

NOBLE ENERGY, INC

First Quarter 2025 Groundwater Monitoring Summary

March 18, 2025

Wiedeman PM J28-2, 28-7
NESW Section 28 T5N R66W
Remediation # 10028

This groundwater monitoring summary has been prepared by Fremont Environmental Inc. for the former Wiedeman PM J28-2, 28-7 location.

Site History and Background

The site consists of the area adjacent to the former water vault for the Weideman PM J28-2, 28-7 natural gas wells. The Weideman PM J28-2 well was drilled in 1988 to a depth of 7,501 feet. Soil impacts were identified at the location during replacement of the water vault. These soil impacts initiated this site investigation effort.

During the water vault removal in September 2016, a limited excavation to remediate the source impacts was undertaken. Five soil samples were collected from the excavation sidewalls and floor and analyzed for petroleum constituents. The laboratory analyses of the soil samples indicated that petroleum constituent concentrations of benzene, xylenes and total petroleum hydrocarbons (TPH) were greater than the Colorado Energy and Carbon Management Commission's (ECMC) Table 910-1 limits in three of the samples. As a result, a site investigation to determine the extent of subsurface impacts was conducted.

LNAPL was observed in one of the seven monitoring wells installed following the October 2016 site investigation. A solar-powered LNAPL vapor extraction system (VES) was activated in June 2018 and tied into MW-2 to remove LNAPL from that well. The solar-powered VES system was effective in completely removing LNAPL in MW-2 though dissolved phase constituents remained. On March 25, 2019, seven soil borings were advanced utilizing a Geoprobe rig to install a combined AS/passive SVE remediation system with a larger radius of influence. An additional monitoring well (MW-8) was also installed during this investigation work to establish a point of compliance (POC) to the north. Due to large fluctuations in the water table and persistent silt intrusion, MW-8 was replaced by MW-8R to reestablish POC. The solar powered VES system was deactivated and replaced with a propane-powered AS system and a solar powered SVE system, which was deactivated in October 2022 to monitor static groundwater conditions at the site.

Groundwater Monitoring Activities

First quarter 2025 groundwater sampling was completed at the location on January 27, 2025. Six monitoring wells (MW-2 to MW-5 and MW-7 to MW-8R) 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. MW-1 could not be located, and MW-6 was dry.

The laboratory analytical results indicate that dissolved phase organic constituents were compliant with their respective ECMC Table 915-1 standards in 5 of 6 wells sampled. One monitoring well was reported with concentrations of organic compounds that exceeded the ECMC Table 915-1 standards; one well exceeded the standard of 67 µg/L for 1,2,4 trimethylbenzene. 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, groundwater chemistry is illustrated on Figure 4 through Figure 6, and the remediation system layout is illustrated on Figure 7. A copy of the laboratory report, quality control data, and chain-of-custody documentation is included separately.

Current Remediation Strategy and Path Forward

The AS/SVE remediation system was deactivated prior to the October 2022 groundwater monitoring event to monitor groundwater quality under static conditions and has remained off. 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 zero consecutive quarter of ECMC-compliant groundwater at the site.

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TABLE 1
SUMMARY OF GROUNDWATER ELEVATION DATA AND CHEMISTRY DATA
NOBLE 100322
WIEDEMAN PMJ 28-2, WELD COUNTY, COLORADO
REM # 10028

