G	<0.50	G	<2.50
FLU	<0.00500	FLU	<0.0330	D	<50	D	5.14
FL	<0.00500	FL	<0.0330	O	<50	O	18.8
H123cdPY	<0.00500	H123cdPY	<0.0330				
PY	<0.00500	PY	<0.0330				
1MN	<0.00500	1MN	<0.00300				
2MN	<0.00500	2MN	<0.0120				

FL02@3.0'		FL02 3FT		FL02@3.0'		FL02 3FT	
8/11/2024		07/21/2025		8/11/2024		07/21/2025	
3.0 Ft		3		3.0 Ft		3	
ACE	<0.00500	ACE	<0.0330	B	<0.0020	B	<0.00100
Ant	<0.00500	Ant	<0.0330	T	<0.0050	T	<0.0100
BaA	<0.00500	BaA	<0.00600	E	<0.0050	E	<0.0100
BaP	<0.00500	BaP	<0.0330	X	<0.010	X	<0.100
BbF	<0.00500	BbF	<0.0330	124TMB	<0.0050	124TMB	<0.00500
BkF	<0.00500	BkF	<0.0330	135TMB	<0.0050	135TMB	<0.00500
Chr	<0.00500	Chr	<0.0330	N	<0.0038	N	<0.00300
DBahAnt	<0.00500	DBahAnt	<0.0330	G	<0.50	G	<2.50
FLU	<0.00500	FLU	<0.0330	D	<50	D	<4.00
FL	<0.00500	FL	<0.0330	O	<50	O	4.41
H123cdPY	<0.00500	H123cdPY	<0.0330				
PY	<0.00500	PY	<0.0330				
1MN	<0.00500	1MN	<0.00300				
2MN	<0.00500	2MN	<0.0120				

FL03@4.0'		FL03 4FT		FL03@4.0'		FL03 4FT	
8/10/2024		07/21/2025		8/10/2024		07/21/2025	
4.0 Ft		4		4.0 Ft		4	
ACE	<0.00500	ACE	<0.0330	B	<0.0020	B	<0.00100
Ant	<0.00500	Ant	<0.0330	T	<0.0050	T	<0.0100
BaA	<0.00500	BaA	<0.00600	E	<0.0050	E	<0.0100
BaP	<0.00500	BaP	<0.0330	X	<0.010	X	<0.100
BbF	<0.00500	BbF	<0.0330	124TMB	<0.0050	124TMB	<0.00500
BkF	<0.00500	BkF	<0.0330	135TMB	<0.0050	135TMB	<0.00500
Chr	<0.00500	Chr	<0.0330	N	<0.0038	N	<0.00300
DBahAnt	<0.00500	DBahAnt	<0.0330	G	<0.50	G	<2.50
FLU	<0.00500	FLU	<0.0330	D	<50	D	<4.00
FL	<0.00500	FL	<0.0330	O	<50	O	10.3
H123cdPY	<0.00500	H123cdPY	<0.0330				
PY	<0.00500	PY	<0.0330				
1MN	<0.00500	1MN	<0.00300				
2MN	<0.00500	2MN	<0.0120				

**LEGEND**

- WELL HEAD LOCATION
- ABOVE GROUND STORAGE TANK
- FORMER FACILITY
- FORMER FLOWLINE
- FENCE LINE
- CONTAINMENT BERM
- CONTAINMENT WALL

