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Certified Mail - Return Receipt Requested

January 24, 2022

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

**RE: APPROVAL WITH MODIFICATIONS
WELL INSTALLATION AND ABANDONMENT REPORT
WESTERN REFINING SOUTHWEST INC., GALLUP REFINERY
MCKINLEY COUNTY, GALLUP, NEW MEXICO
EPA ID # NMD000333211
HWB-WRG-21-017**

Dear Mr. Moore:

The New Mexico Environment Department (NMED) has completed its review of the Marathon Petroleum Company dba Western Refining Southwest Inc., Gallup Refinery (Permittee) *Well Installation and Abandonment Report* (Report), dated November 11, 2021 and received on November 15, 2021. NMED has reviewed the Report, and hereby issues this Approval with Modifications with the following comments.

Comment 1

In the Executive Summary, page 4 of 21, paragraph 1, the Permittee states, "6 existing wells were abandoned and replaced due to submerged well screens, and 7 new wells were planned to aid in evaluation of the separate phase hydrocarbon (SPH) and dissolved-phase plumes." The Permittee must notify NMED and receive approval prior to completing plugging and abandoning activities for existing wells. Furthermore, the replacement wells should have been installed adjacent to the existing wells or the placement of the new wells should have been discussed with NMED. In the future, NMED must be notified of plugging and abandoning activities and will assess the abandonment of the six wells once the data collected from the existing and replacement wells are compared and evaluated. Acknowledge this provision in a response letter.

Comment 2

In the Executive Summary, page 4 of 21, paragraph 1, and Section 1.3 (Deviations from the Scope of Work), page 7 of 12, paragraph 1, the Permittee states, "property access was not

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granted for the two off-site monitoring wells (west of monitoring well OW-1 and northeast of monitoring well OW-30)." The Permittee must continue to make efforts to contact the property owner to gain access to the site.

Comment 3

In the Executive Summary, page 5 of 21, bullet 2, the Permittee states, "[m]onitoring wells OW-67 and OW-68 were installed in the upper sand (alluvium) aquifer to assess previously detected elevated concentrations of chloride and sulfate northwest of evaporation pond (EP) 2 and monitoring well GWM-1 and east of EP-2." The aquifer northwest of EP-2 is currently monitored by wells SMW-2, OW-59, and OW-60. It is NMED's opinion that wells OW-67 and OW-68 are not useful to assess the conditions of the referenced aquifer. Comment 1 in the NMED's December 27, 2021 *Approval with Modifications Investigation Report, SMW-2 and GWM-1 Areas* states, "[w]ells SMW-2, OW-59, and OW-60 were installed with screened intervals with depths of 34.31 – 54.31, 20 – 35, and 25 – 45 feet bgs, respectively, which were designed to monitor groundwater quality at the Chinle/Alluvial Interface. Wells OW-67 and OW-68 were installed with screened intervals with depths of 10 – 25, and 5 – 25 feet bgs, respectively, which were designed to monitor shallow groundwater quality at the upper-most saturated interval. The screened intervals of wells OW-67 and OW-68 are not comparable with well SMW-2; therefore, the conclusions regarding the elevated chloride and sulfate concentrations in the groundwater samples collected from wells OW-67 and OW-68 will not be representative of the samples collected from well SMW-2. If the Permittee would like to continue to use the locations of wells OW-67 and OW-68 to evaluate the chloride and sulfate concentrations in the Chinle/Alluvial interface, propose to install nested wells adjacent to OW-67 and OW-68 that are screened to monitor the groundwater quality at the Chinle/Alluvial Interface; otherwise, explain why wells OW-67 and OW-68 are sufficient for the evaluation in a response letter." Since this comment will be addressed in a separate report, no response is required.

Comment 4

In Sections 2.2 (Drilling) and 2.3 (Soil Borings) , page 8 of 21, paragraphs 5 and 6, the Permittee states, "[w]ell construction details are summarized in Table 2-1 [and g]roundwater was not encountered in two of the proposed monitoring well locations, OW-13A and OW-69 (Figure 2-1)." Table 2-1 (Well Construction and Gauging Data) reports the surface elevations for most of the new wells except for borings OW-13A and OW-69. The Permittee must provide the surface elevation at boring OW-69. Comment 2 in the NMED's December 27, 2021 *Approval with Modifications* states, "[s]ince boring log OW-69 included in Appendix A (Boring Logs) does not provide information regarding the ground surface elevation, NMED is unable to evaluate whether boring OW-69 was advanced to a sufficient depth to intercept the saturated zone. The groundwater elevations at well GWM-1 are recorded as approximately 6,891 feet. Based on Figure 2 (SMW-2 and GWM-1 Area Features), boring OW-69 is depicted approximately 75 feet downgradient of well GWM-1 along a relatively flat hydraulic gradient in the pertinent area. Boring OW-69 should have been advanced to the comparable depth of groundwater detected in well GWM-1 (i.e., 6,891 feet), at a minimum. Provide accurate surface elevation survey data

for boring OW-69 to confirm that the depth of boring OW-69 was completed to a depth comparable to groundwater levels detected in well GWM-1 in the response letter.” Since this comment will be addressed in a separate report, no response is required.