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 (ft)	Groundwater Elevation (ft)	LNAPL Thickness (ft)
ECMC Table 915-1 Limits		5.0	560	700	1400	140	67	67				
MW-1	10/12/16	<1.0	1.5	<1.0	<1.0	NA	NA	NA	98.19	12.67	85.52	NP
	01/06/17	<1.0	<1.0	<1.0	<1.0	NA	NA	NA		15.87	82.32	NP
	04/05/17	<1.0	<1.0	<1.0	<1.0	NA	NA	NA		18.19	80.00	NP
	08/14/17	<1.0	<1.0	<1.0	<1.0	NA	NA	NA		9.36	88.83	NP
	10/11/17	<1.0	<1.0	<1.0	<1.0	NA	NA	NA		12.43	85.76	NP
	01/11/18	<1.0	<1.0	<1.0	<1.0	NA	NA	NA		15.46	82.73	NP
	04/27/18	<1.0	<1.0	<1.0	<2.0	NA	NA	NA		17.85	80.34	NP
	07/27/18	<1.0	<1.0	<1.0	<2.0	NA	NA	NA		8.79	89.40	NP
	08/23/18	NS	NS	NS	NS	NA	NA	NA		8.12	90.07	NP
	10/17/18	<1.0	<1.0	<1.0	<2.0	NA	NA	NA		13.58	84.61	NP
	01/21/19	<1.0	<1.0	<1.0	<2.0	NA	NA	NA		16.55	81.64	NP
	04/23/19	<1.0	<1.0	<1.0	<2.0	NA	NA	NA		18.76	79.43	NP
	07/09/19	<1.0	<1.0	<1.0	<2.0	NA	NA	NA		18.41	79.78	NP
	10/07/19	<1.0	<1.0	<1.0	<2.0	NA	NA	NA		11.49	86.70	NP
	01/13/20	<1.0	<1.0	<1.0	<2.0	NA	NA	NA		15.41	82.78	NP
	04/06/20	<1.0	<1.0	<1.0	<2.0	NA	NA	NA		17.72	80.47	NP
	07/17/20	<1.0	<1.0	<1.0	<2.0	NA	NA	NA		9.58	88.61	NP
	10/23/20	<1.0	<1.0	<1.0	<2.0	NA	NA	NA		13.35	84.84	NP
	01/15/21	<1.0	<1.0	<1.0	<2.0	NA	NA	NA		15.95	82.24	NP
	06/29/21	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0		17.81	80.38	NP
	10/27/21	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0		14.06	84.13	NP
	01/20/22	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0		16.78	81.41	NP
	04/12/22	DRY	DRY	DRY	DRY	DRY	DRY	DRY		DRY	DRY	DRY
	07/25/22	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0		11.35	86.84	NP
	10/26/22	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0		13.94	84.25	NP
	01/23/23	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0		17.02	81.17	NP
	04/26/23	DRY	DRY	DRY	DRY	DRY	DRY	DRY		DRY	DRY	DRY
	07/19/23	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0		18.60	79.59	NP
	10/26/23	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0		12.22	85.97	NP
	01/24/24	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0		16.41	81.78	NP
	05/22/24	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0		18.62	79.57	NP
	07/26/24	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0		18.52	79.67	NP
	10/21/24	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0		12.18	86.01	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)	TOC Elevation (ft)	Depth to Groundwater (ft)	Groundwater Elevation (ft)	LNAPL Thickness (ft)
ECMC Table 915-1 Limits		5.0	560	700	1400	140	67	67				
MW-1	01/27/25	NS	NS	NS	NS	NS	NS	NS	98.19	NS	NS	NS
MW-2	10/12/16	2000	3200	1400	1900	NA	NA	NA	97.58	12.43	85.15	NP
	01/06/17	NS	NS	NS	NS	NA	NA	NA		15.95	81.63	0.34
	04/05/17	NS	NS	NS	NS	NA	NA	NA		18.42	79.16	1
	08/14/17	NS	NS	NS	NS	NA	NA	NA		9.03	88.55	0.13
	10/11/17	NS	NS	NS	NS	NA	NA	NA		12.11	98.19	0.25
	01/11/18	NS	NS	NS	NS	NA	NA	NA		15.39	82.19	0.24
	04/27/18	NS	NS	NS	NS	NA	NA	NA		18.82	78.76	1.66
	07/27/18	1900	41	27	81000	NA	NA	NA		8.05	89.53	NP
	08/23/18	NS	NS	NS	NS	NA	NA	NA		7.61	89.97	NP
	10/17/18	4200	4800	150	26000	NA	NA	NA		13.06	84.52	NP
	01/21/19	DRY	DRY	DRY	DRY	NA	NA	NA		DRY	DRY	DRY
	04/23/19	IW	IW	IW	IW	NA	NA	NA	97.99	18.97	79.02	IW
	07/09/19	1200	1700	20	5200	NA	NA	NA		17.59	80.40	NP
	10/07/19	300	270	36	2700	NA	NA	NA		11.48	86.51	NP
	01/13/20	5000	9000	630	8400	NA	NA	NA		15.62	82.37	NP
	04/06/20	5800	1500	10	7100	NA	NA	NA		17.65	80.34	NP
	07/17/20	990	180	99	2700	NA	NA	NA		9.56	88.43	NP
	10/23/20	200	50	<1.0	1000	NA	NA	NA		13.48	84.51	NP
	01/15/21	450	<1.0	<1.0	2100	NA	NA	NA		16.25	81.74	NP
	06/29/21	<1.0	<1.0	1.2	12.9	<1.0	7.9	6.6		17.23	80.76	NP
	10/27/21	49	<1.0	63	25	4.8	61	13		14.13	83.86	NP
	01/20/22	110	<1.0	20	31	3.6	30	4.5		16.99	81.00	NP
	04/12/22	DRY	DRY	DRY	DRY	DRY	DRY	DRY		DRY	DRY	DRY
	07/25/22	5	<1.0	1.6	6.8	<1.0	2.4	<1.0		10.63	87.36	NP
	10/26/22	3.3	<1.0	<1.0	<2.0	4	7	<1.0		14.00	83.99	NP
	01/23/23	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0		17.23	80.76	NP
	04/26/23	DRY	DRY	DRY	DRY	DRY	DRY	DRY		DRY	DRY	DRY
	07/19/23	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0		18.56	79.43	NP
	10/26/23	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0		NM	NM	NM
	01/24/24	DRY	DRY	DRY	DRY	DRY	DRY	DRY		DRY	DRY	DRY
	05/22/24	DRY	DRY	DRY	DRY	DRY	DRY	DRY		DRY	DRY	DRY
	07/26/24	DRY	DRY	DRY	DRY	DRY	DRY	DRY		DRY	DRY	DRY
	10/21/24	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0		13.05	84.94	NP
	01/27/25	2.6	<1.0	<1.0	<2.0	1.8	11	1.9		16.47	81.52	NP
MW-3	10/12/16	260	640	150	2600	NA	NA	NA	97.52	12.53	84.99	NP
	01/06/17	1400	1900	310	6700	NA	NA	NA		15.99	81.53	NP
	04/05/17	Dry	Dry	Dry	Dry	NA	NA	NA		Dry	Dry	Dry
	08/14/17	<1.0	<1.0	<1.0	2.2	NA	NA	NA		7.61	89.91	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)	TOC Elevation (ft)	Depth to Groundwater (ft)	Groundwater Elevation (ft)	LNAPL Thickness (ft)
ECMC Table 915-1 Limits		5.0	560	700	1400	140	67	67				
MW-3	10/11/17	2.7	2	7.6	280	NA	NA	NA	97.52	12.18	98.19	NP
MW-3R	01/11/18	Dry	Dry	Dry	Dry	NA	NA	NA	97.55	Dry	Dry	Dry
	04/27/18	Dry	Dry	Dry	Dry	NA	NA	NA		Dry	Dry	Dry
	07/27/18	<1.0	<1.0	<1.0	<2.0	NA	NA	NA			97.55	NP
	08/23/18	NS	NS	NS	NS	NA	NA	NA		5.64	91.91	NP
	10/17/18	<1.0	2.7	4.9	12	NA	NA	NA		13.45	84.10	NP
	01/21/19	8.6	<1.0	<1.0	390	NA	NA	NA		16.65	80.90	NP
	04/23/19	Dry	Dry	Dry	Dry	NA	NA	NA		Dry	Dry	Dry
	07/09/19	<1.0	<1.0	<1.0	<2.0	NA	NA	NA		9.37	88.18	NP
	10/07/19	<1.0	<1.0	<1.0	<2.0	NA	NA	NA		10.91	86.64	NP
	01/13/20	<1.0	<1.0	<1.0	<2.0	NA	NA	NA		15.43	82.12	NP
	04/06/20	1.3	<1.0	<1.0	35	NA	NA	NA		17.29	80.26	NP
	07/17/20	<1.0	<1.0	<1.0	<2.0	NA	NA	NA		4.84	92.71	NP
	10/23/20	<1.0	<1.0	<1.0	3.4	NA	NA	NA		13.22	84.33	NP
	01/15/21	<1.0	<1.0	4	33	NA	NA	NA		16.09	81.46	NP
	06/29/21	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	3		10.46	87.09	NP
	10/27/21	<1.0	<1.0	<1.0	13	1.4	3.2	7.8		13.90	83.65	NP
	01/20/22	1.5	<1.0	6.1	830	2.5	34	23		16.78	80.77	NP
	04/12/22	DRY	DRY	DRY	DRY	DRY	DRY	DRY		DRY	DRY	DRY
	07/25/22	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0		5.09	92.46	NP
	10/26/22	<1.0	<1.0	4.5	130	<1.0	29	35		13.63	83.92	NP
	01/23/23	<1.0	<1.0	7.5	32	<1.0	18	<1.0		16.89	80.66	NP
	04/26/23	DRY	DRY	DRY	DRY	DRY	DRY	DRY		DRY	DRY	DRY
	07/19/23	6.9	<1.0	210	3500	21	400	310		14.10	83.45	NP
	10/26/23	<1.0	<1.0	<1.0	5.5	<1.0	6.1	6.3		11.42	86.13	NP
	01/24/24	<1.0	<1.0	24	360	1.9	44	24		16.38	81.17	NP
	05/22/24	8.1	<1.0	290	<2.0	15	240	150		15.45	82.10	NP
	07/26/24	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0		13.99	83.56	NP
	10/21/24	<1.0	<1.0	<1.0	<2.0	<1.0	14	1.5		13.15	84.40	NP
	01/27/25	2.2	<1.0	71	960	6.6	89	65		16.46	81.09	NP
MW-4	10/12/16	<1.0	<1.0	<1.0	<1.0	NA	NA	NA	96.80	12.38	84.42	NP
	01/06/17	<1.0	<1.0	<1.0	<1.0	NA	NA	NA		15.62	81.18	NP
	04/05/17	Dry	Dry	Dry	Dry	NA	NA	NA		Dry	Dry	Dry
	08/14/17	<1.0	<1.0	<1.0	<1.0	NA	NA	NA		7.84	88.96	NP
	12/23/17	Dry	Dry	Dry	Dry	NA	NA	NA		Dry	Dry	Dry
	01/11/18	<1.0	<1.0	<1.0	<1.0	NA	NA	NA		15.22	81.58	NP
	04/27/18	Dry	Dry	Dry	Dry	NA	NA	NA		Dry	Dry	Dry
	07/27/18	<1.0	<1.0	<1.0	<2.0	NA	NA	NA		5.90	90.90	NP
	08/23/18	NS	NS	NS	NS	NA	NA	NA		6.22	90.58	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)	TOC Elevation (ft)	Depth to Groundwater (ft)	Groundwater Elevation (ft)	LNAPL Thickness (ft)
ECMC Table 915-1 Limits		5.0	560	700	1400	140	67	67				
MW-4	10/17/18	<1.0	<1.0	<1.0	<2.0	NA	NA	NA	96.80	13.02	83.78	NP
	01/21/19	<1.0	<1.0	<1.0	<2.0	NA	NA	NA		16.22	80.58	NP
	04/23/19	Dry	Dry	Dry	Dry	NA	NA	NA		Dry	Dry	Dry
	07/09/19	<1.0	<1.0	<1.0	<1.0	NA	NA	NA		13.40	83.40	NP
