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**ENTERED**  
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October 18, 2023

John Moore  
Environmental Superintendent  
Western Refining, Southwest LLC, Gallup Refinery  
92 Giant Crossing Road  
Gallup, New Mexico 87301

**RE: DISAPPROVAL  
2023 FACILITY-WIDE GROUNDWATER MONITORING WORK PLAN  
WESTERN REFINING SOUTHWEST LLC, GALLUP REFINERY  
MCKINLEY COUNTY, GALLUP, NEW MEXICO  
EPA ID# NMD000333211  
HWB-WRG-23-010**

Dear Mr. Moore,

The New Mexico Environment Department (NMED) has completed its review of Marathon Petroleum Company dba Western Refining Southwest LLC, Gallup Refinery (the Permittee) the *2023 Facility-wide Groundwater Monitoring Work Plan* (Work Plan), dated January 31, 2023. NMED hereby issues this Disapproval with the following comments.

**Comment 1**

In the Executive Summary, page 2 of 19, second to the last paragraph, the Permittee states, “[a]lthough, the “Response to Approval with Modifications” (Western 2021b, [*Response to Approval with Modifications, Natural Attenuation Assessment and Proposed Work Plan for the Hydrocarbon Seep Area*, dated December 17, 2021]) has not been approved by NMED, the Refinery is using the information as the basis for the MNA groundwater program presented in this document.” Address the following:

- a) NMED issued a response to the Permittee’s December 17, 2021 *Response to Approval with Modifications* on April 5, 2022. NMED’s April 5, 2022 correspondence required the Permittee to evaluate alternate analytical methods that can achieve lower detection limits for the chlorinated volatile organic compounds (CVOCs) of interest. Subsequently, the Permittee provided a response letter dated April 22, 2022 stating that, “alternative

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analytical methods will be evaluated in the 2023 Facility Wide Groundwater Monitoring Work Plan.” However, the 2023 Work Plan did not include a discussion regarding alternative analytical methods for CVOCs to achieve lower detection limits. Provide an evaluation of alternative analytical methods that can achieve lower detection limits for the CVOCs and include the discussion in the revised Work Plan.

- b) There appears to be a misinterpretation about NMED’s determination response to the Permittee’s December 17, 2021 *Response to Approval with Modifications*. The response was approved in the April 5, 2022 letter from NMED. Update the text accordingly in the revised Work Plan. Furthermore, the Permittee is encouraged to contact NMED to clarify any of the comments in NMED’s response letters.

**Comment 2**

In Section 1.0 (Introduction), page 8 of 19, paragraph 2, the Permittee states, “[b]ecause the Facility Wide Groundwater Monitoring Work Plan (2022 Plan) was not approved before sampling began in 2022, NMED requests presented in “Approval with Modifications, 2022 Facility-Wide Groundwater Monitoring Work Plan” (NMED 2022) are incorporated into the 2023 Plan, when applicable.” The Permittee submits the work plan every February of the year. Since the first quarter monitoring event is conducted in March, the work plan is unlikely to be approved before the first quarter monitoring event is conducted. NMED requires up to 120 days of review time in accordance with 20.4.2.208 NMAC; therefore, future work plans must be submitted to NMED at least 120 days prior to the anticipated first quarter sampling dates. NMED recognizes that this may not be possible; therefore, the Permittee must conduct groundwater monitoring events based on the last approved work plan rather than the proposed work plan. In this case, the Permittee must conduct the 2023 groundwater monitoring events based on the 2022 Work Plan until the 2023 Work Plan is approved by NMED. This provision must be incorporated in future work plans.

**Comment 3**

In Section 2.4 (Hydrogeology), page 12 of 19, paragraph 3, the Permittee states, “[g]roundwater occurrence in this aquifer is sporadic and limited (Appendix B, Figure 1).” Figure 1 (Alluvial / Fluvial Upper Sand Aquifer Potentionmetric Surface Map (2021)) from Appendix B (Investigation Methods) depicts data collected in 2021. The Permittee must present data from 2022 rather than 2021 in the revised Work Plan.

**Comment 4**

In Section 3.1 (Facility-wide Groundwater Monitoring Program), page 13 of 19, second to the last paragraph, the Permittee states, “[i]f samples cannot be collected from a location due to safety concerns, such as elevated hydrogen sulfide, arrangements will be made to collect samples from the affected location at a different time by changing the scheduled sampling

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dates.” NMED concurs with the statement. However, it is not clear whether the conditions associated with elevated hydrogen sulfide may still occur at the site since the Refinery is indefinitely idled as of October 9, 2020. Provide a clarification in the response letter and revise the statement in the Work Plan, as appropriate. Furthermore, any deviations from the approved work plan must be discussed in the annual report.

**Comment 5**

In Section 3.1 (Facility-wide Groundwater Monitoring Program), page 13 of 19, second to the last paragraph, the Permittee states, “[i]f a [separate phase hydrocarbon (SPH)] recovery system is present in a well, recovery system operation will be halted to allow groundwater to equilibrate, and the fluid level will be measured.” State how long the groundwater will be allowed to equilibrate before sampling in the revised Work Plan.

