

# NOBLE ENERGY, INC

## First Quarter 2025 Groundwater Monitoring Summary

May 22, 2025

Branch 1-3

NENE Sec 3, T4N, R64W

Remediation # 21830

This groundwater monitoring summary has been prepared by Fremont Environmental, Inc. for the Branch 1-3 location.

### Site History and Background

In June 2022, a historical release was discovered within the produced water vault (PWV) excavation during decommissioning activities at the Branch facility. On June 29, 2022, a site investigation, utilizing a Geoprobe rig, advanced 10 soil borings delineating the magnitude and extent of soil impacts produced by the historical release. Excavation of impacted soil occurred in October 2022, and approximately 3,850 cubic yards of impacted soil were removed. Soil samples collected from the south sidewall, east sidewall, west sidewall, and floor of the excavation achieved the COGCC Table 915- 1 protection of groundwater soil screening levels (PGSSLs). However, approximately 60 feet of the northern sidewall failed for benzene, 1,2,3-trimethylbenzene, naphthalene, 1- Methyl-naphthalene, and 2-Methyl-naphthalene. Further excavation efforts to remove these impacts were not possible due to the presence of an overhead power line as well as an underground telephone line in the borrow ditch along County Road 50. As a result, soil impacts were left in place. Additionally, a groundwater sample (GW01) collected during excavation was reported with a concentration of benzene exceeding Table 915-1 standards. Five monitoring wells were installed in August 2024 and are sampled on a quarterly basis to monitor natural attenuation.

### Groundwater Monitoring Activities

First quarter 2025 groundwater sampling was completed at the location on February 5, 2025. Five monitoring wells (MW-1 to MW-5) were sampled and submitted to Summit Scientific Laboratory for analysis of benzene, toluene, ethylbenzene, total xylenes (BTEX), naphthalene, 1,2,4-trimethylbenzene (TMB), and 1,3,5-TMB by EPA Method 8260B and Chloride ion, Sulfate ion by EPA Method 300.0 and Total Dissolved Solids (TDS) by SM2540C.

The laboratory analytical results indicate that dissolved phase organic constituents were compliant with their respective ECMC Table 915-1 standards in all wells sampled. No monitoring wells were reported with concentrations of organic compounds that exceeded the ECMC Table 915-1 standards. The groundwater analytical data are summarized in Table 1 and Table 2. The site location is illustrated on Figure 1, monitoring well locations are illustrated on Figure 2, groundwater elevations are illustrated on Figure 3, and groundwater chemistry is illustrated on Figure 4. A copy of the laboratory report, quality control data, and chain-of-custody documentation is included separately.

## Current Remediation Strategy and Path Forward

Monitored natural attenuation (MNA) will be implemented at the site to address dissolved phase groundwater impacts. No further action designation will be requested from the ECMC when remediation criteria have been achieved and following the observation of four consecutive quarters of groundwater compliant with the applicable ECMC Table 915-1 standards under static conditions at the site. The Q1 2025 sampling event marks the third consecutive quarter of ECMC-compliant groundwater at the site.

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# ANALYTICAL TABLES

TABLE 1  
SUMMARY OF GROUNDWATER ELEVATION DATA AND ORGANIC CHEMISTRY DATA  
NOBLE 100322  
BRANCH 1-3, WELD COUNTY, COLORADO  
REM # 21830

