MAVERICK
NATURAL RESOURCES

2023 Annual Report

MCA 357 (1RP-3025)
Lea County, New Mexico

REVIEWED
By Mike Buchanan at 8:52 am, Apr 23, 2024

Review of the 2023 Annual Report MCA 357 (1RP-3025) for groundwater: Content Satisfactory
1. Maverick has approval to move sampling events from quarterly to semi-annual.
2. If monitoring wells: MW-12, MW-11 and MW-6 continue to remain dry during sampling events, Maverick must propose a contingency plan; for example, return in 30 days to attempt sampling dry wells again, or drilling deeper to reach water level, etc.
3. Continue groundwater monitoring and submit the 2024 Annual Report by April 1, 2025.

#212C-HN-02007
January 31, 2024

TETRA TECH

2023 Annual Report

MCA 357 (1RP-3025)
Lea County, New Mexico

#212C-HN-02007
January 31, 2024

PRESENTED TO

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TETRA TECH

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Appendix C: Historical Groundwater Gauging Data
Appendix D: Historical Groundwater Analytical Data
Appendix E: Monitor Well Construction

1.0 INTRODUCTION

On behalf of Maverick Natural Resources, LLC (Maverick), this report details the continuing groundwater monitoring and remedial activities at the Maverick Natural Resources, LLC (Maverick) MCA 357 Site in Lea County, New Mexico (Site). The Site is located in Unit M, Section 28, T17S, R32E, approximately 3.7 miles south of Maljamar, New Mexico, as shown in **Figure 1**. Groundwater monitoring and remediation at the Site are conducted under New Mexico Oil Conservation District (NMOCD) Administrative/Environmental Order AP-115-1. The Site and surrounding areas are rural grasslands used primarily for oil and gas production.

2.0 BACKGROUND AND PREVIOUS INVESTIGATIONS

In December 2013, the Site operator submitted a Release Notification and Corrective Action Form C-141 to the NMOCD detailing a release with the source recorded as a flowline failure due to external corrosion. The release affected approximately 5,600 square feet of ground surface and pasture in the vicinity of the flowline failure. The Release Notification documents an estimated 24 barrels (bbls) of produced water was released and no fluids were subsequently recovered.

Previous environmental assessment activities include a drilling and soil sampling program, analytical laboratory analyses, and preliminary determinations of impacts to environmental media. Based on the preliminary determinations, a Corrective Action Plan (CAP) was submitted to the NMOCD in October 2014, approved in October 2014, and completed in December 2014.

Following the CAP approval, groundwater samples in the source area indicated the concentrations of chloride in groundwater (39,500 milligrams per liter [mg/L]) were reported at concentrations greater than the New Mexico Water Quality Control Commission (NMWQCC) guidance levels of 250 mg/L.

Four additional monitor wells (MW-2 through MW-5) were installed at the Site in September 2017, monitor wells MW-6 through MW-9 were installed in April 2019, monitor wells MW-10 through MW-12 were installed in April 2020, and monitor well MW-13 was installed in September 2020. Monitor wells MW-6, MW-11, MW-12, and MW-13 have been dry since installation. Phase-separated hydrocarbons (PSH) have not been historically measured at the Site.

Previously the Site was owned and operated by ConocoPhillips up until June 2022 when Maverick took over operation of the Site.

3.0 HYDROGEOLOGY

3.1 GEOLOGY

The Site is located in the Querecho Plains of southeastern New Mexico. This area generally consists of a thin cover of Quaternary sand dunes overlying the undivided Triassic Upper Chinle Group. The soil consists of well-drained sand and sandy clay loam. Typically, the surface layer is reddish-brown loamy fine sand. It is underlain by red light sandy clay. Below this is white moderately to well-indurated caliche. Underlying the caliche are dark reddish shales and thin sandstones of the undivided Triassic Upper Chinle Group. The Upper Chinle Group consists of silty shale, thin-bedded to massive, purplish red to reddish-brown with greenish reduction spots. The Upper Chinle Group is interbedded with thin beds of fine-grained sandstone with chert pebble gravel.

3.2 SITE HYDROGEOLOGY

The water-bearing zone consists of the Pliocene-age Ogallala aquifer under unconfined conditions at the Site. The Ogallala aquifer is located at the base of the Ogallala Formation. In general, the Ogallala Formation consists of quartz sand and gravel that is poorly to well-cemented with calcium carbonate and contains minor amounts of clay. The wells installed at the Site were drilled to depths of approximately 102 to 134 feet below ground surface (bgs) with static groundwater water levels at approximately 80 to 120 feet bgs.

4.0 GROUNDWATER MONITORING

The Site is currently the subject of quarterly groundwater monitoring under the NMOCD-approved abatement plan. The 2023 quarterly groundwater monitoring events were performed in March, May, September, and November of 2023.

As part of the ongoing groundwater monitoring program approved by the NMOCD, The groundwater monitor well network at the Site is comprised of monitor wells MW-1, MW-2, MW-3, MW-4, MW-5, MW-6, MW-7, MW-8, MW-9, MW-10, MW-11, MW-12, and MW-13, sampled on a quarterly basis, with samples submitted for analysis of bromide, chloride, sulfate, and total dissolved solids (TDS). Annual reports are prepared and submitted to the NMOCD before the end of the first quarter of the following year.

4.1 GROUNDWATER LEVEL MEASUREMENTS

Prior to purging and sampling the monitor well network, Tetra Tech personnel gauged each well to measure the depth to groundwater and the presence of PSH, if present. Groundwater level measurements are presented in **Table 1** along with calculated groundwater elevations. PSH was not identified in any of the Site wells in 2023. All of the monitoring wells in the Site monitoring well network were gauged during each groundwater monitoring event in 2023. Historical groundwater gauging data is presented in **Appendix C**.

Groundwater elevations ranged from 3,817.28 feet above mean sea level (AMSL) in MW-9 to 3,882.47 feet AMSL in MW-7 in 2023. Calculated groundwater elevations and the groundwater potentiometric surface maps for each groundwater monitoring event are presented in **Figures 3** through **5**. Groundwater flow at the Site is to the south with an average hydraulic gradient of 0.02420 feet per foot in 2023, generally consistent with historical groundwater flow at the Site.

4.2 GROUNDWATER SAMPLING

During the 2023 monitoring events, wells MW-1, MW-2, MW-3, MW-4, MW-5, MW-7, MW-8, and MW-9 were sampled in March, May, September, and November. MW-10 and MW-13 were dry in March but were sampled in May, September, and November. Low-flow sampling methodology was utilized to purge and sample each well using a bladder pump with dedicated disposable tubing and bladders in accordance with United States Environmental Protection Agency (EPA) guidance. The bladder pump intake was set to the approximate center of the screened interval for each monitor well prior to purging. **Table 2** presents a summary of the groundwater field analytical parameters that were tested during the sampling of the wells.

Groundwater quality parameters including temperature, pH, Specific Conductivity (SC), Dissolved Oxygen (DO), Oxygen Reduction Potential (ORP), and turbidity were recorded during purging in addition to well drawdown and flow rate to document monitor well stabilization. Once field parameters stabilized at each well, samples were collected into laboratory-provided pre-preserved sample containers, immediately placed on ice, and transported to Pace Analytical National in Mount Juliet, Tennessee, under chain-of-custody documentation for analysis of the following constituents of concern (COCs):

- Bromide by EPA Method 9056A;
- Chloride by EPA Method 9056A
- Sulfate by EPA Method 9056A; and
- Total dissolved solids (TDS) by Method 2540 C-2011.

4.3 GROUNDWATER ANALYTICAL RESULTS

During the March 2023 sampling event, monitoring wells MW-1 through MW-4 and MW-5 through MW-9 were sampled. Monitor Wells MW-6 and MW-10 through MW-13 did not contain enough water to sample. Chloride and TDS concentrations for all wells sampled exceeded the applicable NMWQCC Groundwater Quality Standards of 250 mg/L and 1,000 mg/L, respectively. Additionally, the sulfate concentration for MW-1 exceeded the NMWQCC standard of 600 mg/L during the January monitoring event. Two duplicate samples were collected from MW-1 during this event, both of which exceeded the NMWQCC standards for chloride and TDS. No additional exceedances were reported.

During the March, May, September, and November 2023 sampling events, chloride was reported at concentrations greater than NMWQCC standards in all of the sampled monitoring wells and TDS was reported at concentrations greater than the NMWQCC standards in all sampled monitoring wells except for MW-7 during the March and October groundwater monitoring events. Sulfate was only reported at a concentration greater than the NMWQCC standard in MW-1 during the January groundwater monitoring event. One duplicate sample was collected from MW-1 during each of the three groundwater monitoring events. No additional regulatory exceedances were reported during 2022.

The highest concentrations of chloride and TDS were reported in MW-1. Concentrations of chloride in MW-1 ranged from 55,800 mg/L in January 2022 to 10,200 mg/L in October 2022. Concentrations in the majority of monitor wells appear to be relatively stable. Concentrations of TDS in MW-1 ranged from 21,300 in April 2022 to 83,200 in January 2022. The January analytical results reported for the samples collected from MW-1 are believed to be anomalous due to the disturbance of settled fines in the well during sampling, and the concentrations reported during the April and October groundwater monitoring events are believed to be representative of COC concentrations at this location.

Table 3 presents a summary of the groundwater analytical results screened against NMWQCC Groundwater Quality Standards. The laboratory analytical data packages including chain-of-custody documentation are provided in **Appendix A**, chloride, sulfate, and TDS concentration maps are provided in **Figures 6** through **11**, and chloride concentration trend graphs are presented in **Appendix B**.

5.0 QUALITY ASSURANCE/QUALITY CONTROL

A total of eight primary groundwater samples were collected and analyzed during each groundwater monitoring event in 2022. Additionally, two field duplicates in January and April and one field duplicate in October were collected and analyzed.

5.1 FIELD AND LABORATORY PRECISION

The project measurement quality objectives are 30 percent for relative-percent-difference (RPD) between primary and duplicate sample results for inorganic analytes including bromide, chloride, sulfate, and TDS. Where estimated concentrations are present and reported concentrations are J-flagged, the RPDs are elevated to 60 percent. **Table 3** presents primary and duplicate sample results and RPD calculations. Out of the 12 RPD calculations, the bromide, chloride, and TDS analytical results for the primary-duplicate sample pair for MW-1 during the January groundwater monitoring event were greater than the project data quality objectives of 30 percent.

During the January sampling event, Tetra Tech field staff experienced equipment problems with the bladder pump down the well during the sampling of MW-1. Consequently, settled fines from the bottom of this monitoring well are believed to have been disturbed, contributing to elevated COC concentrations in both the primary and duplicate samples and generating the disparity in reported concentrations between the primary and duplicate samples collected from MW-1 during this event. Additionally, reported COC concentrations at MW-1 were much higher than expected based on historical concentrations and concentrations reported in the April and October groundwater monitoring events at MW-1.

5.2 LABORATORY DATA QUALIFICATION

No laboratory analytical results were qualified in the three analytical data packages during the three 2022 groundwater monitoring events.

5.3 DATA USABILITY

Groundwater analytical data are deemed useable for the purpose of determining groundwater COC concentrations at the Site with the exception of primary and duplicate sample results collected from MW-1 during the January groundwater monitoring event. As discussed above, fines settled in MW-1 are believed to have been disturbed during sampling causing elevated analytical results of COCs analyzed. Otherwise, field duplicate samples reported results within Data quality objectives.

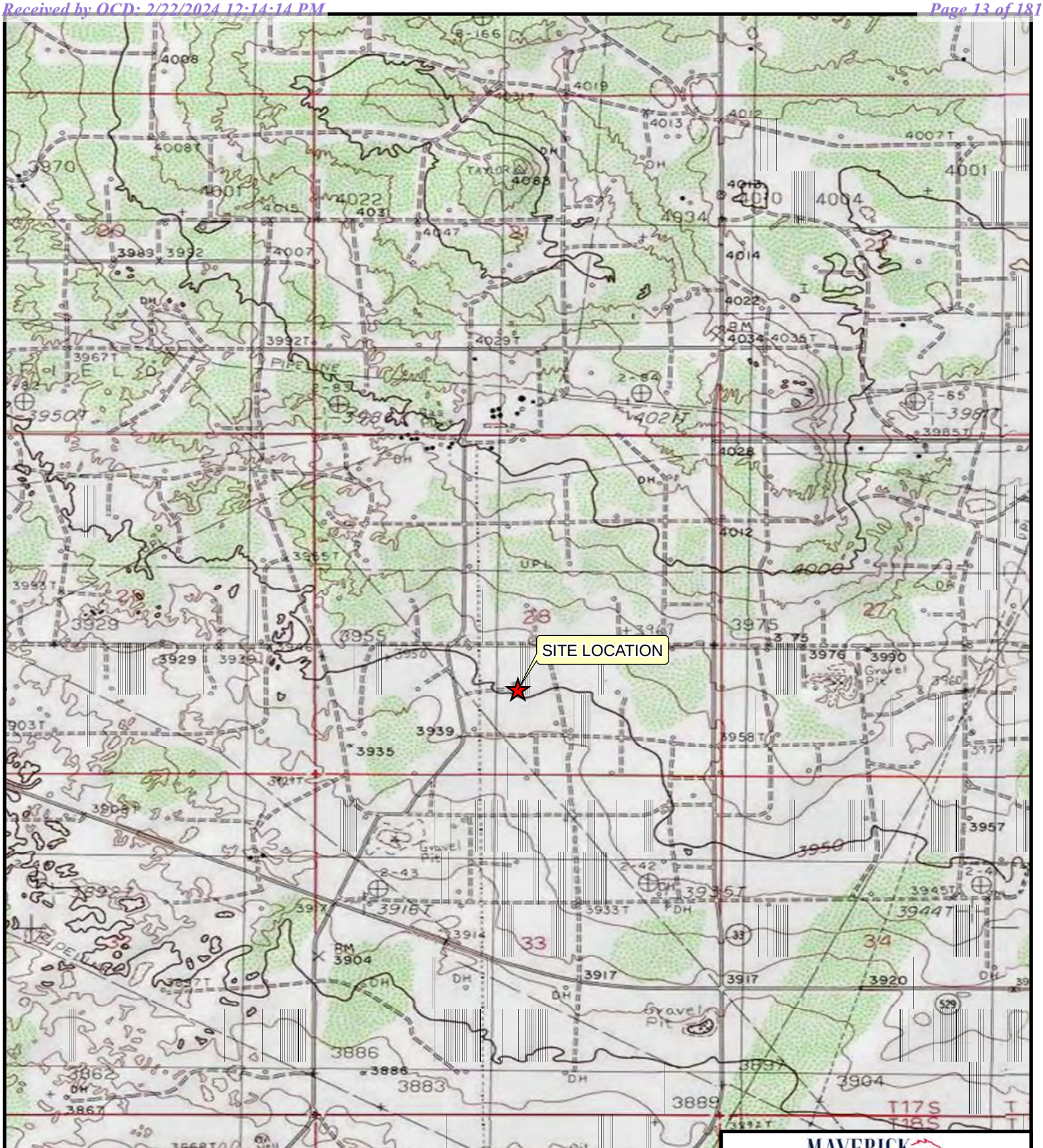
6.0 2024 WORKPLAN

Based on the size of the monitor well network and data accumulated to date, Tetra Tech previously requested the groundwater sampling program be reduced to a semi-annual basis in the *2021 Annual Monitoring and Remedial Activities Report* for the Site dated March 24, 2022, and the *2022 Annual Report* dated January 27, 2023. As of the date of this report, no response to this request has been received and Tetra Tech respectfully reiterates the request to shift the annual program to a Semi-annual basis with annual reporting to the NMOCD.

7.0 REFERENCES

Nicholson Jr., A. and Clebsch Jr., A.. (1961). Geology and Ground-Water Conditions in Souther Lea County, New Mexico. Socorro, NM: State Bureau of Mines and Mineral Resources and New Mexico Institute of Mining & Technology Campus Stationuthor.

FIGURES



MAVERICK NATURAL RESOURCES

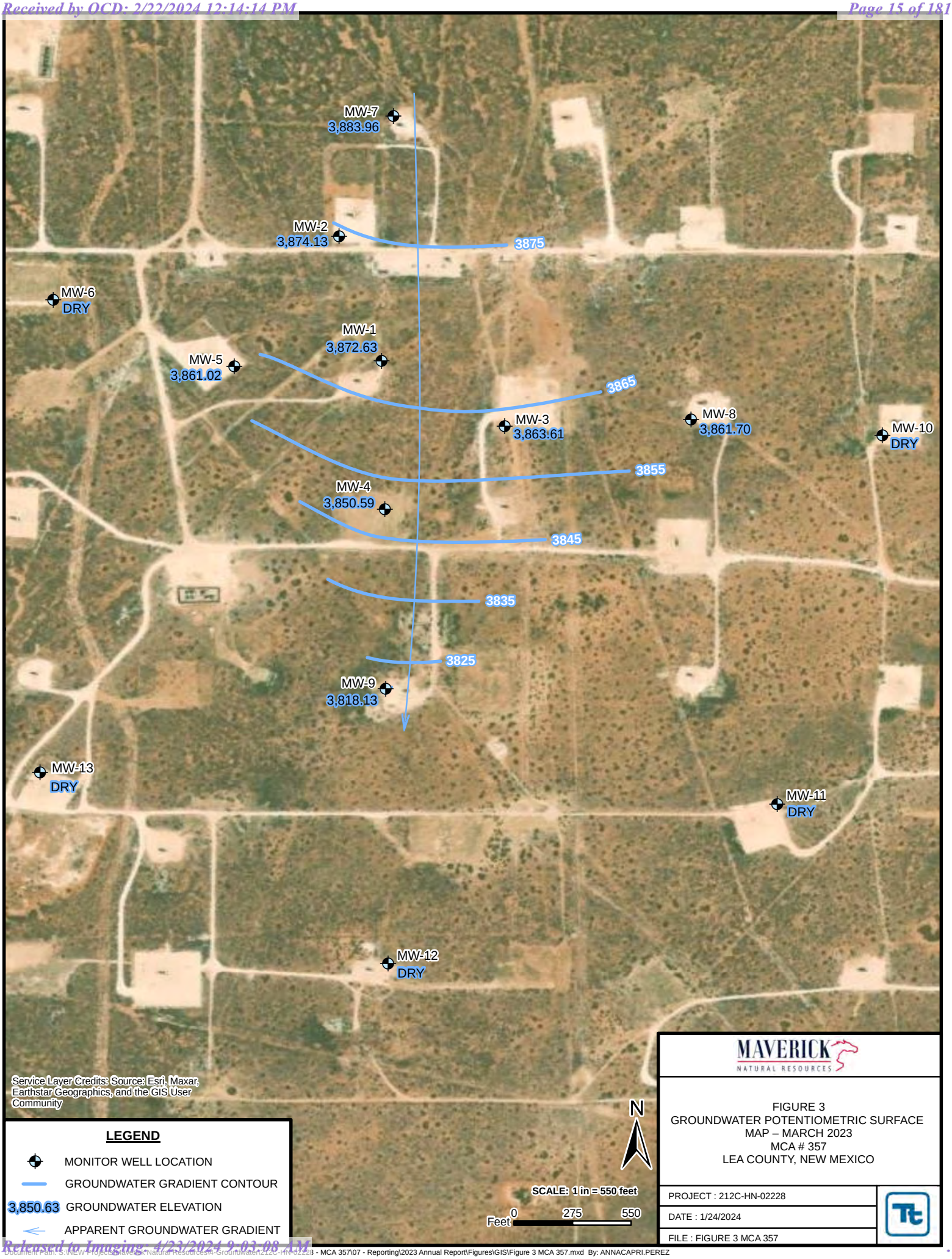
FIGURE 1
SITE LOCATION MAP
MCA # 357
(32.8019°,-103.7713°)
LEA COUNTY, NEW MEXICO

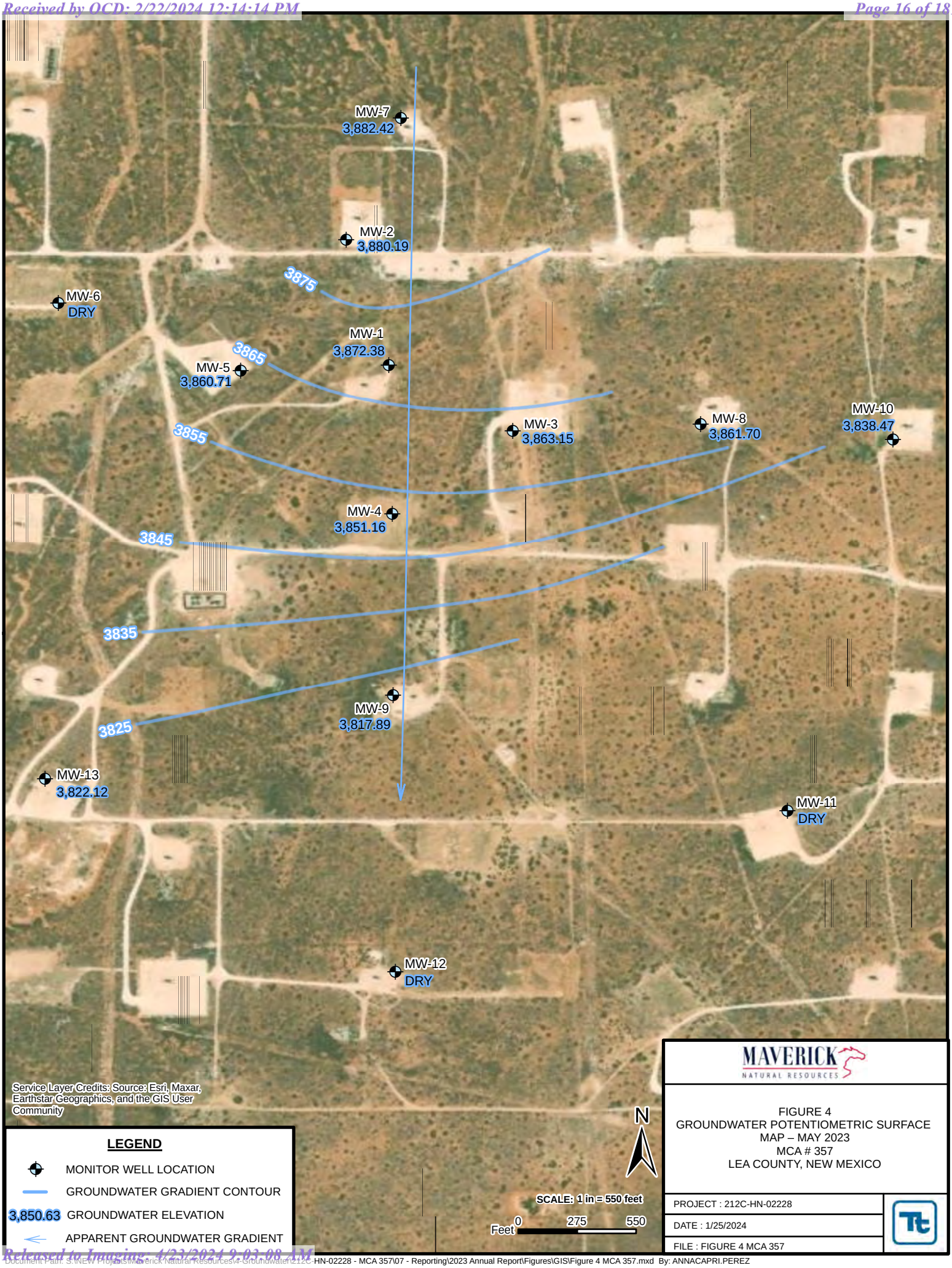
PROJECT : 212C-HN-02228	
DATE : 1/23/2024	
FILE : FIGURE 1 MCA 357	

