



REVIEWED

By Mike Buchanan at 2:26 pm, Oct 18, 2024

August 1, 2024

District Supervisor
Oil Conservation Division, District 1
1625 North French Drive
Hobbs, New Mexico 88240

**Re: Groundwater Abatement Work Plan
Maverick Permian, LLC
MCA 357 (API 30-025-25849)
Unit Letter M, Section 28, Township 17 South,
Lea County, New Mexico
Incident ID# nTO1423043689**

Groundwater Abatement Work Plan submitted by Maverick Permian, LLC for MCA 357: content satisfactory and is approved to commence work proposed.

1. Proceed as planned to over-drill and reinstall MW-6, MW-11 and MW-12 as prescribed in Maverick's plan.

2. Proceed to reinstall MW-1 to facilitate the installation of the submersible groundwater extraction pump.

3. Please notify the OCD at least four (4) working days in advance before work is to well work is to commence. Include a narrative in the 2025 annual report with findings and future recommendations.

Dear Sir or Madam,

Tetra Tech, Inc. (Tetra Tech) on behalf of Maverick Permian, LLC is presenting this Groundwater Abatement Work Plan in response to the New Mexico Oil Conservation Division (NMOCD) 2024 review, acceptance, and comments to 2021, 2022, and 2023 abatement reports for the Maljamar Unit Letter M, Section 28, Township 17 South, Range 32 East, in Lea County, New Mexico (Site ID# nTO1423043689). The Site is recorded at coordinates 32.802448°, -103.771223°.

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BACKGROUND

In December 2013, the Site operator submitted a Release Notification document (RND) to the NMOCD detailing a release with the source recorded as a wellhead. The release affected approximately 5,600 square feet of groundwater. The RND documents an estimated 24 barrels of groundwater subsequently recovered.

Corrective Action Form C-141 to the NMOCD detailing a release with the source recorded as a wellhead. The release affected approximately 5,600 square feet of groundwater. The RND documents an estimated 24 barrels of groundwater subsequently recovered.

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Previous environmental assessment activities included groundwater sampling program, analytical laboratory analyses, and preliminary determinations of impacts to environmental media. Based on the preliminary determinations, Rice Environmental Consulting & Safety (RICE) submitted a Corrective Action Plan (CAP) to the NMOCD on behalf of ConocoPhillips (COP) in October 2014, which the NMOCD approved in October 2014. The proposed vadose zone remediation phase was completed in December 2014. The CAP also stipulated a groundwater remedy phase to include quarterly groundwater monitoring and a future proposal for a remedy to groundwater impacts.

Previous environmental assessment activities included groundwater sampling program, analytical laboratory analyses, and preliminary determinations of impacts to environmental media. Based on the preliminary determinations, Rice Environmental Consulting & Safety (RICE) submitted a Corrective Action Plan (CAP) to the NMOCD on behalf of ConocoPhillips (COP) in October 2014, which the NMOCD approved in October 2014. The proposed vadose zone remediation phase was completed in December 2014. The CAP also stipulated a groundwater remedy phase to include quarterly groundwater monitoring and a future proposal for a remedy to groundwater impacts.

Following the CAP approval, groundwater samples in the source area indicated the concentrations of chloride in groundwater (39,500 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 operated by ConocoPhillips up until June 2022 when Maverick took over operation of the Site in June of 2022. Subsequent to taking over operations, Maverick completed quarterly groundwater monitoring

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and reporting for the second half of 2022 and 2023 but was unaware that the previous operator had committed to proposing a groundwater remedy to the NMOCD.