Sample ID	Sample Date	Benzene (µg/L)	Toluene (µg/L)	Ethyl-Benzene (µg/L)	Xylenes (µg/L)	Naphthalene (µg/L)	1,2,4-Trimethyl-Benzene (µg/L)	1,3,5-Trimethyl-Benzene (µg/L)	TOC Elevation (ft)	Depth to Groundwater Below TOC (ft)	Groundwater Elevation (ft)	LNAPL Thickness (ft)		
ECMC Table 915-1 Limits		5.0	560	700	1400	140	67	67						
GW01	10/13/2022	<b>28</b>	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	NA	NA	NA	NA		
MW 1	08/16/2024	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	100.00	11.20	88.80	NP		
	11/6/2024	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0				6.12	93.88	NP
	2/5/2025	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0				10.29	89.71	NP
MW 2	08/16/2024	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	98.10	8.62	89.48	NP		
	11/6/2024	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0				10.06	88.04	NP
	2/5/2025	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0				9.48	88.62	NP
MW 3	08/16/2024	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	99.93	10.10	89.83	NP		
	11/6/2024	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0				8.34	91.59	NP
	2/5/2025	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0				11.92	88.01	NP
MW 4	08/16/2024	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	100.05	9.38	90.67	NP		
	11/6/2024	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0				7.26	92.79	NP
	2/5/2025	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0				9.96	90.09	NP
MW 5	08/16/2024	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	100.17	9.45	90.72	NP		
	11/6/2024	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0				10.20	89.97	NP
	2/5/2025	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0				10.27	89.90	NP

1. Bold values exceed the ECMC limit(s)

2. Red highlighted groundwater analytical values indicate a regulatory exceedance

NP - No measurable LNAPL, NA - Not Analyzed, NL - No Limit, INA - Inaccessible, IW - Insufficient Water, DES - Destroyed

**TABLE 2**  
**SUMMARY OF INORGANIC GROUNDWATER CHEMISTRY DATA**  
**NOBLE 100322**  
**BRANCH 1-3, WELD COUNTY, COLORADO**  
**REM # 21830**

Sample ID	Sample Date	Total Dissolved Solids (mg/L)	Chloride Ion (mg/L)	Sulfate Ion (mg/L)
ECMC Table 915-1 Limits*		<1.25 x local background	250 or <1.25 x local background	250 or <1.25 x local background
MW 1	08/16/2024	4780	1660	2040
	11/6/2024	7010	1740	2270
	2/5/2025	6870	*1580*	*1960*
MW 2	08/16/2024	4770	1610	2050
	11/6/2024	7750	1880	2560
	2/5/2025	7210	*1310*	*2290*
MW 3	08/16/2024	5570	1600	2740
	11/6/2024	7320	1480	2870
	2/5/2025	7600	*1490*	*2620*
MW 4	08/16/2024	4630	1410	2030
	11/6/2024	7610	1890	2320
	2/5/2025	7490	*1550*	*2060*

**TABLE 2**  
**SUMMARY OF INORGANIC GROUNDWATER CHEMISTRY DATA**  
**NOBLE 100322**  
**BRANCH 1-3, WELD COUNTY, COLORADO**  
**REM # 21830**

Sample ID	Sample Date	Total Dissolved Solids (mg/L)	Chloride Ion (mg/L)	Sulfate Ion (mg/L)
ECMC Table 915-1 Limits*		<1.25 x local background	250 or <1.25 x local background	250 or <1.25 x local background
MW 5	08/16/2024	4400	1500	1450
	11/6/2024	6400	1530	2060
	2/5/2025	6620	*1440*	*1910*
Background Concentration (Current)		9150.0	1850	3587.5