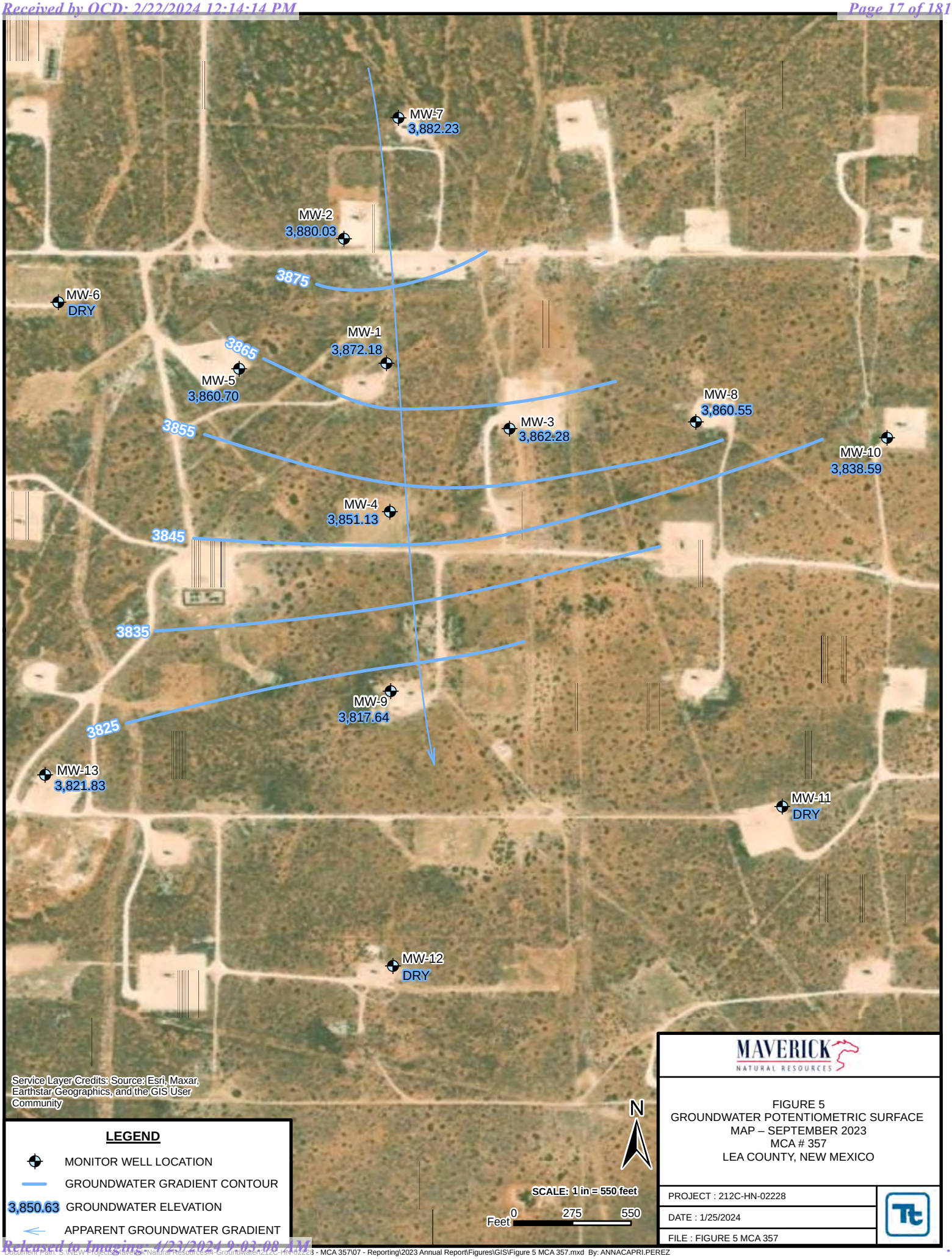
MAVERICK NATURAL RESOURCES

FIGURE 2
SITE DETAILS MAP
MCA # 357
LEA COUNTY, NEW MEXICO

PROJECT : 212C-HN-02228	
DATE : 1/23/2024	
FILE : FIGURE 2 MCA 357	







LEGEND

- MONITOR WELL LOCATION
- GROUNDWATER GRADIENT CONTOUR
- 3,850.63 GROUNDWATER ELEVATION
- APPARENT GROUNDWATER GRADIENT

MAVERICK NATURAL RESOURCES

FIGURE 5
GROUNDWATER POTENTIOMETRIC SURFACE
MAP – SEPTEMBER 2023
MCA # 357
LEA COUNTY, NEW MEXICO

PROJECT : 212C-HN-02228	
DATE : 1/25/2024	
FILE : FIGURE 5 MCA 357	

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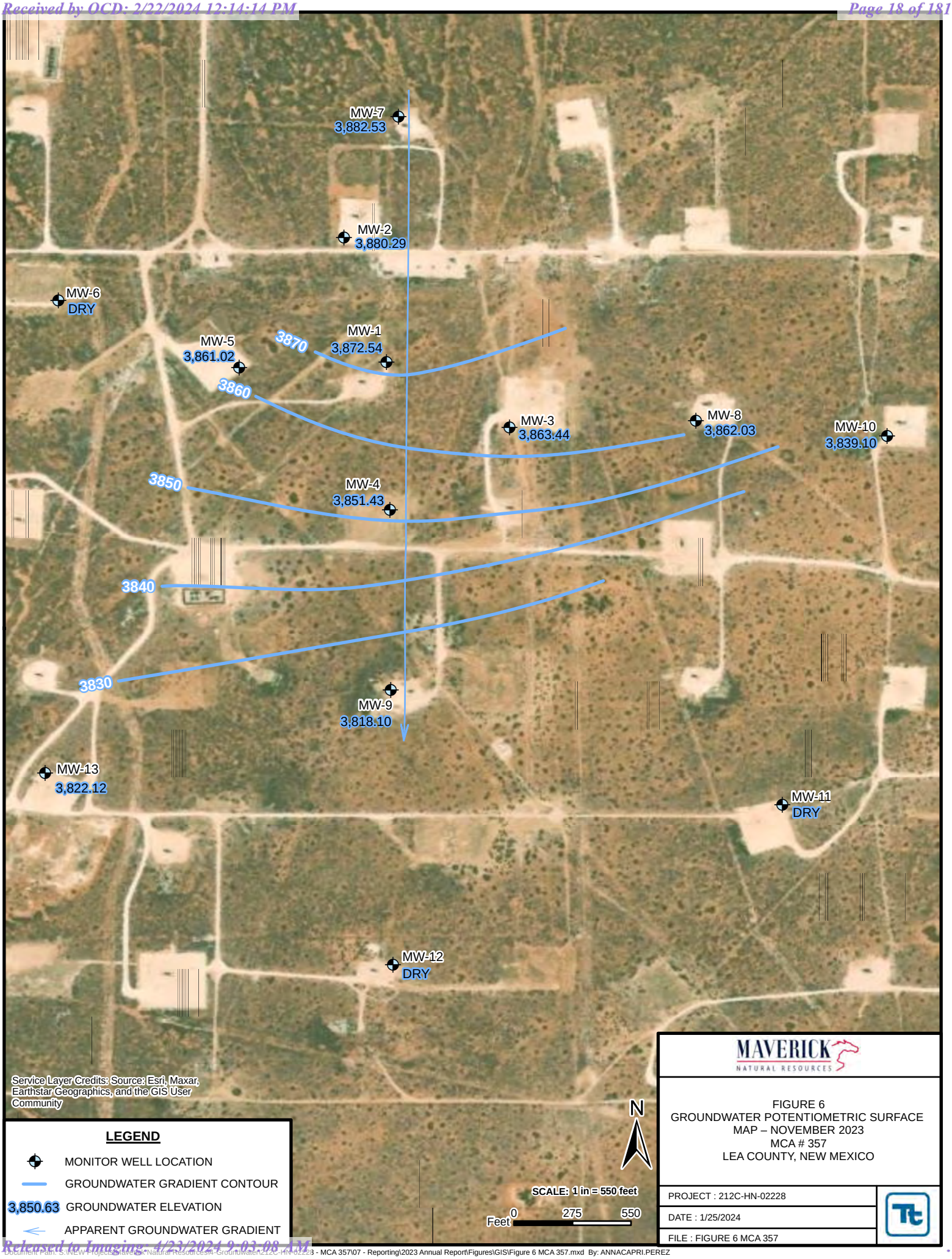
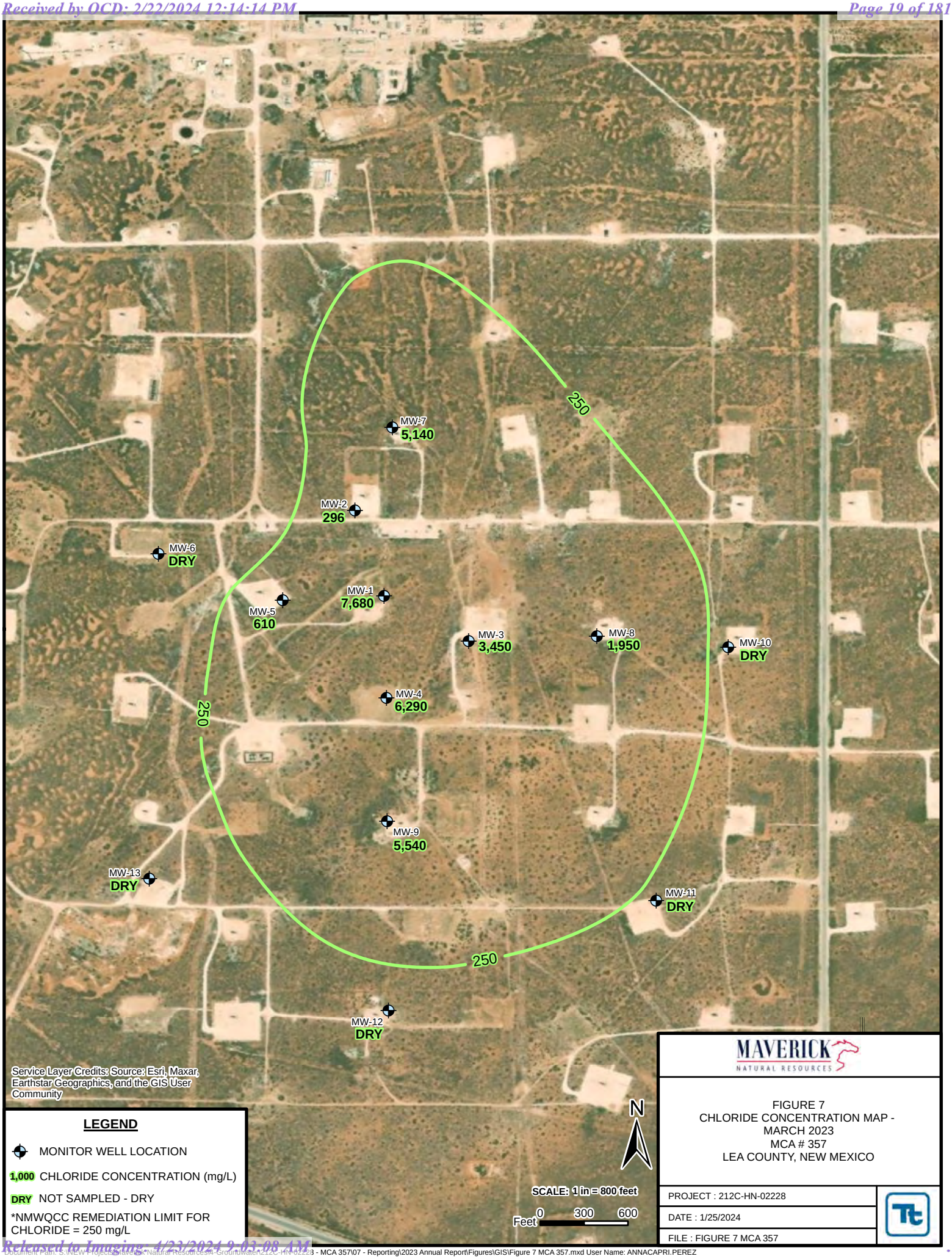




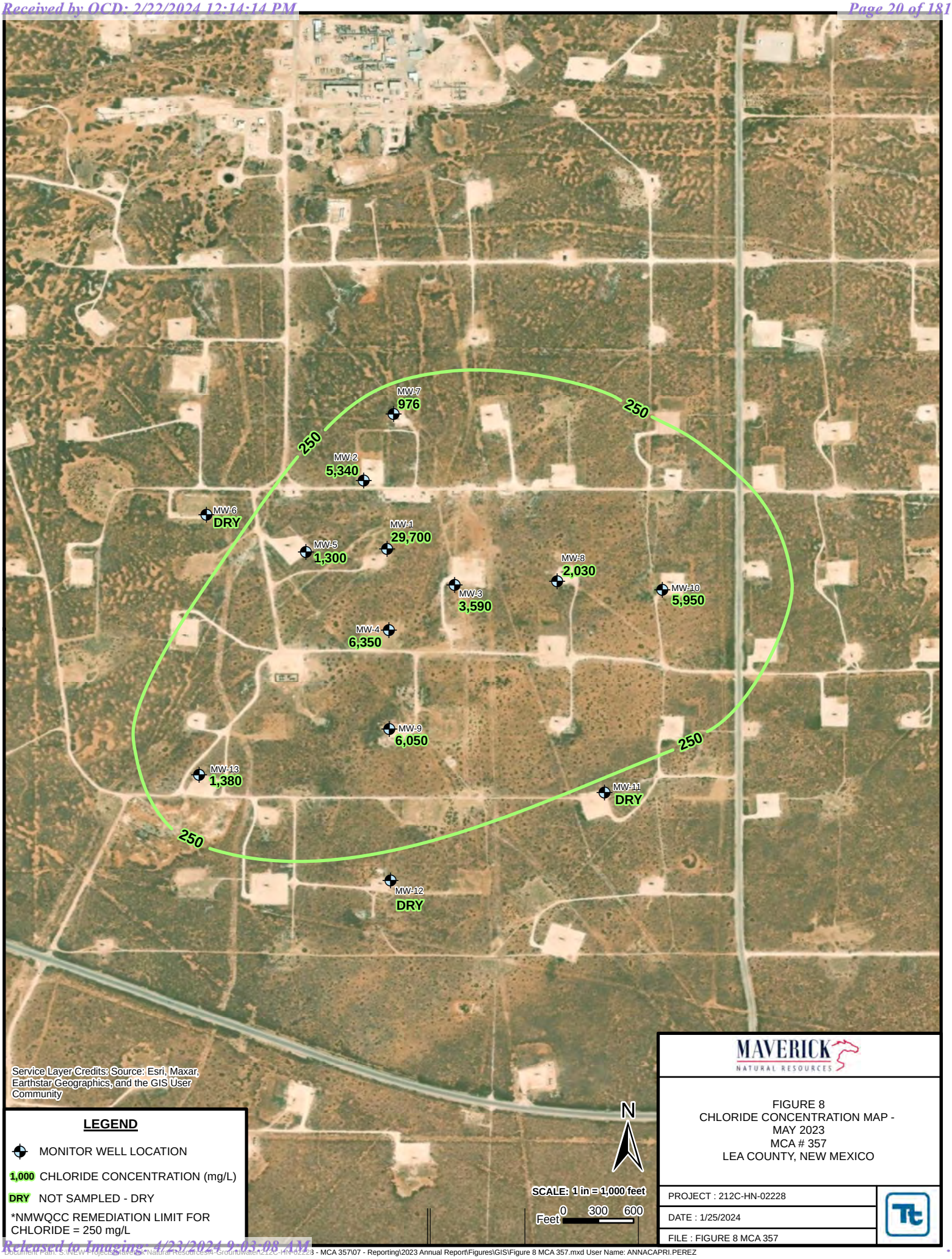
LEGEND

- MONITOR WELL LOCATION
- 1,000 CHLORIDE CONCENTRATION (mg/L)
- DRY NOT SAMPLED - DRY
- *NMWQCC REMEDIATION LIMIT FOR CHLORIDE = 250 mg/L

MAVERICK NATURAL RESOURCES

FIGURE 7
CHLORIDE CONCENTRATION MAP - MARCH 2023
MCA # 357
LEA COUNTY, NEW MEXICO

PROJECT : 212C-HN-02228	
DATE : 1/25/2024	
FILE : FIGURE 7 MCA 357	



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MAVERICK NATURAL RESOURCES

FIGURE 9
CHLORIDE CONCENTRATION MAP - SEPTEMBER 2023
MCA # 357
LEA COUNTY, NEW MEXICO

PROJECT : 212C-HN-02228	
DATE : 1/25/2024	
FILE : FIGURE 9 MCA 357	

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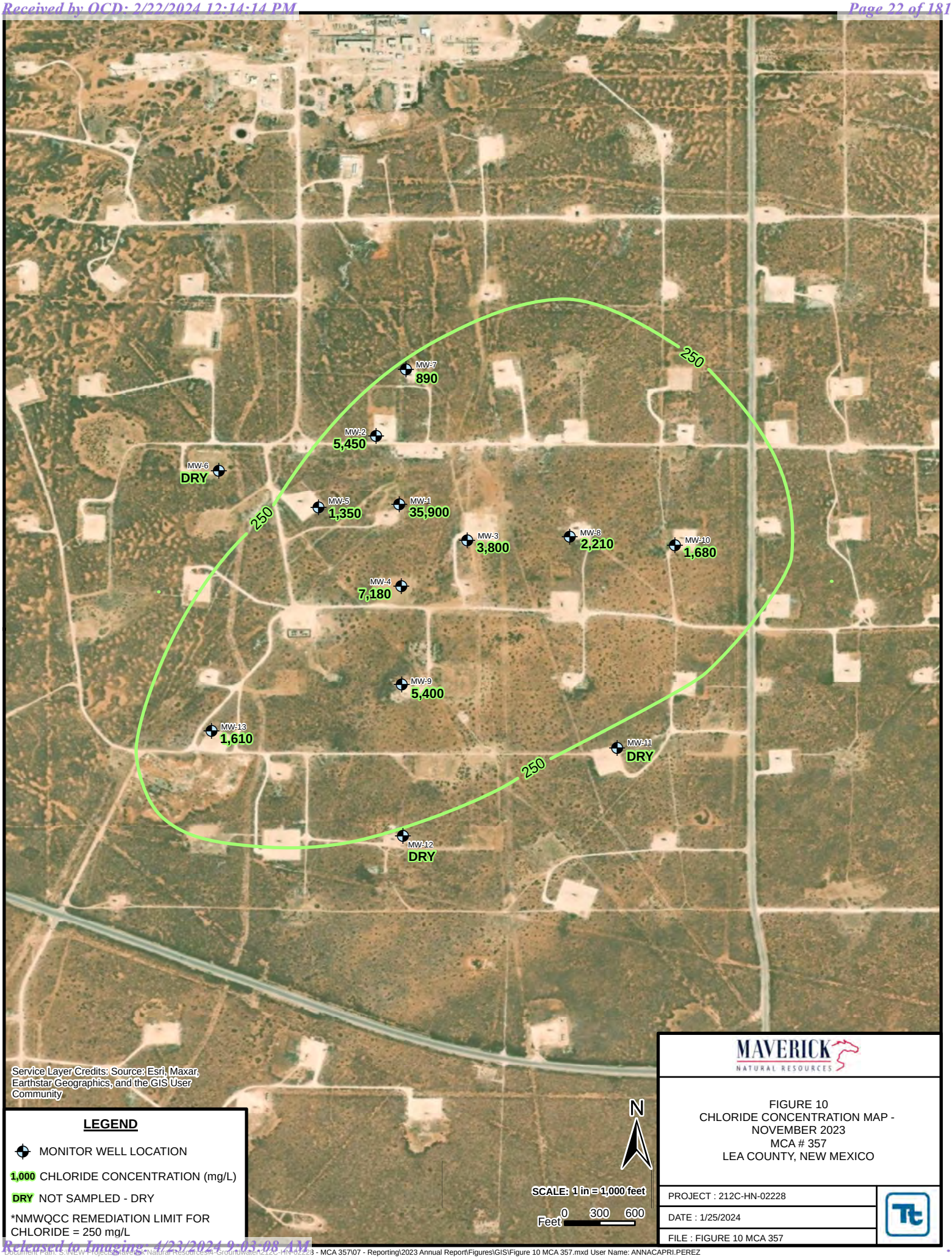

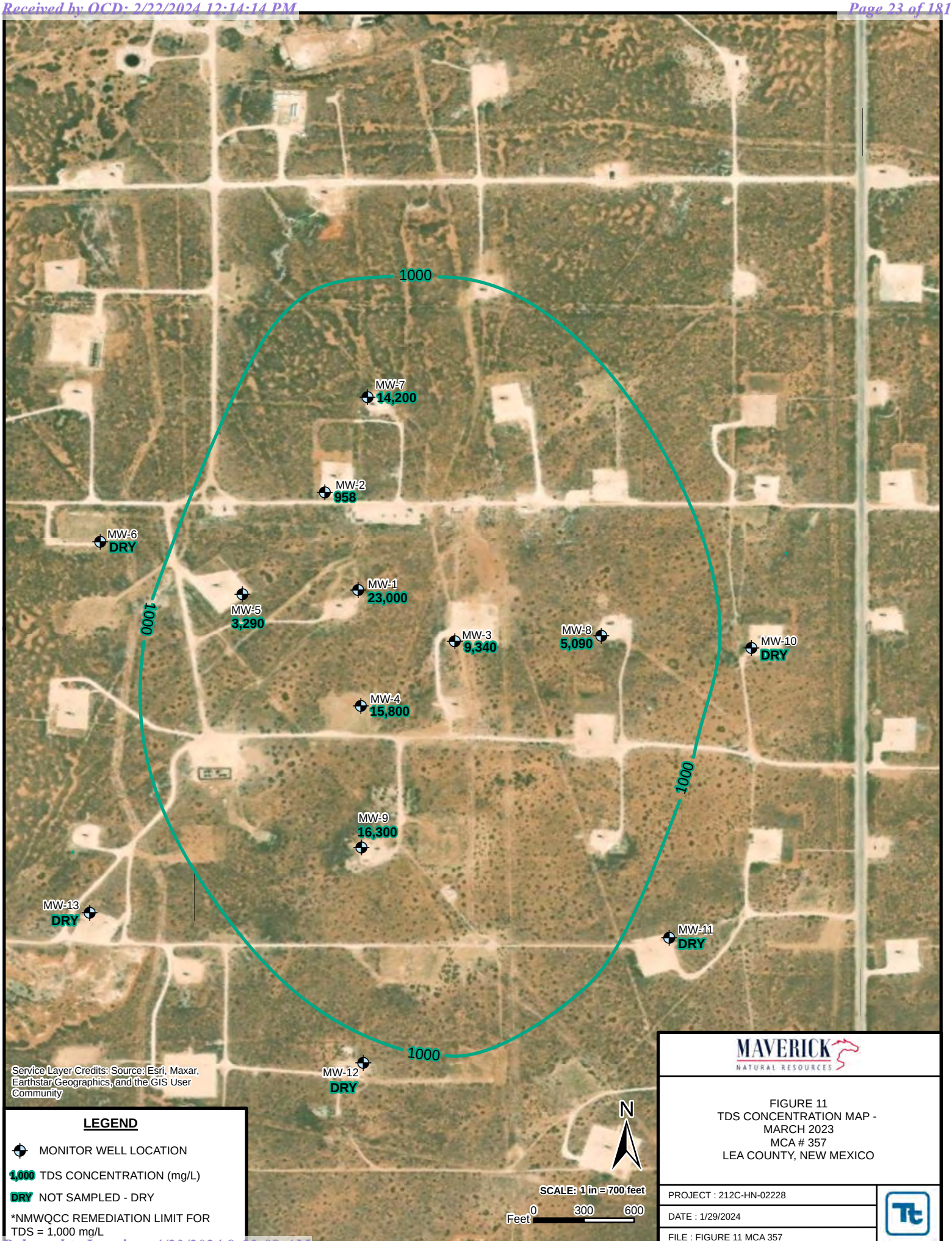

LEGEND

- MONITOR WELL LOCATION
- 1,000 TDS CONCENTRATION (mg/L)
- DRY NOT SAMPLED - DRY
- *NMWQCC REMEDIATION LIMIT FOR TDS = 1,000 mg/L

MAVERICK NATURAL RESOURCES

FIGURE 11
TDS CONCENTRATION MAP - MARCH 2023
MCA # 357
LEA COUNTY, NEW MEXICO

PROJECT : 212C-HN-02228
DATE : 1/29/2024
FILE : FIGURE 11 MCA 357

Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

LEGEND

- MONITOR WELL LOCATION
- 1,000 TDS CONCENTRATION (mg/L)
- DRY NOT SAMPLED - DRY
- *NMWQCC REMEDIATION LIMIT FOR TDS = 1,000 mg/L

N

SCALE: 1 in = 800 feet

0 300 600

Feet

MAVERICK NATURAL RESOURCES

FIGURE 14

TDS CONCENTRATION MAP - NOVEMBER 2023

MCA # 357

LEA COUNTY, NEW MEXICO

PROJECT : 212C-HN-02228

DATE : 1/29/2024

FILE : FIGURE 14 MCA 357

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TABLES

TETRA TECH

Table 1
2023 Groundwater Elevation Summary
MCA 357
Lea County, New Mexico

Well ID	Gauging Date	Well Total Depth (feet)	Depth to Water (feet BTOC)	Top of Casing Elevation (feet AMSL)	Groundwater Elevation (feet)
MW-1	3/28/2023	102.7	84.15	3,956.78	**3,872.63**
	5/24/2023	102.7	84.40	3,956.78	**3,872.38**
	9/13/2023	102.7	84.60	3,956.78	**3,872.18**
	11/30/2023	102.7	84.24	3,956.78	**3,872.54**
MW-2	3/28/2023	107.8	89.45	3,963.58	**3,874.13**
	5/24/2023	107.8	83.39	3,963.58	**3,880.19**
	9/13/2023	107.8	83.55	3,963.58	**3,880.03**
	11/30/2023	107.7	83.29	3,963.58	**3,880.29**
MW-3	3/28/2023	117.3	87.73	3,951.34	**3,863.61**
	5/24/2023	117.3	88.19	3,951.34	**3,863.15**
	9/13/2023	117.3	89.06	3,951.34	**3,862.28**
	11/30/2023	117.3	87.90	3,951.34	**3,863.44**
MW-4	3/28/2023	103.2	94.80	3,945.39	**3,850.59**
	5/24/2023	103.2	94.23	3,945.39	**3,851.16**
	9/13/2023	103.2	94.26	3,945.39	**3,851.13**
	11/30/2023	103.2	93.96	3,945.39	**3,851.43**
MW-5	3/28/2023	113.0	89.35	3,950.37	**3,861.02**
	5/24/2023	113.0	89.66	3,950.37	**3,860.71**
	9/13/2023	113.0	89.67	3,950.37	**3,860.70**
	11/30/2023	112.9	89.35	3,950.37	**3,861.02**
MW-6	3/28/2023	128.1	Dry	3,952.96	**Dry**
	5/24/2023	128.1	Dry	3,952.96	**Dry**
	9/13/2023	128.1	Dry	3,952.96	**Dry**
	11/30/2023	128.1	Dry	3,952.96	**Dry**
MW-7	3/28/2023	127.3	88.15	3,972.11	**3,883.96**
	5/24/2023	127.3	89.69	3,972.11	**3,882.42**
	9/13/2023	127.3	89.88	3,972.11	**3,882.23**
	11/30/2023	127.3	89.58	3,972.11	**3,882.53**
MW-8	3/28/2023	118.0	95.13	3,956.83	**3,861.70**
	5/24/2023	118.0	95.13	3,956.83	**3,861.70**
	9/13/2023	118.0	96.28	3,956.83	**3,860.55**
	11/30/2023	118.1	94.80	3,956.83	**3,862.03**
MW-9	3/28/2023	133.5	118.40	3,936.53	**3,818.13**
	5/24/2023	133.5	118.64	3,936.53	**3,817.89**
	9/13/2023	133.5	118.89	3,936.53	**3,817.64**
	11/30/2023	133.0	118.25	3,936.53	**3,818.28**
MW-10	3/28/2023	132.5	Dry	3,963.20	**Dry**
	5/24/2023	132.5	124.73	3,963.20	**3,838.47**
	9/13/2023	132.5	124.61	3,963.20	**3,838.59**
	11/30/2023	132.5	124.10	3,963.20	**3,839.10**
MW-11	3/28/2023	132.9	Dry	3,948.30	**Dry**
	5/24/2023	132.9	Dry	3,948.30	**Dry**
	9/13/2023	132.9	Dry	3,948.30	**Dry**
	11/30/2023	132.9	Dry	3,948.30	**Dry**

TETRA TECH

Table 1
2023 Groundwater Elevation Summary
MCA 357
Lea County, New Mexico

Well ID	Gauging Date	Well Total Depth (feet)	Depth to Water (feet BTOC)	Top of Casing Elevation (feet AMSL)	Groundwater Elevation (feet)
MW-12	3/28/2023	132.3	Dry	3,930.91	**Dry**
	5/24/2023	132.3	Dry	3,930.91	**Dry**
	9/13/2023	132.3	Dry	3,930.91	**Dry**
	11/30/2023	132.0	Dry	3,930.91	**Dry**
MW-13	3/28/2023	132.3	Dry	3,931.32	**Dry**
	5/24/2023	132.3	109.20	3,931.32	**3,822.12**
	9/13/2023	132.3	109.49	3,931.32	**3,821.83**
	11/30/2023	132.9	109.20	3,931.32	**3,822.12**

Notes:

BTOC: Below Top of Casing
AMSL: Above Mean Sea Level
NG: Not gauged

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Table 2
2023 Groundwater Field Parameters
MCA 357
Lea County, New Mexico

Well ID	Gauging Date	PH	Temperature (C)	Specific Conducivity (µS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Turbidity (NTU)
MW-1	3/28/2023	7.02	20.8	46,254	1.2	38.8	NS
	5/24/2023	6.59	23.5	3,430	1.9	97.4	11.5
	9/13/2023	6.48	19.8	4,020	1.6	64.2	26.1
	11/30/2023	5.92	18.5	85,200	1.7	133.2	36.1
MW-2	3/28/2023	7.5	20.7	15,001	-38.7	-164.5	NS
	5/24/2023	6.34	20.6	18,330	1.1	93.7	27.2
	9/13/2023	6.27	19.3	14,410	1.6	58.1	6.7
	11/30/2023	6.33	19.2	15,420	1.4	71.3	4.9
MW-3	3/28/2023	7.04	20.8	13,095	24.5	-141.1	NS
	5/24/2023	6.56	20.7	7,910	3.4	92.5	25.6
	9/13/2023	6.65	19.6	8,650	1.8	152.3	3.1
	11/30/2023	6.43	17.6	8,810	1.2	109.3	4.0
MW-4	3/28/2023	7.4	20.7	19,635	-34.5	-139.8	NS
	5/24/2023	6.8	20.9	21,200	4.8	93.3	14.6
	9/13/2023	6.63	19.5	16,410	5.0	122.6	6.1
	11/30/2023	6.36	18.7	18,100	5.8	119.4	4.8
MW-5	3/28/2023	7.48	20.6	3,075	4.3	69.9	NS
	5/24/2023	7.23	20.6	5,080	3.4	64.5	186.0
	9/13/2023	7.39	19.8	4,130	2.2	89.9	6.6
	11/30/2023	6.86	18.4	3,480	5.5	98.2	2.7
MW-6	3/28/2023	NS	NS	NS	NS	NS	NS
	5/24/2023	NS	NS	NS	NS	NS	NS
	9/13/2023	NS	NS	NS	NS	NS	NS
	11/30/2023	NS	NS	NS	NS	NS	NS
MW-7	3/28/2023	20.7	7.8	1,031	2.0	-191.4	NS
	5/24/2023	7.78	21.5	4,230	1.9	148.3	11.0
	9/13/2023	7.04	20.0	3,240	1.6	-36.1	15.5
	11/30/2023	6.63	19.6	3,450	1.0	-30.4	7.8
MW-8	3/28/2023	7.83	20.7	6,331	1.8	30.8	NS
	5/24/2023	6.65	24.0	5,080	8.5	86.2	34.6
	9/13/2023	6.48	19.8	6,850	2.9	148.8	5.7
	11/30/2023	6.64	19.0	5,370	0.7	106.8	6.9
MW-9	3/28/2023	7.33	20.7	11,266	1.5	6.7	NS
	5/24/2023	6.72	21.8	13,750	6.7	143.7	35.2
	9/13/2023	6.76	19.7	9,180	1.8	145.6	32.9
	11/30/2023	6.42	18.2	12,960	4.2	136.9	26.0
MW-10	3/28/2023	NS	NS	NS	NS	NS	NS
	5/24/2023	6.85	22.4	7,680	1.5	-60.8	8.6
	9/13/2023	6.65	19.8	5,870	2.5	17.0	5.9
	11/30/2023	6.58	19.2	4,810	1.4	20.2	18.6
MW-11	3/28/2023	NS	NS	NS	NS	NS	NS
	5/24/2023	NS	NS	NS	NS	NS	NS
	9/13/2023	NS	NS	NS	NS	NS	NS
	11/30/2023	NS	NS	NS	NS	NS	NS