	10/07/19	<1.0	<1.0	<1.0	<2.0	NA	NA	NA		10.55	86.25	NP
	01/13/20	<1.0	<1.0	<1.0	<2.0	NA	NA	NA		14.98	81.82	NP
	04/06/20	<1.0	<1.0	<1.0	<2.0	NA	NA	NA		16.83	79.97	NP
	07/17/20	<1.0	<1.0	<1.0	<2.0	NA	NA	NA		6.57	90.23	NP
	10/23/20	<1.0	<1.0	<1.0	<2.0	NA	NA	NA		12.58	84.22	NP
	01/15/21	<1.0	<1.0	<1.0	<2.0	NA	NA	NA		15.67	81.13	NP
	06/29/21	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0		14.68	82.12	NP
	10/27/21	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0		13.29	83.51	NP
	01/20/22	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0		16.34	80.46	NP
	04/12/22	DRY	DRY	DRY	DRY	DRY	DRY	DRY		DRY	DRY	DRY
	07/25/22	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0		6.90	89.90	NP
	10/26/22	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0		13.07	83.73	NP
	01/23/23	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0		16.52	80.28	NP
	04/26/23	DRY	DRY	DRY	DRY	DRY	DRY	DRY		DRY	DRY	DRY
	07/19/23	<1.0	<1.0	<1.0	6.3	<1.0	2.8	2.7		15.55	81.25	NP
	10/26/23	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0		11.06	85.74	NP
	01/24/24	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0		15.89	80.91	NP
	05/22/24	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0		16.89	79.91	NP
	07/26/24	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0		15.51	81.29	NP
	10/21/24	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0		12.35	84.45	NP
	01/27/25	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0		15.95	80.85	NP
MW-5	10/12/16	<1.0	<1.0	<1.0	2.9	NA	NA	NA	95.98	11.50	84.48	NP
	01/06/17	<1.0	<1.0	<1.0	2.8	NA	NA	NA		15.24	80.74	NP
	04/05/17	Dry	Dry	Dry	Dry	NA	NA	NA		Dry	Dry	Dry
	08/14/17	<1.0	<1.0	<1.0	<1.0	NA	NA	NA		5.74	90.24	NP
	10/11/17	<1.0	<1.0	<1.0	<1.0	NA	NA	NA		11.13	84.85	NP
	01/11/18	<1.0	<1.0	<1.0	<1.0	NA	NA	NA		14.70	81.28	NP
	04/27/18	Dry	Dry	Dry	Dry	NA	NA	NA		Dry	Dry	Dry
	07/27/18	<1.0	<1.0	<1.0	<2.0	NA	NA	NA		4.03	91.95	NP
	08/23/18	NS	NS	NS	NS	NA	NA	NA		4.72	91.26	NP
	10/17/18	<1.0	<1.0	<1.0	<2.0	NA	NA	NA		12.39	83.59	NP
	01/21/19	<1.0	<1.0	<1.0	<2.0	NA	NA	NA		15.77	80.21	NP
	04/23/19	Dry	Dry	Dry	Dry	NA	NA	NA		Dry	Dry	Dry
	07/09/19	<1.0	<1.0	<1.0	<2.0	NA	NA	NA		5.20	90.78	NP
	10/07/19	<1.0	<1.0	<1.0	<2.0	NA	NA	NA		9.79	86.19	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)	TOC Elevation (ft)	Depth to Groundwater (ft)	Groundwater Elevation (ft)	LNAPL Thickness (ft)
ECMC Table 915-1 Limits		5.0	560	700	1400	140	67	67				
MW-5	01/13/20	<1.0	<1.0	<1.0	<2.0	NA	NA	NA	95.98	14.47	81.51	NP
	04/06/20	NS	NS	NS	NS	NA	NA	NA		16.32	79.66	NP
	07/17/20	<1.0	<1.0	<1.0	<2.0	NA	NA	NA		3.97	92.01	NP
	10/23/20	<1.0	<1.0	<1.0	<2.0	NA	NA	NA		12.18	83.80	NP
	01/15/21	<1.0	<1.0	<1.0	<2.0	NA	NA	NA		15.25	80.73	NP
	06/29/21	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0		6.01	89.97	NP
	10/27/21	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0		12.85	83.13	NP
	01/20/22	<1.0	<1.0	1.1	<2.0	<1.0	<1.0	<1.0		15.84	80.14	NP
	04/12/22	DRY	DRY	DRY	DRY	DRY	DRY	DRY		DRY	DRY	DRY
	07/25/22	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0		2.96	93.02	NP
	10/26/22	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0		12.50	83.48	NP
	01/23/23	IW	IW	IW	IW	IW	IW	IW		15.91	80.07	NP
	04/26/23	DRY	DRY	DRY	DRY	DRY	DRY	DRY		DRY	DRY	DRY
	07/19/23	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0		7.78	88.20	NP
	10/26/23	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0		10.25	85.73	NP
	01/24/24	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0		15.38	80.60	NP
	05/22/24	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0		11.18	84.80	NP
	07/26/24	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0		7.73	88.25	NP
	10/21/24	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0		12.09	83.89	NP
	01/27/25	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0		15.57	80.41	NP
MW-6	10/12/16	<1.0	<1.0	<1.0	<1.0	NA	NA	NA	100.00	14.63	85.37	NP
	01/06/17	<1.0	<1.0	<1.0	<1.0	NA	NA	NA		18.27	81.73	NP
	04/05/17	Dry	Dry	Dry	Dry	NA	NA	NA		Dry	Dry	Dry
	08/14/17	<1.0	<1.0	<1.0	<1.0	NA	NA	NA		9.23	90.77	NP
	10/11/17	<1.0	<1.0	<1.0	<1.0	NA	NA	NA		14.31	85.69	NP
	01/11/18	<1.0	<1.0	<1.0	<1.0	NA	NA	NA		18.33	81.67	NP
	04/27/18	Dry	Dry	Dry	Dry	NA	NA	NA		Dry	Dry	Dry
	07/27/18	<1.0	<1.0	<1.0	<2.0	NA	NA	NA		7.26	92.74	NP
	08/23/18	NS	NS	NS	NS	NA	NA	NA		7.58	92.42	NP
	10/17/18	<1.0	<1.0	<1.0	<2.0	NA	NA	NA		15.68	84.32	NP
	01/21/19	Dry	Dry	Dry	Dry	NA	NA	NA		Dry	Dry	Dry
	04/23/19	Dry	Dry	Dry	Dry	NA	NA	NA		Dry	Dry	Dry
	07/09/19	<1.0	<1.0	<1.0	<2.0	NA	NA	NA		12.00	88.00	NP
	10/07/19	<1.0	<1.0	<1.0	<2.0	NA	NA	NA		13.08	86.92	NP
	01/13/20	<1.0	<1.0	<1.0	<2.0	NA	NA	NA		17.73	82.27	NP
	04/06/20	Dry	Dry	Dry	Dry	NA	NA	NA		Dry	Dry	Dry
	07/17/20	<1.0	<1.0	<1.0	<2.0	NA	NA	NA		6.80	93.20	NP
	10/23/20	<1.0	<1.0	<1.0	<2.0	NA	NA	NA		15.54	84.46	NP
	01/15/21	<1.0	<1.0	<1.0	<2.0	NA	NA	NA		18.37	81.63	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)	TOC Elevation (ft)	Depth to Groundwater (ft)	Groundwater Elevation (ft)	LNAPL Thickness (ft)
ECMC Table 915-1 Limits		5.0	560	700	1400	140	67	67				
MW-6	06/29/21	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	100.00	12.46	87.54	NP
	10/27/21	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0		16.29	83.71	NP
	01/20/22	IW	IW	IW	IW	IW	IW	IW		18.95	81.05	NP
	04/12/22	DRY	DRY	DRY	DRY	DRY	DRY	DRY		DRY	DRY	DRY
	07/25/22	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0		7.41	92.59	NP
	10/26/22	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0		16.00	84.00	NP
	01/23/23	DRY	DRY	DRY	DRY	DRY	DRY	DRY		DRY	DRY	DRY
	04/26/23	DRY	DRY	DRY	DRY	DRY	DRY	DRY		DRY	DRY	DRY
	07/19/23	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0		16.82	83.18	NP
	10/26/23	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0		13.72	86.28	NP
	01/24/24	NS	NS	NS	NS	NS	NS	NS		NM	NM	NP
	05/22/24	DRY	DRY	DRY	DRY	DRY	DRY	DRY		DRY	DRY	DRY
	07/26/24	DRY	DRY	DRY	DRY	DRY	DRY	DRY		DRY	DRY	DRY
	10/21/24	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0		15.60	84.40	NP
	01/27/25	DRY	DRY	DRY	DRY	DRY	DRY	DRY		DRY	DRY	DRY
MW-7 MW-7R	10/12/16	<1.0	<1.0	<1.0	<1.0	NA	NA	NA	97.02	11.80	85.22	NP
	01/06/17	<1.0	<1.0	<1.0	<1.0	NA	NA	NA		14.91	82.11	NP
	04/05/17	Dry	Dry	Dry	Dry	NA	NA	NA		Dry	Dry	Dry
	08/14/17	<1.0	<1.0	<1.0	<1.0	NA	NA	NA		9.55	87.47	NP
	10/11/17	Dry	Dry	Dry	Dry	NA	NA	NA		Dry	Dry	Dry
	01/11/18	Dry	Dry	Dry	Dry	NA	NA	NA		Dry	Dry	Dry
	04/27/18	Dry	Dry	Dry	Dry	NA	NA	NA		Dry	Dry	Dry
	07/27/18	<1.0	<1.0	<1.0	<2.0	NA	NA	NA		0.11	96.91	NP
	08/23/18	NS	NS	NS	NS	NA	NA	NA	96.91	8.08	88.83	NP
	10/17/18	<1.0	<1.0	<1.0	<2.0	NA	NA	NA		12.38	84.53	NP
	01/21/19	<1.0	<1.0	<1.0	<2.0	NA	NA	NA		15.49	81.42	NP
	04/23/19	<1.0	<1.0	<1.0	<2.0	NA	NA	NA		17.72	79.19	NP
	07/09/19	<1.0	<1.0	<1.0	<2.0	NA	NA	NA		18.13	78.78	NP
	10/07/19	<1.0	<1.0	<1.0	<2.0	NA	NA	NA		11.57	85.34	NP
	01/13/20	<1.0	<1.0	<1.0	<2.0	NA	NA	NA		14.29	82.62	NP
	04/06/20	<1.0	<1.0	<1.0	<2.0	NA	NA	NA		18.31	78.60	NP
	07/17/20	<1.0	<1.0	<1.0	<2.0	NA	NA	NA		10.52	86.39	NP
	10/23/20	<1.0	<1.0	<1.0	<2.0	NA	NA	NA		12.21	84.70	NP
	01/15/21	<1.0	<1.0	<1.0	<2.0	NA	NA	NA		14.88	82.03	NP
	06/29/21	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0		17.18	79.73	NP
	10/27/21	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0		13.17	83.74	NP
	01/20/22	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0		15.72	81.19	NP
	04/12/22	IW	IW	IW	IW	IW	IW	IW		17.82	79.09	NP
	07/25/22	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0		12.92	83.99	NP