1. Bold values exceed the ECMC limit(s)

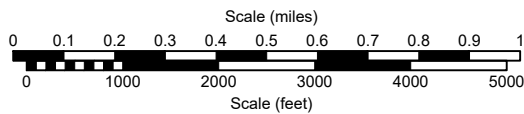
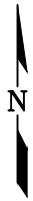
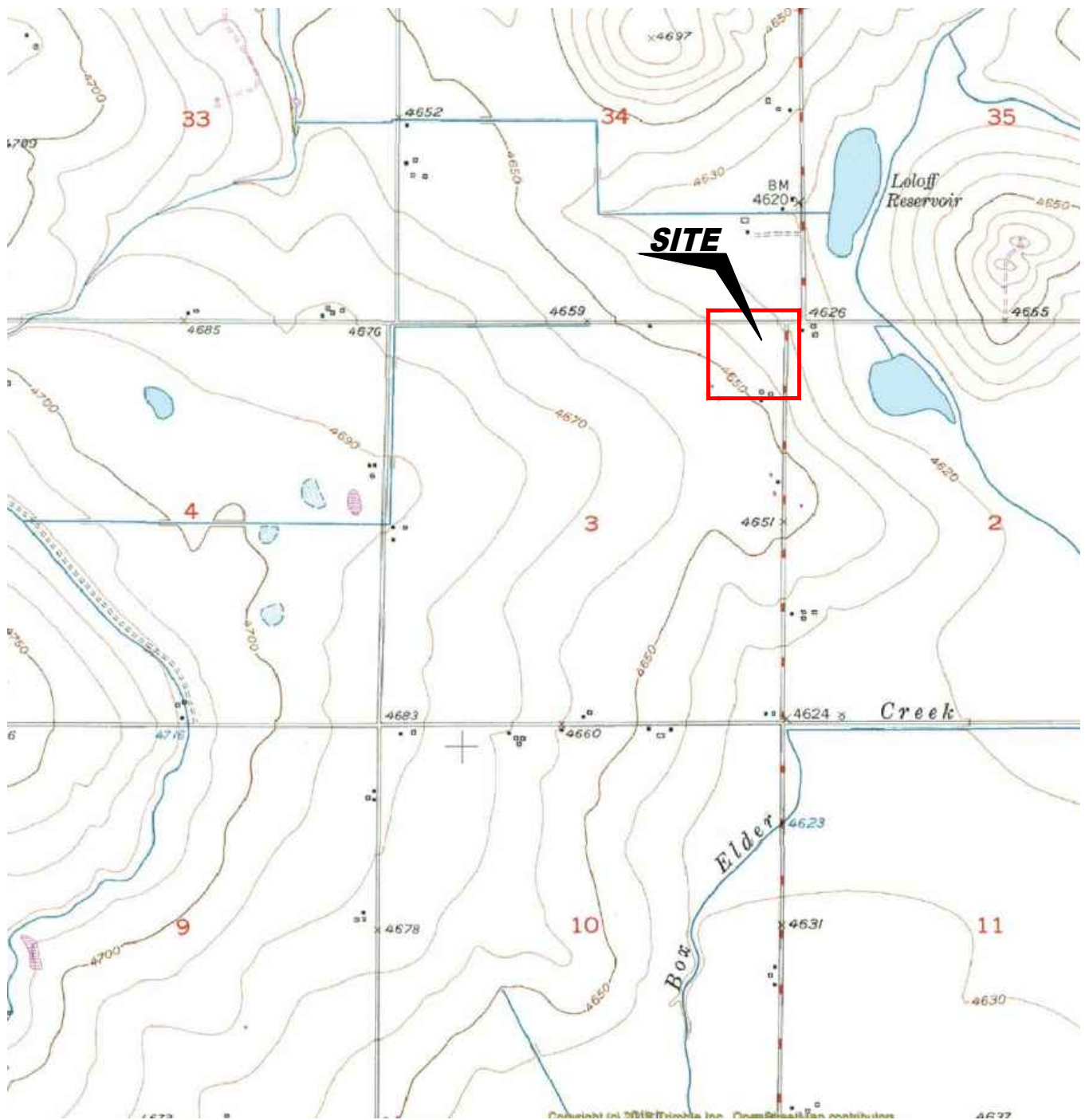
2. Blue highlighted groundwater analytical values indicate a regulatory exceedance

NP - No measurable LNAPL, NA - Not Analyzed, INA - Inaccessible, IW - Insufficient Water, DES - Destroyed

MW-3 used as cross-gradient background monitoring well

\*Number\* - Sample was prepared and/or analyzed outside of hold time.

# FIGURES



USGS 7.5 MINUTE SERIES (TOPOGRAPHIC)

Figure 1  
SITE LOCATION MAP

**Noble Energy, Inc. ~ Branch 1-3**  
 NENE Sec. 3, T4N, R64W, 6th PM  
 Weld County, Colorado  
 40.348412°, -104.529767°

Project # <b>C022-066</b>	API # <b>05-123-12513</b>	Facility # <b>323068</b>
Date <b>5/6/25</b>	Remediation # <b>21830</b>	Filename <b>22066T</b>