Table 2
2023 Groundwater Field Parameters
MCA 357
Lea County, New Mexico

Well ID	Gauging Date	PH	Temperature (C)	Specific Conducivity (µS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Turbidity (NTU)
MW-12	3/28/2023	NS	NS	NS	NS	NS	NS
	5/24/2023	NS	NS	NS	NS	NS	NS
	9/13/2023	NS	NS	NS	NS	NS	NS
	11/30/2023	NS	NS	NS	NS	NS	NS
MW-13	3/28/2023	NS	NS	NS	NS	NS	NS
	5/24/2023	7.79	20.4	4,225	3.3	74.3	40.2
	9/13/2023	7.37	19.4	5,870	3.0	110.2	23.2
	11/30/2023	7.09	17.6	4,590	5.6	126.4	47.1

Notes:

BTOC: Below Top of Casing
AMSL: Above Mean Sea Level
NS: Not Sampled

TETRA TECH

Table 3
2023 Groundwater Analytical Summary
MCA 357
Lea County, New Mexico

Well ID	Sample Date	Bromide (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	TDS (mg/L)
NMWQCC Groundwater Quality Standards		**NE**	**250**	**600**	**1,000**
MW-1	3/28/2023	17.4	7,680	148	23,000
	5/24/2023	69.9	29,700	453	59,300
	9/13/2023	108	38,900	560	64,100 Q
	11/30/2023	84.8	35,900	547	103,000
MW-2	3/28/2023	0.897 J	296	85	958
	5/24/2023	9.31 J	5,340	290	11,400
	9/13/2023	9.33 J	5,500	309	13,300
	11/30/2023	7.79 J	5,450	341	14,000
MW-3	3/28/2023	10.0 J	3,450	160	9,340
	5/24/2023	10.2	3,590	158	8,480
	9/13/2023	10.2	3,750	171	9,220
	11/30/2023	6.10 J	3,800	179	9,760
MW-4	3/28/2023	8.09 J	6,290	191	15,800
	5/24/2023	10.9	6,350	172	16,100
	9/13/2023	11.2	6,640	186	14,400
	11/30/2023	7.04 J	7,180	203	16,700
MW-5	3/28/2023	5.61	610	154	3,290
	5/24/2023	4.37 J	1,300	113	3,660
	9/13/2023	4.41 J	1,420	118	4,500
	11/30/2023	0.612 J	1,350	131	3,960
MW-6	3/28/2023	Not Sampled - Dry			
	5/24/2023	Not Sampled - Dry			
	9/13/2023	Not Sampled - Dry			
	11/30/2023	Not Sampled - Dry			
MW-7	3/28/2023	12.2	5,140	295	14,200
	5/24/2023	6.69 J	976	181	2,130
	9/13/2023	4.03 J	1,010	198	2,240
	11/30/2023	1.63 B	890	175	2,260
MW-8	3/28/2023	7.29 J	1,950	75.9	5,090
	5/24/2023	7.51 J	2,030	88.3	4,040
	9/13/2023	7.52 J	2,100	95.4	6,330
	11/30/2023	4.50 J	2,210	97.2	5,900
MW-9	3/28/2023	10.4	5,540	460	16,300
	5/24/2023	10.3	6,050	463	12,100
	9/13/2023	11	6,040	470	15,600
	11/30/2023	10.3	5,400	400	16,200
MW-10	3/28/2023	Not Sampled - Dry			
	5/24/2023	10.3	5,950	482	17,300
	9/13/2023	7.22 J	1,910	52.1 B	4,590
	11/30/2023	7.77 J	1,680	52.2	4,920
MW-11	3/28/2023	Not Sampled - Dry			
	5/24/2023	Not Sampled - Dry			
	9/13/2023	Not Sampled - Dry			
	11/30/2023	Not Sampled - Dry			

TETRA TECH

Table 3
2023 Groundwater Analytical Summary
MCA 357
Lea County, New Mexico

Well ID	Sample Date	Bromide (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	TDS (mg/L)
NMWQCC Groundwater Quality Standards		**NE**	**250**	**600**	**1,000**
MW-12	3/28/2023	Not Sampled - Dry			
	5/24/2023	Not Sampled - Dry			
	9/13/2023	Not Sampled - Dry			
	11/30/2023	Not Sampled - Dry			
MW-13	3/28/2023	Not Sampled - Dry			
	5/24/2023	9.30 J	1,380	210	3,730 Q
	9/13/2023	6.72	1,460	220	3,190
	11/30/2023	4.59	1,610	216	3,680

Notes:

NMWQCC: New Mexico Water Quality Control Commission

Exceeds applicable regulatory standards

NE: Not Established

B: The same analyte is found in the associated blank.

TDS: Total Dissolved Solids

Q: Sample was prepared and/or analyzed past holding time as defined in the method. Concentrations should be considered minimum values.

J: The identification of the analyte is acceptable; the reported value is an estimate

TETRA TECH

Table 4
Quality Assurance/Quality Control Summary
MCA 357
Lea County, New Mexico

Well ID	Sample Date	Analyte	Primary Sample Result (mg/L)	Duplicate Sample Result (mg/L)	RPD	Within DQOs
MW-1	3/28/2023	Bromide	17.4	17.8	2.3%	Yes
		Chloride	7,680	8,050	4.7%	Yes
		Sulfate	148	154	4.0%	Yes
		TDS	23,000	27,000	16.0%	Yes
MW-1	5/24/2023	Bromide	69.9	83.9	18.2%	Yes
		Chloride	29,700	31,100	4.6%	Yes
		Sulfate	453	425	6.4%	Yes
		TDS	59,300	57,500	3.1%	Yes
MW-13	9/13/2023	Bromide	6.72	6.68	0.6%	Yes
		Chloride	1,460	1,470	0.7%	Yes
		Sulfate	220	217	1.4%	Yes
		TDS	3,190	3,050	4.5%	Yes
MW-13	11/30/2023	Bromide	4.59	4.65	1.3%	Yes
		Chloride	1,610	1,530	5.1%	Yes
		Sulfate	216	202	6.7%	Yes
		TDS	3,680	3,650	0.8%	Yes

Notes:

RPD: Relative Percent Difference calculated as = (SR-DR)*200/(SR+DR)

DQO: Data Quality Objectives

ND: Not Detected above the laboratory method detection limit

N/A: Not Applicable

APPENDIX A: LABORATORY ANALYTICAL DATA

ANALYTICAL REPORT

April 12, 2023

Tetra Tech EMI - Houston, TX

Sample Delivery Group:	L1600787
Samples Received:	04/01/2023
Project Number:	212C-HN-02228
Description:	MNR - MCA 357 2023

Report To: Dylon Breyman
1500 CityWest Boulevard
Suite 1000
Houston, TX 77042

Entire Report Reviewed By:

Chad A Upchurch
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

MW-8 L1600787-01 GW

Collected by: Matthew C. | Collected date/time: 03/28/23 15:45 | Received date/time: 04/01/23 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2034511	1	04/03/23 01:39	04/03/23 08:18	ARD	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2036083	10	04/05/23 19:56	04/05/23 19:56	GEB	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2036083	100	04/05/23 20:10	04/05/23 20:10	GEB	Mt. Juliet, TN

MW-3 L1600787-02 GW

Collected by: Matthew C. | Collected date/time: 03/29/23 09:30 | Received date/time: 04/01/23 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2034730	1	04/04/23 09:26	04/04/23 16:48	AS	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2036083	10	04/05/23 20:23	04/05/23 20:23	GEB	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2036083	100	04/05/23 20:36	04/05/23 20:36	GEB	Mt. Juliet, TN

MW-9 L1600787-03 GW

Collected by: Matthew C. | Collected date/time: 03/29/23 10:50 | Received date/time: 04/01/23 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2034730	1	04/04/23 09:26	04/04/23 16:48	AS	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2036083	10	04/05/23 20:48	04/05/23 20:48	GEB	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2036083	100	04/05/23 21:01	04/05/23 21:01	GEB	Mt. Juliet, TN

MW-4 L1600787-04 GW

Collected by: Matthew C. | Collected date/time: 03/29/23 12:35 | Received date/time: 04/01/23 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2034730	1	04/04/23 09:26	04/04/23 16:48	AS	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2036975	10	04/06/23 13:44	04/06/23 13:44	LBR	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2036975	100	04/06/23 13:57	04/06/23 13:57	LBR	Mt. Juliet, TN

MW-2 L1600787-05 GW

Collected by: Matthew C. | Collected date/time: 03/29/23 14:40 | Received date/time: 04/01/23 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2034730	1	04/04/23 09:26	04/04/23 16:48	AS	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2036975	1	04/06/23 14:10	04/06/23 14:10	LBR	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2036975	5	04/08/23 01:27	04/08/23 01:27	LBR	Mt. Juliet, TN

MW-7 L1600787-06 GW

Collected by: Matthew C. | Collected date/time: 03/30/23 10:20 | Received date/time: 04/01/23 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2034730	1	04/04/23 09:26	04/04/23 16:48	AS	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2036975	10	04/08/23 01:40	04/08/23 01:40	LBR	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2036975	100	04/08/23 01:54	04/08/23 01:54	LBR	Mt. Juliet, TN

MW-5 L1600787-07 GW

Collected by: Matthew C.
Collected date/time: 03/30/23 12:35
Received date/time: 04/01/23 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2034730	1	04/04/23 09:26	04/04/23 16:48	AS	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2036975	5	04/08/23 02:07	04/08/23 02:07	LBR	Mt. Juliet, TN

MW-1 L1600787-08 GW

Collected by: Matthew C.
Collected date/time: 03/30/23 14:20
Received date/time: 04/01/23 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2034730	1	04/04/23 09:26	04/04/23 16:48	AS	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2036975	10	04/08/23 02:34	04/08/23 02:34	LBR	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2036975	100	04/08/23 02:48	04/08/23 02:48	LBR	Mt. Juliet, TN

DUP-1 L1600787-09 GW

Collected by: Matthew C.
Collected date/time: 03/30/23 00:00
Received date/time: 04/01/23 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2034730	1	04/04/23 09:26	04/04/23 16:48	AS	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2036975	10	04/08/23 03:01	04/08/23 03:01	LBR	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2036975	100	04/08/23 03:15	04/08/23 03:15	LBR	Mt. Juliet, TN

CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Chad A Upchurch
Project Manager

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Dissolved Solids	5090		100	1	04/03/2023 08:18	WG2034511

Wet Chemistry by Method 9056A

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Bromide	7.29	J	3.53	10.0	10	04/05/2023 19:56	WG2036083
Chloride	1950		37.9	100	100	04/05/2023 20:10	WG2036083
Sulfate	75.9		5.94	50.0	10	04/05/2023 19:56	WG2036083

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Dissolved Solids	9340		200	1	04/04/2023 16:48	WG2034730

Wet Chemistry by Method 9056A

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Bromide	10.0	J	3.53	10.0	10	04/05/2023 20:23	WG2036083
Chloride	3450		37.9	100	100	04/05/2023 20:36	WG2036083
Sulfate	160		5.94	50.0	10	04/05/2023 20:23	WG2036083

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Dissolved Solids	16300		200	1	04/04/2023 16:48	WG2034730

Wet Chemistry by Method 9056A

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Bromide	10.4		3.53	10.0	10	04/05/2023 20:48	WG2036083
Chloride	5540		37.9	100	100	04/05/2023 21:01	WG2036083
Sulfate	460		5.94	50.0	10	04/05/2023 20:48	WG2036083

MW-4
Collected date/time: 03/29/23 12:35
L1600787

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Dissolved Solids	15800		200	1	04/04/2023 16:48	WG2034730

Wet Chemistry by Method 9056A

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Bromide	8.09	J	3.53	10.0	10	04/06/2023 13:44	WG2036975
Chloride	6290		37.9	100	100	04/06/2023 13:57	WG2036975
Sulfate	191		5.94	50.0	10	04/06/2023 13:44	WG2036975

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Dissolved Solids	958		20.0	1	04/04/2023 16:48	WG2034730

Wet Chemistry by Method 9056A

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Bromide	0.897	J	0.353	1.00	1	04/06/2023 14:10	WG2036975
Chloride	296		1.90	5.00	5	04/08/2023 01:27	WG2036975
Sulfate	84.5		0.594	5.00	1	04/06/2023 14:10	WG2036975

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Dissolved Solids	14200		200	1	04/04/2023 16:48	WG2034730

Wet Chemistry by Method 9056A

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Bromide	12.2		3.53	10.0	10	04/08/2023 01:40	WG2036975
Chloride	5140		37.9	100	100	04/08/2023 01:54	WG2036975
Sulfate	295		5.94	50.0	10	04/08/2023 01:40	WG2036975

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Dissolved Solids	3290		50.0	1	04/04/2023 16:48	WG2034730

Wet Chemistry by Method 9056A

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Bromide	5.61		1.76	5.00	5	04/08/2023 02:07	WG2036975
Chloride	610		1.90	5.00	5	04/08/2023 02:07	WG2036975
Sulfate	154		2.97	25.0	5	04/08/2023 02:07	WG2036975

MW-1
Collected date/time: 03/30/23 14:20
L1600787

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Dissolved Solids	23000		400	1	04/04/2023 16:48	WG2034730

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Bromide	17.4		3.53	10.0	10	04/08/2023 02:34	WG2036975
Chloride	7680		37.9	100	100	04/08/2023 02:48	WG2036975
Sulfate	148		5.94	50.0	10	04/08/2023 02:34	WG2036975

DUP-1
Collected date/time: 03/30/23 00:00
L1600787

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Dissolved Solids	27000		400	1	04/04/2023 16:48	WG2034730

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Bromide	17.8		3.53	10.0	10	04/08/2023 03:01	WG2036975
Chloride	8050		37.9	100	100	04/08/2023 03:15	WG2036975
Sulfate	154		5.94	50.0	10	04/08/2023 03:01	WG2036975

Method Blank (MB)

(MB) R3909358-1 04/03/23 08:18

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Dissolved Solids	U		10.0	10.0

L1599970-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1599970-01 04/03/23 08:18 • (DUP) R3909358-3 04/03/23 08:18

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	3170	3210	1	1.26		5

L1600410-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1600410-01 04/03/23 08:18 • (DUP) R3909358-4 04/03/23 08:18

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	426	431	1	1.17		5

Laboratory Control Sample (LCS)

(LCS) R3909358-2 04/03/23 08:18

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Dissolved Solids	8800	7820	88.9	77.3-123	

Method Blank (MB)

(MB) R3910412-1 04/04/23 16:48

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Dissolved Solids	U		10.0	10.0

L1600164-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1600164-01 04/04/23 16:48 • (DUP) R3910412-3 04/04/23 16:48

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	1130	1120	1	0.890		5

L1600187-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1600187-01 04/04/23 16:48 • (DUP) R3910412-4 04/04/23 16:48

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	465	467	1	0.429		5

Laboratory Control Sample (LCS)

(LCS) R3910412-2 04/04/23 16:48

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Dissolved Solids	8800	8460	96.1	77.3-123	

Method Blank (MB)

(MB) R3910082-1 04/05/23 09:57

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Bromide	U		0.353	1.00
Chloride	0.392	J	0.379	1.00
Sulfate	U		0.594	5.00

L1599592-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1599592-01 04/05/23 12:38 • (DUP) R3910082-3 04/05/23 12:52

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Bromide	0.570	0.588	1	0.000		15
Chloride	124	123	1	0.722		15
Sulfate	275	276	1	0.486	E	15

L1600488-09 Original Sample (OS) • Duplicate (DUP)

(OS) L1600488-09 04/05/23 17:17 • (DUP) R3910082-6 04/05/23 17:30

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Bromide	0.538	0.536	1	0.298	J	15
Chloride	4.02	4.06	1	0.938		15
Sulfate	7.79	7.96	1	2.15		15

Laboratory Control Sample (LCS)

(LCS) R3910082-2 04/05/23 10:10

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Bromide	40.0	38.6	96.5	80.0-120	
Chloride	40.0	38.5	96.3	80.0-120	
Sulfate	40.0	38.5	96.3	80.0-120	

L1599592-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1599592-01 04/05/23 12:38 • (MS) R3910082-4 04/05/23 13:05 • (MSD) R3910082-5 04/05/23 13:19

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Bromide	50.0	0.570	44.3	45.0	87.5	88.8	1	80.0-120			1.48	15
Chloride	50.0	124	166	166	83.9	84.8	1	80.0-120			0.257	15
Sulfate	50.0	275	316	316	82.7	82.3	1	80.0-120	E	E	0.0658	15

L1600488-09 Original Sample (OS) • Matrix Spike (MS)

(OS) L1600488-09 04/05/23 17:17 • (MS) R3910082-7 04/05/23 17:43

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Bromide	50.0	0.538	47.5	94.0	1	80.0-120	
Chloride	50.0	4.02	52.1	96.1	1	80.0-120	
Sulfate	50.0	7.79	56.3	97.0	1	80.0-120	

Method Blank (MB)

(MB) R3910937-1 04/06/23 10:11

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Bromide	U		0.353	1.00
Chloride	U		0.379	1.00
Sulfate	U		0.594	5.00

L1601388-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1601388-01 04/06/23 12:53 • (DUP) R3910937-3 04/06/23 13:05

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Bromide	U	U	1	0.000		15
Chloride	32.8	32.8	1	0.226		15
Sulfate	54.8	54.9	1	0.286		15

L1601497-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1601497-01 04/07/23 07:45 • (DUP) R3911005-1 04/07/23 07:58

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Bromide	1.03	0.999	1	2.79	J	15
Chloride	48.4	48.6	1	0.371		15
Sulfate	83.0	83.0	1	0.0636		15

Laboratory Control Sample (LCS)

(LCS) R3910937-2 04/06/23 10:24

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Bromide	40.0	39.0	97.6	80.0-120	
Chloride	40.0	39.1	97.7	80.0-120	
Sulfate	40.0	38.5	96.2	80.0-120	

L1601388-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1601388-01 04/06/23 12:53 • (MS) R3910937-4 04/06/23 13:18 • (MSD) R3910937-5 04/06/23 13:31

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Bromide	50.0	U	44.8	44.3	89.6	88.7	1	80.0-120			1.10	15
Chloride	50.0	32.8	81.9	82.0	98.3	98.4	1	80.0-120			0.0134	15
Sulfate	50.0	54.8	98.9	98.6	88.4	87.7	1	80.0-120			0.348	15

L1601497-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L1601497-01 04/07/23 07:45 • (MS) R3911005-2 04/07/23 08:10

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Bromide	50.0	1.03	50.2	98.4	1	80.0-120	
Chloride	50.0	48.4	96.0	95.2	1	80.0-120	
Sulfate	50.0	83.0	128	90.9	1	80.0-120	

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

Company Name/Address:
Tetra Tech EMI - Houston, TX
1500 CityWest Boulevard
Suite 1000
Houston. TX 77042

Billing Information:
Accounts Payable
901 West Wall
Suite 100
Midland, TX 79701

Pres Chk

Report to: Dylon Breyman

Email To: dylon.breyman@tetratech.com;matthew.castre

Project Description: MNR - MCA 357 2023

City/State Collected:

Please Circle: PT MT CT ET

Phone: 832-251-5160

Client Project # 212C-HN-02228

Lab Project # TETRAHTX-MCA357

Collected by (print): Matthew Castrejon

Site/Facility ID #

P.O. #

Collected by (signature):

Immediately Packed on Ice N___ Y ✓

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Date Results Needed

Quote #

Analysis / Container / Preservative

Chain of Custody Page 1 of 1

Pace
PEOPLE ADVANCING SCIENCE

MT JULIET, TN
12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # 160787
E098

Acctnum: TETRAHTX
Template: T217803
Prelogin: P988299
PM: 3564 - Chad A Upchurch
PB:
Shipped Via:

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	BROMIDE, CHLORIDE 250mlHDPE-NoPres	SULFATE 250mlHDPE-NoPres	TDS 1L-HDPE NoPres	Remarks	Sample # (lab only)
MW-8	G	GW		3-28-23	1545	3	X	X	X		-01
MW-3	G	GW		3-29-23	0930	3	X	X	X		-02
MW-9	G	GW		3-29-23	1050	3	X	X	X		-03
MW-4	G	GW		3-29-23	1235	3	X	X	X		-04
MW-2	G	GW		3-29-23	1440	3	X	X	X		-05
MW-7	G	GW		3-30-23	1020	3	X	X	X		-06
MW-5	G	GW		3-30-23	1235	3	X	X	X		-07
MW-1	G	GW		3-30-23	1420	3	X	X	X		-08
Dup	G	GW		-	-	3	X	X	X		-09
		GW									

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:

pH _____ Temp _____

Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking #

Sample Receipt Checklist
COC Seal Present/Intact: ✓NP __Y __N
COC Signed/Accurate: ✓Y __N
Bottles arrive intact: ✓Y __N
Correct bottles used: ✓Y __N
Sufficient volume sent: ✓Y __N
If Applicable
VOA Zero Headspace: __Y __N
Preservation Correct/Checked: __Y __N
RAD Screen <0.5 mR/hr: ✓Y __N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR	If preservation required by Login: Date/Time
Matthew Castrejon	3-31-23	0800			
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: 4.6 °C Bottles Received: 30	
	3/31/23	1700	SWA		
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: Time:	Hold: / Condition: NCF / OK
				4-1-23 0730	

ANALYTICAL REPORT

June 16, 2023

Tetra Tech EMI - Houston, TX

Sample Delivery Group:	L1620419
Samples Received:	05/26/2023
Project Number:	212C-HN-02228
Description:	MNR - MCA 357 GW

Report To: Dylon Breyman
1500 CityWest Boulevard
Suite 1000
Houston, TX 77042

Entire Report Reviewed By:

Chad A Upchurch
Project Manager

Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

MW-1 L1620419-01 GW

Collected by: G.S/H.M.I | Collected date/time: 05/24/23 13:55 | Received date/time: 05/26/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2068920	1	05/31/23 08:34	05/31/23 09:57	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2075572	10	06/12/23 02:37	06/12/23 02:37	GEB	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2075572	500	06/12/23 02:50	06/12/23 02:50	GEB	Mt. Juliet, TN

MW-2 L1620419-02 GW

Collected by: G.S/H.M.I | Collected date/time: 05/24/23 16:20 | Received date/time: 05/26/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2068920	1	05/31/23 08:34	05/31/23 09:57	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2075572	10	06/12/23 03:03	06/12/23 03:03	GEB	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2075572	100	06/12/23 03:17	06/12/23 03:17	GEB	Mt. Juliet, TN

MW-3 L1620419-03 GW

Collected by: G.S/H.M.I | Collected date/time: 05/24/23 14:05 | Received date/time: 05/26/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2068920	1	05/31/23 08:34	05/31/23 09:57	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2075572	10	06/12/23 03:30	06/12/23 03:30	GEB	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2075572	100	06/12/23 03:44	06/12/23 03:44	GEB	Mt. Juliet, TN

MW-4 L1620419-04 GW

Collected by: G.S/H.M.I | Collected date/time: 05/24/23 17:15 | Received date/time: 05/26/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2068920	1	05/31/23 08:34	05/31/23 09:57	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2075572	10	06/12/23 04:24	06/12/23 04:24	GEB	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2075572	100	06/12/23 04:37	06/12/23 04:37	GEB	Mt. Juliet, TN

MW-5 L1620419-05 GW

Collected by: G.S/H.M.I | Collected date/time: 05/24/23 15:40 | Received date/time: 05/26/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2068920	1	05/31/23 08:34	05/31/23 09:57	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2076785	20	06/13/23 18:14	06/13/23 18:14	GEB	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2076785	5	06/13/23 18:01	06/13/23 18:01	GEB	Mt. Juliet, TN

MW-7 L1620419-06 GW

Collected by: G.S/H.M.I | Collected date/time: 05/24/23 14:25 | Received date/time: 05/26/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2068920	1	05/31/23 08:34	05/31/23 09:57	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2076785	10	06/13/23 18:27	06/13/23 18:27	GEB	Mt. Juliet, TN

MW-8 L1620419-07 GW

Collected by: G.S/H.M.I | Collected date/time: 05/24/23 13:25 | Received date/time: 05/26/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2068920	1	05/31/23 08:34	05/31/23 09:57	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2076785	10	06/13/23 18:41	06/13/23 18:41	GEB	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2076785	100	06/13/23 18:54	06/13/23 18:54	GEB	Mt. Juliet, TN

MW-9 L1620419-08 GW

Collected by: G.S/H.M.I | Collected date/time: 05/24/23 14:50 | Received date/time: 05/26/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2068920	1	05/31/23 08:34	05/31/23 09:57	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2076785	10	06/13/23 19:08	06/13/23 19:08	GEB	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2076785	100	06/13/23 19:48	06/13/23 19:48	GEB	Mt. Juliet, TN

MW-10 L1620419-09 GW

Collected by: G.S/H.M.I | Collected date/time: 05/24/23 18:10 | Received date/time: 05/26/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2068920	1	05/31/23 08:34	05/31/23 09:57	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2076785	10	06/13/23 20:01	06/13/23 20:01	GEB	Mt. Juliet, TN

MW-13 L1620419-10 GW

Collected by: G.S/H.M.I | Collected date/time: 05/24/23 15:10 | Received date/time: 05/26/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2071808	1	06/05/23 12:50	06/05/23 14:29	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2076785	10	06/13/23 20:28	06/13/23 20:28	GEB	Mt. Juliet, TN

DUP-01 L1620419-11 GW

Collected by: G.S/H.M.I | Collected date/time: 05/24/23 15:30 | Received date/time: 05/26/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2068920	1	05/31/23 08:34	05/31/23 09:57	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2076785	50	06/13/23 20:55	06/13/23 20:55	GEB	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2076785	500	06/13/23 21:08	06/13/23 21:08	GEB	Mt. Juliet, TN

CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Chad A Upchurch
Project Manager

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Dissolved Solids	59300		1000	1	05/31/2023 09:57	WG2068920

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Bromide	69.9		3.53	10.0	10	06/12/2023 02:37	WG2075572
Chloride	29700		190	500	500	06/12/2023 02:50	WG2075572
Sulfate	453		5.94	50.0	10	06/12/2023 02:37	WG2075572

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Dissolved Solids	11400		200	1	05/31/2023 09:57	WG2068920

Wet Chemistry by Method 9056A

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Bromide	9.31	J	3.53	10.0	10	06/12/2023 03:03	WG2075572
Chloride	5340		37.9	100	100	06/12/2023 03:17	WG2075572
Sulfate	290		5.94	50.0	10	06/12/2023 03:03	WG2075572

MW-3
Collected date/time: 05/24/23 14:05
L1620419

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Dissolved Solids	8480		200	1	05/31/2023 09:57	WG2068920

Wet Chemistry by Method 9056A

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Bromide	10.2		3.53	10.0	10	06/12/2023 03:30	WG2075572
Chloride	3590		37.9	100	100	06/12/2023 03:44	WG2075572
Sulfate	158		5.94	50.0	10	06/12/2023 03:30	WG2075572

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Dissolved Solids	16100		200	1	05/31/2023 09:57	WG2068920

Wet Chemistry by Method 9056A

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Bromide	10.9		3.53	10.0	10	06/12/2023 04:24	WG2075572
Chloride	6350		37.9	100	100	06/12/2023 04:37	WG2075572
Sulfate	172		5.94	50.0	10	06/12/2023 04:24	WG2075572

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Dissolved Solids	3660		50.0	1	05/31/2023 09:57	WG2068920

