

November 21, 2024

Noble Energy Inc. – Webster 15-28 (Wellhead)

Groundwater Monitoring Report

API # 05-123-12690

SWSE Sec 28, T6N, R64W)

40.451617, -104.553572

Weld County, Colorado

Fremont Project No. C022-026

Remediation # 20954

Site Overview – Site History

The site consists of the wellhead for the Webster 15-28 natural gas well. The Webster 15-28 well was drilled in 1986 to a depth of approximately 6,980 feet.

A historical release was discovered in February 2022, by Eagle Environmental Consulting, Inc. during plugging and abandonment activities at the Webster wellhead. The site was transferred to Fremont Environmental Inc. (Fremont) in Q2 2022. Fremont conducted a site investigation to determine the extent of soil and groundwater impacts on April 15, 2022. Groundwater was encountered during the site investigation and five monitoring wells were installed to monitor groundwater impacts. Subsequently, excavation was undertaken and completed on March 3, 2024 to address the remaining impacts observed in the vadose zone during the site investigation.

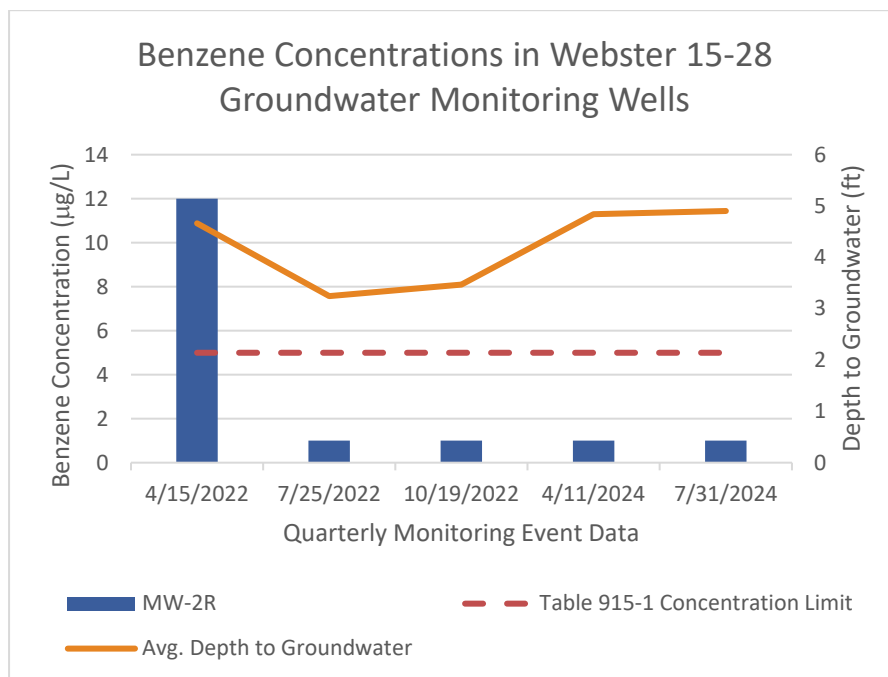
Conceptual Site Model*

*Data presented represents the most recent sampling event

- **Land Use** – Agricultural (Crop)
- **Soil Type (USCS)** – SM to SP
- **Potential Receptors within ¼ mile** – Residential 0.1mi W, Riverine 0.13mi E, Freshwater Pond 0.18mi NE
- **Inferred Groundwater Gradient (Ft/Ft) and Flow Direction** – 0.01 ft/ft SE
- **Average Depth to Groundwater** – 4.90 feet (4 to 5 feet bgs)
- **Impacted Media and Extent** – Groundwater
- **LNAPL Present** – no
- **Points of Compliance** – Yes, in all cardinal and ordinal directions
- **Number of Consecutive ECMC Compliant Quarters** – Two
- **Remediation Type** – MNA
- **Remediation System Operation Date(s)** – NA

Contaminants of Concern (COC)

The laboratory data indicate that the dissolved phase organic constituents were below their respective ECMC Table 915-1 standards in all six wells sampled during the July 2024 quarterly monitoring event. The groundwater analytical data are summarized in Table 1 and illustrated on Figure 4. A copy of the laboratory's report, quality control data, and chain-of-custody documentation is attached.