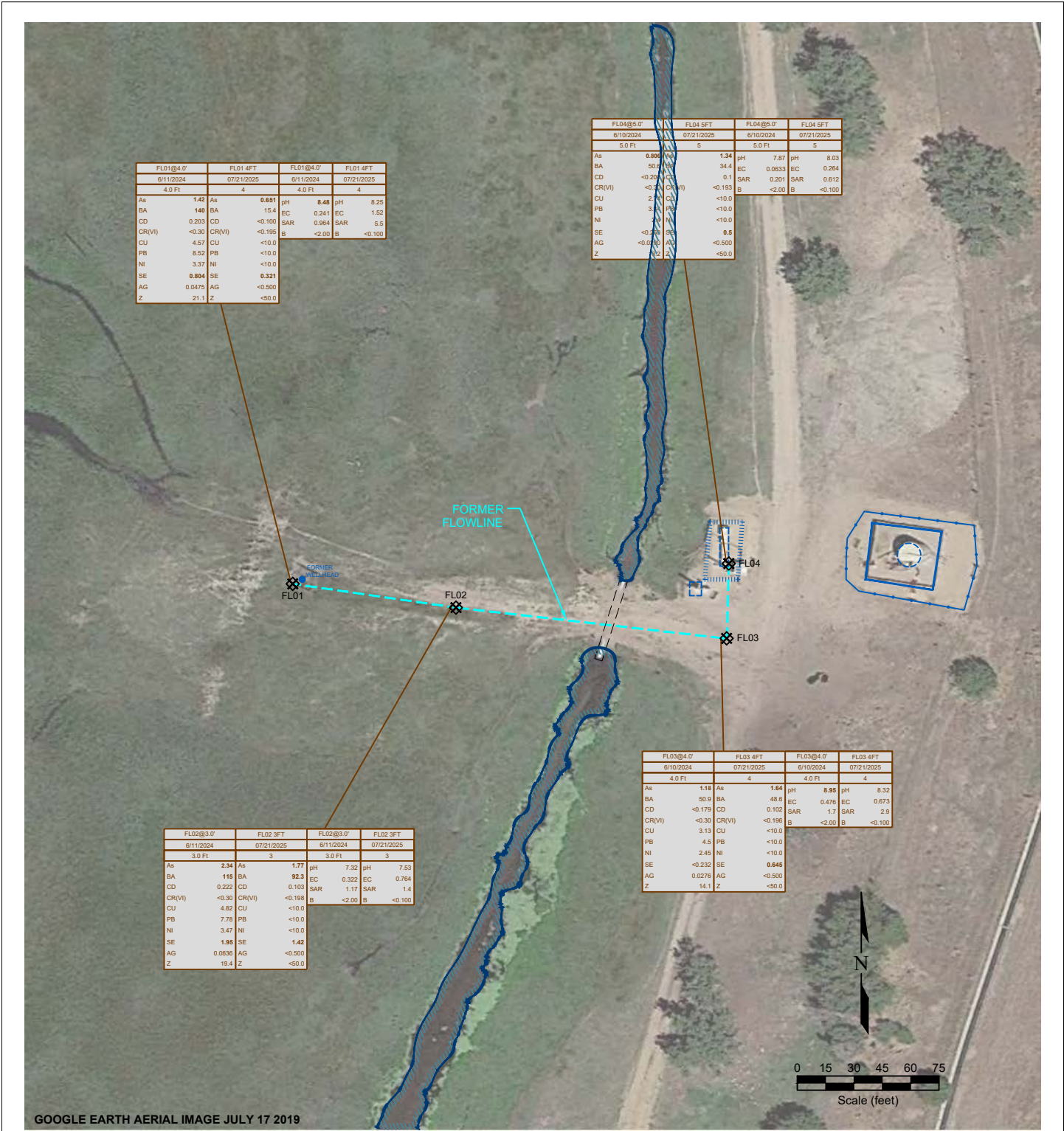
SAMPLE ID	SAMPLE ID	SAMPLE ID	SAMPLE ID
DATE	DATE	DATE	DATE
DEPTH	DEPTH	DEPTH	DEPTH
ACE	<0.00500	ACENAPHTHENE (mg/kg)	
Ant	<0.00500	ANTHRACENE (mg/kg)	
BaA	<0.00500	BENZO (A) ANTHRACENE (mg/kg)	
BaP	<0.00500	BENZO (A) PYRENE (mg/kg)	
BbF	<0.00500	BENZO (B) FLUORANTHENE (mg/kg)	
BkF	<0.00500	BENZO (K) FLUORANTHENE (mg/kg)	
Chr	<0.00500	CHRYSENE (mg/kg)	
DBahAnt	<0.00500	DIBENZ (A,H) ANTHRACENE (mg/kg)	
FLU	<0.00500	FLUORANTHENE (mg/kg)	
FL	<0.00500	FLUORENE (mg/kg)	
H123cdPY	<0.00500	INDENO (1,2,3-CD) PYRENE (mg/kg)	
PY	<0.00500	PYRENE (mg/kg)	
1MN	<0.00500	1-METHYLNAPHTHALENE (mg/kg)	
2MN	<0.00500	2-METHYLNAPHTHALENE (mg/kg)	
B	<0.0020	BENZENE (mg/kg)	
T	<0.0050	TOLUENE (mg/kg)	
E	<0.0050	ETHYLBENZENE (mg/kg)	
X	<0.010	TOTAL XYLENES (mg/kg)	
124TMB	<0.0050	1,2,4-TRIMETHYLBENZENE (mg/kg)	
135TMB	<0.0050	1,3,5-TRIMETHYLBENZENE (mg/kg)	
N	<0.0038	NAPHTHALENE (mg/kg)	
G	<0.50	TPH-GRO (mg/kg)	
D	<50	TPH-DRO (mg/kg)	
O	<50	TPH-GRO (mg/kg)	