NMOCD RESPONSES TO ANNUAL REPORTS

Tetra Tech submitted the 2021 COP Annual Groundwater Report and Remedial Activities Report dated March 24, 2022, on May 17, 2022; the 2022 Maverick Annual Report dated January 27, 2023, on February 24, 2023; and the 2023 Annual Report dated January 31, 2024, was submitted on February 22, 2022. Tetra Tech received NMOCD responses accepting the submitted reports on June 18, 2024, June 3, 2024, and April 23, 2024, respectively. To provide a single response to received comments and requests, NMOCD responses and requests relevant to developing this work plan for the three groundwater abatement reports are reiterated below:

- *“Reduce groundwater sampling frequency to semi-annual until COCs are demonstrated below allowable concentrations per the WQCC. 2.”;*
- *“To date 06/18/2024, Conoco Phillips has not proposed a groundwater abatement option for the clean-up of high TDS and chlorides. This was originally requested in the Corrective Action Plan dated 10/30/2014 for MCA Well #357, but has not been submitted. A follow up letter from the OCD may be issued if this is not proposed in 60 days from 06/18/2024”;* and
- *“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.”*

GROUNDWATER ABATEMENT WORK PLAN

To address the above NMOCD comments on recent groundwater abatement annual reports, Maverick will continue quarterly sampling for the duration of 2024 and switch to semi-annual groundwater sampling in calendar year 2025. Maverick Proposes the below additional activities to address concerns related to dry groundwater monitoring wells and clean-up of high TDS and chlorides.

Monitoring Well Assessment

Based on historical groundwater level measurements reported in the 2021, 2022, and 2023 annual groundwater abatement reports, monitoring wells MW-6, MW-11, and MW-12 were never installed to a depth sufficient to intersect the uppermost groundwater-bearing zone at the Site and have been reported as dry since the installation date to the present. Based on the historical data.

Well construction data available from previously submitted monitoring well boring logs and reported in Appendix E of the 2023 Annual groundwater abatement report shows MW-6, MW-11, and MW-12 have been installed to depths of 125 feet below ground surface (bgs), 130 feet bgs, and 130 feet bgs, respectively, with respective base elevations of approximately 3,825 feet Above Mean Sea Level (AMSL), 3,815 feet AMSL, and 3,799 feet AMSL. **Table 1** below summarizes well construction depth, well base elevation, and extrapolated groundwater elevation at each of the three monitoring well locations. **Figures 2** through **5** present the most recent potentiometric surface maps from the 2023 Annual Report.

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Table 1: Monitoring Well and Extrapolated Groundwater Elevations

Well ID	Base Elevation Feet AMSL	Extrapolated Groundwater Elevation (feet AMSL)	Distance from base of well to top of extrapolated groundwater (feet)
MW-6	3,827.86	3,865	-37.14
MW-11	3,815.42	3,795	20.42
MW-12	3,798.61	3,768	30.61

Based on the well construction and extrapolated groundwater elevation, monitoring wells MW-11 and MW-12 appear to be installed 20 and 30 feet above the top of the groundwater-bearing zone. MW-6 appears to be installed to a depth consistent with the groundwater-bearing zone, however it has consistently shown no groundwater.

Monitoring Well Reinstallation

Based on the monitoring well assessment presented above, Maverick proposes to over-drill and re-install 2-inch diameter monitoring wells MW-6, MW-11, and MW-12 to depths of up to 180 feet bgs. The over-drilling and deepening of these monitoring wells will allow the wells in these locations to intersect the uppermost groundwater-bearing zone and provide sufficient water columns to allow for groundwater monitoring in the future. Additionally, Maverick proposes to over-drill MW-1 to a depth of approximately 130 feet bgs and install a 4-inch well at this location to facilitate groundwater extraction as detailed below.

The proposed monitoring wells will be constructed in accordance with the *New Mexico Environment Department Ground Water Quality Bureau Monitoring Well Construction and Abandonment Guidelines* with the exception that the MW-1 well will be constructed with 40 feet of screen to allow the screen to cross the top of the groundwater table while providing sufficient water column to facilitate future groundwater extraction discussed below.

Chloride and Total Dissolved Solids Clean Up

To address chloride and Total Dissolved Solids (TDS) impacts at the Site, Maverick proposes to initiate groundwater extraction and disposal at the source zone from Monitoring Well MW-1. If approved, Maverick will over-drill and re-install MW-1 as detailed above to facilitate the installation of a submersible groundwater extraction pump. The pump is anticipated to be piped to a temporary poly storage tank that will then be piped to a nearby saltwater disposal well for disposal by injection with Maverick's produced water waste stream.