Remedial Actions

Monitored natural attenuation (MNA) will be implemented at the site to address dissolved phase groundwater impacts. A no further action designation will be requested from the ECMC following observation of four consecutive quarters of groundwater compliant with the applicable ECMC Table 915-1 standards, under static conditions, at the site. The July 2024 sampling event marks the second consecutive quarter of ECMC-compliant groundwater at the site with the addition of 1-methylnaphthalene and 2-methylnaphthalene analytes.

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.

Please contact me at (970) 213-7488 if you require any additional information.

Fremont appreciates the opportunity to provide this service.

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



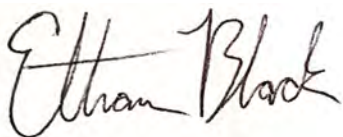
11/21/2024

Date_____

Chris Lattes

Consultant

Reviewed by:



11/21/2024

Date_____

Ethan D. Black, P.G.

Geologist

Attachments:

Tables

Figures

Laboratory Report

TABLE 1
SUMMARY OF GROUNDWATER ELEVATION DATA AND ORGANIC CHEMISTRY DATA
NOBLE 100322
WEBSTER 15-28, WELD COUNTY, COLORADO
REM # 20954

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)	1-Methyl- Naphthalene (µg/L)	2-Methyl- Naphthalene (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	NL	NL				
MW-1	4/15/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	NA	NA	100	4.35	95.65	NP
	7/25/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	NA	NA		2.91	97.09	NP
	10/19/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	NA	NA		3.16	96.84	NP
	4/11/2024	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<0.500	<0.500		4.08	95.92	NP
	7/31/2024	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<0.500	<0.500		4.42	95.58	NP
MW-2 MW-2R	4/15/2022	12	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	NA	NA	101.26	4.69	96.57	NP
	7/25/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	NA	NA		3.28	97.98	NP
	10/19/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	NA	NA		3.45	97.81	NP
	4/11/2024	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<0.500	<0.500	101.08	5.62	95.46	NP
	7/31/2024	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<0.500	<0.500		5.00	96.08	NP
MW-3	4/15/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	NA	NA	100.61	4.87	95.74	NP
	7/25/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	NA	NA		3.41	97.2	NP
	10/19/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	NA	NA		3.65	96.96	NP
	4/11/2024	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<0.500	<0.500		4.57	96.04	NP
	7/31/2024	DES	DES	DES	DES	DES	DES	DES	DES	DES		DES	DES	DES
MW-4	4/15/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	NA	NA	100.19	4.49	95.7	NP
	7/25/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	NA	NA		3.09	97.1	NP
	10/19/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	NA	NA		3.33	96.86	NP
	4/11/2024	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<0.500	<0.500		4.22	95.97	NP
	7/31/2024	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<0.500	<0.500		4.59	95.60	NP
MW-5	4/15/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	NA	NA	100.45	4.92	95.53	NP
	7/25/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	NA	NA		3.53	96.92	NP
	10/19/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	NA	NA		3.75	96.7	NP
	4/11/2024	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<0.500	<0.500		4.65	95.8	NP
	7/31/2024	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<0.500	<0.500		5.26	95.19	NP

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)	1-Methyl- Naphthalene (µg/L)	2-Methyl- Naphthalene (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	NL	NL				
MW-6	4/11/2024	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<0.500	<0.500	101.13	5.91	95.22	NP
	7/31/2024	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<0.500	<0.500		5.25	95.88	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
WEBSTER 15-28, WELD COUNTY, COLORADO
REM # 20954