Table 2
SUMMARY OF INORGANIC GROUNDWATER CHEMISTRY DATA
NOBLE 100322
WIEDEMAN PMJ 28-2, WELD COUNTY, COLORADO
REM # 10028

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	06/29/21	368	3.4	20000
	10/27/21	439	4.4	83.6
	01/20/22	583	5.86	47.1
	04/12/22	NS	NS	NS
	07/25/22	412	11.2	81
	10/26/22	325	6.88	50.9
	01/23/23	367	20.2	117
	04/26/23	DRY	DRY	DRY
	07/19/23	IW	IW	IW
	10/26/23	410	18	59.7
	01/24/24	475	8.75	70.2
	05/22/24	NA	NA	NA
	07/26/24	327	6.44	65.3
	10/21/24	362	11.6	80.7
	01/27/25	NS	NS	NS
MW-2	06/29/21	600	3.8	4070
MW-2R	10/27/21	921	2.4	104
	01/20/22	N/A	N/A	N/A
	01/20/22	701	5.52	17.9
	04/12/22	NS	NS	NS
	07/25/22	873	1.6	246
	10/26/22	293	6.54	62.2
	01/23/23	559	20.8	117
	04/26/23	DRY	DRY	DRY
	07/19/23	679	9.2	184

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-2R	10/26/23	666	19.6	71.2
	01/24/24	DRY	DRY	DRY
	05/22/24	DRY	DRY	DRY
	07/26/24	DRY	DRY	DRY
	10/21/24	IW	IW	IW
	01/27/25	949	17.5	56.7
MW-3	06/29/21	618	9	4040
	10/27/21	398	9.8	87.2
	01/20/22	N/A	N/A	N/A
	01/20/22	556	10.8	23.2
	04/12/22	NS	NS	NS
	07/25/22	350	4.2	106
	10/26/22	370	6.88	35.8
	10/06/22	<1.0	<1.0	<1.0
	04/26/23	DRY	DRY	DRY
	07/19/23	703	20.2	0.658
	10/26/23	332	16.4	79.8
	01/24/24	592	11.2	18.1
	05/22/24	645	4.62	9.47
	07/26/24	293	23.4	114
	10/21/24	423	14.8	51.6
	01/27/25	589	12.4	77.2
MW-4	06/29/21	722	3	4260
	10/27/21	358	17.4	96
	01/20/22	692	6.73	58
	04/12/22	NS	NS	NS
	07/25/22	228	4.4	107
	10/26/22	352	9.01	62.3
	01/23/23	IW	IW	IW
	04/26/23	DRY	DRY	DRY
	07/19/23	652	9.35	210

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	10/26/23	287	23.6	51.2
	01/24/24	548	12.4	62.2
	05/22/24	NA	NA	NA
	07/26/24	214	10.7	70.5
	10/21/24	299	15.2	80.5
	01/27/25	525	15.4	83.7
MW-5	06/29/21	184	4	118
	10/27/21	251	10	103
	01/20/22	IW	IW	IW
	04/12/22	NS	NS	NS
	07/25/22	272	4.6	104
	10/26/22	256	9.28	60.9
	01/23/23	IW	IW	IW
	04/26/23	DRY	DRY	DRY
	07/19/23	462	22	201
	10/26/23	268	16.2	56
	01/24/24	319	12.0	67.8
	05/22/24	324	4.83	55.7
	07/26/24	201	20.2	156
	10/21/24	336	17.8	101
	01/27/25	NA	NA	NA
MW-6	06/29/21	416	8	122
	10/27/21	334	8.6	111
	01/20/22	IW	IW	IW
	04/12/22	NS	NS	NS
	10/06/22	<1.0	<1.0	<1.0
	10/26/22	306	8.76	60.8
	01/23/23	DRY	DRY	DRY
	04/26/23	DRY	DRY	DRY
	07/19/23	400	9.75	233
	10/26/23	339	16.8	59.6

