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August 23, 2022

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

**RE: APPROVAL WITH MODIFICATIONS
2021 ANNUAL GROUNDWATER MONITORING REPORT
WESTERN REFINING SOUTHWEST INC., GALLUP REFINERY
MCKINLEY COUNTY, GALLUP, NEW MEXICO
EPA ID # NMD000333211
HWB-WRG-22-006**

Dear Mr. Moore:

The New Mexico Environment Department (NMED) has completed its review of Marathon Petroleum Company dba Western Refining Southwest Inc., Gallup Refinery (the Permittee's) *2021 Annual Groundwater Monitoring Report* (Report), dated March 31, 2022 and received on April 13, 2022. NMED hereby issues this Approval with Modifications with the following comments.

Comment 1

In Section 4.1 (Potentiometric Surface), page 16 of 25, paragraph 2, the Permittee states, "[p]otentiometric surface maps were prepared using the third quarter (annual) monitoring event data." Although the groundwater elevation data were collected quarterly in 2021, only the data collected during the third quarter was used to prepare the potentiometric surface maps. Explain why the third quarter data was used to generate the potentiometric surface maps. Furthermore, confirm and state that the data collected during the first, second and fourth quarters are consistent with that of the third quarter so that the maps prepared using the third quarter data are representative of the entire groundwater elevation data set collected in 2021 in the revised Report. Provide replacement pages accordingly or include additional potentiometric surface maps using the data collected from the other quarterly monitoring events.

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Comment 2

In Section 5.1 (Analytical Results), page 18 of 25, paragraph 5, 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 the data are presented and will continue in all future submittals.” Tables 5-1 (Volatile Organic Compounds Analytical Data) through 5-5 (General Chemistry and Total Petroleum Hydrocarbon Analytical Data) and 5-7 (PFAS Analytical Data) identify the data quality exceptions where the limit of detection (LOD) values exceed the cleanup levels by italicizing them. However, such data quality exceptions must also be discussed in the text of the Report. In addition, the Permittee must present a separate summary table that lists all compounds where the LOD values exceed the cleanup levels, the LOD values, and the applicable cleanup levels. Provide the table as an addition to the Report and provide replacement pages, as necessary.

Comment 3

In Section 5.2 (Discussion of New Findings), page 19 of 25, paragraph 4, the Permittee states, “PFAS samples were collected during all four quarters; however, the first quarter samples were not collected following approved PFAS sampling protocols.” NMED has not previously approved PFAS sampling protocols. Discuss the PFAS sampling protocols used during the 2021 sampling events in future groundwater monitoring work plan updates. No revision is required to the Report.

Comment 4

In Sections 5.2 (Discussion of New Findings), page 19 of 25, paragraph 6, and 7.0 (Conclusions), page 23 of 25, bullet 3, the Permittee states, “[a]s shown on Figure 4-2, the potentiometric surface is 6,900.38 ft above mean sea level (amsl) in well OW-54, 6,904.78 ft amsl in OW-55, and 6,905.80 ft amsl in OW-56. In this area of the Refinery, water is flowing from well OW-56 towards wells OW-54 and OW-55, which is consistent for the data collected in 2020 and 2021. Therefore, wells OW-54 and OW-55 are not influencing the dissolved phase constituent concentrations detected in OW-56.” Comment 11 of the NMED’s October 20, 2021 *Disapproval* required the Permittee to evaluate the effect of the groundwater recovery system because well OW-56 reported historically low concentrations of benzene (less than 2.5 µg/L). However, benzene concentrations at well OW-56 were detected at 547 µg/L during the fourth quarter of 2020. Furthermore, the potentiometric surface elevations (6,905.80 ft amsl) at well OW-56 were measured under natural conditions while the groundwater recovery system was shut off; therefore, the discussion is not relevant. Since wells OW-54 and OW-55 were located downgradient of well OW-56, the groundwater recovery system operated in wells OW-54 and OW-55 may have created a steeper hydraulic gradient in the vicinity of well OW-56 and accelerated the transport of the dissolved phase constituents that are present upgradient of well OW-56. The notable increase of the dissolved phase constituent concentrations in 2020 may have been caused by the operation of the groundwater recovery system. Regardless, the groundwater recovery system is no longer active and was removed from the site according to