Wet Chemistry by Method 9056A

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Bromide	4.37	J	1.76	5.00	5	06/13/2023 18:01	WG2076785
Chloride	1300		7.58	20.0	20	06/13/2023 18:14	WG2076785
Sulfate	113		2.97	25.0	5	06/13/2023 18:01	WG2076785

MW - 7
Collected date/time: 05/24/23 14:25
L1620419

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Dissolved Solids	2130		50.0	1	05/31/2023 09:57	WG2068920

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Bromide	6.69	J	3.53	10.0	10	06/13/2023 18:27	WG2076785
Chloride	976		3.79	10.0	10	06/13/2023 18:27	WG2076785
Sulfate	181		5.94	50.0	10	06/13/2023 18:27	WG2076785

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Dissolved Solids	4040		100	1	05/31/2023 09:57	WG2068920

Wet Chemistry by Method 9056A

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Bromide	7.51	J	3.53	10.0	10	06/13/2023 18:41	WG2076785
Chloride	2030		37.9	100	100	06/13/2023 18:54	WG2076785
Sulfate	88.3		5.94	50.0	10	06/13/2023 18:41	WG2076785

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Dissolved Solids	12100		200	1	05/31/2023 09:57	WG2068920

Wet Chemistry by Method 9056A

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Bromide	10.3		3.53	10.0	10	06/13/2023 19:08	WG2076785
Chloride	6050		37.9	100	100	06/13/2023 19:48	WG2076785
Sulfate	463		5.94	50.0	10	06/13/2023 19:08	WG2076785

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Dissolved Solids	2310		50.0	1	05/31/2023 09:57	WG2068920

Wet Chemistry by Method 9056A

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Bromide	7.23	J	3.53	10.0	10	06/13/2023 20:01	WG2076785
Chloride	1900		3.79	10.0	10	06/13/2023 20:01	WG2076785
Sulfate	45.1	J	5.94	50.0	10	06/13/2023 20:01	WG2076785

MW-13
Collected date/time: 05/24/23 15:10
L1620419

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Dissolved Solids	3730	Q	50.0	1	06/05/2023 14:29	WG2071808

Wet Chemistry by Method 9056A

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Bromide	9.30	J	3.53	10.0	10	06/13/2023 20:28	WG2076785
Chloride	1380		3.79	10.0	10	06/13/2023 20:28	WG2076785
Sulfate	210		5.94	50.0	10	06/13/2023 20:28	WG2076785

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Dissolved Solids	57500		1000	1	05/31/2023 09:57	WG2068920

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Bromide	83.9		17.6	50.0	50	06/13/2023 20:55	WG2076785
Chloride	31100		190	500	500	06/13/2023 21:08	WG2076785
Sulfate	425		29.7	250	50	06/13/2023 20:55	WG2076785

Method Blank (MB)

(MB) R3931855-1 05/31/23 09:57

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Dissolved Solids	U		10.0	10.0

L1620076-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1620076-01 05/31/23 09:57 • (DUP) R3931855-3 05/31/23 09:57

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	360	369	1	2.47		5

L1620161-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1620161-01 05/31/23 09:57 • (DUP) R3931855-4 05/31/23 09:57

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	172	184	1	6.74	J3	5

Laboratory Control Sample (LCS)

(LCS) R3931855-2 05/31/23 09:57

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Dissolved Solids	8800	7780	88.4	77.3-123	

Method Blank (MB)

(MB) R3934370-1 06/05/23 14:29

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Dissolved Solids	U		10.0	10.0

L1620293-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1620293-03 06/05/23 14:29 • (DUP) R3934370-3 06/05/23 14:29

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	7540	7840	1	3.90		5

L1620293-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1620293-04 06/05/23 14:29 • (DUP) R3934370-4 06/05/23 14:29

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	6170	5960	1	3.46		5

Laboratory Control Sample (LCS)

(LCS) R3934370-2 06/05/23 14:29

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Dissolved Solids	8800	8550	97.2	77.3-123	

Method Blank (MB)

(MB) R3935997-1 06/11/23 22:33

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Bromide	U		0.353	1.00
Chloride	U		0.379	1.00
Sulfate	U		0.594	5.00

L1620519-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1620519-03 06/12/23 05:18 • (DUP) R3935997-4 06/12/23 05:31

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Bromide	0.766	0.769	1	0.482	J	15
Chloride	12.8	13.0	1	1.38		15
Sulfate	0.642	0.647	1	0.775	J	15

L1620519-17 Original Sample (OS) • Duplicate (DUP)

(OS) L1620519-17 06/12/23 09:47 • (DUP) R3935997-7 06/12/23 10:00

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Bromide	0.873	0.872	1	0.115	J	15
Chloride	92.3	92.0	1	0.295		15
Sulfate	55.3	55.1	1	0.292		15

Laboratory Control Sample (LCS)

(LCS) R3935997-3 06/12/23 00:50

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Bromide	40.0	37.9	94.9	80.0-120	
Chloride	40.0	38.1	95.4	80.0-120	
Sulfate	40.0	37.5	93.8	80.0-120	

L1620519-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1620519-03 06/12/23 05:18 • (MS) R3935997-5 06/12/23 05:45 • (MSD) R3935997-6 06/12/23 05:58

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Bromide	50.0	0.766	48.0	48.4	94.5	95.3	1	80.0-120			0.869	15
Chloride	50.0	12.8	62.3	62.9	98.9	100	1	80.0-120			0.996	15
Sulfate	50.0	0.642	47.2	47.9	93.2	94.5	1	80.0-120			1.34	15

L1620519-17 Original Sample (OS) • Matrix Spike (MS)

(OS) L1620519-17 06/12/23 09:47 • (MS) R3935997-8 06/12/23 10:14

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Bromide	50.0	0.873	46.5	91.2	1	80.0-120	
Chloride	50.0	92.3	138	91.1	1	80.0-120	
Sulfate	50.0	55.3	101	91.4	1	80.0-120	

Method Blank (MB)

(MB) R3936689-1 06/13/23 14:33

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Bromide	U		0.353	1.00
Chloride	0.416	J	0.379	1.00
Sulfate	U		0.594	5.00

L1620489-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1620489-01 06/13/23 23:23 • (DUP) R3936689-3 06/13/23 23:36

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Bromide	0.544	0.542	1	0.387	J	15
Chloride	2.80	2.74	1	1.92		15
Sulfate	2.90	2.85	1	1.74	J	15

L1620489-09 Original Sample (OS) • Duplicate (DUP)

(OS) L1620489-09 06/14/23 02:17 • (DUP) R3936689-6 06/14/23 02:31

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Bromide	0.654	0.634	1	2.98	J	15
Chloride	5.93	5.79	1	2.49		15
Sulfate	U	U	1	0.000		15

Laboratory Control Sample (LCS)

(LCS) R3936689-2 06/13/23 14:46

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Bromide	40.0	38.5	96.3	80.0-120	
Chloride	40.0	38.6	96.6	80.0-120	
Sulfate	40.0	38.0	95.0	80.0-120	

L1620489-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1620489-01 06/13/23 23:23 • (MS) R3936689-4 06/13/23 23:50 • (MSD) R3936689-5 06/14/23 00:03

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Bromide	50.0	0.544	48.3	47.9	95.6	94.7	1	80.0-120			0.893	15
Chloride	50.0	2.80	51.7	51.3	97.8	97.0	1	80.0-120			0.770	15
Sulfate	50.0	2.90	50.3	50.1	94.8	94.3	1	80.0-120			0.455	15

L1620489-09 Original Sample (OS) • Matrix Spike (MS)

(OS) L1620489-09 06/14/23 02:17 • (MS) R3936689-7 06/14/23 02:44

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Bromide	50.0	0.654	47.8	94.4	1	80.0-120	
Chloride	50.0	5.93	55.6	99.4	1	80.0-120	
Sulfate	50.0	U	47.4	94.8	1	80.0-120	

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
J	The identification of the analyte is acceptable; the reported value is an estimate.
J3	The associated batch QC was outside the established quality control range for precision.
Q	Sample was prepared and/or analyzed past holding time as defined in the method. Concentrations should be considered minimum values.

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

Company Name/Address:
Tetra Tech EMI - Houston, TX

1500 CityWest Boulevard
Suite 1000
Houston. TX 77042

Billing Information:
Accounts Payable
901 West Wall
Suite 100
Midland, TX 79701

Pres Chk

Report to:
Dylon Breyman

Email To:
dylon.breyman@tetratech.com;matthew.castre

Project Description:
MNR - MCA 357 GW

City/State Collected: MALJAMAR, NM

Please Circle: PT MT CT ET

Phone: **832-251-5160**

Client Project #
212C-HN-02228

Lab Project #
TETRAHTX-MCA357

Collected by (print):
Greg Scherbensice / HMI

Site/Facility ID #
RRAM

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y ✓

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Date Results Needed

Quote #

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	BROMIDE, CHLORIDE 250mlHDPE-NoPres	SULFATE 250mlHDPE-NoPres	TDS 1L-HDPE NoPres							Remarks	Sample # (lab only)
MW-1	Grab	GW		5/24/23	1355	2	X	X	X								-01
MW-2		GW			1620												-02
MW-3		GW			1405												-03
MW-4		GW			1715												-04
MW-5		GW			1540												-05
~~MW-6~~		GW								Not sampled, DRY							
MW-7		GW			1425												-06
MW-8		GW			1325												-07
MW-9		GW			1450												-08
MW-10		GW			1810												-09

* Matrix:
SS - Soil **AIR** - Air **F** - Filter
GW - Groundwater **B** - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:

pH _____ Temp _____

Flow _____ Other _____

Samples returned via:
__ UPS ✓ FedEx __ Courier _____

Tracking #

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / (No) HCL / MeoH TBR	
	5/25/23	1530			
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: °C Bottles Received: 22	If preservation required by Login: Date/Time
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 5.26.23 Time: 9:00	Hold: Condition: NCF / OK

Sample Receipt Checklist

COC Seal Present/Intact:	NP	(Y) N
COC Signed/Accurate:		Y N
Bottles arrive intact:		Y N
Correct bottles used:		Y N
Sufficient volume sent:		Y N
If Applicable		
VOA Zero Headspace:		Y N
Preservation Correct/Checked:		Y N
RAD Screen <0.5 mR/hr:		(Y) N

Chain of Custody Page 1 of 2

Pace
PEOPLE ADVANCING SCIENCE

MT JULIET, TN

12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # L1620419
B038

Table

Acctnum: TETRAHTX

Template: **T217803**

Prelogin: **P999559**

PM: **3564 - Chad A Upchurch**

PB:

Shipped Via:

Company Name/Address:
Tetra Tech EMI - Houston, TX

1500 CityWest Boulevard
Suite 1000
Houston, TX 77042

Billing Information:
Accounts Payable
901 West Wall
Suite 100
Midland, TX 79701

Pres Chk

Report to:
Dylon Breyman

Email To:
dylon.breyman@tetratech.com;matthew.castre

Project Description:
MNR - MCA 357 GW

City/State Collected: MALJAMAR, NM

Please Circle: PT MT CT ET

Phone: **832-251-5160**

Client Project #
212C-HN-02228

Lab Project #
TETRAHTX-MCA357

Collected by (print):
Greg Scherbensike - ITMI TOAM

Site/Facility ID #

P.O. #

Collected by (signature):

Immediately
Packed on Ice N ___ Y ✓

Rush? (Lab MUST be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Date Results Needed

Quote #

No. of Cntrs

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	BROMIDE, CHLORIDE 250mlHDPE-NoPres	SULFATE 250mlHDPE-NoPres	TDS 1L-HDPE NoPres							Remarks	Sample # (lab only)
~~MW-11~~	~~Grab~~	~~GW~~		~~5/24/23~~		2	~~X~~	~~X~~	~~X~~							~~NOT sampled, dry~~	
~~MW-12~~	↓	~~GW~~		↓	-	↓	↓	↓	↓							~~NOT sampled, dry~~	
MW-13		GW			1510												-10
Dup-01		GW			1530												-11
		GW															
		GW															
		GW															
		GW															
		GW															
		GW															

Chain of Custody Page 1 of 1

Pace
PEOPLE ADVANCING SCIENCE

MT JULIET, TN

12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # L1620419

Table #

Acctnum: **TETRAHTX**
Template: **T217803**
Prelogin: **P999559**
PM: **3564 - Chad A Upchurch**
PB:

Shipped Via:

* Matrix:
SS - Soil **AIR** - Air **F** - Filter
GW - Groundwater **B** - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS ✓ FedEx __ Courier _____

Tracking #

Sample Receipt Checklist

COC Seal Present/Intact:	NP	Y N
COC Signed/Accurate:		✓Y N
Bottles arrive intact:		✓Y N
Correct bottles used:		✓Y N
Sufficient volume sent:		✓Y N
If Applicable		
VOA Zero Headspace:		Y N
Preservation Correct/Checked:		Y N
RAD Screen <0.5 mR/hr:		✓Y N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR	
	5/25/23	1530			
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: °C	Bottles Received: 22
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 5.26.23	Time: 9:00

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

L1620419

Tracking Numbers	Temperature
6337 3248 5554	USAT 0.6 to 0.6
6337 3248 5583	USAT 0.3 to 2.2

Pace Analytical®

ANALYTICAL REPORT

October 02, 2023

Tetra Tech EMI - Houston, TX

Sample Delivery Group:	L1656006
Samples Received:	09/14/2023
Project Number:	212C-HN-02228
Description:	MNR - MCA 357 GW

Report To: Dylon Breyman
1500 CityWest Boulevard
Suite 1000
Houston, TX 77042

Entire Report Reviewed By:

Chad A Upchurch
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

MW-1 L1656006-01 GW

Collected by: MI Team | Collected date/time: 09/13/23 10:20 | Received date/time: 09/14/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2139037	1	09/25/23 16:15	09/26/23 09:36	JAC	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2134880	50	09/20/23 11:59	09/20/23 11:59	GEB	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2134880	500	09/20/23 12:37	09/20/23 12:37	GEB	Mt. Juliet, TN

MW-2 L1656006-02 GW

Collected by: MI Team | Collected date/time: 09/13/23 09:40 | Received date/time: 09/14/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2134672	1	09/18/23 23:56	09/19/23 19:39	JAC	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2134880	10	09/20/23 12:50	09/20/23 12:50	GEB	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2134880	100	09/20/23 13:03	09/20/23 13:03	GEB	Mt. Juliet, TN

MW-3 L1656006-03 GW

Collected by: MI Team | Collected date/time: 09/13/23 09:40 | Received date/time: 09/14/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2134672	1	09/18/23 23:56	09/19/23 19:39	JAC	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2134880	10	09/20/23 13:16	09/20/23 13:16	GEB	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2134880	100	09/20/23 13:29	09/20/23 13:29	GEB	Mt. Juliet, TN

MW-4 L1656006-04 GW

Collected by: MI Team | Collected date/time: 09/13/23 12:05 | Received date/time: 09/14/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2134672	1	09/18/23 23:56	09/19/23 19:39	JAC	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2134880	10	09/20/23 13:41	09/20/23 13:41	GEB	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2134880	100	09/20/23 13:54	09/20/23 13:54	GEB	Mt. Juliet, TN

MW-5 L1656006-05 GW

Collected by: MI Team | Collected date/time: 09/13/23 11:05 | Received date/time: 09/14/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2134672	1	09/18/23 23:56	09/19/23 19:39	JAC	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2134880	20	09/20/23 14:20	09/20/23 14:20	GEB	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2134880	5	09/20/23 14:07	09/20/23 14:07	GEB	Mt. Juliet, TN

MW-7 L1656006-06 GW

Collected by: MI Team | Collected date/time: 09/13/23 09:00 | Received date/time: 09/14/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2134672	1	09/18/23 23:56	09/19/23 19:39	JAC	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2134880	20	09/20/23 15:11	09/20/23 15:11	GEB	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2134880	5	09/20/23 14:33	09/20/23 14:33	GEB	Mt. Juliet, TN

SAMPLE SUMMARY

MW-8 L1656006-07 GW

Collected by: MI Team | Collected date/time: 09/13/23 08:25 | Received date/time: 09/14/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2134672	1	09/18/23 23:56	09/19/23 19:39	JAC	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2134880	10	09/20/23 15:24	09/20/23 15:24	GEB	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2134880	100	09/20/23 15:37	09/20/23 15:37	GEB	Mt. Juliet, TN

MW-9 L1656006-08 GW

Collected by: MI Team | Collected date/time: 09/13/23 10:20 | Received date/time: 09/14/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2134672	1	09/18/23 23:56	09/19/23 19:39	JAC	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2134880	10	09/20/23 15:51	09/20/23 15:51	GEB	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2134880	100	09/20/23 16:05	09/20/23 16:05	GEB	Mt. Juliet, TN

MW-10 L1656006-09 GW

Collected by: MI Team | Collected date/time: 09/13/23 09:00 | Received date/time: 09/14/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2134672	1	09/18/23 23:56	09/19/23 19:39	JAC	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2134880	10	09/20/23 16:18	09/20/23 16:18	GEB	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2134880	100	09/20/23 16:31	09/20/23 16:31	GEB	Mt. Juliet, TN

MW-13 L1656006-10 GW

Collected by: MI Team | Collected date/time: 09/13/23 11:05 | Received date/time: 09/14/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2134675	1	09/19/23 00:12	09/19/23 15:40	JAC	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2134880	20	09/20/23 16:57	09/20/23 16:57	GEB	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2134880	5	09/20/23 16:44	09/20/23 16:44	GEB	Mt. Juliet, TN

DUP-01 L1656006-11 GW

Collected by: MI Team | Collected date/time: 09/13/23 10:00 | Received date/time: 09/14/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2134675	1	09/19/23 00:12	09/19/23 15:40	JAC	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2134880	20	09/20/23 17:48	09/20/23 17:48	GEB	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2134880	5	09/20/23 17:10	09/20/23 17:10	GEB	Mt. Juliet, TN

CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Chad A Upchurch
Project Manager

MW-1
Collected date/time: 09/13/23 10:20
L1656006

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Dissolved Solids	64100	Q	1000	1	09/26/2023 09:36	WG2139037

Wet Chemistry by Method 9056A

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Bromide	108		17.6	50.0	50	09/20/2023 11:59	WG2134880
Chloride	38900		190	500	500	09/20/2023 12:37	WG2134880
Sulfate	560		29.7	250	50	09/20/2023 11:59	WG2134880

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Dissolved Solids	13300		200	1	09/19/2023 19:39	WG2134672

Wet Chemistry by Method 9056A

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Bromide	9.33	J	3.53	10.0	10	09/20/2023 12:50	WG2134880
Chloride	5500		37.9	100	100	09/20/2023 13:03	WG2134880
Sulfate	309		5.94	50.0	10	09/20/2023 12:50	WG2134880

Sample Narrative:

L1656006-02 WG2134880: Dilution due to matrix.

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Dissolved Solids	9220		200	1	09/19/2023 19:39	WG2134672

Wet Chemistry by Method 9056A

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Bromide	10.2		3.53	10.0	10	09/20/2023 13:16	WG2134880
Chloride	3750		37.9	100	100	09/20/2023 13:29	WG2134880
Sulfate	171		5.94	50.0	10	09/20/2023 13:16	WG2134880

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Dissolved Solids	14400		200	1	09/19/2023 19:39	WG2134672

Wet Chemistry by Method 9056A

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Bromide	11.2		3.53	10.0	10	09/20/2023 13:41	WG2134880
Chloride	6640		37.9	100	100	09/20/2023 13:54	WG2134880
Sulfate	186		5.94	50.0	10	09/20/2023 13:41	WG2134880

MW-3
Collected date/time: 09/13/23 11:05
L1656006

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Dissolved Solids	4500		50.0	1	09/19/2023 19:39	WG2134672

Wet Chemistry by Method 9056A

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Bromide	4.41	J	1.76	5.00	5	09/20/2023 14:07	WG2134880
Chloride	1420		7.58	20.0	20	09/20/2023 14:20	WG2134880
Sulfate	118		2.97	25.0	5	09/20/2023 14:07	WG2134880

Sample Narrative:

L1656006-05 WG2134880: Dilution due to matrix.

MW - 7
Collected date/time: 09/13/23 09:00
L1656006

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Dissolved Solids	2240		50.0	1	09/19/2023 19:39	WG2134672

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Bromide	4.03	J	1.76	5.00	5	09/20/2023 14:33	WG2134880
Chloride	1010		7.58	20.0	20	09/20/2023 15:11	WG2134880
Sulfate	198		2.97	25.0	5	09/20/2023 14:33	WG2134880

Sample Narrative:

L1656006-06 WG2134880: Dilution due to matrix.

MW-8
Collected date/time: 09/13/23 08:25
L1656006

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Dissolved Solids	6330		100	1	09/19/2023 19:39	WG2134672

Wet Chemistry by Method 9056A

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Bromide	7.52	J	3.53	10.0	10	09/20/2023 15:24	WG2134880
Chloride	2100		37.9	100	100	09/20/2023 15:37	WG2134880
Sulfate	95.4		5.94	50.0	10	09/20/2023 15:24	WG2134880

Sample Narrative:

L1656006-07 WG2134880: Dilution due to matrix.

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Dissolved Solids	17300		200	1	09/19/2023 19:39	WG2134672

Wet Chemistry by Method 9056A

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Bromide	10.3		3.53	10.0	10	09/20/2023 15:51	WG2134880
Chloride	5950		37.9	100	100	09/20/2023 16:05	WG2134880
Sulfate	482		5.94	50.0	10	09/20/2023 15:51	WG2134880

MW-10
Collected date/time: 09/13/23 09:00
L1656006

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Dissolved Solids	4590		100	1	09/19/2023 19:39	WG2134672

Wet Chemistry by Method 9056A

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Bromide	7.22	J	3.53	10.0	10	09/20/2023 16:18	WG2134880
Chloride	1910		37.9	100	100	09/20/2023 16:31	WG2134880
Sulfate	52.1	B	5.94	50.0	10	09/20/2023 16:18	WG2134880

Sample Narrative:

L1656006-09 WG2134880: Dilution due to matrix.

MW-13
Collected date/time: 09/13/23 11:05
L1656006

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Dissolved Solids	3190		50.0	1	09/19/2023 15:40	WG2134675

Wet Chemistry by Method 9056A

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Bromide	6.72		1.76	5.00	5	09/20/2023 16:44	WG2134880
Chloride	1460		7.58	20.0	20	09/20/2023 16:57	WG2134880
Sulfate	220		2.97	25.0	5	09/20/2023 16:44	WG2134880

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Dissolved Solids	3050		50.0	1	09/19/2023 15:40	WG2134675

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Bromide	6.68		1.76	5.00	5	09/20/2023 17:10	WG2134880
Chloride	1470		7.58	20.0	20	09/20/2023 17:48	WG2134880
Sulfate	217		2.97	25.0	5	09/20/2023 17:10	WG2134880

Method Blank (MB)

(MB) R3977257-1 09/19/23 19:39

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Dissolved Solids	U		10.0	10.0

L1655970-08 Original Sample (OS) • Duplicate (DUP)

(OS) L1655970-08 09/19/23 19:39 • (DUP) R3977257-3 09/19/23 19:39

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	3290	3340	1	1.51		5

L1655972-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1655972-04 09/19/23 19:39 • (DUP) R3977257-4 09/19/23 19:39

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	677	719	1	5.92	J3	5

Laboratory Control Sample (LCS)

(LCS) R3977257-2 09/19/23 19:39

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Dissolved Solids	8800	8520	96.8	77.3-123	

Method Blank (MB)

(MB) R3975959-1 09/19/23 15:40

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Dissolved Solids	U		10.0	10.0

L1656258-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1656258-02 09/19/23 15:40 • (DUP) R3975959-3 09/19/23 15:40

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	535	541	1	1.12		5

L1656258-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1656258-03 09/19/23 15:40 • (DUP) R3975959-4 09/19/23 15:40

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	859	849	1	1.09		5

Laboratory Control Sample (LCS)

(LCS) R3975959-2 09/19/23 15:40

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Dissolved Solids	8800	8460	96.1	77.3-123	

Method Blank (MB)

(MB) R3979049-1 09/26/23 09:36

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Dissolved Solids	U	J	10.0	10.0

L1657767-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1657767-01 09/26/23 09:36 • (DUP) R3979049-3 09/26/23 09:36

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	990	1010	1	1.60		5

L1658529-09 Original Sample (OS) • Duplicate (DUP)

(OS) L1658529-09 09/26/23 09:36 • (DUP) R3979049-4 09/26/23 09:36

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	982	998	1	1.62		5

Laboratory Control Sample (LCS)

(LCS) R3979049-2 09/26/23 09:36

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Dissolved Solids	8800	8690	98.8	77.3-123	

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Method Blank (MB)

(MB) R3976173-1 09/20/23 09:20

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Bromide	U		0.353	1.00
Chloride	U		0.379	1.00
Sulfate	0.623	J	0.594	5.00

L1655802-21 Original Sample (OS) • Duplicate (DUP)

(OS) L1655802-21 09/20/23 10:41 • (DUP) R3976173-3 09/20/23 10:54

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Bromide	U	U	1	0.000		15
Chloride	0.643	0.654	1	1.70	J	15
Sulfate	0.887	0.888	1	0.113	J	15

L1655979-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1655979-03 09/20/23 20:47 • (DUP) R3976173-6 09/20/23 21:01

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Bromide	0.683	0.683	1	0.0439	J	15
Chloride	104	104	1	0.390		15
Sulfate	144	145	1	0.280		15

Laboratory Control Sample (LCS)

(LCS) R3976173-2 09/20/23 09:34

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Bromide	40.0	40.1	100	80.0-120	
Chloride	40.0	39.8	99.5	80.0-120	
Sulfate	40.0	39.3	98.3	80.0-120	

L1655802-21 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1655802-21 09/20/23 10:41 • (MS) R3976173-4 09/20/23 11:07 • (MSD) R3976173-5 09/20/23 11:20

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Bromide	40.0	U	41.4	41.2	104	103	1	80.0-120			0.547	15
Chloride	40.0	0.643	41.5	41.3	102	102	1	80.0-120			0.467	15
Sulfate	40.0	0.887	41.4	41.2	101	101	1	80.0-120			0.332	15

L1655979-03 Original Sample (OS) • Matrix Spike (MS)

(OS) L1655979-03 09/20/23 20:47 • (MS) R3976173-7 09/20/23 21:14

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Bromide	40.0	0.683	40.1	98.5	1	80.0-120	
Chloride	40.0	104	123	49.3	1	80.0-120	J6
Sulfate	40.0	144	157	30.5	1	80.0-120	J6

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
B	The same analyte is found in the associated blank.
J	The identification of the analyte is acceptable; the reported value is an estimate.
J3	The associated batch QC was outside the established quality control range for precision.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
Q	Sample was prepared and/or analyzed past holding time as defined in the method. Concentrations should be considered minimum values.