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-6	01/24/24	NS	NS	NS
	05/22/24	DRY	DRY	DRY
	07/26/24	DRY	DRY	DRY
	10/21/24	385	14.6	85.2
	01/27/25	DRY	DRY	DRY
MW-7	06/29/21	395	6.4	92
	10/27/21	595	6.2	90.8
	01/20/22	N/A	N/A	N/A
MW-7R	04/26/23	350	4.2	106
	01/20/22	622	7.8	49
	04/12/22	NS	NS	NS
	07/25/22	527	6.8	85.8
	10/26/22	470	6.99	82.9
	01/23/23	495	20	149
	04/26/23	IW	IW	IW
	07/19/23	440	23.8	300
	10/26/23	665	10.5	77.2
	05/22/24	423	4.09	64.1
	07/26/24	447	7.08	65.0
	10/21/24	427	15.8	80.6
	01/27/25	475	16.4	117
MW-8	07/14/21	754	11.8	637
	10/27/21	417	19.4	189
	01/20/22	IW	IW	IW
MW-8R	01/20/22	589	9.25	176
	04/12/22	NS	NS	NS
	07/25/22	576	4.8	184
	10/26/22	547	8.43	199
	01/23/23	782	25	361
	04/26/23	1020	11.9	288
	07/19/23	668	8.25	649

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-8R	10/26/23	595	18.2	93
	01/24/24	767	11.0	130
	05/22/24	706	4.61	169
	07/26/24	<10.0	6.74	81.6
	10/21/24	627	16.0	115
	01/27/25	659	16.0	93.4
Background Concentration (Current)		593.75	-	-

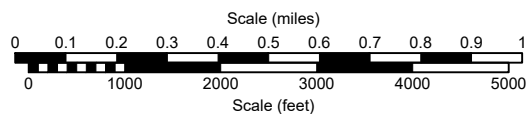
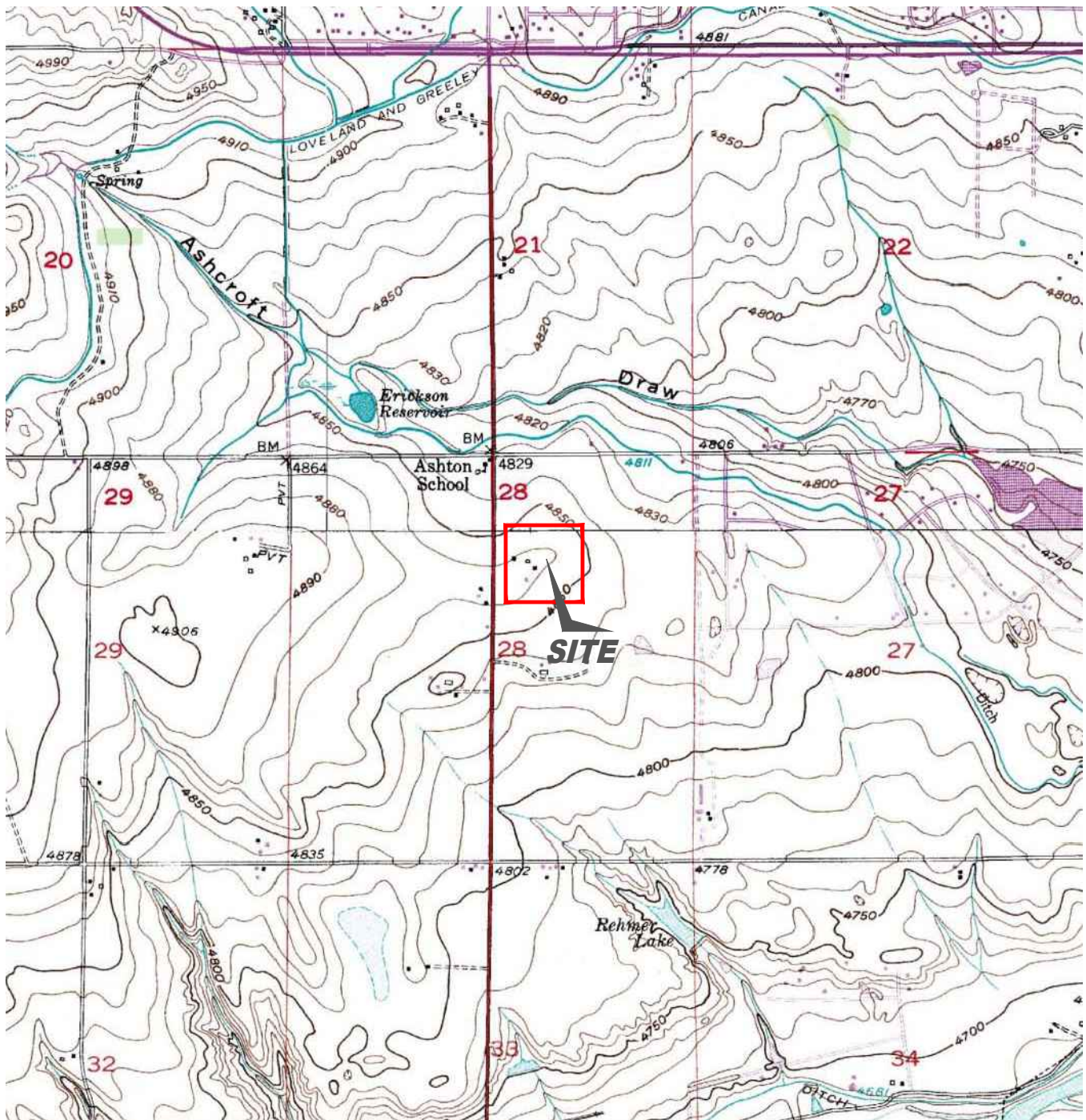
1. Bold values exceed the ECMC limit(s)

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-7R used as upgradient/cross gradient monitoring well