**LEGEND**

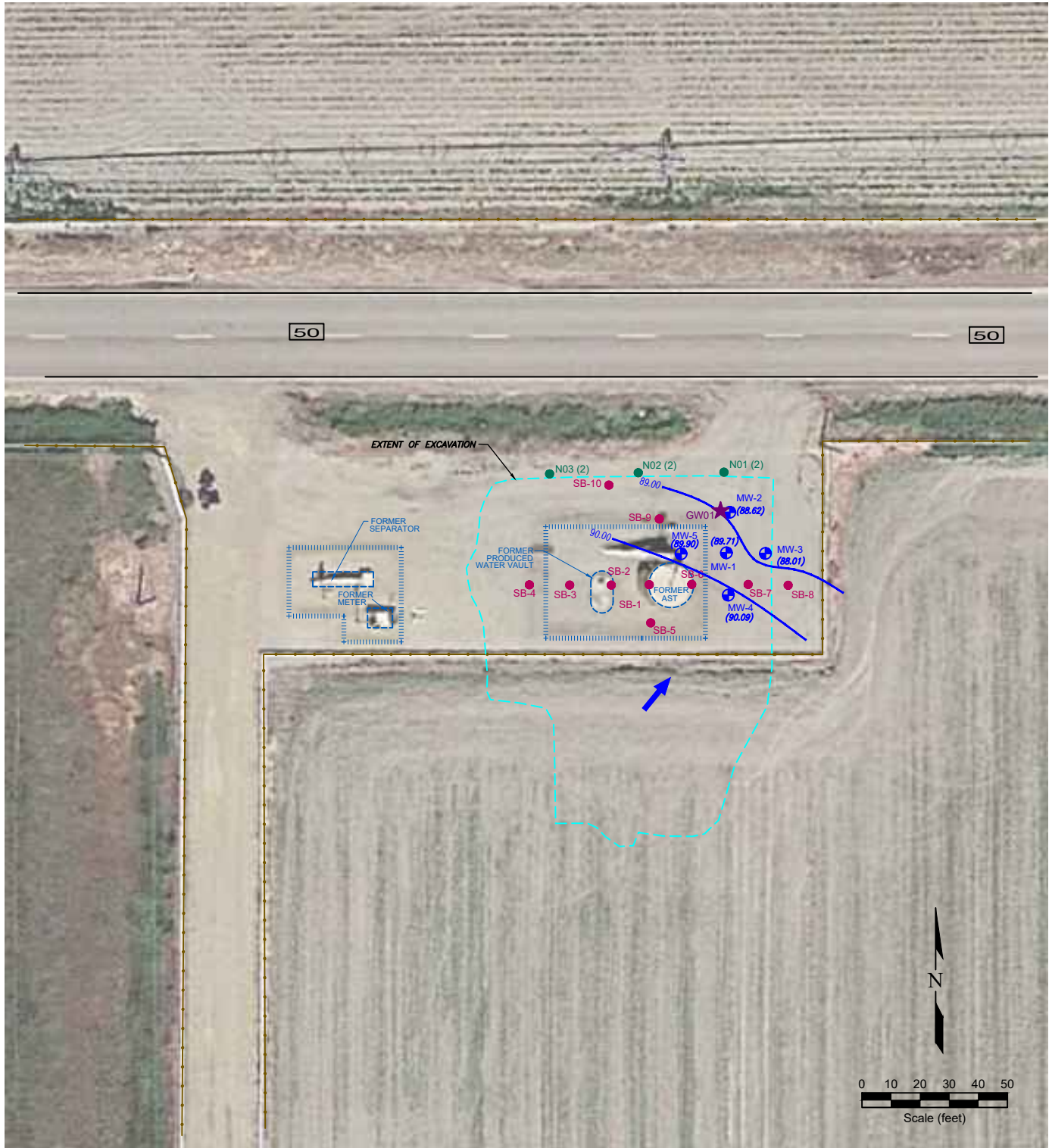
- 2022 SOIL BORING
- 2024 SOIL BORING
- MONITORING WELL
- ★ GROUNDWATER SAMPLE LOCATION
- ABOVE GROUND STORAGE TANK
- FORMER FACILITY
- CONTAINMENT BERM
- FENCE LINE
- EXTENT OF EXCAVATION