**Comment 6**

In Section 3.1 (Facility-wide Groundwater Monitoring Program), page 14 of 19, paragraph 2, the Permittee states, “[a]s requested by NMED (MPC 2021, Comment 3), the October 17, 2019, gauging data for Well OW-58A (Figure 1-2) will not be included in future reports.” According to Section 6.0 (References), the referenced document, MPC 2021, is the *2019 Annual Groundwater Monitoring Report*. However, the Permittee is missing the reference to the original document that Comment 3 came from, NMED’s May 4, 2021 *Approval with Modifications [Revised] Annual Groundwater Monitoring Report*. Include the reference to NMED’s May 4, 2021 Approval with Modifications letter in the revised Work Plan.

**Comment 7**

In Section 3.2 (Monitored Natural Attenuation Program), page 14 of 19, paragraph 2, the Permittee states, “[s]amples will be analyzed for the constituents presented in Table 3-1 and evaluated for evidence of chlorinated volatile organic compounds (CVOCs) MNA and the methyl tertbutyl ether (MTBE) MNA.” According to Table 3-1 (MNA Groundwater Analytical List), total organic carbon, carbon dioxide, alkalinity, hydrogen, and volatile fatty acids are not included as monitored natural attenuation (MNA) analytes. The analytical parameters of total organic carbon, carbon dioxide, alkalinity, hydrogen, volatile fatty acids contribute to the data which demonstrates whether or not natural processes are degrading contaminants at the site. Include these analytical parameters to the MNA program in the revised Work Plan and in future annual updates to the Work Plan.

**Comment 8**

In Section 3.2 (Monitored Natural Attenuation Program), page 14 of 19, paragraph 3, the Permittee states, “[t]he MNA evaluation for 2021 was presented in the “2021 Annual Monitored Natural Attenuation Report” (Western 2022) and is pending NMED approval at the

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time of this 2023 Plan. MNA reporting is completed in accordance with the "Response to Approval with Modifications" (Western 2021b)." Address the following:

- a) According to Section 6.0 (References), the referenced document, Western 2022, is the *2021 Annual Monitored Natural Attenuation Report*, which is dated December 19, 2022. However, the report in NMED's record is actually dated as March 31, 2022. There are no MNA Reports received or dated as December 19, 2022 in NMED's record. Resolve the discrepancy in the revised Work Plan.
- b) NMED issued an Approval with Modifications for the *2021 Annual Monitored Natural Attenuation Report* on August 22, 2022. Therefore, the report was already approved before the 2023 Work Plan was submitted. Correct the statement in the revised Work Plan.

**Comment 9**

In Section 4.3.2 (Data Evaluation), page 16 of 19, bullet 1, the Permittee states, "[a]ll data provided by analyses where the limit of detection values exceed the cleanup levels are considered data quality exceptions and will not be used to demonstrate compliance. Furthermore, all data quality exceptions are identified in the tables where data are presented and will continue in all future submittals." The compounds whose reporting limits (RLs) and method detection limits (MDLs) exceed respective screening levels have not been identified in Appendix C (2022 Analyte Evaluation). For example, for bis(2-chloroethoxy) methane, the data result, RL, MDL, and respective screening level for well MKTF-31 on November 15, 2018 are recorded as ND, 1,000, 610, and 59 µg/L, respectively in Appendix C-1b (Semivolatile Organic Compound Data (2012 To 2022)). This example represents a data quality exception that must be identified. Revise all applicable sections and tables of the Work Plan to identify all data quality exceptions. Future reports must also identify all data quality exceptions.

**Comment 10**

In Section 4.3.3 (Miscellaneous Data Additions and Removals), page 16 of 19, bullet 1, the Permittee states, "[b]enzo(b)fluoranthene, an optional Skinner List constituent, has been removed because it has not been detected once in the last five sampling years (September 2018 to September 2022)." Although the proposed removal of the analyte is hereby approved by NMED, any future changes to the analytical list must first be approved by NMED prior to implementing the changes. Revise the statement to acknowledge this provision in the response letter.

**Comment 11**

In Section 4.3.3 (Miscellaneous Data Additions and Removals), page 16 of 19, bullet 2, the Permittee states, "[p]entafluorobenzene has been removed because it is a laboratory internal

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standard for United States Environmental Protection Agency Method 8260 and is added to all samples analyzed using Method 8260. Therefore, the results are not indicative of field conditions and are a standard lab practice.” Address the following:

- a) Although the proposed removal of the analyte is hereby approved by NMED, any future changes to the analytical list must first be approved by NMED prior to implementing the changes. Revise the statement to acknowledge this provision in the response letter. See also Comment 10 above.
- b) According to Appendix C-2a (Volatile Organic Compound Evaluation), page 2 of 2, the analyte was reported as only being detected in 69% of the groundwater samples that were analyzed for volatile organic compounds (VOCs). Since this analyte was used as a laboratory internal standard, the frequency of the detection should actually be 100% rather than 69%. Provide a clarification in the response letter.