Schedule

Upon NMOCD approval of this Work Plan, Maverick will develop a detailed design for the proposed groundwater pump and disposal system to be included in the 2024 Annual Groundwater Abatement Report for the site. Maverick will then complete the above groundwater monitoring well re-installation activities and installation of the groundwater pump and disposal system before the end of the second quarter of 2025. Groundwater extraction will begin on or before the beginning of the third quarter of 2025.

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CONCLUSION

Maverick believes the above activities are sufficient to address the NMOCD comments and concerns regarding groundwater abatement at the Site. If you have any questions or feedback concerning the proposed remediation activities for the Site, please contact Charles Terhune by email at chuck.terhune@tetrattech.com or by phone at (832)-252-2093.

Sincerely,



Chris Straub
Project Manager
Tetra Tech, Inc.



Charles H. Terhune IV, P.G.
Program Manager
Tetra Tech, Inc.

cc: Bryce Wagoner, Maverick Permian, LLC
Bureau of Land Management

LIST OF ATTACHMENTS

Figures

- Figure 1 – Site Details Map
- Figure 2 – Groundwater Potentiometric Surface Map – March 2023
- Figure 3 – Groundwater Potentiometric Surface Map – May 2023
- Figure 4 – Groundwater Potentiometric Surface Map – September 2023
- Figure 5 – Groundwater Potentiometric Surface Map – November 2023

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FIGURES



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



SCALE: 1 in = 550 feet
 Feet 0 275 550

LEGEND

◆ MONITOR WELL LOCATION

	
<p>FIGURE 1 SITE DETAILS MAP MCA # 357 LEA COUNTY, NEW MEXICO</p>	
PROJECT : 212C-HN-02228	
DATE : 1/23/2024	
FILE : FIGURE 2 MCA 357	