FIGURES



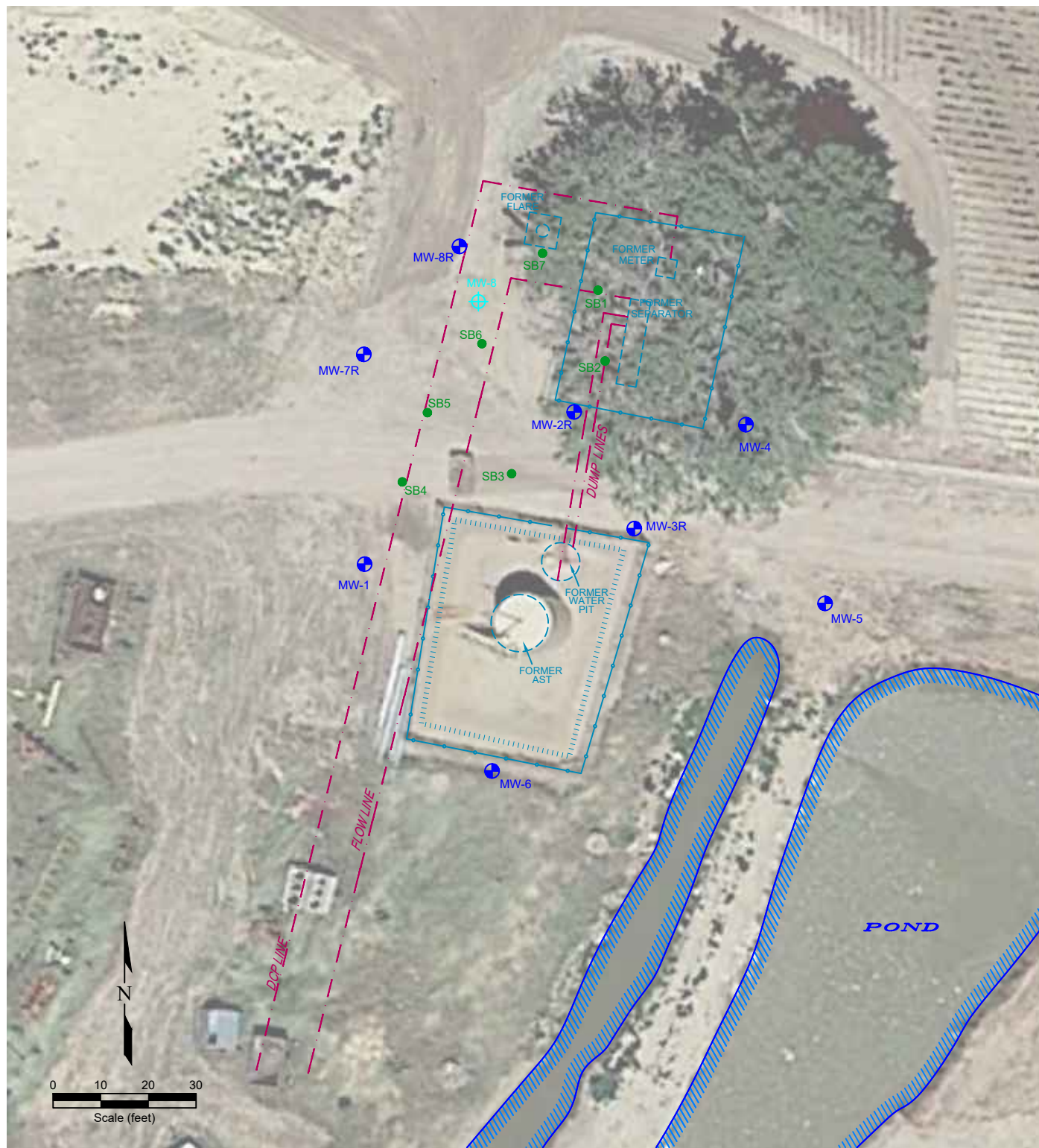
USGS 7.5 MINUTE SERIES (TOPOGRAPHIC)

Figure 1
SITE LOCATION MAP

Noble Energy, Inc. ~ Wiedeman PM 28-2, 28-7
 NESW Section 28, T5N, R66W, 6th PM
 Weld County, Colorado
 40.373850°, -104.782060°

Project No. C016-110	API # 05-123-14002 (J28-2)	Facility # 327010
Date 3/17/25	Remediation # 10028	Filename 16110T





LEGEND

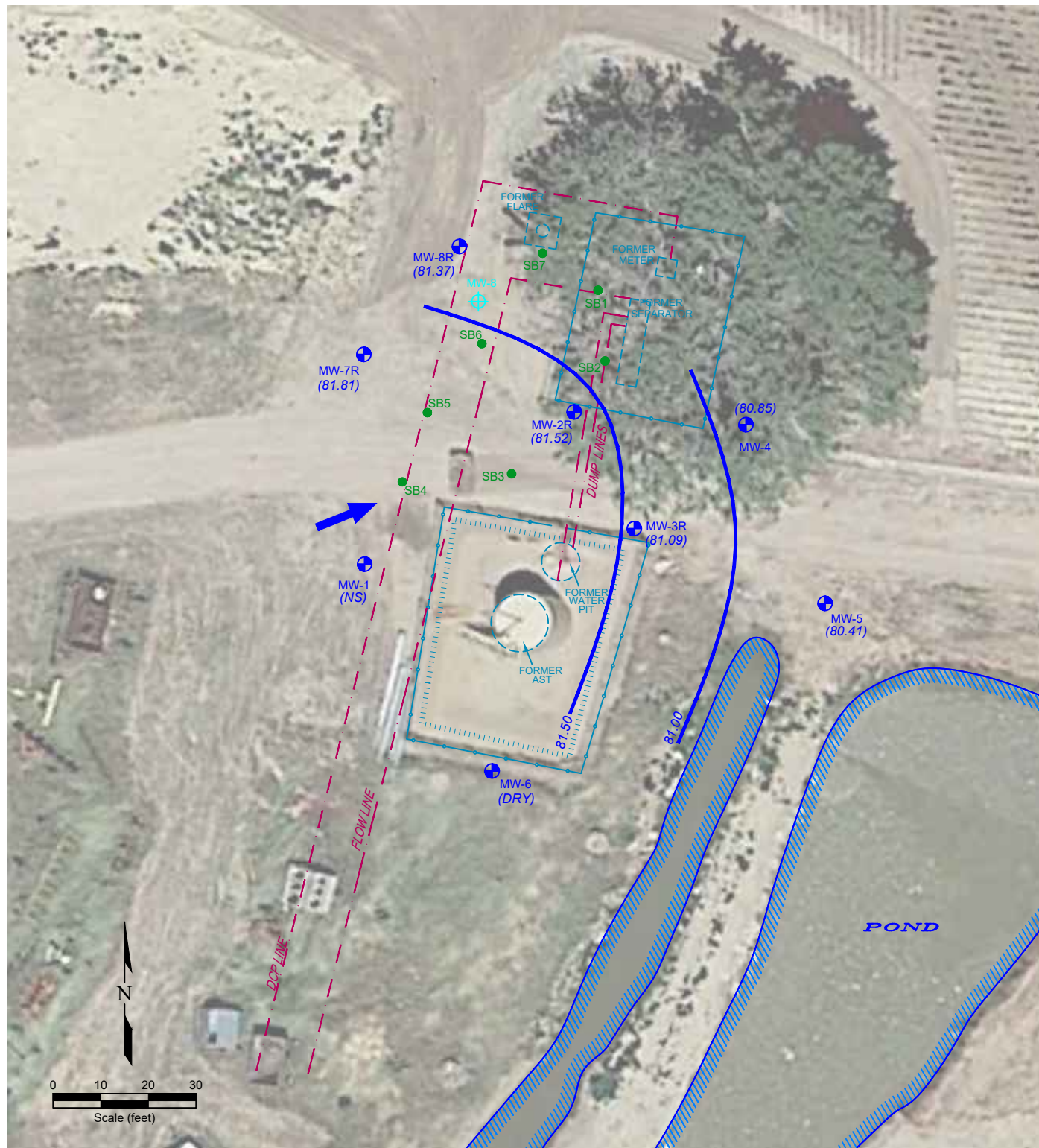
- SOIL BORING
- MONITORING WELL
- ⊕ DESTROYED MONITORING WELL
- ABOVE GROUND STORAGE TANK
- BUILDING BUILDING
- FORMER FORMER FACILITY
- FENCE LINE
- - - CONTAINMENT BERM
- . - PIPELINE

Figure 2
SITE MAP

Noble Energy, Inc. ~ Wiedeman PM 28-2, 28-7
 NESW Section 28, T5N, R66W, 6th PM
 Weld County, Colorado
 40.373850°, -104.782060°