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

Company Name/Address:
Tetra Tech EMI - Houston, TX
1500 CityWest Boulevard
Suite 1000
Houston. TX 77042

Billing Information:
Accounts Payable
901 West Wall
Suite 100
Midland, TX 79701

Pres Chk

Report to: **Dylon Breyman**

Email To: **dylon.breyman@tetratech.com;matthew.castre**

Project Description: **MNR - MCA 357 GW**

City/State Collected: MALJAMAR, NM

Please Circle: PT MT CT ET

Phone: **832-251-5160**

Client Project # **212C-HN-02228**

Lab Project # **TETRAHTX-MCA357**

Collected by (print): HMI TEAM

Site/Facility ID #

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y ✓

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

No. of Cntrs

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	BROMIDE, CHLORIDE 250mlHDPE-NoPres	SULFATE 250mlHDPE-NoPres	TDS 1L-HDPE NoPres	Remarks	Sample # (lab only)
MW-1	Grab	GW		9/13/23	1020	2	X	X	X		01
MW-2		GW			940		X	X	X		02
MW-3		GW			940		X	X	X		03
MW-4		GW			1205		X	X	X		04
MW-5		GW			1105		X	X	X		05
~~MW-6~~		GW					X	X	X	Not sampled, DRY	~~06~~
MW-7		GW			900		X	X	X		06
MW-8		GW			825		X	X	X		07
MW-9		GW			1020		X	X	X		08
MW-10		GW			900		X	X	X		09

Chain of Custody Page 1 of 2

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MT JULIET, TN
12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # L1656006

C102

Ta

Acctnum: **TETRAHTX**
Template: **T217803**
Prelogin: **P1022102**
PM: **3564 - Chad A Upchurch**
PB:
Shipped Via:

* Matrix:
SS - Soil **AIR** - Air **F** - Filter
GW - Groundwater **B** - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:

pH _____ Temp _____
Flow _____ Other _____

Samples returned via: __UPS ✓FedEx __Courier _____

Tracking # 6841 8548 9173

Sample Receipt Checklist
COC Seal Present/Intact: __NP ✓Y __N
COC Signed/Accurate: __Y __N
Bottles arrive intact: __Y __N
Correct bottles used: __Y __N
Sufficient volume sent: __Y __N
If Applicable
VOA Zero Headspace: __Y __N
Preservation Correct/Checked: __Y __N
RAD Screen <0.5 mR/hr: __Y __N

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR	If preservation required by Login: Date/Time
	9/13/23	1500			
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Temp: 2.9-.1 °C Bottles Received: 2.9-.1 = 2.9 2	
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 9.14.23 Time: 0845	Hold: / Condition: NCF / OK

Company Name/Address:
Tetra Tech EMI - Houston, TX
1500 CityWest Boulevard
Suite 1000
Houston. TX 77042

Billing Information:
Accounts Payable
901 West Wall
Suite 100
Midland, TX 79701

Pres Chk

Report to:
Dylon Breyman

Email To:
dylon.breyman@tetratech.com;matthew.castre

Project Description:
MNR - MCA 357 GW

City/State Collected: MALJAMAR, NM

Please Circle: PT MT CT ET

Phone: **832-251-5160**

Client Project #
212C-HN-02228

Lab Project #
TETRAHTX-MCA357

Collected by (print):
HMI TEAM

Site/Facility ID #

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y ✓

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Date Results Needed

Quote #

No. of Cntrs

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	BROMIDE, CHLORIDE 250mlHDPE-NoPres	SULFATE 250mlHDPE-NoPres	TDS 1L-HDPE NoPres							Remarks	Sample # (lab only)
~~MW-11~~	Grab	~~GW~~					X	X	X							NOT SAMPLED; DRY	
~~MW-12~~		~~GW~~					X	X	X							NOT SAMPLED; DRY	
MW-13		GW		9/13/23	1105	2	X	X	X								10
DUP-01	↓	GW		↓	1000	↓	X	X	X								11
		GW															
		GW															
		GW															
		GW															
		GW															
		GW															
		GW															

Chain of Custody Page ___ of ___

Pace
PEOPLE ADVANCING SCIENCE

MT JULIET, TN
12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # L1656086

Table #

Acctnum: **TETRAHTX**
Template:**T217803**
Prelogin: **P1022102**
PM: **3564 - Chad A Upchurch**
PB:

Shipped Via:

* Matrix:
SS - Soil **AIR** - Air **F** - Filter
GW - Groundwater **B** - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS ✓ FedEx __ Courier _____

Tracking # 6841 8348 8273

Sample Receipt Checklist
COC Seal Present/Intact: __NP ✓Y __N
COC Signed/Accurate: ✓Y __N
Bottles arrive intact: ✓Y __N
Correct bottles used: ✓Y __N
Sufficient volume sent: ✓Y __N
If Applicable
VOA Zero Headspace: __Y __N
Preservation Correct/Checked: ✓Y __N
RAD Screen <0.5 mR/hr: ✓Y __N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR	If preservation required by Login: Date/Time
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: 2.9+0.2=3.1 °C Bottles Received: 22	
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 9.14.23 Time: 0845	Hold: Condition: NCF / OK

ANALYTICAL REPORT

December 21, 2023

Tetra Tech EMI - Houston, TX

Sample Delivery Group:	L1683710
Samples Received:	12/01/2023
Project Number:	212C-HN-02228
Description:	MNR - MCA 357 GW

Report To: Chuck Terhune
1500 CityWest Boulevard
Suite 1000
Houston, TX 77042

Entire Report Reviewed By:

Chad A Upchurch
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

MW-1 L1683710-01 GW

Collected by: G.S/H.M.I | Collected date/time: 11/30/23 10:20 | Received date/time: 12/01/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2183201	1	12/05/23 16:25	12/05/23 20:33	NTG	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2186492	50	12/12/23 17:30	12/12/23 17:30	GEB	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2186492	500	12/12/23 17:45	12/12/23 17:45	GEB	Mt. Juliet, TN

MW-2 L1683710-02 GW

Collected by: G.S/H.M.I | Collected date/time: 11/30/23 11:00 | Received date/time: 12/01/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2183201	1	12/05/23 16:25	12/05/23 20:33	NTG	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2187466	10	12/15/23 15:10	12/15/23 15:10	GEB	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2187466	100	12/15/23 15:25	12/15/23 15:25	GEB	Mt. Juliet, TN

MW-3 L1683710-03 GW

Collected by: G.S/H.M.I | Collected date/time: 11/30/23 08:30 | Received date/time: 12/01/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2183201	1	12/05/23 16:25	12/05/23 20:33	NTG	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2187473	10	12/14/23 02:47	12/14/23 02:47	GEB	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2187473	100	12/14/23 03:02	12/14/23 03:02	GEB	Mt. Juliet, TN

MW-4 L1683710-04 GW

Collected by: G.S/H.M.I | Collected date/time: 11/30/23 09:40 | Received date/time: 12/01/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2183201	1	12/05/23 16:25	12/05/23 20:33	NTG	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2187473	10	12/14/23 03:16	12/14/23 03:16	GEB	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2187473	100	12/14/23 03:31	12/14/23 03:31	GEB	Mt. Juliet, TN

MW-5 L1683710-05 GW

Collected by: G.S/H.M.I | Collected date/time: 11/30/23 09:15 | Received date/time: 12/01/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2183201	1	12/05/23 16:25	12/05/23 20:33	NTG	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2187473	1	12/14/23 03:46	12/14/23 03:46	GEB	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2187473	50	12/14/23 04:01	12/14/23 04:01	GEB	Mt. Juliet, TN

MW-7 L1683710-06 GW

Collected by: G.S/H.M.I | Collected date/time: 11/30/23 11:40 | Received date/time: 12/01/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2183201	1	12/05/23 16:25	12/05/23 20:33	NTG	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2190188	1	12/15/23 17:02	12/15/23 17:02	ASM	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2190188	10	12/15/23 17:16	12/15/23 17:16	ASM	Mt. Juliet, TN

SAMPLE SUMMARY

MW-8 L1683710-07 GW

Collected by: G.S/H.M.I | Collected date/time: 11/30/23 11:05 | Received date/time: 12/01/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2183201	1	12/05/23 16:25	12/05/23 20:33	NTG	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2187473	10	12/14/23 04:46	12/14/23 04:46	GEB	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2187473	100	12/14/23 05:31	12/14/23 05:31	GEB	Mt. Juliet, TN

MW-9 L1683710-08 GW

Collected by: G.S/H.M.I | Collected date/time: 11/30/23 09:55 | Received date/time: 12/01/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2183201	1	12/05/23 16:25	12/05/23 20:33	NTG	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2189205	10	12/14/23 14:59	12/14/23 14:59	GEB	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2189205	100	12/14/23 15:12	12/14/23 15:12	GEB	Mt. Juliet, TN

MW-10 L1683710-09 GW

Collected by: G.S/H.M.I | Collected date/time: 11/30/23 11:55 | Received date/time: 12/01/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2183201	1	12/05/23 16:25	12/05/23 20:33	NTG	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2189205	10	12/14/23 15:24	12/14/23 15:24	GEB	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2189205	100	12/14/23 15:37	12/14/23 15:37	GEB	Mt. Juliet, TN

MW-13 L1683710-10 GW

Collected by: G.S/H.M.I | Collected date/time: 11/30/23 08:25 | Received date/time: 12/01/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2183201	1	12/05/23 16:25	12/05/23 20:33	NTG	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2189205	1	12/14/23 15:50	12/14/23 15:50	GEB	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2189205	10	12/14/23 16:02	12/14/23 16:02	GEB	Mt. Juliet, TN

DUP-01 L1683710-11 GW

Collected by: G.S/H.M.I | Collected date/time: 11/30/23 10:00 | Received date/time: 12/01/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2183201	1	12/05/23 16:25	12/05/23 20:33	NTG	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2189205	1	12/14/23 16:15	12/14/23 16:15	GEB	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2189205	10	12/14/23 16:53	12/14/23 16:53	GEB	Mt. Juliet, TN

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Chad A Upchurch
Project Manager

Sample Delivery Group (SDG) Narrative

The Laboratory is not accredited for specific analytes on the associated Sample/Method. These analytes are flagged in the Sample Results section of the report with an asterisk (*).

Lab Sample ID	Project Sample ID	Method
L1683710-01	MW-1	9056A
L1683710-02	MW-2	9056A
L1683710-03	MW-3	9056A
L1683710-04	MW-4	9056A
L1683710-05	MW-5	9056A
L1683710-06	MW-7	9056A
L1683710-07	MW-8	9056A
L1683710-08	MW-9	9056A
L1683710-09	MW-10	9056A
L1683710-10	MW-13	9056A
L1683710-11	DUP-01	9056A
R4013129-3		9056A
R4013129-4		9056A
R4013129-5		9056A

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Dissolved Solids	103000		1000	1	12/05/2023 20:33	WG2183201

Wet Chemistry by Method 9056A

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
*Bromide	84.8		17.6	50.0	50	12/12/2023 17:30	WG2186492
Chloride	35900		190	500	500	12/12/2023 17:45	WG2186492
Sulfate	547		29.7	250	50	12/12/2023 17:30	WG2186492

MW-2
Collected date/time: 11/30/23 11:00
L1683710

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Dissolved Solids	14000		200	1	12/05/2023 20:33	WG2183201

Wet Chemistry by Method 9056A

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
*Bromide	7.79	J	3.53	10.0	10	12/15/2023 15:10	WG2187466
Chloride	5450		37.9	100	100	12/15/2023 15:25	WG2187466
Sulfate	341		5.94	50.0	10	12/15/2023 15:10	WG2187466

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Dissolved Solids	9760		200	1	12/05/2023 20:33	WG2183201

Wet Chemistry by Method 9056A

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
*Bromide	6.10	J	3.53	10.0	10	12/14/2023 02:47	WG2187473
Chloride	3800		37.9	100	100	12/14/2023 03:02	WG2187473
Sulfate	179		5.94	50.0	10	12/14/2023 02:47	WG2187473

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Dissolved Solids	16700		200	1	12/05/2023 20:33	WG2183201

Wet Chemistry by Method 9056A

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
*Bromide	7.04	J	3.53	10.0	10	12/14/2023 03:16	WG2187473
Chloride	7180		37.9	100	100	12/14/2023 03:31	WG2187473
Sulfate	203		5.94	50.0	10	12/14/2023 03:16	WG2187473

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Dissolved Solids	3960		50.0	1	12/05/2023 20:33	WG2183201

Wet Chemistry by Method 9056A

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
*Bromide	0.612	J	0.353	1.00	1	12/14/2023 03:46	WG2187473
Chloride	1350		19.0	50.0	50	12/14/2023 04:01	WG2187473
Sulfate	131		0.594	5.00	1	12/14/2023 03:46	WG2187473

MW - 7
Collected date/time: 11/30/23 11:40
L1683710

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Dissolved Solids	2260		50.0	1	12/05/2023 20:33	WG2183201

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
*Bromide	1.63	B	0.353	1.00	1	12/15/2023 17:02	WG2190188
Chloride	890		3.79	10.0	10	12/15/2023 17:16	WG2190188
Sulfate	175		0.594	5.00	1	12/15/2023 17:02	WG2190188

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Dissolved Solids	5900		100	1	12/05/2023 20:33	WG2183201

Wet Chemistry by Method 9056A

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
*Bromide	4.50	J	3.53	10.0	10	12/14/2023 04:46	WG2187473
Chloride	2210		37.9	100	100	12/14/2023 05:31	WG2187473
Sulfate	97.2		5.94	50.0	10	12/14/2023 04:46	WG2187473

MW-9
Collected date/time: 11/30/23 09:55
L1683710

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Dissolved Solids	16200		200	1	12/05/2023 20:33	WG2183201

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
*Bromide	10.3		3.53	10.0	10	12/14/2023 14:59	WG2189205
Chloride	5400		37.9	100	100	12/14/2023 15:12	WG2189205
Sulfate	400		5.94	50.0	10	12/14/2023 14:59	WG2189205

MW-10
Collected date/time: 11/30/23 11:55
L1683710

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Dissolved Solids	4920		100	1	12/05/2023 20:33	WG2183201

Wet Chemistry by Method 9056A

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
*Bromide	7.77	J	3.53	10.0	10	12/14/2023 15:24	WG2189205
Chloride	1680		37.9	100	100	12/14/2023 15:37	WG2189205
Sulfate	52.2		5.94	50.0	10	12/14/2023 15:24	WG2189205

Sample Narrative:

L1683710-09 WG2189205: Dilution due to matrix.

MW-13
Collected date/time: 11/30/23 08:25
L1683710

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Dissolved Solids	3680		50.0	1	12/05/2023 20:33	WG2183201

Wet Chemistry by Method 9056A

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
*Bromide	4.59		0.353	1.00	1	12/14/2023 15:50	WG2189205
Chloride	1610		3.79	10.0	10	12/14/2023 16:02	WG2189205
Sulfate	216		5.94	50.0	10	12/14/2023 16:02	WG2189205

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Dissolved Solids	3650		50.0	1	12/05/2023 20:33	WG2183201

Wet Chemistry by Method 9056A

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
*Bromide	4.65		0.353	1.00	1	12/14/2023 16:15	WG2189205
Chloride	1530		3.79	10.0	10	12/14/2023 16:53	WG2189205
Sulfate	202		5.94	50.0	10	12/14/2023 16:53	WG2189205

Method Blank (MB)

(MB) R4009484-1 12/05/23 20:33

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Dissolved Solids	U		10.0	10.0

L1683055-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1683055-01 12/05/23 20:33 • (DUP) R4009484-3 12/05/23 20:33

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	878	890	1	1.41		5

L1683539-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1683539-01 12/05/23 20:33 • (DUP) R4009484-4 12/05/23 20:33

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	230	236	1	2.58		5

Laboratory Control Sample (LCS)

(LCS) R4009484-2 12/05/23 20:33

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Dissolved Solids	8800	8600	97.7	85.0-115	

Method Blank (MB)

(MB) R4011715-1 12/12/23 10:38

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Bromide	U		0.353	1.00
Chloride	U		0.379	1.00
Sulfate	U		0.594	5.00

L1682735-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1682735-04 12/12/23 14:17 • (DUP) R4011715-3 12/12/23 14:31

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Sulfate	10.8	10.8	1	0.0446		15

L1684413-16 Original Sample (OS) • Duplicate (DUP)

(OS) L1684413-16 12/12/23 20:29 • (DUP) R4011715-6 12/12/23 20:44

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	1.19	1.18	1	0.236		15
Sulfate	4.07	4.06	1	0.128	J	15

Laboratory Control Sample (LCS)

(LCS) R4011715-2 12/12/23 10:52

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Bromide	40.0	39.5	98.7	80.0-120	
Chloride	40.0	39.5	98.8	80.0-120	
Sulfate	40.0	40.8	102	80.0-120	

L1682735-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1682735-04 12/12/23 14:17 • (MS) R4011715-4 12/12/23 14:46 • (MSD) R4011715-5 12/12/23 15:01

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Sulfate	40.0	10.8	51.6	51.6	102	102	1	80.0-120			0.0407	15

L1684413-16 Original Sample (OS) • Matrix Spike (MS)

(OS) L1684413-16 12/12/23 20:29 • (MS) R4011715-7 12/12/23 20:59

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Chloride	40.0	1.19	41.0	99.4	1	80.0-120	
Sulfate	40.0	4.07	45.8	104	1	80.0-120	

Method Blank (MB)

(MB) R4013226-1 12/15/23 04:00

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Bromide	U		0.353	1.00
Chloride	0.698	J	0.379	1.00
Sulfate	U		0.594	5.00

L1683438-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1683438-02 12/15/23 06:28 • (DUP) R4013226-3 12/15/23 07:13

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Bromide	U	U	1	0.000		15
Chloride	11.6	11.6	1	0.0266		15
Sulfate	39.8	39.8	1	0.155		15

L1683438-09 Original Sample (OS) • Duplicate (DUP)

(OS) L1683438-09 12/15/23 11:26 • (DUP) R4013226-6 12/15/23 11:41

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Bromide	U	U	1	0.000		15
Chloride	7.56	7.57	1	0.168		15
Sulfate	41.3	41.5	1	0.484		15

Laboratory Control Sample (LCS)

(LCS) R4013226-2 12/15/23 04:29

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Bromide	40.0	41.9	105	80.0-120	
Chloride	40.0	39.8	99.5	80.0-120	
Sulfate	40.0	42.2	105	80.0-120	

L1683438-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1683438-02 12/15/23 06:28 • (MS) R4013226-4 12/15/23 07:28 • (MSD) R4013226-5 12/15/23 07:43

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Bromide	40.0	U	38.6	38.4	96.4	96.1	1	80.0-120			0.334	15
Chloride	40.0	11.6	49.0	48.9	93.3	93.3	1	80.0-120			0.0562	15
Sulfate	40.0	39.8	74.0	73.9	85.5	85.2	1	80.0-120			0.145	15

L1683438-09 Original Sample (OS) • Matrix Spike (MS)

(OS) L1683438-09 12/15/23 11:26 • (MS) R4013226-7 12/15/23 11:56

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Bromide	40.0	U	37.8	94.5	1	80.0-120	
Chloride	40.0	7.56	44.6	92.7	1	80.0-120	
Sulfate	40.0	41.3	74.7	83.4	1	80.0-120	

Method Blank (MB)

(MB) R4012483-1 12/13/23 17:35

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Bromide	U		0.353	1.00
Chloride	U		0.379	1.00
Sulfate	U		0.594	5.00

L1683343-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1683343-03 12/13/23 21:57 • (DUP) R4012483-3 12/13/23 22:12

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Bromide	0.394	0.393	1	0.153	J	15
Chloride	3.24	3.24	1	0.0432		15
Sulfate	3.89	3.88	1	0.0695	J	15

L1683343-10 Original Sample (OS) • Duplicate (DUP)

(OS) L1683343-10 12/14/23 00:56 • (DUP) R4012483-6 12/14/23 01:11

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Bromide	0.361	0.366	1	1.54	J	15
Chloride	3.47	3.47	1	0.130		15
Sulfate	13.1	13.1	1	0.339		15

Laboratory Control Sample (LCS)

(LCS) R4012483-2 12/13/23 17:50

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Bromide	40.0	39.6	99.1	80.0-120	
Chloride	40.0	40.0	100	80.0-120	
Sulfate	40.0	40.9	102	80.0-120	

L1683343-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1683343-03 12/13/23 21:57 • (MS) R4012483-4 12/13/23 22:27 • (MSD) R4012483-5 12/13/23 22:42

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Bromide	40.0	0.394	37.8	38.4	93.5	95.1	1	80.0-120			1.72	15
Chloride	40.0	3.24	42.3	42.5	97.6	98.2	1	80.0-120			0.579	15
Sulfate	40.0	3.89	43.5	44.0	98.9	100	1	80.0-120			1.23	15

L1683343-10 Original Sample (OS) • Matrix Spike (MS)

(OS) L1683343-10 12/14/23 00:56 • (MS) R4012483-7 12/14/23 01:26

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Bromide	40.0	0.361	35.1	86.8	1	80.0-120	
Chloride	40.0	3.47	41.1	94.1	1	80.0-120	
Sulfate	40.0	13.1	49.2	90.2	1	80.0-120	

Method Blank (MB)

(MB) R4013129-1 12/14/23 08:40

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Bromide	U		0.353	1.00
Chloride	0.446	J	0.379	1.00
Sulfate	U		0.594	5.00

L1683812-07 Original Sample (OS) • Duplicate (DUP)

(OS) L1683812-07 12/14/23 18:10 • (DUP) R4013129-3 12/14/23 18:23

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Bromide	0.942	0.938	1	0.521	J	15
Chloride	133	133	1	0.0908		15
Sulfate	347	346	1	0.121	E	15

Laboratory Control Sample (LCS)

(LCS) R4013129-2 12/14/23 08:53

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Bromide	40.0	39.6	98.9	80.0-120	
Chloride	40.0	40.6	101	80.0-120	
Sulfate	40.0	38.9	97.2	80.0-120	

L1683812-07 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1683812-07 12/14/23 18:10 • (MS) R4013129-4 12/14/23 18:35 • (MSD) R4013129-5 12/14/23 18:48

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Bromide	40.0	0.942	37.3	37.3	90.9	90.8	1	80.0-120			0.0773	15
Chloride	40.0	133	148	148	37.1	36.2	1	80.0-120	J6	J6	0.222	15
Sulfate	40.0	347	319	318	0.000	0.000	1	80.0-120	E V	E V	0.438	15

Method Blank (MB)

(MB) R4013460-1 12/15/23 09:38

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Bromide	0.749	J	0.353	1.00
Chloride	U		0.379	1.00
Sulfate	U		0.594	5.00

Laboratory Control Sample (LCS)

(LCS) R4013460-2 12/15/23 09:52

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Bromide	40.0	38.6	96.6	80.0-120	
Chloride	40.0	39.1	97.7	80.0-120	
Sulfate	40.0	38.3	95.6	80.0-120	

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
B	The same analyte is found in the associated blank.
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
V	The sample concentration is too high to evaluate accurate spike recoveries.

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

Company Name/Address:
Tetra Tech EMI - Houston, TX

1500 CityWest Boulevard
Suite 1000
Houston, TX 77042

Billing Information:
Accounts Payable
901 West Wall
Suite 100
Midland, TX 79701

Pres Chk

Report to:
Chuck Terhune

Email To:
chuck.terhune@tetratech.com;matthew.castrej

Project Description:
MNR - MCA 357 GW

City/State Collected: MALJAMAR, NM

Please Circle: PT MT CT ET

Phone: 832-251-5160

Client Project #
212C-HN-02228

Lab Project #
TETRAHTX-MCA357

Collected by (print):
Greg Scherbarske / HALF TETRA

Site/Facility ID #

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y ✓

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

No. of Cntrs

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	BROMIDE, CHLORIDE 250mlHDPE-NoPres	SULFATE 250mlHDPE-NoPres	TDS 1L-HDPE NoPres	Remarks	Sample # (lab only)
MW-1	Grab	GW		11/30/23	1020	X	X	X		-01
MW-2		GW			1100					-02
MW-3		GW			830					-03
MW-4		GW			940					-04
MW-5		GW			915					-05
~~MW-6~~		~~GW~~							NOT SAMPLED, DRY	
MW-7		GW			1140					-06
MW-8		GW			1105					-07
MW-9		GW			955					-08
MW-10		GW			1155					-09

Chain of Custody Page ___ of ___

Pace
PEOPLE ADVANCING SCIENCE

MT JULIET, TN
12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # L1683710
J090

Acctnum: TETRAHTX
Template: T217803
Prelogin: P1038190
PM: 3564 - Chad A Upchurch
PB:

Shipped Via:

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS ✓ FedEx __ Courier _____

Tracking # 6643 4318 9223

Sample Receipt Checklist
COC Seal Present/Intact: NP Y N
COC Signed/Accurate: Y N
Bottles arrive intact: Y N
Correct bottles used: Y N
Sufficient volume sent: Y N
If Applicable
VOA Zero Headspace: Y N
Preservation Correct/Checked: Y N
RAD Screen <0.5 mR/hr: Y N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR
	11/30/23	1330		
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: D/A °C Bottles Received: 1+8+D=1.8 22
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature) Alexa Mitchell	Date: 12/1/23 Time: 0900

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

Company Name/Address:
Tetra Tech EMI - Houston, TX

1500 CityWest Boulevard
Suite 1000
Houston. TX 77042

Billing Information:
Accounts Payable
901 West Wall
Suite 100
Midland, TX 79701

Pres Chk

Report to:
Chuck Terhune

Email To:
chuck.terhune@tetratech.com;matthew.castrej

Project Description:
MNR - MCA 357 GW

City/State Collected: MAljAMAR, NM

Please Circle: PT MT CT ET

Phone: **832-251-5160**

Client Project #
212C-HN-02228

Lab Project #
TETRAHTX-MCA357

Collected by (print):
Grey Scherbenske | TETRA

Site/Facility ID #

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y ✓

Rush? (Lab MUST be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

No. of Cntrs

Analysis / Container / Preservative

Chain of Custody Page __ of __

Pace
PEOPLE ADVANCING SCIENCE

MT JULIET, TN

12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # L1683710

Table #

Acctnum: **TETRAHTX**
Template:**T217803**
Prelogin: **P1038190**
PM: **3564 - Chad A Upchurch**
PB:

Shipped Via:

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	BROMIDE, CHLORIDE 250mlHDPE-NoPres	SULFATE 250mlHDPE-NoPres	TDS 1L-HDPE NoPres							Remarks	Sample # (lab only)
~~MW-11~~		~~GW~~					X	X	X							NOT SAMPLED; DRY	
~~MW-12~~		~~GW~~					X	X	X							NOT SAMPLED; DRY	
MW-13	Grab	GW		11/30/23	825		X	X	X								-10
Rup-01	↓	GW		↓	1000		X	X	X								-11
		GW															
		GW															

* Matrix:
SS - Soil **AIR** - Air **F** - Filter
GW - Groundwater **B** - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:

pH _____ Temp _____

Flow _____ Other _____

Samples returned via:
__ UPS ✓ FedEx __ Courier _____

Tracking # 6643 4318 9223

Sample Receipt Checklist

COC Seal Present/Intact:	NP	Y N
COC Signed/Accurate:		✓ N
Bottles arrive intact:		✓ N
Correct bottles used:		✓ N
Sufficient volume sent:		✓ N
If Applicable		
VOA Zero Headspace:		Y N
Preservation Correct/Checked:		Y N
RAD Screen <0.5 mR/hr:		✓ N

	Date:	Time:		
Relinquished by : (Signature)	11/30/23	1330	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: 2 °C Bottles Received: 22
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature) Alta Mitchell	Date: 12/1/23 Time: 0900