Figure 3  
**ORGANIC SOIL CHEMISTRY MAP**  
 Noble Energy, Inc. ~ Markus 1

SESW Sec. 28, T5N, R65W, 6th PM  
 Weld County, Colorado  
 40.364880°, -104.670780°

Project No. <b>CO24-129</b>	API # <b>05-123-10994</b>	Facility #
Date <b>10/15/25</b>	Remediation # <b>30452</b>	Filename <b>24129Q</b>





**LEGEND**

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

SAMPLE	SAMPLE ID	DATE SAMPLED	DEPTH (ft)	SAMPLE	SAMPLE ID	DATE SAMPLED	DEPTH (ft)
As	-001	ARSENIC (mg/kg)		pH	<00	pH (pH units)	
Ba	<001	BARIUM (mg/kg)		EC	7100	EC (microsiemens)	
CD	<001	CADMIUM (mg/kg)		SAR	<1	SAR (units)	
CR(VI)	<005	CHROMIUM (mg/kg)		B	<00	BORON (mg/L)	
CU	<001	COPPER (mg/kg)					
PB	<005	LEAD (mg/kg)					
NI	<005	NICKEL (mg/kg)					
SE	<001	SELENIUM (mg/kg)					
AG	<005	SILVER (mg/kg)					
Z	<005	ZINC (mg/kg)					

Figure 4  
**METALS AND INORGANIC SOIL CHEMISTRY MAP**  
 Noble Energy, Inc. ~ Markus 1

SESW Sec. 28, T5N, R65W, 6th PM  
 Weld County, Colorado  
 40.364880°, -104.670780°

Project No. <b>CO24-129</b>	API # <b>05-123-10994</b>	Facility #
Date <b>10/15/25</b>	Remediation # <b>30452</b>	Filename <b>24129Q</b>