Project No. C016-110	API # 05-123-14002(J28-2)	Facility # 327010
Date 3/17/25	Remediation # 10028	Filename 16110Q





LEGEND

- SOIL BORING
- MONITORING WELL
- ⊕ DESTROYED MONITORING WELL
- ABOVE GROUND STORAGE TANK
- (NM) NOT MEASURED
- (87.09) GROUND WATER ELEVATION (ft above arbitrary datum)
- GROUND WATER FLOW DIRECTION
- 80.00 WATER TABLE CONTOUR
- BUILDING
- FORMER FACILITY
- FENCE LINE
- - - CONTAINMENT BERM
- - - PIPELINE

Figure 3

INFERRED GROUNDWATER CONTOUR MAP

January 27, 2025

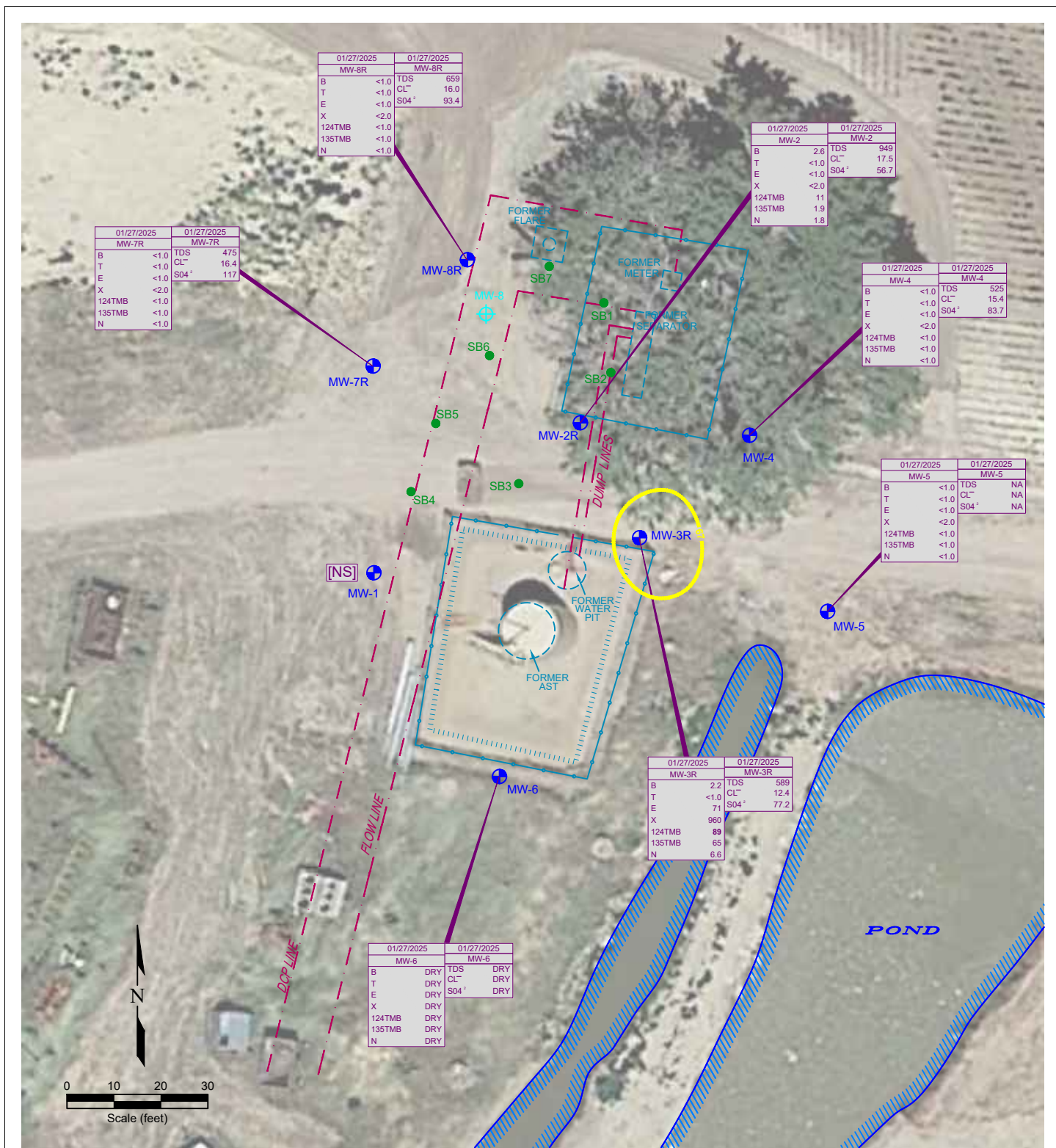
Noble Energy, Inc. ~ Wiedeman PM 28-2, 28-7

NESW Section 28, T5N, R66W, 6th PM

Weld County, Colorado

40.373850°, -104.782060°

Project No. C016-110	API # 05-123-14002(J28-2)	Facility # 327010	
Date 3/17/25	Remediation # 10028	Filename 16110Q	



01/27/2025		01/27/2025	
MW-8R		MW-8R	
B	<1.0	TDS	659
T	<1.0	CL ⁻	16.0
E	<1.0	S04 ²⁻	93.4
X	<2.0		
124TMB	<1.0		
135TMB	<1.0		
N	<1.0		

01/27/2025		01/27/2025	
MW-2		MW-2	
B	2.6	TDS	949
T	<1.0	CL ⁻	17.5
E	<1.0	S04 ²⁻	56.7
X	<2.0		
124TMB	11		
135TMB	1.9		
N	1.8		

01/27/2025		01/27/2025	
MW-7R		MW-7R	
B	<1.0	TDS	475
T	<1.0	CL ⁻	16.4
E	<1.0	S04 ²⁻	117
X	<2.0		
124TMB	<1.0		
135TMB	<1.0		
N	<1.0		

01/27/2025		01/27/2025	
MW-4		MW-4	
B	<1.0	TDS	525
T	<1.0	CL ⁻	15.4
E	<1.0	S04 ²⁻	83.7
X	<2.0		
124TMB	<1.0		
135TMB	<1.0		
N	<1.0		

01/27/2025		01/27/2025	
MW-5		MW-5	
B	<1.0	TDS	NA
T	<1.0	CL ⁻	NA
E	<1.0	S04 ²⁻	NA
X	<2.0		
124TMB	<1.0		
135TMB	<1.0		
N	<1.0		

01/27/2025		01/27/2025	
MW-3R		MW-3R	
B	2.2	TDS	589
T	<1.0	CL ⁻	12.4
E	71	S04 ²⁻	77.2
X	960		
124TMB	89		
135TMB	65		
N	6.6		

01/27/2025		01/27/2025	
MW-6		MW-6	
B	DRY	TDS	DRY
T	DRY	CL ⁻	DRY
E	DRY	S04 ²⁻	DRY
X	DRY		
124TMB	DRY		
135TMB	DRY		
N	DRY		

LEGEND

SOIL BORING
 MONITORING WELL
 DESTROYED MONITORING WELL
 ABOVE GROUND STORAGE TANK

BUILDING

FORMER

BUILDING
FORMER FACILITY

FENCE LINE
 CONTAINMENT BERM
 PIPELINE

NS

NA

NOT SAMPLED
NOT ANALYZED

01/27/2025		DATE SAMPLED		01/27/2025		DATE SAMPLED	
MW-1		SAMPLE ID		MW-1		SAMPLE ID	
B	<1.0	BENZENE (ug/L)		TDS	362	TOTAL DISSOLVED SOLIDS (mg/L)	
T	<1.0	TOLUENE (ug/L)		CL ⁻	11.6	CHLORIDE ION (mg/L)	
E	<1.0	ETHYLBENZENE (ug/L)		SO4 ²⁻	80.7	SULFATE ION (mg/L)	
X	<2.0	TOTAL XYLENES (ug/L)					
124TMB	<1.0	NAPHTHALENE (ug/L)					
135TMB	<1.0	1,2,4-TRIMETHYLBENZENE (ug/L)					
N	<1.0	1,3,5-TRIMETHYLBENZENE (ug/L)					