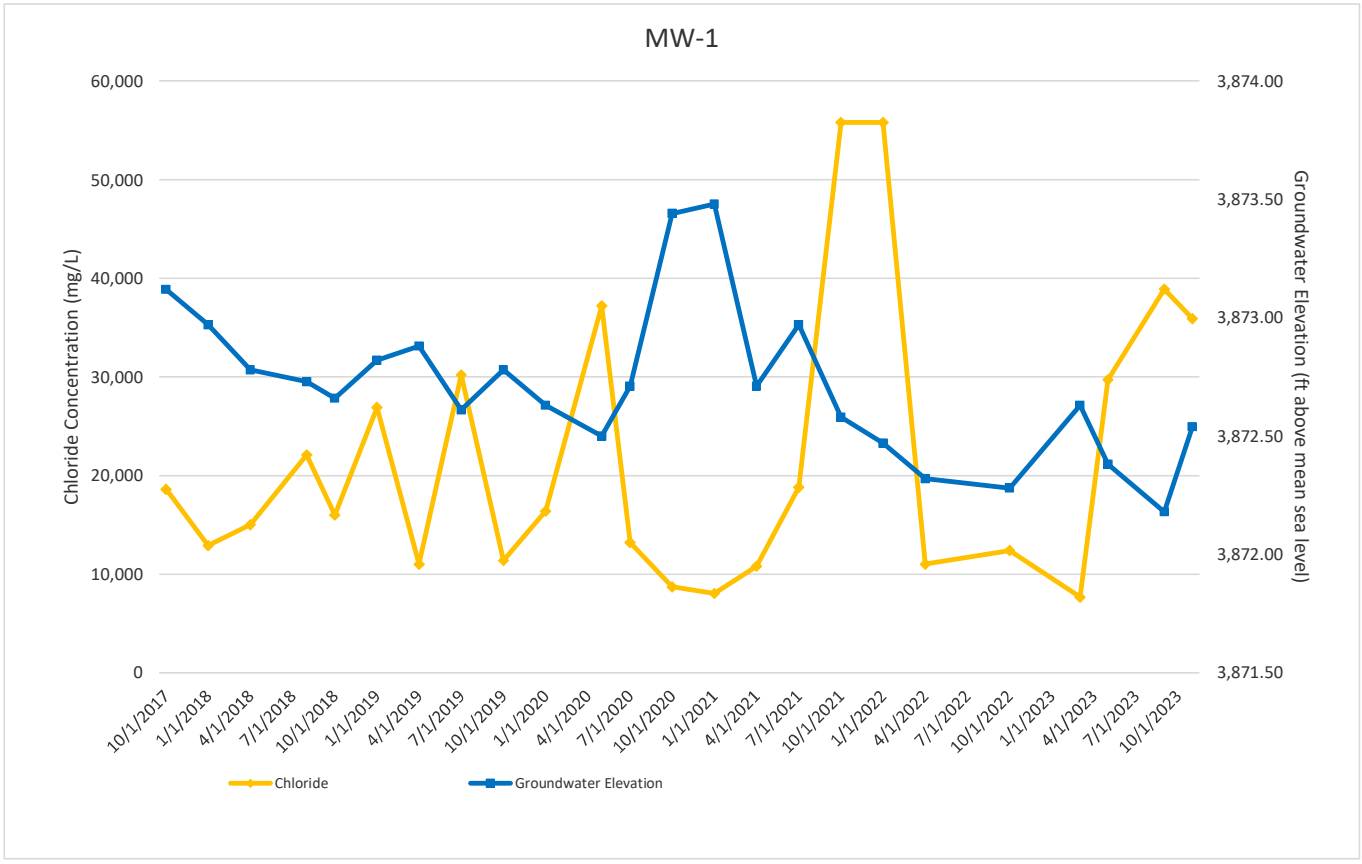
If preservation required by Login: Date/Time

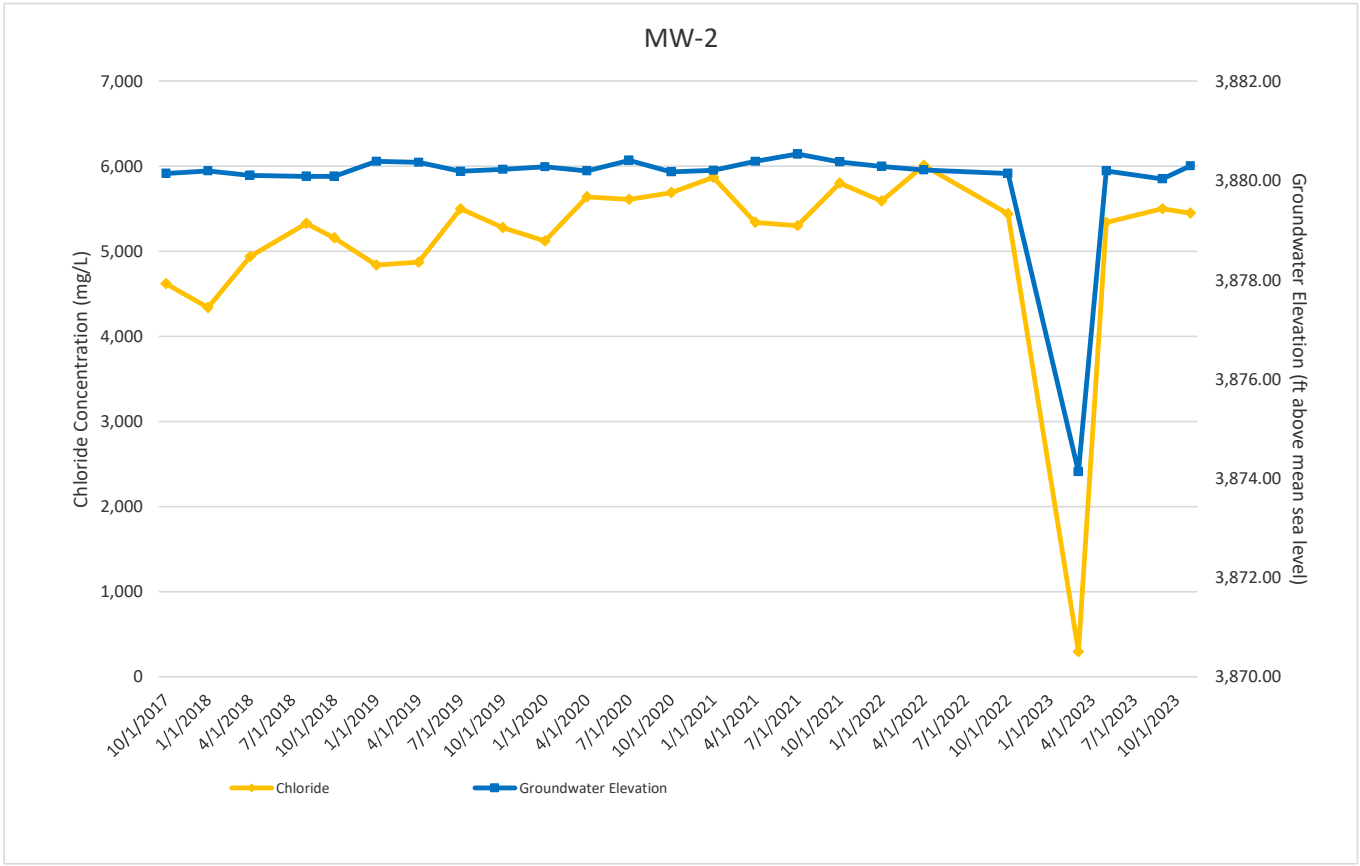
Hold:

Condition: NCF / OK

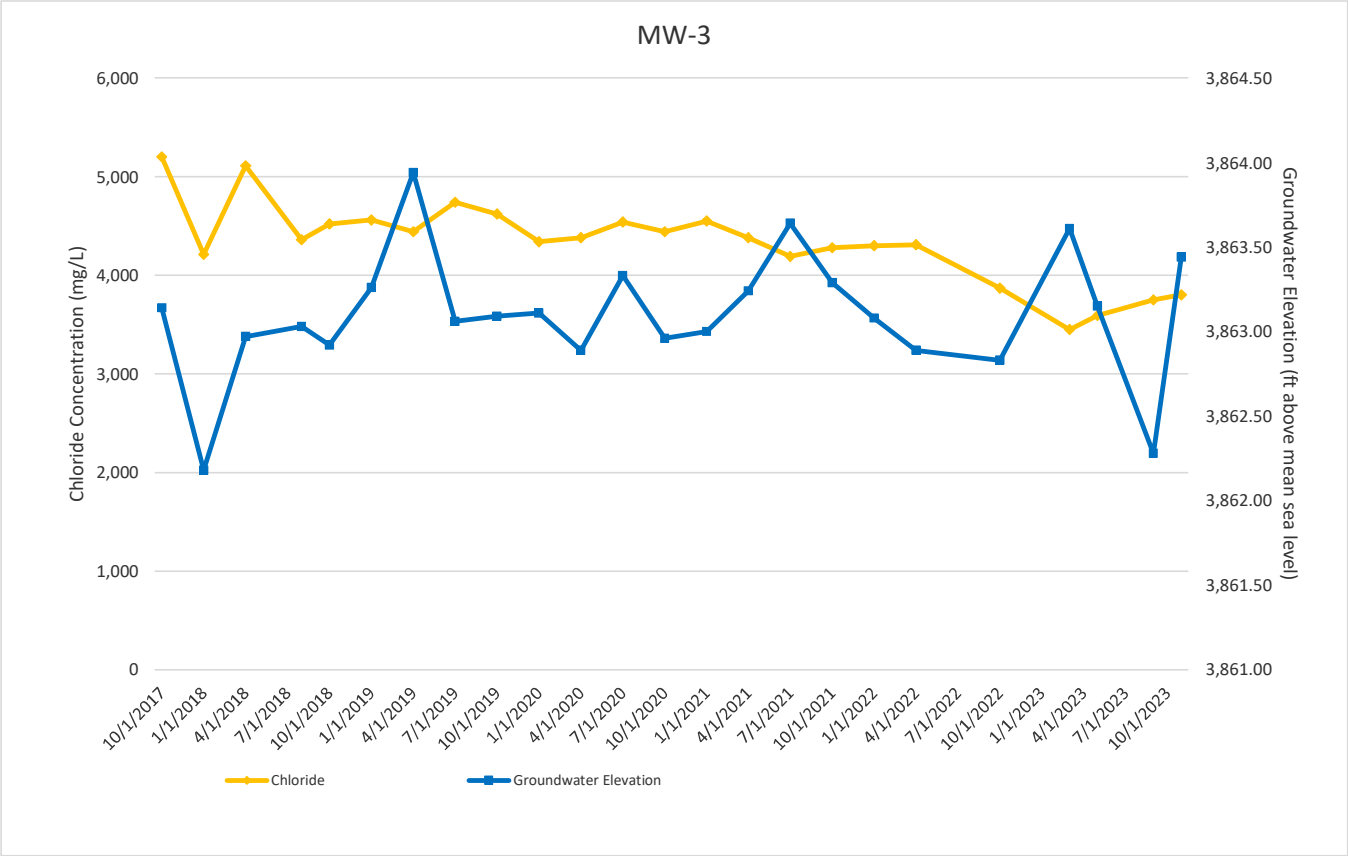
APPENDIX B: CHLORIDE CONCENTRATION GRAPHS

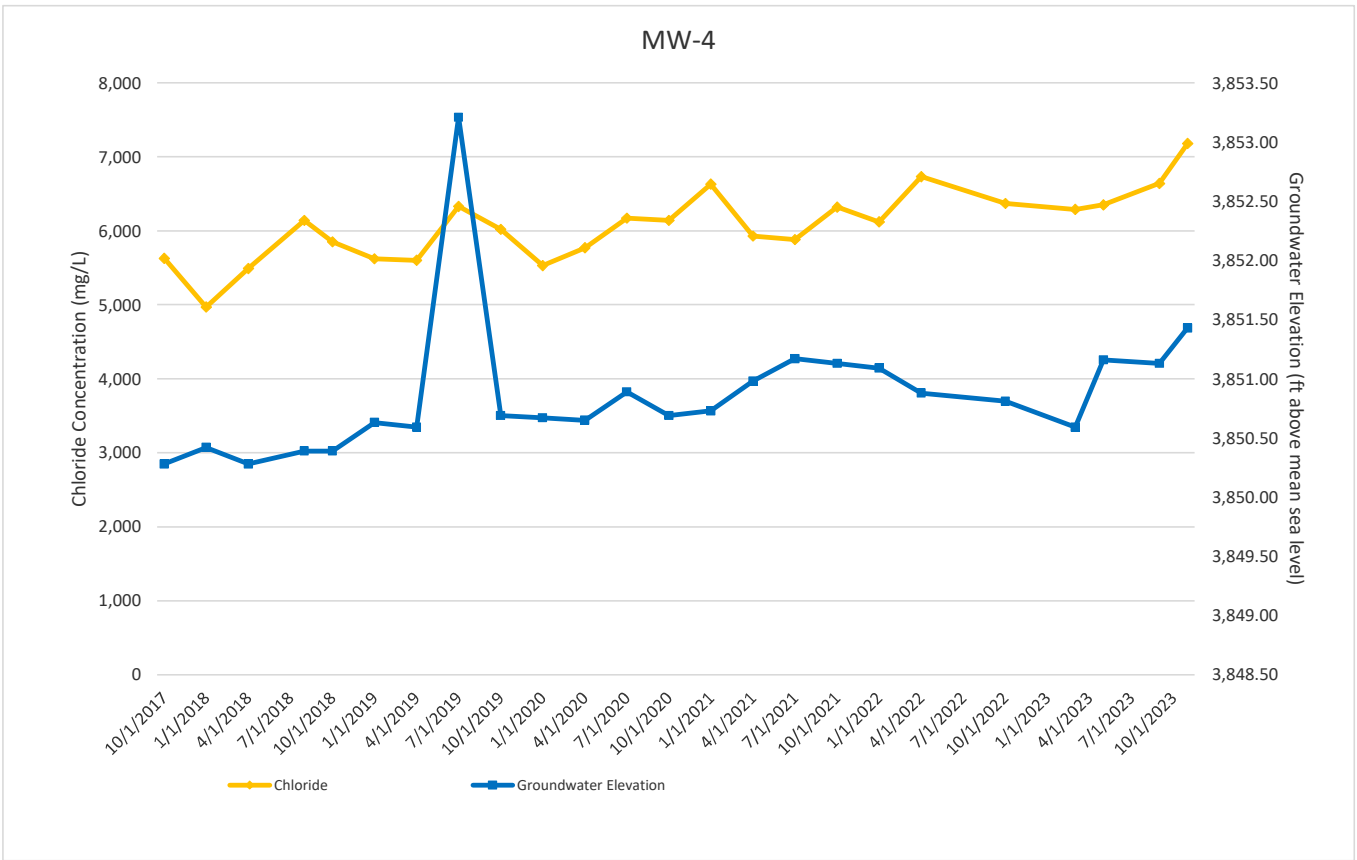
Chloride Concentration Graphs
Maverick Permian, LLC - MCA #357
Lea County, New Mexico



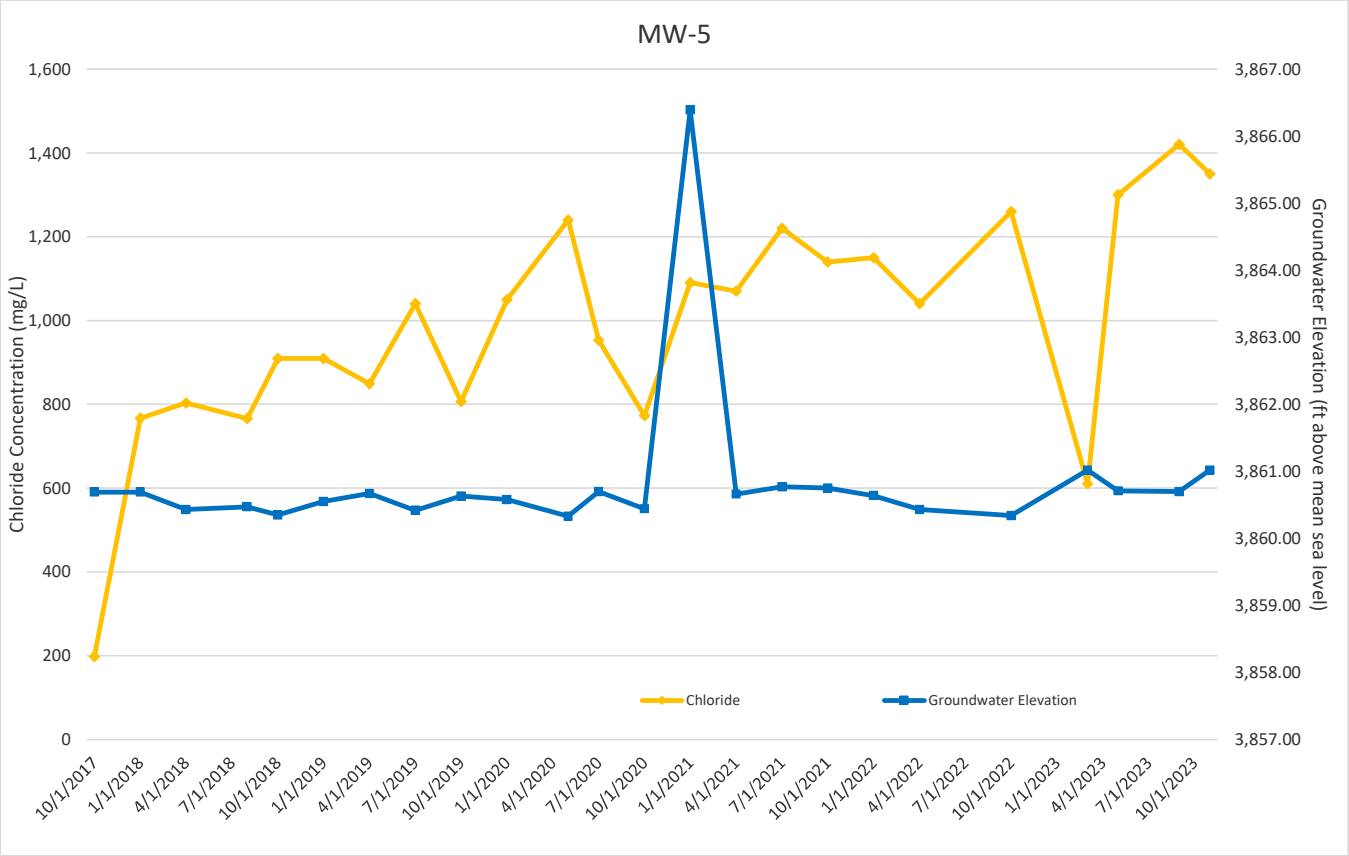


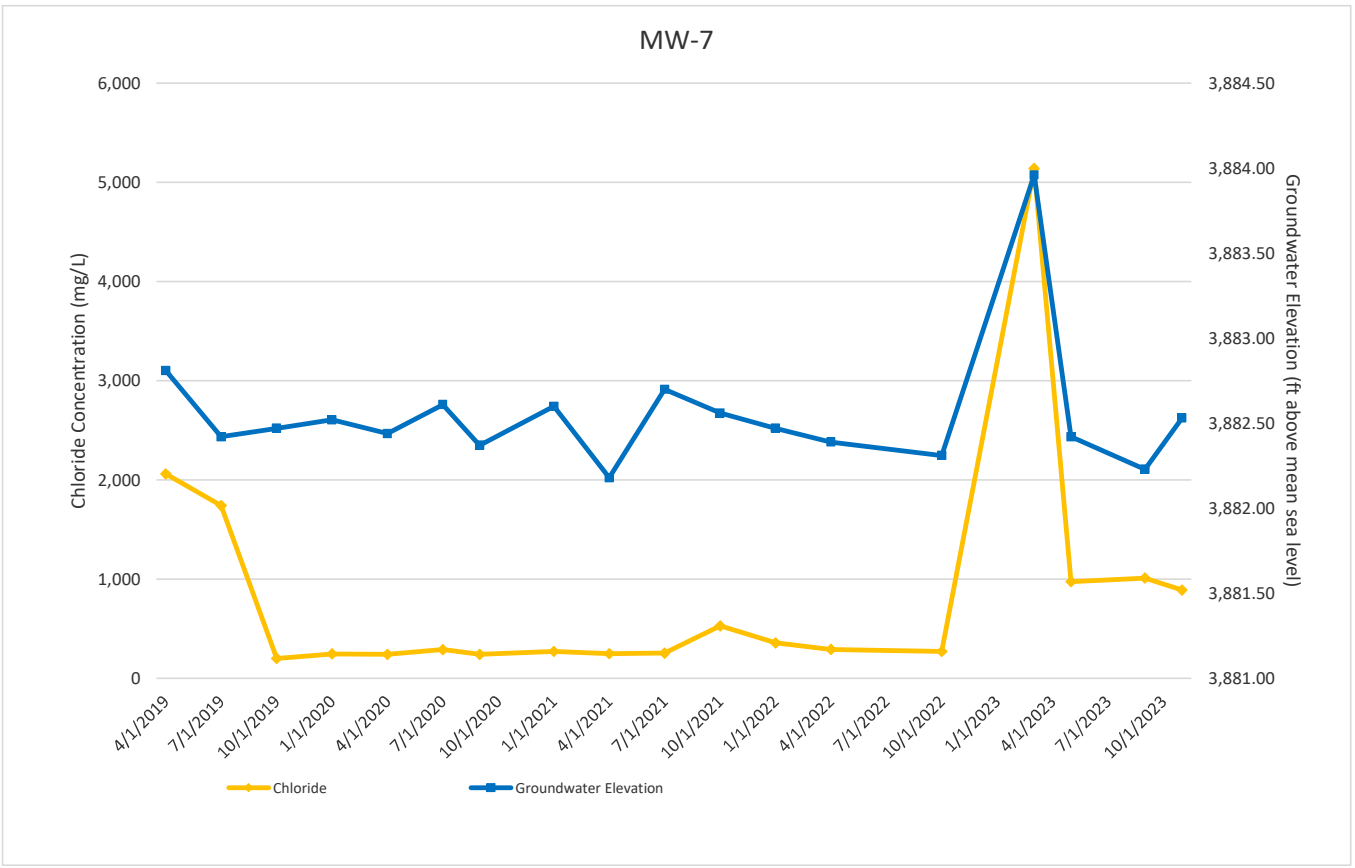
Chloride Concentration Graphs
Maverick Permian, LLC - MCA #357
Lea County, New Mexico



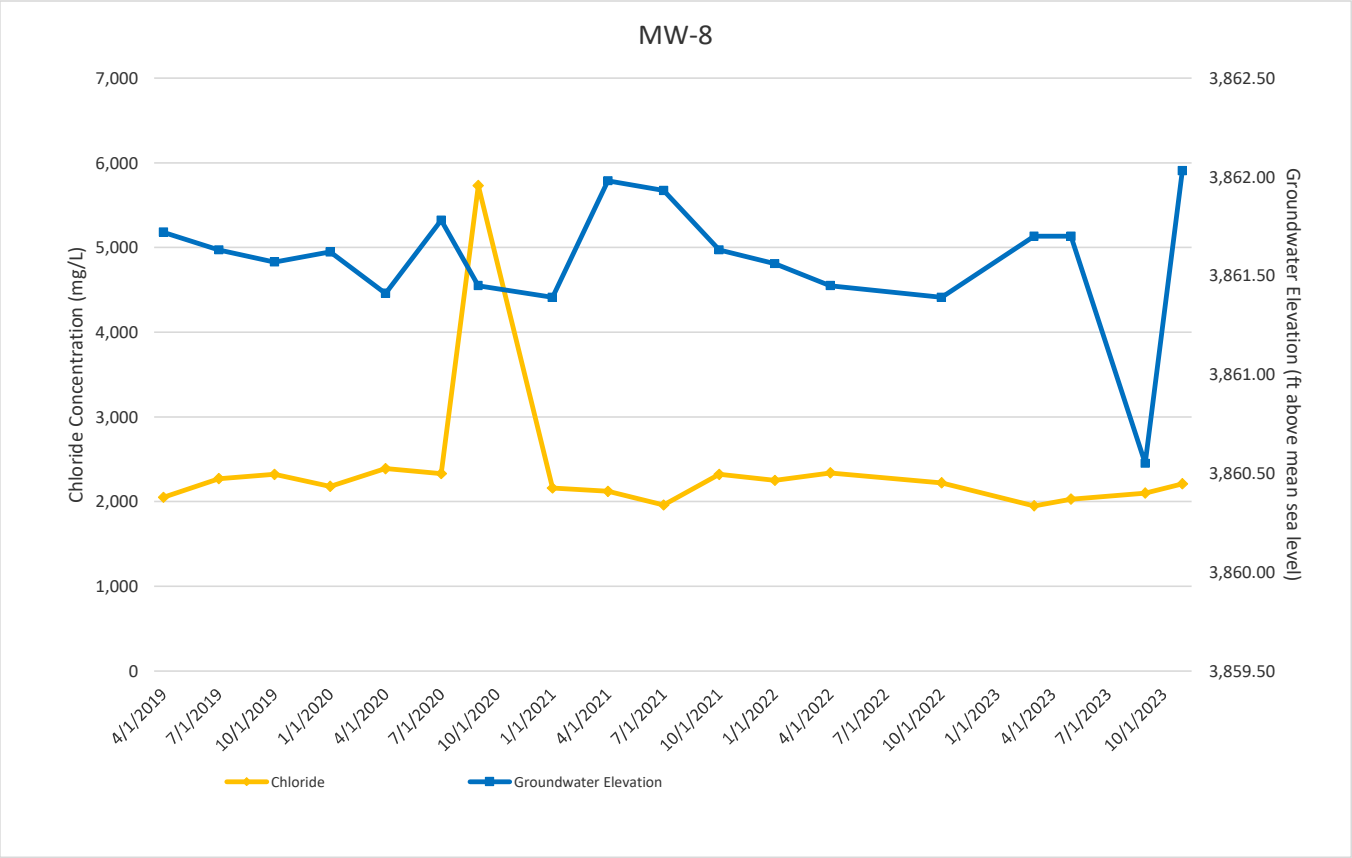


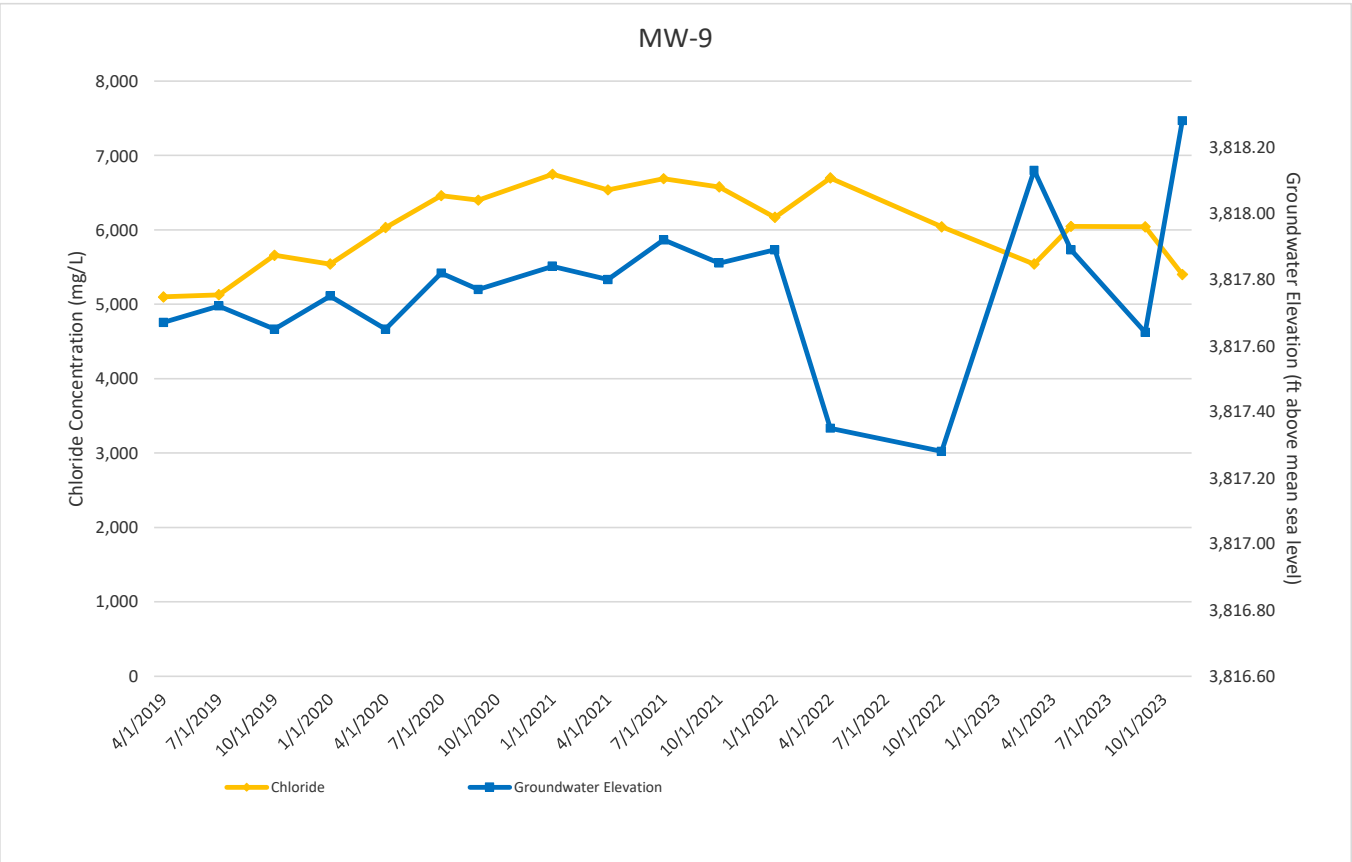
Chloride Concentration Graphs
Maverick Permian, LLC - MCA #357
Lea County, New Mexico