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	4/15/2022	1050	32.6	368
	7/25/2022	563	17.6	166
	10/19/2022	564	19.25	131
	4/11/2024	748	26.3	338
	7/31/2024	573	23.8	250
MW-2	4/15/2022	900	34.6	370
MW-2R	7/25/2022	904	25.4	373
	10/19/2022	816	26.4	340
	4/11/2024	1010	35.7	456
	7/31/2024	749	28.5	352
MW-3	4/15/2022	998	47	430
	7/25/2022	939	28.6	378
	10/19/2022	776	21.2	277
	4/11/2024	854	28.7	398
	7/31/2024	DES	DES	DES

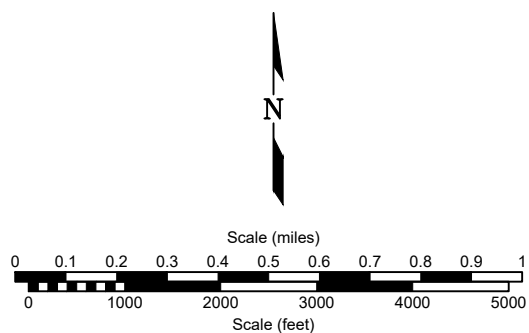
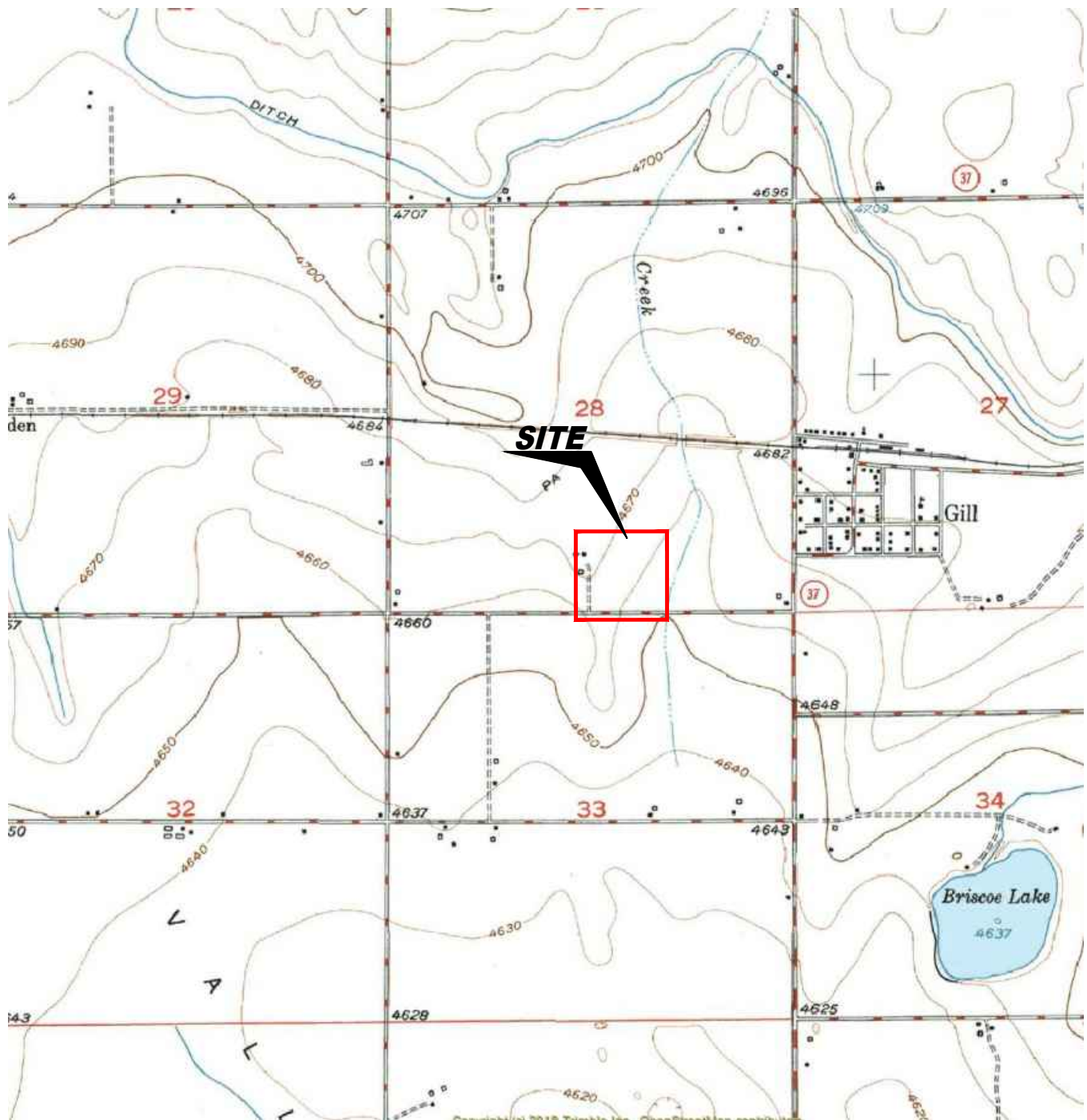
Sample ID	Sample Date	Total Dissolved Solids (mg/L)	Chloride Ion (mg/L)	Sulfate Ion (mg/L)
ECMC Table 915-1 Limits		<1.25 x local background	250 or <1.25 x local background	250 or <1.25 x local background
MW-4	4/15/2022	1020	38.2	436
	7/25/2022	1060	35.4	480
	10/19/2022	792	10.4	328
	4/11/2024	734	28.9	329
	7/31/2024	809	45.1	522
MW-5	4/15/2022	1130	53.2	493
	7/25/2022	1210	51.8	568
	10/19/2022	974	33.2	443
	4/11/2024	980	32.1	458
	7/31/2024	802	41.7	401
MW-6	4/11/2024	939	26.1	399
	7/31/2024	660	35.1	361
Background Concentration (Current)		825.0	-	451.25