1,2,4-TRIMETHYLBENZENE ISOCONCENTRATION (ug/L)
Dashed where inferred

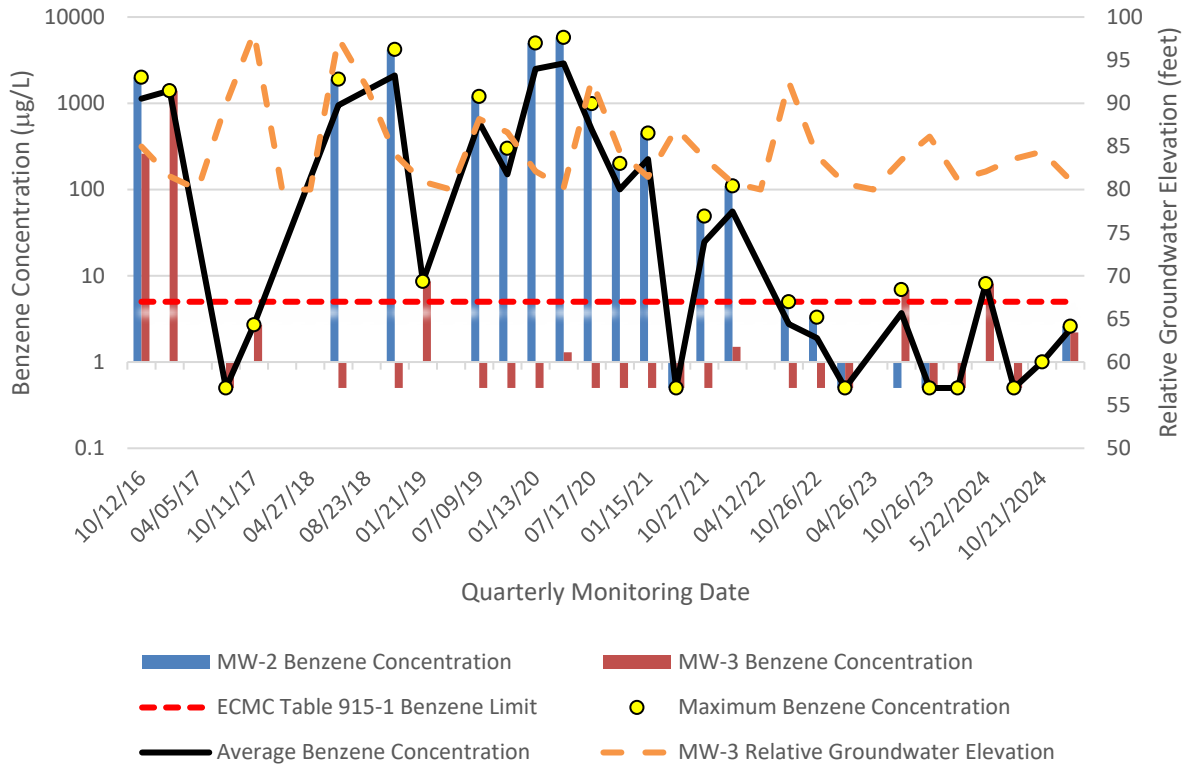
Figure 4
GROUNDWATER CHEMISTRY
January 27, 2025

Noble Energy, Inc. ~ Wiedeman PM 28-2, 28-7
NESW Section 28, T5N, R66W, 6th PM
Weld County, Colorado
40.373850°, -104.782060°

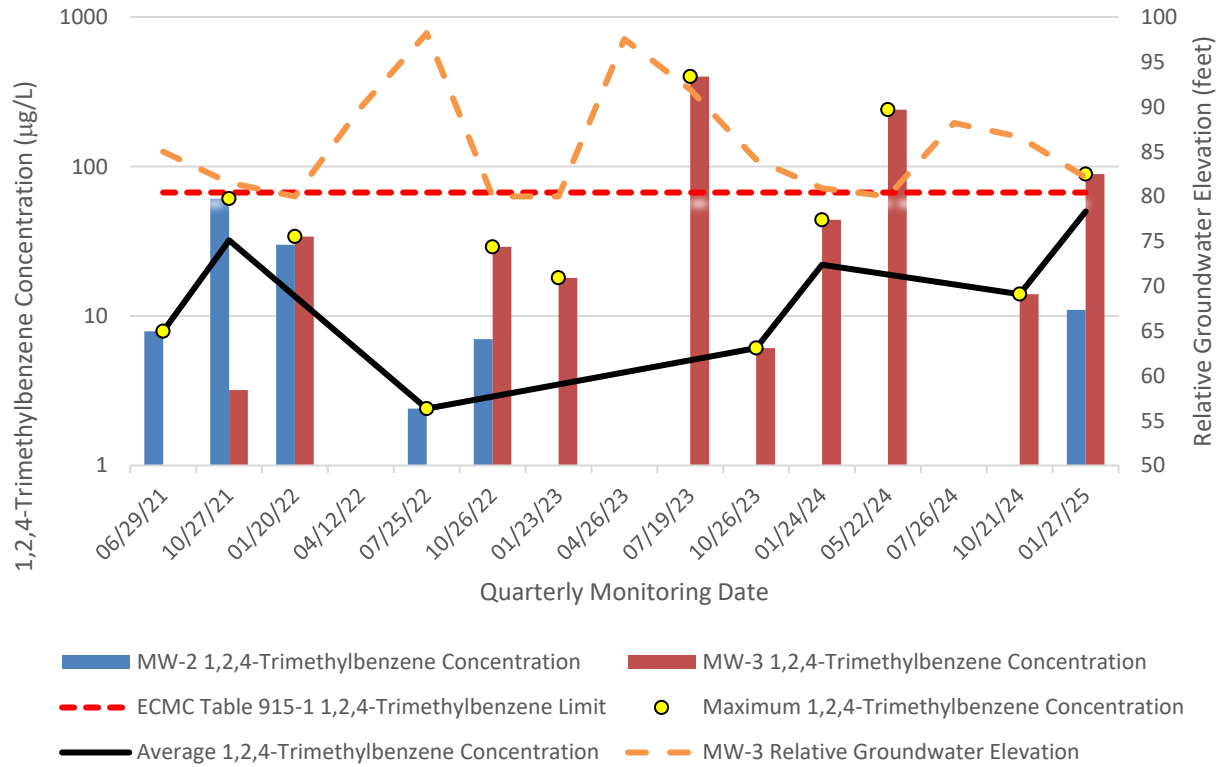
Project No. C016-110	API # 05-123-14002(J28-2)	Facility # 327010	REMONTE ENVIRONMENTAL
Date 3/17/25	Remediation # 10028	Filename 16110Q	

GRAPHS

Graph 1:
Wiedeman PM J28 Groundwater Monitoring Well Benzene
Concentrations Over Time



Graph 2:
Wiedeman PM J28 Groundwater Monitoring Well 1,2,4-
Trimethylbenzene Concentrations Over Time



Graph 3:
Wiedeman PM J28 Groundwater Monitoring Well 1,3,5-
Trimethylbenzene Concentrations Over Time