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

LEGEND

- MONITOR WELL LOCATION
- GROUNDWATER GRADIENT CONTOUR
- GROUNDWATER ELEVATION
- APPARENT GROUNDWATER GRADIENT



SCALE: 1 in = 550 feet
0 275 550
Feet



FIGURE 2
GROUNDWATER POTENTIOMETRIC SURFACE
MAP – MARCH 2023
MCA # 357
LEA COUNTY, NEW MEXICO

PROJECT : 212C-HN-02228

DATE : 1/24/2024

FILE : FIGURE 3 MCA 357





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

LEGEND

- MONITOR WELL LOCATION
- GROUNDWATER GRADIENT CONTOUR
- GROUNDWATER ELEVATION
- APPARENT GROUNDWATER GRADIENT



SCALE: 1 in = 550 feet
Feet 0 275 550



FIGURE 3
GROUNDWATER POTENTIOMETRIC SURFACE
MAP – MAY 2023
MCA # 357
LEA COUNTY, NEW MEXICO

PROJECT : 212C-HN-02228
DATE : 1/25/2024
FILE : FIGURE 4 MCA 357





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

LEGEND

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



SCALE: 1 in = 550 feet

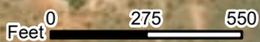
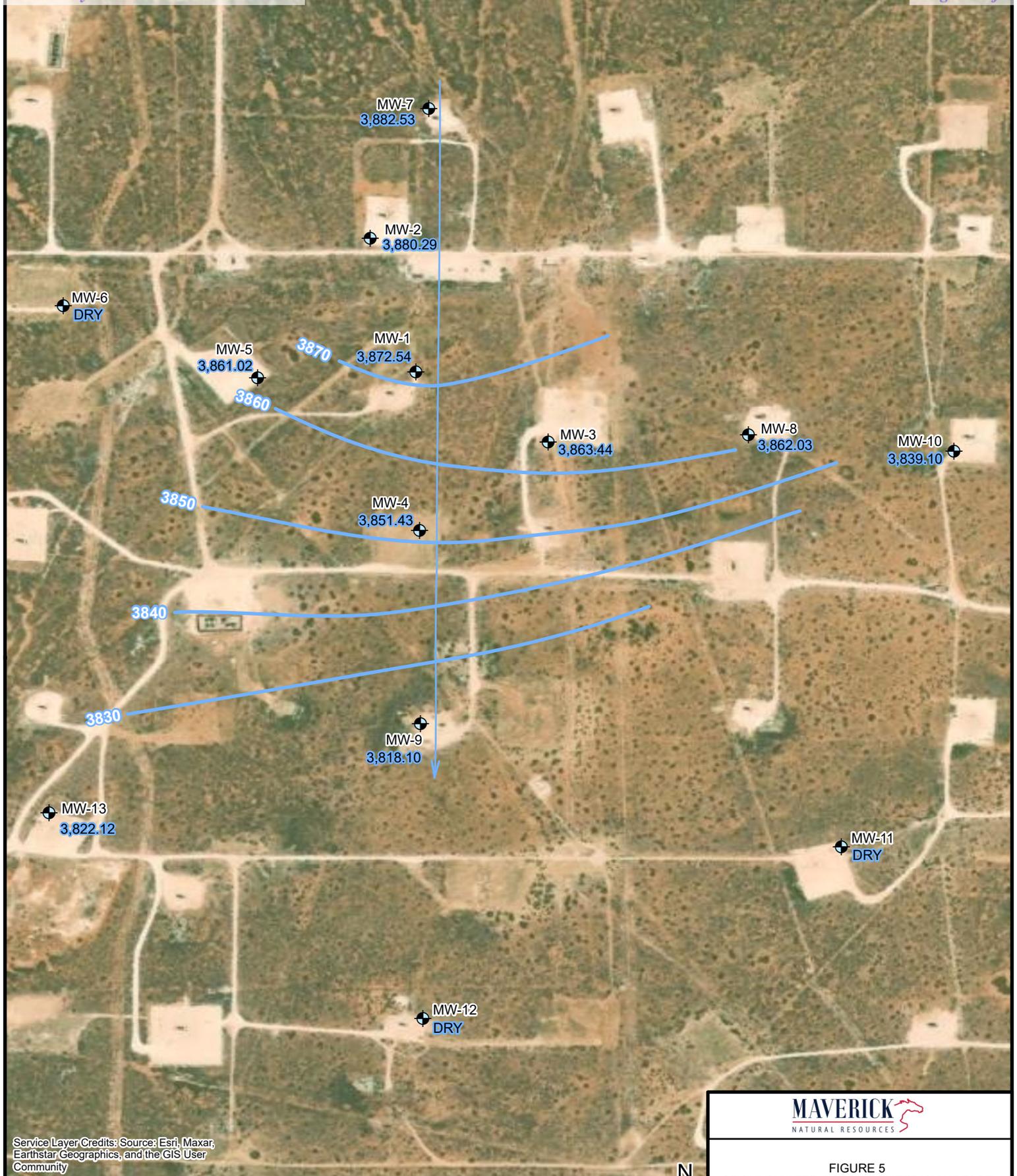


FIGURE 4
 GROUNDWATER POTENTIOMETRIC SURFACE
 MAP – SEPTEMBER 2023
 MCA # 357
 LEA COUNTY, NEW MEXICO

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





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

LEGEND

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



SCALE: 1 in = 550 feet
Feet 0 275 550



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

PROJECT : 212C-HN-02228

DATE : 1/25/2024

FILE : FIGURE 6 MCA 357



District I
 1625 N. French Dr., Hobbs, NM 88240
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District II
 811 S. First St., Artesia, NM 88210
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District III
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 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 369654

CONDITIONS

Operator: Maverick Permian LLC 1000 Main Street, Suite 2900 Houston, TX 77002	OGRID: 331199
	Action Number: 369654
	Action Type: [UF-GWA] Ground Water Abatement (GROUND WATER ABATEMENT)

CONDITIONS

Created By	Condition	Condition Date
michael.buchanan	Groundwater Abatement Work Plan submitted by Maverick Permian, LLC for MCA 357: content satisfactory and is approved to commence work proposed. 1. Proceed as planned to over-drill and reinstall MW-6, MW-11 and MW-12 as prescribed in Maverick's plan. 2. Proceed to reinstall MW-1 to facilitate the installation of the submersible groundwater extraction pump. 3. Please notify the OCD at least four (4) working days in advance before work is to well work is to commence. Include a narrative in the 2025 annual report with findings and future recommendations.	10/18/2024