Comment 5

In Section 2.3 (Soil Borings), page 9 of 21, paragraph 2, the Permittee states, “[t]he rig was advanced to a total depth of 26 ft bgs, with no observable saturated interval in the upper sand (alluvium) or Chinle formation. Because the well [OW-69] was to be installed in the upper sand (alluvium) and not in the Chinle formation, the boring was not advanced past 26 ft bgs and no monitoring well was installed.” Although the water bearing zone where well GWM-1 was screened is located at the alluvium/Chinle interface, it is possible that the same water bearing zone may be present below the interface at the location of boring OW-69. However, there is no surface elevation data to support the statement. Since the purpose of well OW-69 is to delineate the extent of SPH detected in well GWM-1, the boring should have been advanced past 26 feet below ground surface (bgs), in order for the boring depth to be comparable to the groundwater elevation recorded in well GWM-1 (see Comment 4). The surface elevation at boring OW-69 must be determined to confirm whether the boring depth (i.e., at or below 26 feet bgs) was sufficient. Since this comment will be addressed in a separate report, no response is required.

Comment 6

In Section 2.5 (Well Abandonment), page 11 of 21, paragraph 2, the Permittee states, “[i]n the Comment 3 of the letter “Approval with Modifications, Hydrocarbon Seep Interim Measures 2021 Second Quarter Status Report” dated September 14, 2021, NMED stated, “Existing Wells MKTF-1, MKTF-2, MKTF-4, MKTF-17, and MKTF-18 must not be plugged and abandoned; they must be preserved at this time.” However, the wells were abandoned in July 2021 and August 2021, in accordance with previous correspondence, before the September 2021 letter was received. The replacement wells will provide enhanced information (the ability to monitor for SPH) in addition to providing equivalent dissolved constituent data while reducing the liability of maintaining duplicative shallow groundwater wells.” In the future, the Permittee must notify NMED prior to plugging and abandoning wells at the site so that NMED will be provided with the opportunity to assess the abandonment of the existing wells once the data collected from the existing and replacement wells are compared and evaluated (see Comment 1). NMED also agrees that the replacement wells will provide the ability to monitor for SPH. For example, well RW-2 has a submerged screen interval (26.1 – 36.1 feet bgs) that has never been able to detect SPH while well RW-2R has a screened interval that intercepts the water table (11.5 – 31.5 feet bgs) which provides accurate data (2.67 feet of SPH was detected in well RW-2R according to Table 2-1). Although the replacement wells will provide the ability to monitor for SPH, the Permittee may not collect groundwater samples for dissolved-phase constituents from well RW-2R because of the presence of SPH. Since the screened interval of well RW-2 was submerged and SPH was absent, the Permittee could have continued to collect groundwater samples from well RW-2 if it had not been abandoned. There were potential benefits to retain

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well RW-2 as well as other abandoned wells. Although no revision to the Report is warranted, existing wells must not be plugged and abandoned without NMED's prior approval in the future.

Comment 7

Although all analytical tables included in the Report identify analytes whose limit of detection (LOD) value exceeds the applicable screening level with bold font (e.g., **ND(2.9)** for 1,2-dibromo-3-chloropropane), Section 4.0 (Summary and Conclusions), pages 19 through 20, does not provide a discussion regarding such analytes. All data provided by analyses where LOD values exceed the screening levels are considered data quality exceptions and cannot be used to demonstrate compliance. All data quality exceptions must be identified in the text as well as tables, or figures. Revise the Report to include a discussion in the appropriate section(s) and provide replacement pages.

Comment 8

Figure 2-1 (New Well Locations and abandoned Wells July and August 2021) contains a typographical error. Although well MKTF-17 was abandoned, well MKTF-07 was identified as the abandoned well in Figure 2-1. Correct the typographical error in Figure 2-1 and provide a replacement figure. In addition, although Figure 2-1 depicts the locations of new wells, soil borings and abandoned wells, existing wells are not shown on the figure. It is helpful to include a figure that presents both the existing and new wells to have a full depiction of well locations described in the text of the Report. Provide a separate figure that presents both the existing and new wells.

The Permittee must address all comments in this Approval with Modifications and submit the required response letter and replacement pages to NMED no later than **April 15, 2022**.

This approval is based on the information presented in the document as it relates to the objectives of the work identified by NMED at the time of review. Approval of this document does not constitute agreement with all information or every statement presented in the document.

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

Sincerely,



Dave Cobrain
Program Manager
Hazardous Waste Bureau

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cc: L. Tsinnajinnie, NMED HWB
M. Suzuki, NMED HWB
H. Jones, Trihydro
L. Barr, EMNRD OCD
L. King, EPA Region 6 (GLCRRC)

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