**Figure 2  
SITE MAP**

**Noble Energy, Inc. ~ Branch 1-3**  
 NENE Sec. 3, T4N, R64W, 6th PM  
 Weld County, Colorado  
 40.348412°, -104.529767°

Project No. <b>C022-066</b>	API # <b>05-123-12513</b>	Facility # <b>323068</b>
Date <b>5/6/25</b>	Remediation # <b>21830</b>	Filename <b>22066Q2</b>



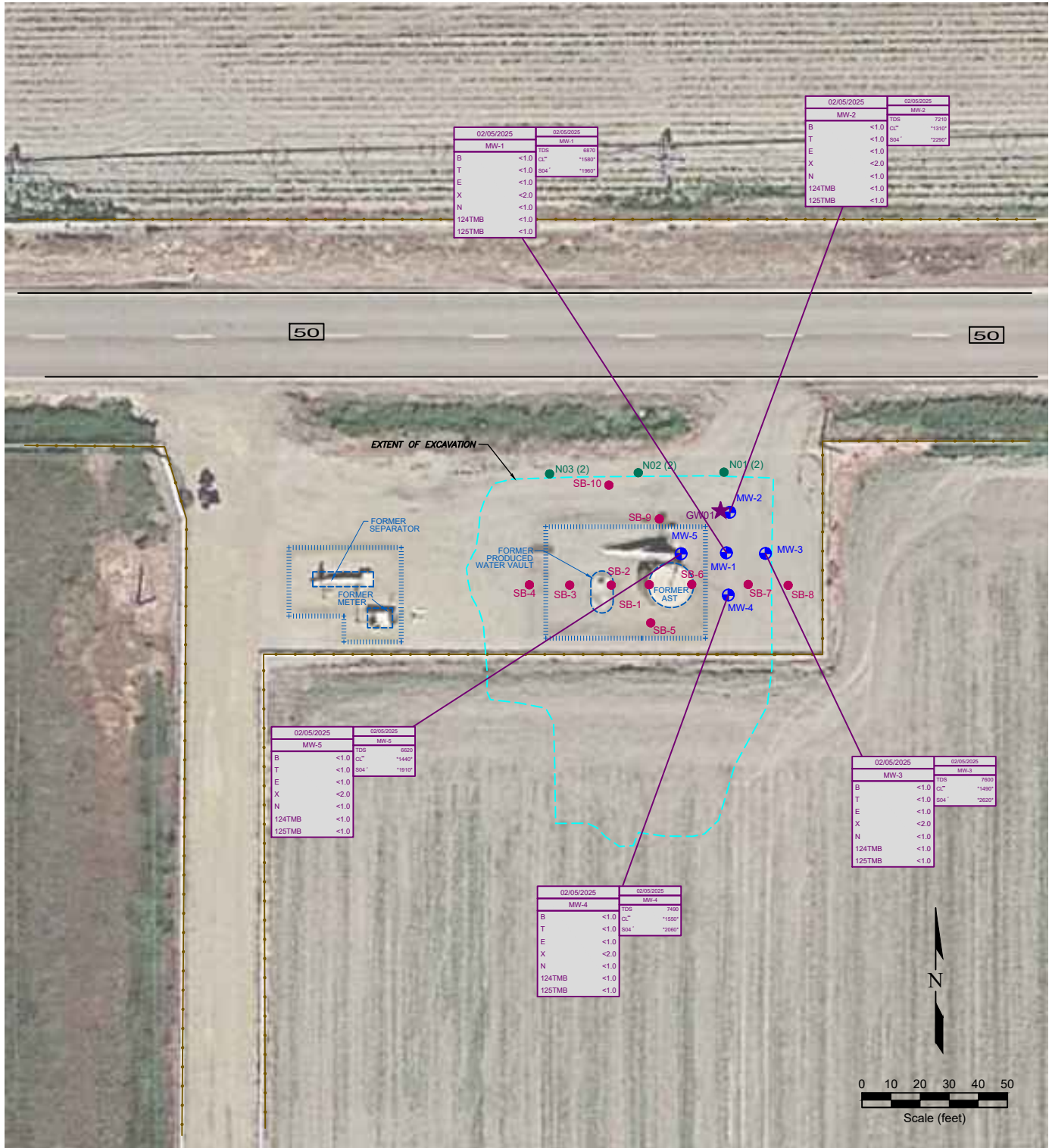


**LEGEND**

- 2022 SOIL BORING
- 2024 SOIL BORING
- MONITORING WELL
- ★ GROUNDWATER SAMPLE LOCATION
- ABOVE GROUND STORAGE TANK
- FORMER FACILITY
- CONTAINMENT BERM
- FENCE LINE
- EXTENT OF EXCAVATION
- NOT USED FOR CONTOURING
- GROUND WATER ELEVATION (ft above arbitrary datum)
- WATER TABLE CONTOUR
- GROUND WATER FLOW DIRECTION

Figure 3  
**INFERRED GROUNDWATER CONTOUR MAP**  
 February 5, 2025  
**Noble Energy, Inc. ~ Branch 1-3**  
 NENE Sec. 3, T4N, R64W, 6th PM  
 Weld County, Colorado  
 40.348412°, -104.529767°

Project No. <b>C022-066</b>	API # <b>05-123-12513</b>	Facility # <b>323068</b>	
Date <b>5/6/25</b>	Remediation # <b>21830</b>	Filename <b>22066Q2</b>	



02/05/2025		02/05/2025	
MW-1		MW-1	
B	<1.0	TDS	6970
T	<1.0	CL <sup>-</sup>	*1580*
E	<1.0	SO4 <sup>-2</sup>	*1960*
X	<2.0		
N	<1.0		
124TMB	<1.0		
125TMB	<1.0		

02/05/2025		02/05/2025	
MW-2		MW-2	
B	<1.0	TDS	7210