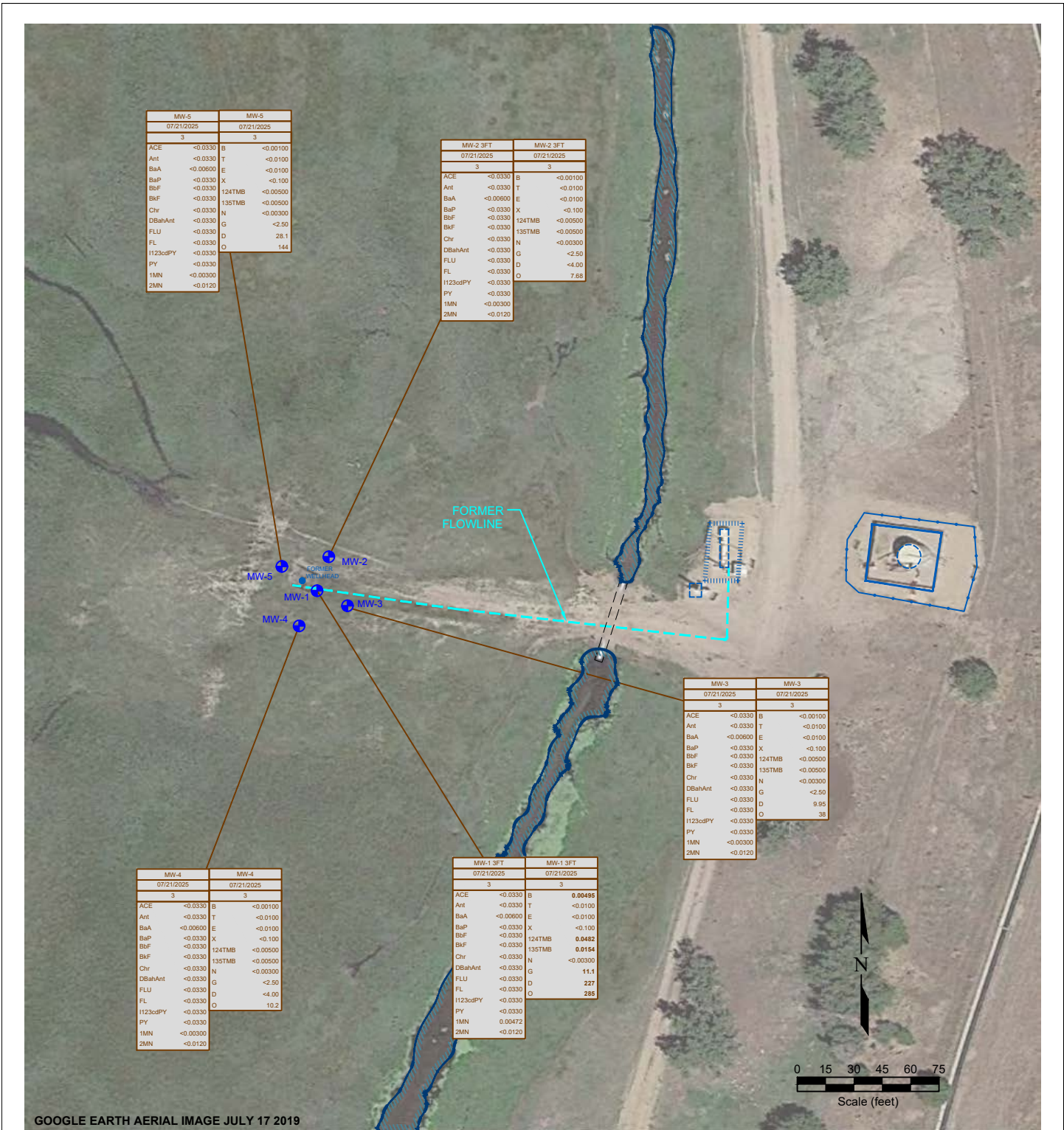


Figure 5  
**WELLHEAD ORGANIC SOIL CHEMISTRY MAP**  
 Noble Energy, Inc. ~ Markus 1

SESW Sec. 28, T5N, R65W, 6th PM  
 Weld County, Colorado  
 40.364880°, -104.670780°

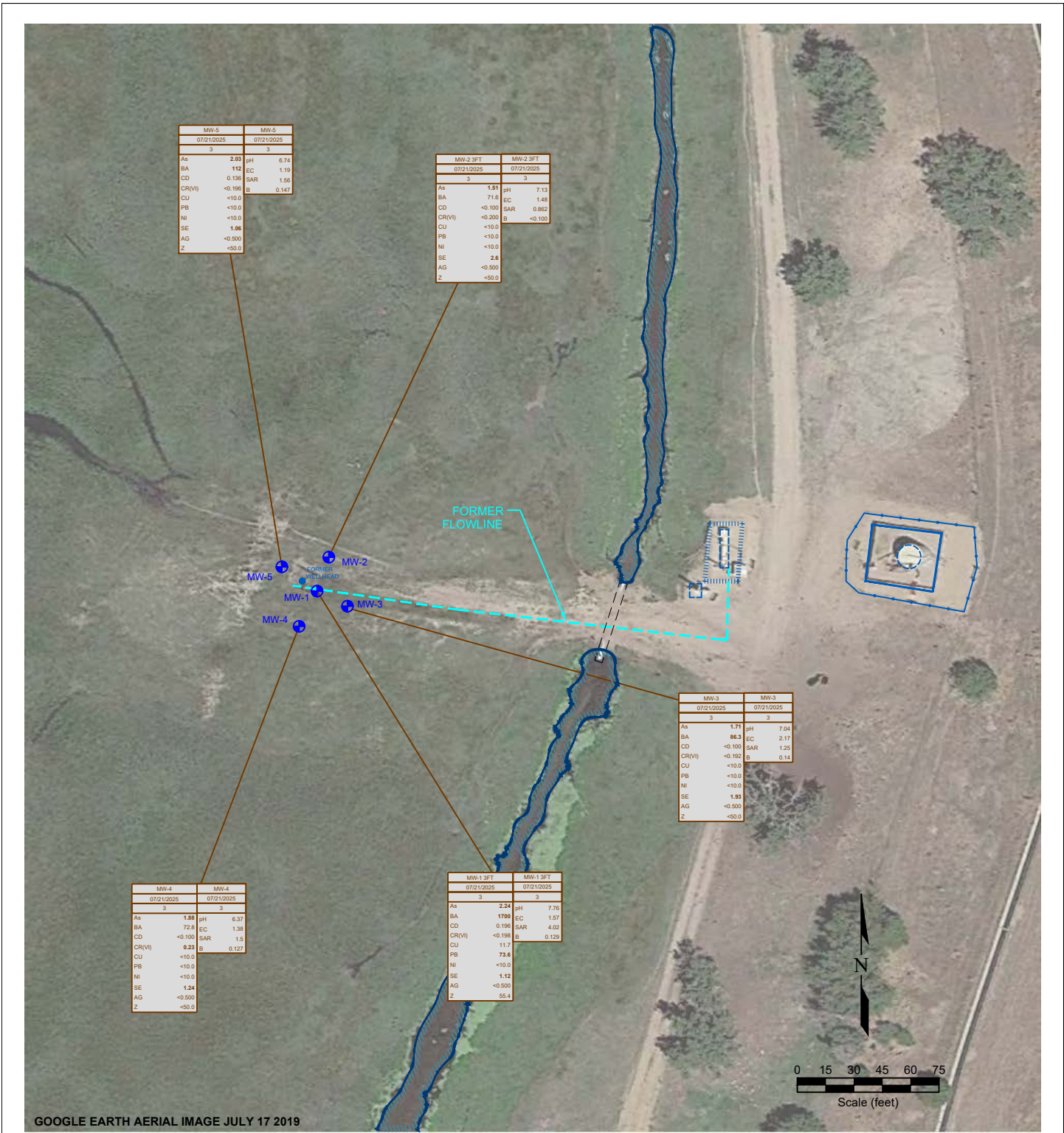
Project No. <b>CO24-129</b>	API # <b>05-123-10994</b>	Facility #
Date <b>10/15/25</b>	Remediation # <b>30452</b>	Filename <b>24129Q</b>