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-6 used as local background cross-gradient monitoring well



USGS 7.5 MINUTE SERIES (TOPOGRAPHIC)

Figure 1
SITE LOCATION MAP

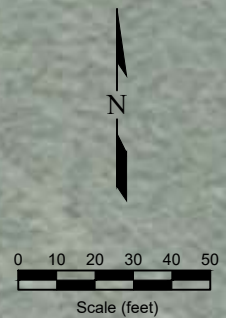
Noble Energy, Inc. ~ Webster 15-28
SWSE Sec. 28, T6N, R64W, 6th PM
Weld County, Colorado
40.451617°, -104.553572°

Project # C022-026	API # 05-123-12690	Facility # 481614
Date 11/21/24	Remediation # 20954	Filename 22026T





JULY 2019 GOOGLE EARTH IMAGERY



LEGEND

- WELL HEAD LOCATION
- ⊕ MONITORING WELL
- ⊕ DESTROYED MONITORING WELL
- ◻ FORMER FACILITY
- FLOW LINE
- SOIL BORING LOCATION

**Figure 2
SITE MAP**

Noble Energy, Inc. ~ Webster 15-28
 SWSE Sec. 28, T6N, R64W, 6th PM
 Weld County, Colorado
 40.451617°, -104.553572°

Project No. C022-026	API # 05-123-12690	Facility # 481614
Date 11/21/24	Remediation # 20954	Filename 22026QQ





JULY 2019 GOOGLE EARTH IMAGERY

LEGEND

- WELL HEAD LOCATION
- MONITORING WELL
- SOIL BORING LOCATION
- ⊕ DESTROYED MONITORING WELL
- FORMER FACILITY
- FLOW LINE
- GROUND WATER ELEVATION (ft above arbitrary datum)
- WATER TABLE CONTOUR
- GROUND WATER FLOW DIRECTION

Figure 3

INFERRED GROUNDWATER CONTOURS MAP

July 31, 2024

Noble Energy, Inc. ~ Webster 15-28

SWSE Sec. 28, T6N, R64W, 6th PM

Weld County, Colorado

40.451617°, -104.553572°

Project No. C022-026	API # 05-123-12690	Facility # 481614	
Date 11/21/24	Remediation # 20954	Filename 22026QQ	