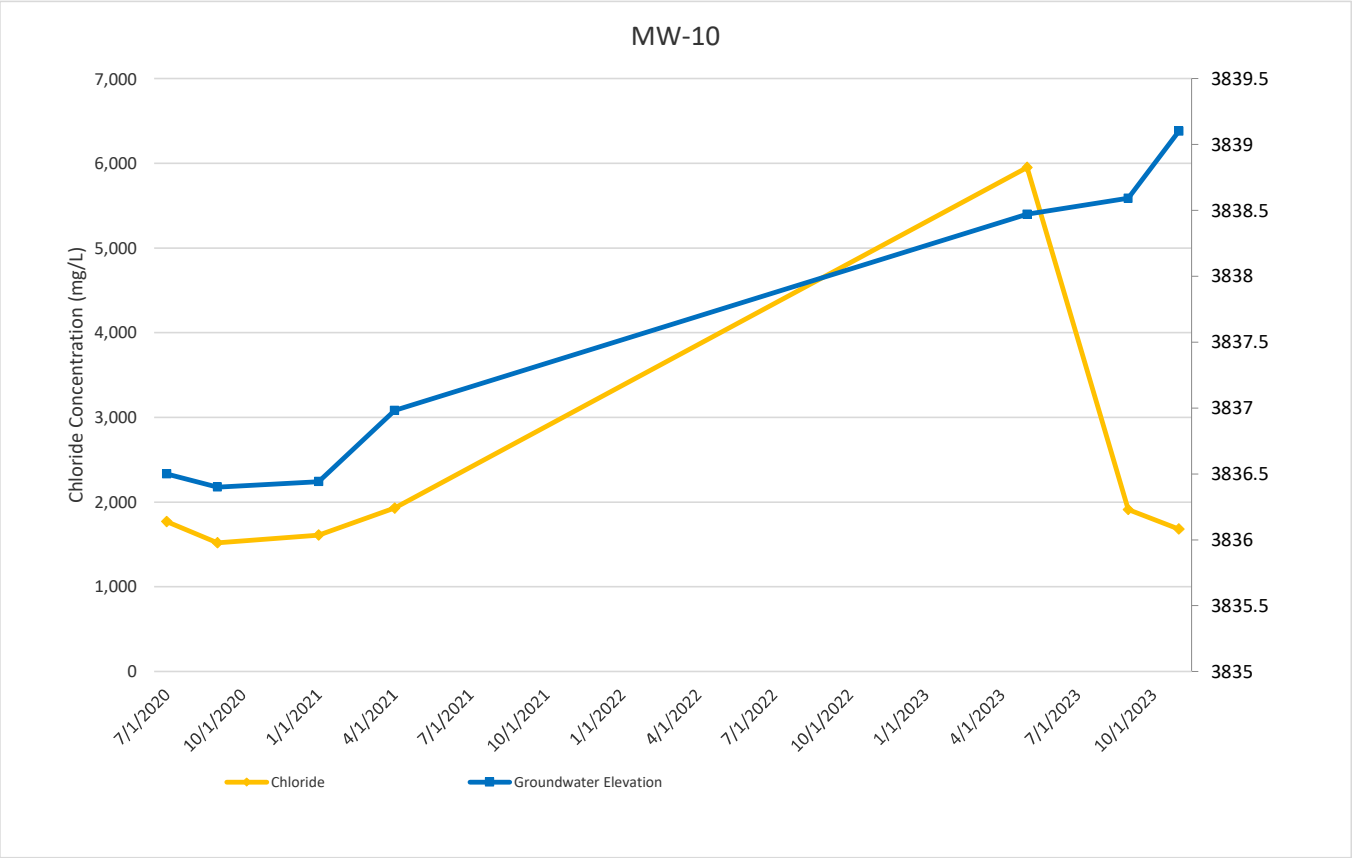


Chloride Concentration Graphs
Maverick Permian, LLC - MCA #357
Lea County, New Mexico





Chloride Concentration Graphs
Maverick Permian, LLC - MCA #357
Lea County, New Mexico



APPENDIX C: HISTORICAL GROUNDWATER GAUGING DATA

APPENDIX C
Historical Groundwater Gauging Data
MW-1
MCA 357
Lea County, New Mexico

Gauging Date	Well Total Depth (feet BTOC)	PSH (feet BTOC)	Water level (feet BTOC)	PSH Thickness (feet)	PSH Elevation (feet AMSL)	TOC Elevation (feet AMSL)	Groundwater Elevation (feet AMSL)
10/4/2017	102.27	-	83.66	-	-	3,956.78	**3,873.12**
1/30/2018	-	-	83.81	-	-	3,956.78	**3,872.97**
4/10/2018	102.27	-	84.00	-	-	3,956.78	**3,872.78**
8/17/2018	-	-	84.05	-	-	3,956.78	**3,872.73**
10/18/2018	102.86	-	84.12	-	-	3,956.78	**3,872.66**
1/23/2019	103.05	-	83.96	-	-	3,956.78	**3,872.82**
4/25/2019	102.90	-	83.90	-	-	3,956.78	**3,872.88**
7/10/2019	102.90	-	84.17	-	-	3,956.78	**3,872.61**
10/9/2019	102.90	-	84.00	-	-	3,956.78	**3,872.78**
1/15/2020	102.90	-	84.15	-	-	3,956.78	**3,872.63**
4/28/2020	102.88	-	84.28	-	-	3,956.78	**3,872.50**
7/7/2020	102.70	-	84.07	-	-	3,956.78	**3,872.71**
10/1/2020	102.70	-	83.34	-	-	3,956.78	**3,873.44**
1/14/2021	102.70	-	83.30	-	-	3,956.78	**3,873.48**
4/6/2021	102.7	-	84.07	-	-	3,956.78	**3,872.71**
7/13/2021	102.7	-	83.81	-	-	3,956.78	**3,872.97**
10/8/2021	102.7	-	84.20	-	-	3,956.78	**3,872.58**
1/11/2022	102.7	-	84.31	-	-	3,956.78	**3,872.47**
4/4/2022	102.7	-	84.46	-	-	3,956.78	**3,872.32**
10/18/2022	102.7	-	84.50	-	-	3,956.78	**3,872.28**
3/28/2023	102.7	-	84.15	-	-	3,956.78	**3,872.63**
5/24/2023	102.7	-	84.40	-	-	3,956.78	**3,872.38**
9/13/2023	102.7	-	84.60	-	-	3,956.78	**3,872.18**
11/30/2023	102.7	-	84.24	-	-	3,956.78	**3,872.54**

APPENDIX C
Historical Groundwater Gauging Data
MW-1
MCA 357
Lea County, New Mexico

Gauging Date	Well Total Depth (feet BTOC)	PSH (feet BTOC)	Water level (feet BTOC)	PSH Thickness (feet)	PSH Elevation (feet AMSL)	TOC Elevation (feet AMSL)	Groundwater Elevation (feet AMSL)

Notes:

TOC	Top of Casing
AMSL	Above Mean Sea Level
BTOC	Below Top of Casing
-	No Measurement

APPENDIX C
Historical Groundwater Gauging Data
MW-2
MCA 357
Lea County, New Mexico

Gauging Date	Well Total Depth (feet BTOC)	PSH (feet BTOC)	Water level (feet BTOC)	PSH Thickness (feet)	PSH Elevation (feet AMSL)	TOC Elevation (feet AMSL)	Groundwater Elevation (feet AMSL)
10/4/2017	108.44	-	83.44	-	-	3,963.58	**3,880.14**
1/30/2018	-	-	83.39	-	-	3,963.58	**3,880.19**
4/10/2018	108.44	-	83.48	-	-	3,963.58	**3,880.10**
8/17/2018	-	-	83.50	-	-	3,963.58	**3,880.08**
10/18/2018	108.69	-	83.50	-	-	3,963.58	**3,880.08**
1/23/2019	108.76	-	83.20	-	-	3,963.58	**3,880.38**
4/25/2019	107.75	-	83.22	-	-	3,963.58	**3,880.36**
7/10/2019	107.75	-	83.40	-	-	3,963.58	**3,880.18**
10/9/2019	107.75	-	83.36	-	-	3,963.58	**3,880.22**
1/15/2020	107.75	-	83.31	-	-	3,963.58	**3,880.27**
4/28/2020	107.74	-	83.39	-	-	3,963.58	**3,880.19**
7/7/2020	107.80	-	83.18	-	-	3,963.58	**3,880.40**
10/1/2020	107.80	-	83.41	-	-	3,963.58	**3,880.17**
1/13/2021	107.80	-	83.38	-	-	3,963.58	**3,880.20**
4/6/2021	107.8	-	83.20	-	-	3,963.58	**3,880.38**
7/13/2021	107.8	-	83.05	-	-	3,963.58	**3,880.53**
10/7/2021	107.8	-	83.21	-	-	3,963.58	**3,880.37**
1/11/2022	107.8	-	83.30	-	-	3,963.58	**3,880.28**
4/4/2022	107.8	-	83.37	-	-	3,963.58	**3,880.21**
10/18/2022	107.8	-	83.44	-	-	3,963.58	**3,880.14**
3/28/2023	107.8	-	89.45	-	-	3,963.58	**3,874.13**
5/24/2023	107.8	-	83.39	-	-	3,963.58	**3,880.19**
9/13/2023	107.8	-	83.55	-	-	3,963.58	**3,880.03**
11/30/2023	107.8	-	83.29	-	-	3,963.58	**3,880.29**

APPENDIX C
Historical Groundwater Gauging Data
MW-2
MCA 357
Lea County, New Mexico

Gauging Date	Well Total Depth (feet BTOC)	PSH (feet BTOC)	Water level (feet BTOC)	PSH Thickness (feet)	PSH Elevation (feet AMSL)	TOC Elevation (feet AMSL)	Groundwater Elevation (feet AMSL)

Notes:

TOC	Top of Casing
AMSL	Above Mean Sea Level
BTOC	Below Top of Casing
-	No Measurement

APPENDIX C
Historical Groundwater Gauging Data
MW-3
MCA 357
Lea County, New Mexico

Gauging Date	Well Total Depth (feet BTOC)	PSH (feet BTOC)	Water level (feet BTOC)	PSH Thickness (feet)	PSH Elevation (feet AMSL)	TOC Elevation (feet AMSL)	Groundwater Elevation (feet AMSL)
10/4/2017	117.75	-	88.20	-	-	3,951.34	**3,863.14**
1/30/2018	-	-	89.16	-	-	3,951.34	**3,862.18**
4/10/2018	117.75	-	88.37	-	-	3,951.34	**3,862.97**
8/17/2018	-	-	88.31	-	-	3,951.34	**3,863.03**
10/18/2018	117.37	-	88.42	-	-	3,951.34	**3,862.92**
1/23/2019	117.29	-	88.08	-	-	3,951.34	**3,863.26**
4/24/2019	117.40	-	87.40	-	-	3,951.34	**3,863.94**
7/9/2019	117.40	-	88.28	-	-	3,951.34	**3,863.06**
10/8/2019	117.40	-	88.25	-	-	3,951.34	**3,863.09**
1/14/2020	117.40	-	88.23	-	-	3,951.34	**3,863.11**
4/28/2020	117.40	-	88.45	-	-	3,951.34	**3,862.89**
7/7/2020	117.30	-	88.01	-	-	3,951.34	**3,863.33**
10/1/2020	117.30	-	88.38	-	-	3,951.34	**3,862.96**
1/13/2021	117.30	-	88.34	-	-	3,951.34	**3,863.00**
4/6/2021	117.3	-	88.10	-	-	3,951.34	**3,863.24**
7/13/2021	117.3	-	87.70	-	-	3,951.34	**3,863.64**
10/7/2021	117.3	-	88.05	-	-	3,951.34	**3,863.29**
1/11/2022	117.3	-	88.26	-	-	3,951.34	**3,863.08**
4/4/2022	117.3	-	88.45	-	-	3,951.34	**3,862.89**
10/18/2022	117.3	-	88.51	-	-	3,951.34	**3,862.83**
3/28/2023	117.3	-	87.73	-	-	3,951.34	**3,863.61**
5/24/2023	117.3	-	88.19	-	-	3,951.34	**3,863.15**
9/13/2023	117.3	-	89.06	-	-	3,951.34	**3,862.28**
11/30/2023	117.3	-	87.90	-	-	3,951.34	**3,863.44**

APPENDIX C
Historical Groundwater Gauging Data
MW-3
MCA 357
Lea County, New Mexico

Gauging Date	Well Total Depth (feet BTOC)	PSH (feet BTOC)	Water level (feet BTOC)	PSH Thickness (feet)	PSH Elevation (feet AMSL)	TOC Elevation (feet AMSL)	Groundwater Elevation (feet AMSL)

Notes:

TOC	Top of Casing
AMSL	Above Mean Sea Level
BTOC	Below Top of Casing
-	No Measurement

APPENDIX C
Historical Groundwater Gauging Data
MW-4
MCA 357
Lea County, New Mexico

Gauging Date	Well Total Depth (feet BTOC)	PSH (feet BTOC)	Water level (feet BTOC)	PSH Thickness (feet)	PSH Elevation (feet AMSL)	TOC Elevation (feet AMSL)	Groundwater Elevation (feet AMSL)
10/4/2017	104.22	-	95.11	-	-	3,945.39	**3,850.28**
1/30/2018	-	-	94.97	-	-	3,945.39	**3,850.42**
4/10/2018	104.22	-	95.11	-	-	3,945.39	**3,850.28**
8/17/2018	-	-	95.00	-	-	3,945.39	**3,850.39**
10/18/2018	103.30	-	95.00	-	-	3,945.39	**3,850.39**
1/23/2019	102.80	-	94.76	-	-	3,945.39	**3,850.63**
4/25/2019	103.32	-	94.80	-	-	3,945.39	**3,850.59**
7/10/2019	103.32	-	92.18	-	-	3,945.39	**3,853.21**
10/9/2019	103.32	-	94.70	-	-	3,945.39	**3,850.69**
1/14/2020	103.32	-	94.72	-	-	3,945.39	**3,850.67**
4/28/2020	103.30	-	94.74	-	-	3,945.39	**3,850.65**
7/7/2020	103.20	-	94.50	-	-	3,945.39	**3,850.89**
10/1/2020	103.20	-	94.70	-	-	3,945.39	**3,850.69**
1/14/2021	103.20	-	94.66	-	-	3,945.39	**3,850.73**
4/6/2021	103.2	-	94.41	-	-	3,945.39	**3,850.98**
7/14/2021	103.2	-	94.22	-	-	3,945.39	**3,851.17**
10/7/2021	103.2	-	94.26	-	-	3,945.39	**3,851.13**
1/11/2022	103.2	-	94.30	-	-	3,945.39	**3,851.09**
4/4/2022	103.2	-	94.51	-	-	3,945.39	**3,850.88**
10/18/2022	103.2	-	94.58	-	-	3,945.39	**3,850.81**
3/28/2023	103.2	-	94.80	-	-	3,945.39	**3,850.59**
5/24/2023	103.2	-	94.23	-	-	3,945.39	**3,851.16**
9/13/2023	103.2	-	94.26	-	-	3,945.39	**3,851.13**
11/30/2023	103.2	-	93.96	-	-	3,945.39	**3,851.43**

APPENDIX C
Historical Groundwater Gauging Data
MW-4
MCA 357
Lea County, New Mexico

Gauging Date	Well Total Depth (feet BTOC)	PSH (feet BTOC)	Water level (feet BTOC)	PSH Thickness (feet)	PSH Elevation (feet AMSL)	TOC Elevation (feet AMSL)	Groundwater Elevation (feet AMSL)

Notes:

TOC	Top of Casing
AMSL	Above Mean Sea Level
BTOC	Below Top of Casing
-	No Measurement

APPENDIX C
Historical Groundwater Gauging Data
MW-5
MCA 357
Lea County, New Mexico

Gauging Date	Well Total Depth (feet BTOC)	PSH (feet BTOC)	Water level (feet BTOC)	PSH Thickness (feet)	PSH Elevation (feet AMSL)	TOC Elevation (feet AMSL)	Groundwater Elevation (feet AMSL)
10/4/2017	113.65	-	89.68	-	-	3,950.37	**3,860.69**
1/30/2018	-	-	89.68	-	-	3,950.37	**3,860.69**
4/10/2018	113.65	-	89.94	-	-	3,950.37	**3,860.43**
8/17/2018	-	-	89.90	-	-	3,950.37	**3,860.47**
10/18/2018	113.05	-	90.02	-	-	3,950.37	**3,860.35**
1/23/2019	113.05	-	89.82	-	-	3,950.37	**3,860.55**
4/25/2019	113.00	-	89.70	-	-	3,950.37	**3,860.67**
7/10/2019	113.00	-	89.95	-	-	3,950.37	**3,860.42**
10/9/2019	113.00	-	89.74	-	-	3,950.37	**3,860.63**
1/15/2020	113.00	-	89.79	-	-	3,950.37	**3,860.58**
4/28/2020	112.98	-	90.04	-	-	3,950.37	**3,860.33**
7/7/2020	113.00	-	89.67	-	-	3,950.37	**3,860.70**
10/1/2020	113.00	-	89.93	-	-	3,950.37	**3,860.44**
1/14/2021	113.00	-	83.98	-	-	3,950.37	**3,866.39**
4/6/2021	113	-	89.71	-	-	3,950.37	**3,860.66**
7/14/2021	113	-	89.60	-	-	3,950.37	**3,860.77**
10/8/2021	113	-	89.62	-	-	3,950.37	**3,860.75**
1/11/2022	113	-	89.73	-	-	3,950.37	**3,860.64**
4/4/2022	113	-	89.94	-	-	3,950.37	**3,860.43**
10/18/2022	113	-	90.03	-	-	3,950.37	**3,860.34**
3/28/2023	113	-	89.35	-	-	3,950.37	**3,861.02**
5/24/2023	113	-	89.66	-	-	3,950.37	**3,860.71**
9/13/2023	113	-	89.67	-	-	3,950.37	**3,860.70**
11/30/2023	113	-	89.35	-	-	3,950.37	**3,861.02**

APPENDIX C
Historical Groundwater Gauging Data
MW-5
MCA 357
Lea County, New Mexico

Gauging Date	Well Total Depth (feet BTOC)	PSH (feet BTOC)	Water level (feet BTOC)	PSH Thickness (feet)	PSH Elevation (feet AMSL)	TOC Elevation (feet AMSL)	Groundwater Elevation (feet AMSL)

Notes:

TOC	Top of Casing
AMSL	Above Mean Sea Level
BTOC	Below Top of Casing
-	No Measurement

APPENDIX C
Historical Groundwater Gauging Data
MW-6
MCA 357
Lea County, New Mexico

Gauging Date	Well Total Depth (feet BTOC)	PSH (feet BTOC)	Water level (feet BTOC)	PSH Thickness (feet)	PSH Elevation (feet AMSL)	TOC Elevation (feet AMSL)	Groundwater Elevation (feet AMSL)
4/24/2019	128.12	-	Dry	-	-	3,952.96	**Dry**
7/9/2019	128.12	-	Dry	-	-	3,952.96	**Dry**
10/8/2019	128.12	-	Dry	-	-	3,952.96	**Dry**
1/14/2020	128.12	-	Dry	-	-	3,952.96	**Dry**
4/28/2020	128.12	-	Dry	-	-	3,952.96	**Dry**
7/7/2020	128.10	-	Dry	-	-	3,952.96	**Dry**
9/30/2020	128.10	-	Dry	-	-	3,952.96	**Dry**
1/13/2021	128.10	-	Dry	-	-	3,952.96	**Dry**
4/6/2021	128.10	-	Dry	-	-	3,952.96	**Dry**
7/14/2021	128.10	-	Dry	-	-	3,952.96	**Dry**
10/8/2021	128.10	-	Dry	-	-	3,952.96	**Dry**
1/11/2022	128.10	-	Dry	-	-	3,952.96	**Dry**
4/4/2022	128.10	-	Dry	-	-	3,952.96	**Dry**
10/18/2022	128.10	-	Dry	-	-	3,952.96	**Dry**
3/28/2023	128.10	-	Dry	-	-	3,953.96	**Dry**
5/24/2023	128.10	-	Dry	-	-	3,954.96	**Dry**
9/13/2023	128.10	-	Dry	-	-	3,955.96	**Dry**
11/30/2023	128.10	-	Dry	-	-	3,955.96	**Dry**

Notes:

TOC	Top of Casing
AMSL	Above Mean Sea Level
BTOC	Below Top of Casing
-	No Measurement

APPENDIX C
Historical Groundwater Gauging Data
MW-7
MCA 357
Lea County, New Mexico

Gauging Date	Well Total Depth (feet BTOC)	PSH (feet BTOC)	Water level (feet BTOC)	PSH Thickness (feet)	PSH Elevation (feet AMSL)	TOC Elevation (feet AMSL)	Groundwater Elevation (feet AMSL)
4/24/2019	127.40	-	89.30	-	-	3,972.11	**3,882.81**
7/9/2019	127.40	-	89.69	-	-	3,972.11	**3,882.42**
10/8/2019	127.40	-	89.64	-	-	3,972.11	**3,882.47**
1/14/2020	127.40	-	89.59	-	-	3,972.11	**3,882.52**
4/28/2020	127.38	-	89.67	-	-	3,972.11	**3,882.44**
7/7/2020	127.30	-	89.50	-	-	3,972.11	**3,882.61**
9/30/2020	127.30	-	89.74	-	-	3,972.11	**3,882.37**
1/13/2021	127.30	-	89.51	-	-	3,972.11	**3,882.60**
4/6/2021	127.30	-	89.93	-	-	3,972.11	**3,882.18**
7/15/2021	127.30	-	89.41	-	-	3,972.11	**3,882.70**
10/8/2021	127.30	-	89.55	-	-	3,972.11	**3,882.56**
1/11/2022	127.30	-	89.64	-	-	3,972.11	**3,882.47**
4/4/2022	127.30	-	89.72	-	-	3,972.11	**3,882.39**
10/18/2022	127.30	-	89.80	-	-	3,972.11	**3,882.31**
3/28/2023	127.30	-	88.15	-	-	3,972.11	**3,883.96**
5/24/2023	127.30	-	89.69	-	-	3,972.11	**3,882.42**
9/13/2023	127.30	-	89.88	-	-	3,972.11	**3,882.23**
11/30/2023	127.30	-	89.58	-	-	3,972.11	**3,882.53**

Notes:

TOC	Top of Casing
AMSL	Above Mean Sea Level
BTOC	Below Top of Casing
-	No Measurement

APPENDIX C
Historical Groundwater Gauging Data
MW-8
MCA 357
Lea County, New Mexico

Gauging Date	Well Total Depth (feet BTOC)	PSH (feet BTOC)	Water level (feet BTOC)	PSH Thickness (feet)	PSH Elevation (feet AMSL)	TOC Elevation (feet AMSL)	Groundwater Elevation (feet AMSL)
4/24/2019	118.03	-	95.11	-	-	3,956.83	**3,861.72**
7/9/2019	118.03	-	95.20	-	-	3,956.83	**3,861.63**
10/8/2019	118.03	-	95.26	-	-	3,956.83	**3,861.57**
1/14/2020	118.03	-	95.21	-	-	3,956.83	**3,861.62**
4/28/2020	118.00	-	95.42	-	-	3,956.83	**3,861.41**
7/7/2020	118.02	-	95.05	-	-	3,956.83	**3,861.78**
9/30/2020	118.00	-	95.38	-	-	3,956.83	**3,861.45**
1/13/2021	118.00	-	95.44	-	-	3,956.83	**3,861.39**
4/6/2021	118.00	-	94.85	-	-	3,956.83	**3,861.98**
7/15/2021	118.00	-	94.90	-	-	3,956.83	**3,861.93**
10/8/2021	118.00	-	95.20	-	-	3,956.83	**3,861.63**
1/11/2022	118.00	-	95.27	-	-	3,956.83	**3,861.56**
4/4/2022	118.00	-	95.38	-	-	3,956.83	**3,861.45**
10/18/2022	118.00	-	95.44	-	-	3,956.83	**3,861.39**
3/28/2023	118.00	-	95.13	-	-	3,956.83	**3,861.70**
5/24/2023	118.00	-	95.13	-	-	3,956.83	**3,861.70**
9/13/2023	118.00	-	96.28	-	-	3,956.83	**3,860.55**
11/30/2023	118.00	-	94.80	-	-	3,957.83	**3,863.03**

Notes:

TOC	Top of Casing
AMSL	Above Mean Sea Level
BTOC	Below Top of Casing
-	No Measurement

APPENDIX C
Historical Groundwater Gauging Data
MW-9
MCA 357
Lea County, New Mexico

Gauging Date	Well Total Depth (feet BTOC)	PSH (feet BTOC)	Water level (feet BTOC)	PSH Thickness (feet)	PSH Elevation (feet AMSL)	TOC Elevation (feet AMSL)	Groundwater Elevation (feet AMSL)
4/24/2019	133.10	-	118.86	-	-	3,936.53	**3,817.67**
7/9/2019	133.10	-	118.81	-	-	3,936.53	**3,817.72**
10/8/2019	133.10	-	118.88	-	-	3,936.53	**3,817.65**
1/14/2020	133.10	-	118.78	-	-	3,936.53	**3,817.75**
4/28/2020	133.06	-	118.88	-	-	3,936.53	**3,817.65**
7/7/2020	133.50	-	118.71	-	-	3,936.53	**3,817.82**
9/30/2020	133.50	-	118.76	-	-	3,936.53	**3,817.77**
1/12/2021	133.50	-	118.69	-	-	3,936.53	**3,817.84**
4/6/2021	133.50	-	118.73	-	-	3,936.53	**3,817.80**
7/15/2021	133.50	-	118.61	-	-	3,936.53	**3,817.92**
10/8/2021	133.50	-	118.68	-	-	3,936.53	**3,817.85**
1/11/2022	133.50	-	118.64	-	-	3,936.53	**3,817.89**
4/4/2022	133.50	-	119.18	-	-	3,936.53	**3,817.35**
10/18/2022	133.50	-	119.25	-	-	3,936.53	**3,817.28**
3/28/2023	133.50	-	118.40	-	-	3,936.53	**3,818.13**
5/24/2023	133.50	-	118.64	-	-	3,936.53	**3,817.89**
9/13/2023	133.50	-	118.89	-	-	3,936.53	**3,817.64**
11/30/2023	133.50	-	118.25	-	-	3,936.53	**3,818.28**

Notes:

TOC	Top of Casing
AMSL	Above Mean Sea Level
BTOC	Below Top of Casing
-	No Measurement

APPENDIX C
Historical Groundwater Gauging Data
MW-10
MCA 357
Lea County, New Mexico

Gauging Date	Well Total Depth (feet BTOC)	PSH (feet BTOC)	Water level (feet BTOC)	PSH Thickness (feet)	PSH Elevation (feet AMSL)	TOC Elevation (feet AMSL)	Groundwater Elevation (feet AMSL)
4/28/2020	132.30	-	Dry	-	-	3,963.20	**Dry**
7/7/2020	132.53	-	126.70	-	-	3,963.20	**3,836.50**
9/30/2020	132.51	-	126.80	-	-	3,963.20	**3,836.40**
1/12/2021	132.51	-	126.76	-	-	3,963.20	**3,836.44**
4/6/2021	132.51	-	126.22	-	-	3,963.20	**3,836.98**
7/15/2021	132.51	-	Dry	-	-	3,963.20	**Dry**
10/8/2021	132.51	-	Dry	-	-	3,963.20	**Dry**
1/11/2022	132.51	-	Dry	-	-	3,963.20	**Dry**
4/4/2022	132.51	-	Dry	-	-	3,963.20	**Dry**
10/18/2022	132.51	-	Dry	-	-	3,963.20	**Dry**
3/28/2023	132.51	-	Dry	-	-	3,963.20	**Dry**
5/24/2023	132.51	-	124.73	-	-	3,963.20	**3,838.47**
9/13/2023	132.51	-	124.61	-	-	3,963.20	**3,838.59**
11/30/2023	132.51	-	124.10	-	-	3,963.20	**3,839.10**