**LEGEND**

- WELL HEAD LOCATION
- ABOVE GROUND STORAGE TANK
- FORMER FACILITY
- FORMER FLOWLINE
- FENCE LINE
- CONTAINMENT BERM
- CONTAINMENT WALL

SAMPLE ID	SAMPLE DATE	SAMPLE DEPTH (ft)	SAMPLE ID	SAMPLE DATE	SAMPLE DEPTH (ft)
ACE	<0.00000		B	<0.0020	
Ant	<0.00000		T	<0.0050	
BaA	<0.00000		E	<0.0050	
BaP	<0.00000		X	<0.010	
BbF	<0.00000		124TMB	<0.0050	
BkF	<0.00000		135TMB	<0.0050	
Chr	<0.00000		N	<0.0038	
DBahAnt	<0.00000		G	<0.50	
FLU	<0.00000		D	<50	
FL	<0.00000		O	<50	
H123cdPY	<0.00000				
PY	<0.00000				
1MN	<0.00000				
2MN	<0.00000				



**LEGEND**

- WELL HEAD LOCATION
- ABOVE GROUND STORAGE TANK
- FORMER FACILITY
- FORMER FLOWLINE
- FENCE LINE
- CONTAINMENT BERM
- CONTAINMENT WALL

SAMPLE	SAMPLE ID	SAMPLE	SAMPLE ID	
DATE	DATE SAMPLED	DATE	DATE SAMPLED	
DEPTH	DEPTH (ft)	DEPTH	DEPTH (ft)	
As	<0.07	ARSENIC (mg/kg)	pH	<50
BA	<0.01	BARIUM (mg/kg)	EC	7.06
CD	<0.01	CADMIUM (mg/kg)	SAR	<1
CR(VI)	<0.05	CHROMIUM (mg/kg)	SE	<5
CU	<0.01	COPPER (mg/kg)	SILVER	<5
PB	<0.05	LEAD (mg/kg)	ZINC	<0.05
NI	<0.05	NICKEL (mg/kg)		
SE	<0.5	SELENIUM (mg/kg)		
AG	<0.05	SILVER (mg/kg)		
Z	<0.05	ZINC (mg/kg)		

Figure 6  
**WELLHEAD METALS AND INORGANIC SOIL CHEMISTRY MAP**  
 Noble Energy, Inc. ~ Markus 1  
 SESW Sec. 28, T5N, R65W, 6th PM  
 Weld County, Colorado  
 40.364880°, -104.670780°

Project No. <b>CO24-129</b>	API # <b>05-123-10994</b>	Facility #
Date <b>10/15/25</b>	Remediation # <b>30452</b>	Filename <b>24129Q</b>