**Comment 12**

According to Table 4-2 (2023 Groundwater Monitoring Analyte List) under *General Chemistry*, page 2 of 4, anions (e.g., nitrate) are not included as facility-wide analytes. The concentrations of anions in multiple groundwater samples collected from the Facility historically exceeded applicable screening levels; therefore, anions must be included as analytes. Provide a revised Table 4-2 in the revised Work Plan accordingly.

**Comment 13**

According to Appendix C-1d (General Chemistry Data (2012 TO 2022)), the screening levels for TPH-DRO, TPH-GRO, and TPH-ORO are reported as 16,700, 10,100, and 85,800 mg/L, respectively. There is an error with the conversion of micrograms per liter ( $\mu\text{g/L}$ ) to milligrams per liter (mg/L). According to Table 6-4 (Groundwater and SL-SSLs for TPH Mixtures) of NMED’s November 2022 *Risk Assessment Guidance for Site Investigations and Remediation, Volume I Soil Screening Guidance for Human Health Risk Assessments (2022 RAG)*, the groundwater screening levels for Diesel #2/crankcase oil, Gasoline, and Unknown oil are presented as 16.7, 10.1, and 85.8  $\mu\text{g/L}$ , respectively. Accordingly, the screening levels for TPH-DRO, TPH-GRO, and TPH-ORO must be corrected to 0.0167, 0.0101, and 0.0858 mg/L, respectively, if the Permittee continues to compare the analytical data results using mg/L in Appendix C-1d. Otherwise, report the TPH screening levels in  $\mu\text{g/L}$  and adjust the analytical data results to compare with the same units. In addition, the Permittee must also identify all data quality exceptions in Appendix C-1d, as appropriate (see Comment 9 above).

**Comment 14**

According to Appendix C-2d (General Chemistry Evaluation), page 1 of 1, some analytes (e.g., sulfate, nitrate, chloride) listed in the EPA’s MNA screening sheet presented in the *2022 Annual*

*Monitored Natural Attenuation Report*, dated March 31, 2023, were removed from the proposed analyte list in 2022. All analytes listed in the MNA screening sheet and Table 3-1 (MNA Groundwater Analytical List) must be retained for applicable wells unless the Permittee received approval to remove the analytes. See also Comments 10 and 11 above. Revise Appendix C-2d of the Work Plan accordingly.

**Comment 15**

The footnote(s) to Appendices C-1a (Volatile Organic Compound Data (2012 TO 2022)) through C-1d (General Chemistry Data (2012 TO 2022)) state "[t]he screening levels shown are the same as selected in the 2022 Annual Groundwater Report." However, Appendix C-1e (PFAS Data (2021 TO 2022)) has an asterisk after the column heading for "*Screening Level*", yet a footnote explaining what the asterisk represents is not present. Reference the source and date of the specific screening levels in the footnote (e.g., current EPA Regional Screening levels) for all of the tables in Appendix C in the revised Work Plan. in the revised Work Plan.

**Comment 16**

Appendices C-2a through C-2d do not include units for the highest and lowest contaminant concentration detections in the tables. Units must be included for all values reported in the table or the Permittee must provide footnotes in the tables to explain why there are no units associated with the values. Add relevant units to corresponding tables in the revised Work Plan.

**Comment 17**

In Table Attachment A-5 (Well Information - Survey Data, Screened Interval, Stratigraphic Unit, Artesian Water Wells), it is unclear if the column for *Total Well Depth* is presented as an elevation or as feet below ground surface. Clarify how the survey data is being presented in this column in the revised Work Plan.

**Comment 18**

In Table Attachment A-5, the Permittee did not provide notations to signify which footnote applies to what part of the table. For example, footnote 2 states "Actual well casing diameter is 12 inches. The 176 ft of 24 in steel casing is the actual cemented support for development of the well." However, there are no corresponding notations in the table to indicate which well this applies to. The Permittee must clearly identify the portion(s) of the table that the individual footnotes apply to in the revised Work Plan.

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The Permittee must address all the above comments and submit a revised Work Plan. Two hard copies and an electronic version of the revised Work Plan must be submitted to the NMED. The Permittee must also include a redline-strikeout version in electronic format showing where all revisions to the Work Plan have been made. The revised Work Plan must be accompanied with a response letter that details where all revisions have been made to the Work Plan, cross-referencing NMED's numbered comments. The revised Work Plan and response letter must be submitted to NMED no later than **December 18, 2023**.

If you have questions regarding this letter, please contact Michiya Suzuki of my staff at 505-690-6930.

Sincerely,

Ricardo Maestas

Digitally signed by Ricardo  
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Ricardo Maestas  
Acting Chief  
Hazardous Waste Bureau

cc: N. Dhawan, NMED HWB  
L. Tsinnajinnie, NMED HWB  
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File: WRG 2023 and Reading File