T	<1.0	CL <sup>-</sup>	*1310*
E	<1.0	SO4 <sup>-2</sup>	*2290*
X	<2.0		
N	<1.0		
124TMB	<1.0		
125TMB	<1.0		

02/05/2025		02/05/2025	
MW-5		MW-5	
B	<1.0	TDS	6920
T	<1.0	CL <sup>-</sup>	*1440*
E	<1.0	SO4 <sup>-2</sup>	*1910*
X	<2.0		
N	<1.0		
124TMB	<1.0		
125TMB	<1.0		

02/05/2025		02/05/2025	
MW-3		MW-3	
B	<1.0	TDS	7600
T	<1.0	CL <sup>-</sup>	*1490*
E	<1.0	SO4 <sup>-2</sup>	*2620*
X	<2.0		
N	<1.0		
124TMB	<1.0		
125TMB	<1.0		

02/05/2025		02/05/2025	
MW-4		MW-4	
B	<1.0	TDS	7490
T	<1.0	CL <sup>-</sup>	*1590*
E	<1.0	SO4 <sup>-2</sup>	*2080*
X	<2.0		
N	<1.0		
124TMB	<1.0		
125TMB	<1.0		

**LEGEND**

- 2022 SOIL BORING
- 2024 SOIL BORING
- MONITORING WELL
- ★ GROUNDWATER SAMPLE LOCATION
- ABOVE GROUND STORAGE TANK
- FORMER FACILITY
- CONTAINMENT BERM
- FENCE LINE
- EXTENT OF EXCAVATION

02/05/2025		02/05/2025	
MW-4		MW-1	
B	<1.0	BENZENE (ug/L)	
T	<1.0	TOLUENE (ug/L)	
E	<1.0	ETHYLBENZENE (ug/L)	
X	<2.0	TOTAL XYLENES (ug/L)	
N	<1.0	1,2,4-TRIMETHYLBENZENE (ug/L)	
124TMB	<1.0	1,3,5-TRIMETHYLBENZENE (ug/L)	
125TMB	<1.0	NAPHTHALENE (ug/L)	

\*\* SAMPLE WAS PREPARED AND/OR ANALYZED OUTSIDE OF HOLDING TIME

**Figure 4  
GROUNDWATER CHEMISTRY MAP**

**Noble Energy, Inc. ~ Branch 1-3**  
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