Notes:

TOC	Top of Casing
AMSL	Above Mean Sea Level
BTOC	Below Top of Casing
-	No Measurement

APPENDIX C
Historical Groundwater Gauging Data
MW-11
MCA 357
Lea County, New Mexico

Gauging Date	Well Total Depth (feet BTOC)	PSH (feet BTOC)	Water level (feet BTOC)	PSH Thickness (feet)	PSH Elevation (feet AMSL)	TOC Elevation (feet AMSL)	Groundwater Elevation (feet AMSL)
4/28/2020	131.50	-	Dry	-	-	3,948.30	**Dry**
7/7/2020	132.88	-	Dry	-	-	3,948.30	**Dry**
9/30/2020	132.88	-	Dry	-	-	3,948.30	**Dry**
1/12/2021	132.88	-	Dry	-	-	3,948.30	**Dry**
4/6/2021	132.88	-	Dry	-	-	3,948.30	**Dry**
7/15/2021	132.88	-	Dry	-	-	3,948.30	**Dry**
10/8/2021	132.88	-	Dry	-	-	3,948.30	**Dry**
1/11/2022	132.88	-	Dry	-	-	3,948.30	**Dry**
4/4/2022	132.88	-	Dry	-	-	3,948.30	**Dry**
10/18/2022	132.88	-	Dry	-	-	3,948.30	**Dry**
3/28/2023	132.88	-	Dry	-	-	3,948.30	**Dry**
5/24/2023	132.88	-	Dry	-	-	3,948.30	**Dry**
9/13/2023	132.88	-	Dry	-	-	3,948.30	**Dry**
11/30/2023	132.88	-	Dry	-	-	3,948.30	**Dry**

Notes:

TOC	Top of Casing
AMSL	Above Mean Sea Level
BTOC	Below Top of Casing
-	No Measurement

APPENDIX C
Historical Groundwater Gauging Data
MW-12
MCA 357
Lea County, New Mexico

Gauging Date	Well Total Depth (feet BTOC)	PSH (feet BTOC)	Water level (feet BTOC)	PSH Thickness (feet)	PSH Elevation (feet AMSL)	TOC Elevation (feet AMSL)	Groundwater Elevation (feet AMSL)
4/28/2020	132.00	-	Dry	-	-	3,930.91	**Dry**
7/7/2020	132.03	-	Dry	-	-	3,930.91	**Dry**
9/30/2020	132.30	-	Dry	-	-	3,930.91	**Dry**
1/12/2021	132.30	-	Dry	-	-	3,930.91	**Dry**
4/6/2021	132.30	-	Dry	-	-	3,930.91	**Dry**
7/15/2021	132.30	-	Dry	-	-	3,930.91	**Dry**
10/8/2021	132.30	-	Dry	-	-	3,930.91	**Dry**
1/11/2022	132.30	-	Dry	-	-	3,930.91	**Dry**
4/4/2022	132.30	-	Dry	-	-	3,930.91	**Dry**
10/18/2022	132.30	-	Dry	-	-	3,930.91	**Dry**
3/28/2023	132.30	-	Dry	-	-	3,930.91	**Dry**
5/24/2023	132.30	-	Dry	-	-	3,930.91	**Dry**
9/13/2023	132.30	-	Dry	-	-	3,930.91	**Dry**
11/30/2023	132.30	-	Dry	-	-	3,930.91	**Dry**

Notes:

TOC	Top of Casing
AMSL	Above Mean Sea Level
BTOC	Below Top of Casing
-	No Measurement

APPENDIX C
Historical Groundwater Gauging Data
MW-13
MCA 357
Lea County, New Mexico

Gauging Date	Well Total Depth (feet BTOC)	PSH (feet BTOC)	Water level (feet BTOC)	PSH Thickness (feet)	PSH Elevation (feet AMSL)	TOC Elevation (feet AMSL)	Groundwater Elevation (feet AMSL)
9/30/2020	133.25	-	Dry	-	-	3,931.32	**Dry**
1/12/2021	133.25	-	Dry	-	-	3,931.32	**Dry**
4/6/2021	133.25	-	Dry	-	-	3,931.32	**Dry**
7/15/2021	133.25	-	Dry	-	-	3,931.32	**Dry**
10/8/2021	132.25	-	Dry	-	-	3,931.32	**Dry**
1/11/2022	132.25	-	Dry	-	-	3,931.32	**Dry**
4/4/2022	132.25	-	Dry	-	-	3,931.32	**Dry**
10/18/2022	132.25	-	Dry	-	-	3,931.32	**Dry**
3/28/2023	132.25	-	Dry	-	-	3,931.32	**Dry**
5/24/2023	132.25	-	109.20	-	-	3,931.32	**3,822.12**
9/13/2023	132.25	-	109.49	-	-	3,931.32	**3,821.83**
11/30/2023	132.25	-	109.20	-	-	3,931.32	**3,822.12**

Notes:

TOC	Top of Casing
AMSL	Above Mean Sea Level
BTOC	Below Top of Casing
-	No Measurement

APPENDIX D: HISTORICAL GROUNDWATER ANALYTICAL DATA

APPENDIX D
Historical Groundwater Analytical Data
MW-1
MCA-357
Lea County, New Mexico

Sample Date	Bromide (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	TDS (mg/L)
NMWQCC GQS	**NE**	**250**	**600**	**1000**
8/17/2018	27.1	22,100	211	27,400
10/18/2018	38.4	16,000	241	31,000
1/23/2019	65.8	26,900	404	47,500
4/25/2019	-	11,000	-	34,400
7/9/2019	79	30,200	459	78,900
10/9/2019	21.9	11,400	179	27,000
1/15/2020	37.3	16,400	283	29,200
5/1/2020	79.6	37,200	490	98,200
7/9/2020	26	13,200	232	30,600
10/1/2020	16.1	8,700	161	17,500
1/14/2021	23.8	12,300	221	28,100
4/8/2021	20.8	11,000	205	27,200
7/13/2021	14.5	8,050	138	19,600
7/13/2021	18.9	10,800	191	28,000
10/8/2021	40.1	18,800	305	37,000
1/13/2022	167	55,800	756	83,200
4/7/2022	18.4	11,000	194	21,300
10/13/2022	21.7	12,400	222	27,500
3/28/2023	17.4	7,680	148	23,000
5/24/2023	69.9	29,700	453	59,300
9/13/2023	108	38,900	560	64,100 Q
11/30/2023	84.8	35,900	547	103,000

Notes:

TDS	Total Dissolved Solids
NMWQCC	New Mexico Water Quality Control Commission
GQS	Groundwater Quality Standards
J	The identification of the analyte is acceptable; the reported value is an estimate
NE	Regulatory Guideline Not Established
Q	Sample was prepared and/or analyzed past method holding time
-	Not Analyzed
	Result exceeds NMWQCC groundwater quality standards

APPENDIX D
Historical Groundwater Analytical Data
MW-2
MCA-357
Lea County, New Mexico

Sample Date	Bromide (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	TDS (mg/L)
NMWQCC GQS	**NE**	**250**	**600**	**1000**
10/4/2017	4.6	4,620	198	7,080
1/30/2018	15.3	4,340	173	8,600
4/10/2018	16.3	4,940	227	12,100
8/17/2018	5.12	5,330	212	11,300
10/18/2018	5.13	5,160	213	10,500
1/23/2019	6.95	4,840	225	11,100
4/25/2019	-	4,870	-	14,800
7/9/2019	4.85 J	5,500	253	13,500 Q
10/9/2019	7.30 J	5,280	212	12,200
1/15/2020	9.76 J	5,120	243	9,300
4/30/2020	5.41	5,640	253	12,700
7/9/2020	8.24 J	5,610	252	13,600
10/1/2020	7.23 J	5,690	268	11,100
1/13/2021	7.42 J	5,870	263	11,900
4/7/2021	8.22 J	5,340	260	10,100
7/13/2021	8.52 J	5,300	242	13,600
10/7/2021	9.32 J	5,800	263	10,600
1/12/2022	7.04 J	5,590	269	13,900
4/6/2022	10.2	6,010	306	7,460
10/13/2022	10.4	5,440	270	9,460
3/28/2023	0.897 J	296	85	958
5/24/2023	9.31 J	5,340	290	11,400
9/13/2023	9.33 J	5,500	309	13,300
11/30/2023	7.79 J	5,450	341	14,000

Notes:

TDS	Total Dissolved Solids
NMWQCC	New Mexico Water Quality Control Commission
GQS	Groundwater Quality Standards
J	The identification of the analyte is acceptable; the reported value is an estimate
NE	Regulatory Guideline Not Established
Q	Sample was prepared and/or analyzed past method holding time
-	Not Analyzed
	Result exceeds NMWQCC groundwater quality standards

APPENDIX D
Historical Groundwater Analytical Data
MW-3
MCA-357
Lea County, New Mexico

Sample Date	Bromide (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	TDS (mg/L)
NMWQCC GQS	**NE**	**250**	**600**	**1000**
10/4/2017	11.2	5,200	171	8,320
1/30/2018	19.6	4,210	171	8,800
4/10/2018	9.2	5,110	186	12,200
8/17/2018	9.4	4,360	170	10,400
10/18/2018	8.68	4,520	165	10,200
1/23/2019	10.3	4,560	175	11,000
4/24/2019	-	4,440	-	13,800
7/9/2019	8.42	4,740	183	12,800
10/8/2019	9.71 J	4,620	160	11,400
1/14/2020	11.9	4,340	172	9,200
4/30/2020	7.18	4,380	177	10,600
7/9/2020	10.3	4,540	178	11,000
10/1/2020	8.98 J	4,440	183	8,860
1/13/2021	9.20 J	4,550	182	9,320
4/7/2021	10.1	4,380	175	10,700
7/13/2021	10.2	4,190	162	11,100
10/7/2021	10.7	4,280	171	9,180
1/12/2022	8.81 J	4,300	180	8,380
4/5/2022	8.7	4,310	185	5,860
10/12/2022	11.5	3,870	159	7,080
3/28/2023	10.0 J	3,450	160	9,340
5/24/2023	10.2	3,590	158	8,480
9/13/2023	10.2	3,750	171	9,220
11/30/2023	6.10 J	3,800	179	9,760

Notes:

TDS	Total Dissolved Solids
NMWQCC	New Mexico Water Quality Control Commission
GQS	Groundwater Quality Standards
J	The identification of the analyte is acceptable; the reported value is an estimate
NE	Regulatory Guideline Not Established
Q	Sample was prepared and/or analyzed past method holding time
-	Not Analyzed
	Result exceeds NMWQCC groundwater quality standards

APPENDIX D
Historical Groundwater Analytical Data
MW-4
MCA-357
Lea County, New Mexico

Sample Date	Bromide (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	TDS (mg/L)
NMWQCC GQS	**NE**	**250**	**600**	**1000**
10/4/2017	7.8	5,630	165	7,080
1/30/2018	<0.50	4,970	16.1	7,880
4/10/2018	2.52	5,490	187	12,100
8/17/2018	5.3	6,140	173	11,700
10/18/2018	4.55	5,850	171	11,600
1/23/2019	6.96	5,620	180	12,200
4/25/2019	-	5,600	-	15,700
7/9/2019	5.03	6,330	190	13,700 Q
10/9/2019	7.57 J	6,020	169	13,100
1/14/2020	9.70 J	5,530	176	9,040
4/30/2020	5.23	5,770	187	13,300
7/9/2020	8.55 J	6,170	184	13,700
10/1/2020	7.47 J	6,140	193	11,500
1/14/2021	7.42 J	6,630	195	12,900
4/8/2021	8.66 J	5,930	186	15,200
7/14/2021	8.93 J	5,880	163	15,200
10/7/2021	9.67 J	6,320	179	13,100
1/12/2022	7.82 J	6,120	181	14,700
4/6/2022	8.35	6,730	198	8,020
10/12/2022	11	6,370	174	13,800
3/28/2023	8.09 J	6,290	191	15,800
5/24/2023	10.9	6,350	172	16,100
9/13/2023	11.2	6,640	186	14,400
11/30/2023	7.04 J	7,180	203	16,700

Notes:

TDS	Total Dissolved Solids
NMWQCC	New Mexico Water Quality Control Commission
GQS	Groundwater Quality Standards
J	The identification of the analyte is acceptable; the reported value is an estimate
NE	Regulatory Guideline Not Established
Q	Sample was prepared and/or analyzed past method holding time
-	Not Analyzed
	Result exceeds NMWQCC groundwater quality standards

APPENDIX D
Historical Groundwater Analytical Data
MW-5
MCA-357
Lea County, New Mexico

Sample Date	Bromide (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	TDS (mg/L)
NMWQCC GQS	**NE**	**250**	**600**	**1000**
10/4/2017	2.3	198	125	1,820
1/30/2018	2.3	767	136	1,640
4/10/2018	0.985 J	803	149	2,160
8/17/2018	2.29	766	142	2,240
10/18/2018	2.23	909	117	2,310
1/23/2019	2.28	909	114	2,470
4/25/2019	-	849	-	3,290
7/9/2019	1.82	1,040	138	3,000
10/9/2019	1.71	807	130	2,300 J3
1/15/2020	2.22	1,050	118	1,580 J3
5/1/2020	3.04 J	1,240	130	2,740
7/9/2020	3.63 J	953	142	3,260
10/1/2020	2.94 J	773	164	2,200
1/14/2021	2.05	1,090	133	2,700
4/8/2021	1.99	1,070	109	3,630
7/14/2021	2.19	1,220	101	3,530
10/8/2021	2.28	1,140	122	2,910
1/12/2022	2.04	1,150	136	3,320
4/7/2022	4.49	1,040	152	3,530
10/13/2022	2.95	1,260	124	3,060
3/28/2023	5.61	610	154	3,290
5/24/2023	4.37 J	1,300	113	3,660
9/13/2023	4.41 J	1,420	118	4,500
11/30/2023	0.612 J	1,350	131	3,960

Notes:

TDS	Total Dissolved Solids
NMWQCC	New Mexico Water Quality Control Commission
GQS	Groundwater Quality Standards
J	The identification of the analyte is acceptable; the reported value is an estimate
J3	The associated QC was outside the established quality control range for precision
NE	Regulatory Guideline Not Established
Q	Sample was prepared and/or analyzed past method holding time
-	Not Analyzed
	Result exceeds NMWQCC groundwater quality standards

APPENDIX D
Historical Groundwater Analytical Data
MW-6
MCA-357
Lea County, New Mexico

Sample Date	Bromide (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	TDS (mg/L)
NMWQCC GQS	**NE**	**250**	**600**	**1000**
4/24/2019	Not Sampled - Dry			
7/9/2019	Not Sampled - Dry			
10/8/2019	Not Sampled - Dry			
1/14/2020	Not Sampled - Dry			
4/28/2020	Not Sampled - Dry			
7/7/2020	Not Sampled - Dry			
9/30/2020	Not Sampled - Dry			
1/13/2021	Not Sampled - Dry			
4/6/2021	Not Sampled - Dry			
7/14/2021	Not Sampled - Dry			
10/7/2021	Not Sampled - Dry			
1/11/2022	Not Sampled - Dry			
4/7/2022	Not Sampled - Dry			
10/18/2022	Not Sampled - Dry			
3/28/2023	Not Sampled - Dry			
5/24/2023	Not Sampled - Dry			
9/13/2023	Not Sampled - Dry			
11/30/2023	Not Sampled - Dry			

Notes:

TDS	Total Dissolved Solids
NMWQCC	New Mexico Water Quality Control Commission
GQS	Groundwater Quality Standards
J	The identification of the analyte is acceptable; the reported value is an estimate
J3	The associated QC was outside the established quality control range for precision
NE	Regulatory Guideline Not Established
Q	Sample was prepared and/or analyzed past method holding time
-	Not Analyzed
	Result exceeds NMWQCC groundwater quality standards

APPENDIX D
Historical Groundwater Analytical Data
MW-7
MCA-357
Lea County, New Mexico

Sample Date	Bromide (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	TDS (mg/L)
NMWQCC GQS	**NE**	**250**	**600**	**1000**
4/24/2019	-	2,060	-	6,020
7/9/2019	2.60 J	1,740	211	4,630
10/8/2019	1.08	200	97.1	763
1/14/2020	1.62	246	96.7	853
4/30/2020	1.18	239	98.1	846
7/8/2020	1.47	289	94.7	880
9/30/2020	1.08	240	111	866
1/13/2021	1.23	270	96.7	834
4/7/2021	1.33	247	92.7	858
7/15/2021	1.38	253	89.5	902
10/8/2021	1.6	528	100	1,460
1/11/2022	1.57	355	81.3	1,120
4/6/2022	1.58	291	85.5	976
10/13/2022	2.55	270	87.1	854
3/28/2023	12.2	5,140	295	14,200
5/24/2023	6.69 J	976	181	2,130
9/13/2023	4.03 J	1,010	198	2,240
11/30/2023	1.63 B	890	175	2,260

Notes:

TDS	Total Dissolved Solids
NMWQCC	New Mexico Water Quality Control Commission
GQS	Groundwater Quality Standards
B	Analyte detected in associated Method Blank
J	The identification of the analyte is acceptable; the reported value is an estimate
J3	The associated QC was outside the established quality control range for precision
NE	Regulatory Guideline Not Established
Q	Sample was prepared and/or analyzed past method holding time
-	Not Analyzed
	Result exceeds NMWQCC groundwater quality standards

APPENDIX D
Historical Groundwater Analytical Data
MW-8
MCA-357
Lea County, New Mexico

Sample Date	Bromide (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	TDS (mg/L)
NMWQCC GQS	**NE**	**250**	**600**	**1000**
4/24/2019	-	2,050	-	6,530
7/9/2019	2.74	2,270	104	6,620
10/8/2019	2.5	2,320	88.9	5,740
1/14/2020	2.95	2,180	99.8	4,870
4/30/2020	3.95 J	2,390	95.1	5,580
7/8/2020	6.43 J	2,330	98.6	5,750
9/30/2020	7.03 J	5,730	156	5,880
1/13/2021	4.05 J	2,160	93.2	4,890
4/7/2021	6.53 J	2,120	88.5	5,810 J3
7/15/2021	6.73 J	1,960	54	6,150
10/8/2021	7.59 J	2,320	93.1	5,100
1/13/2022	4.80 J	2,250	95.7	4,740
4/5/2022	5.18	2,340	99.3	3,420
10/12/2022	8.99	2,220	86.9	5,110
3/28/2023	7.29 J	1,950	75.9	5,090
5/24/2023	7.51 J	2,030	88.3	4,040
9/13/2023	7.52 J	2,100	95.4	6,330
11/30/2023	4.50 J	2,210	97.2	5,900

Notes:

TDS	Total Dissolved Solids
NMWQCC	New Mexico Water Quality Control Commission
GQS	Groundwater Quality Standards
J	The identification of the analyte is acceptable; the reported value is an estimate
J3	The associated QC was outside the established quality control range for precision
NE	Regulatory Guideline Not Established
Q	Sample was prepared and/or analyzed past method holding time
-	Not Analyzed
	Result exceeds NMWQCC groundwater quality standards

APPENDIX D
Historical Groundwater Analytical Data
MW-9
MCA-357
Lea County, New Mexico

Sample Date	Bromide (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	TDS (mg/L)
NMWQCC GQS	**NE**	**250**	**600**	**1000**
4/24/2019	-	5,100	-	15,800
7/9/2019	7.09	5,130	376	17,100
10/8/2019	9.26 J	5,660	353	13,200
1/14/2020	11.4	5,540	388	12,700
4/30/2020	8.51 J	6,030	423	14,500
7/8/2020	10.3	6,460	438	16,000
9/30/2020	9.03 J	6,400	461	16,900
1/12/2021	8.99 J	6,750	487	12,900
4/6/2021	9.70 J	6,540	477	14,100
7/15/2021	10.1	6,690	463	19,300
10/8/2021	11.4	6,580	495	14,300
1/12/2022	8.85 J	6,170	472	16,200
4/6/2022	11.3	6,700	526	12,800
10/12/2022	11	6,040	470	15,600
3/28/2023	10.4	5,540	460	16,300
5/24/2023	10.3	6,050	463	12,100
9/13/2023	11	6,040	470	15,600
11/30/2023	10.3	5,400	400	16,200

Notes:

TDS	Total Dissolved Solids
NMWQCC	New Mexico Water Quality Control Commission
GQS	Groundwater Quality Standards
J	The identification of the analyte is acceptable; the reported value is an estimate
J3	The associated QC was outside the established quality control range for precision
NE	Regulatory Guideline Not Established
Q	Sample was prepared and/or analyzed past method holding time
-	Not Analyzed
	Result exceeds NMWQCC groundwater quality standards

APPENDIX D
Historical Groundwater Analytical Data
MW-10
MCA-357
Lea County, New Mexico

Sample Date	Bromide (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	TDS (mg/L)
NMWQCC GQS	**NE**	**250**	**600**	**1000**
4/28/2020	Not Sampled - Dry			
7/8/2020	7.09	5,130	376	17,100
9/30/2020	9.26 J	5,660	353	13,200
1/12/2021	11.4	5,540	388	12,700
4/6/2021	8.51 J	6,030	423	14,500
7/15/2021	Not Sampled - Dry			
10/8/2021	Not Sampled - Dry			
1/11/2022	Not Sampled - Dry			
4/6/2022	Not Sampled - Dry			
10/18/2022	Not Sampled - Dry			
3/28/2023	Not Sampled - Dry			
5/24/2023	10.3	5,950	482	17,300
9/13/2023	7.22 J	1,910	52.1 B	4,590
11/30/2023	7.77 J	1,680	52	4,920

Notes:

TDS	Total Dissolved Solids
NMWQCC	New Mexico Water Quality Control Commission
GQS	Groundwater Quality Standards
B	Analyte detected in associated Method Blank
J	The identification of the analyte is acceptable; the reported value is an estimate
J3	The associated QC was outside the established quality control range for precision
NE	Regulatory Guideline Not Established
Q	Sample was prepared and/or analyzed past method holding time
-	Not Analyzed
	Result exceeds NMWQCC groundwater quality standards

APPENDIX D
Historical Groundwater Analytical Data
MW-11
MCA-357
Lea County, New Mexico

Sample Date	Bromide (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	TDS (mg/L)
NMWQCC GQS	**NE**	**250**	**600**	**1000**
4/28/2020	Not Sampled - Dry			
7/7/2020	Not Sampled - Dry			
9/30/2020	Not Sampled - Dry			
1/12/2021	Not Sampled - Dry			
4/6/2021	Not Sampled - Dry			
7/15/2021	Not Sampled - Dry			
10/8/2021	Not Sampled - Dry			
1/11/2022	Not Sampled - Dry			
4/6/2022	Not Sampled - Dry			
10/18/2022	Not Sampled - Dry			
3/28/2023	Not Sampled - Dry			
5/24/2023	Not Sampled - Dry			
9/13/2023	Not Sampled - Dry			
11/30/2023	Not Sampled - Dry			

Notes:

TDS	Total Dissolved Solids
NMWQCC	New Mexico Water Quality Control Commission
GQS	Groundwater Quality Standards
J	The identification of the analyte is acceptable; the reported value is an estimate
J3	The associated QC was outside the established quality control range for precision
NE	Regulatory Guideline Not Established
Q	Sample was prepared and/or analyzed past method holding time
-	Not Analyzed
	Result exceeds NMWQCC groundwater quality standards

APPENDIX D
Historical Groundwater Analytical Data
MW-12
MCA-357
Lea County, New Mexico

Sample Date	Bromide (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	TDS (mg/L)
NMWQCC GQS	**NE**	**250**	**600**	**1000**
4/28/2020	Not Sampled - Dry			
7/7/2020	Not Sampled - Dry			
9/30/2020	Not Sampled - Dry			
1/12/2021	Not Sampled - Dry			
7/15/2021	Not Sampled - Dry			
10/8/2021	Not Sampled - Dry			
1/11/2022	Not Sampled - Dry			
4/6/2022	Not Sampled - Dry			
10/18/2022	Not Sampled - Dry			
3/28/2023	Not Sampled - Dry			
5/24/2023	Not Sampled - Dry			
9/13/2023	Not Sampled - Dry			
11/30/2023	Not Sampled - Dry			

Notes:

TDS	Total Dissolved Solids
NMWQCC	New Mexico Water Quality Control Commission
GQS	Groundwater Quality Standards
J	The identification of the analyte is acceptable; the reported value is an estimate
J3	The associated QC was outside the established quality control range for precision
NE	Regulatory Guideline Not Established
Q	Sample was prepared and/or analyzed past method holding time
-	Not Analyzed
	Result exceeds NMWQCC groundwater quality standards

APPENDIX D
Historical Groundwater Analytical Data
MW-13
MCA-357
Lea County, New Mexico

Sample Date	Bromide (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	TDS (mg/L)
NMWQCC GQS	**NE**	**250**	**600**	**1000**
9/30/2020	Not Sampled - Dry			
1/12/2021	Not Sampled - Dry			
7/15/2021	Not Sampled - Dry			
10/8/2021	Not Sampled - Dry			
1/11/2022	Not Sampled - Dry			
4/6/2022	Not Sampled - Dry			
10/18/2022	Not Sampled - Dry			
3/28/2023	Not Sampled - Dry			
5/24/2023	9.30 J	1,380	210	3,730 Q
9/13/2023	6.72	1,460	220	3,190
11/30/2023	4.59	1,610	216	3,680

Notes:

TDS	Total Dissolved Solids
NMWQCC	New Mexico Water Quality Control Commission
GQS	Groundwater Quality Standards
J	The identification of the analyte is acceptable; the reported value is an estimate
J3	The associated QC was outside the established quality control range for precision
NE	Regulatory Guideline Not Established
Q	Sample was prepared and/or analyzed past method holding time
-	Not Analyzed
	Result exceeds NMWQCC groundwater quality standards

APPENDIX E: MONITOR WELL CONSTUCTION AND LOCATIONS

Apppendix E
2023 Montior Well Construction and Locations
MCA 357
Lea County, New Mexico

arial	Date Drilled/Installed	Latitude	Longitude	Amount of Screen (ft)	Amount of Riser (ft)	Total Depth (ft bgs)
MW-1	12/9/2014	32.802341	-103.771269	Unknown	Unknown	100
MW-2	9/22/2017	32.804007	-103.771749	40.0	65.0	105
MW-3	9/25/2017	32.801499	-103.769706	40.0	75.0	115
MW-4	9/22/2017	32.800491	-103.771392	40.0	60.0	100
MW-5	9/22/2017	32.802330	-103.773167	40.0	70.0	110
MW-6	4/18/2019	32.803219	-103.775706	40.0	85.0	125
MW-7	4/18/2019	32.805509	-103.771091	40.0	85.0	125
MW-8	4/18/2019	32.801667	-103.767232	30.0	85.0	115
MW-9	4/19/2019	32.798125	-103.771169	40.0	90.0	130
MW-10	4/28/2020	32.801497	-103.764781	40.0	90.0	130
MW-11	4/28/2020	32.796530	-103.766164	40.0	90.0	130
MW-12	4/28/2020	32.794681	-103.771208	40.0	90.0	130
MW-13	9/28/2020	32.797114	-103.775645	40.0	90.0	130

Notes:

BTOC: Below Top of Casing

AMSL: Above Mean Sea Level

District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720
District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS

Action 316675

CONDITIONS

Operator:	OGRID:
Maverick Permian LLC 1000 Main Street, Suite 2900 Houston, TX 77002	331199
	Action Number: 316675
	Action Type: [UF-GWA] Ground Water Abatement (GROUND WATER ABATEMENT)

CONDITIONS

Created By	Condition	Condition Date
michael.buchanan	Review of the 2023 Annual Report MCA 357 (1RP-3025) for groundwater: Content Satisfactory 1. Maverick has approval to move sampling events from quarterly to semi-annual. 2. If monitoring wells: MW-12, MW-11 and MW-6 continue to remain dry during sampling events, Maverick must propose a contingency plan; for example, return in 30 days to attempt sampling dry wells again, or drilling deeper to reach water level, etc. 3. Continue groundwater monitoring and submit the 2024 Annual Report by April 1, 2025.	4/23/2024