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the Permittee's March 11, 2022 correspondence. The benzene concentration in the groundwater sample collected from well OW-56 has since decreased to 3.8 µg/L during the fourth quarter of 2021 according to Table 5-1; therefore, the Permittee is no longer required to evaluate the effect of the groundwater recovery system. No revisions required.

Comment 5

In Section 5.3.1 (Rejected Data), page 20 of 25, paragraph 2, the Permittee states, “[r]ejected data are presented in their respective tables and explanations of the qualifiers can be found in the data validation reports provided in the following Appendices:

- Appendix D-1 – Reports 2103532, 2103142, and 2103470
- Appendix D-2 – Reports 2106B77, 2106D55, 2106B14, 2106976, 2106895, and 2106646
- Appendix D-3 – Reports 2109709, 2109D30, and 2109C62
- Appendix D-4 – Reports 2112902, 2112658, 2112634, 2112997, and 2112B70”

The Permittee is required to identify the analytes where analytical results were rejected and discuss the cause of rejection within the text of the Report. Include the discussion in the revised Report and provide replacement pages.

Comment 6

In Section 6.0 (Remediation Activities), page 22 of 25, paragraph 1, the Permittee states, “[f]luid recovery at the Refinery is reported quarterly in the Hydrocarbon Interim Measures Seep Reports.” Since the groundwater recovery systems for the OW wells are no longer operational and have been removed, it is NMED’s understanding that the discussions regarding fluid recovery at the Refinery are the recovery events conducted at the MKTF and RW wells using vacuum trucks. Clarify the statement in the revised Report and provide replacement pages.

Comment 7

In Section 7.0 (Conclusions), page 23 of 25, bullet 2, the Permittee states, “[t]he presence and distribution of SPH is generally consistent with historical monitoring data except for wells MKTF-13, MKTF-17, MKTF-48, GWM-1, OW-61, and OW-65, where SPH thickness increased slightly.” According to Table 4-1 (Fluid Level Monitoring), the statement is not accurate. For example, separate phase hydrocarbon (SPH) thickness for MKTF-17 in February 2020 and June 2021 is recorded as 5.41 feet and 0.05 feet, respectively. The SPH thickness clearly decreased in MKTF-17 in 2021. Correct the statement for accuracy and provide replacement pages.

Comment 8

Table 3-1 (Groundwater Monitoring Program 2021) indicates that well OW-12 was annually sampled. Comment 16 of the NMED’s October 20, 2021 *Disapproval 2020 Annual Groundwater Monitoring Report* states, “[w]ell OW-12 must be monitored and sampled on a semi-annual basis in 2022.” Since the Report pertains to the 2021 groundwater monitoring activities, no revision is required to the Report. The sampling frequency for well OW-12 must be recorded as

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a semi-annual in the 2022 groundwater monitoring work plan and report. This comment serves as a reminder, no revision is required to the Report.

Comment 9

Several issues were identified in Table 3-2 (Cleanup Levels) regarding its accuracy. Resolve the issues below in the 2022 groundwater monitoring report.

- a) Table 3-2 lists cleanup levels for selected analytes, references for the screening levels, and applicable site cleanup levels. However, it is not clear which analytical method(s) (e.g., EPA Method 8260) were used. Modify the table to include the information regarding the analytical methods.
- b) Table 3-2, page 4 of 4 lists cleanup levels for gasoline range organics (GRO) and total petroleum hydrocarbons (TPH) (C6-C10) as 10.1 µg/L and Not Applicable (NA), respectively. However, GRO and TPH (C6-C10) represent the same result and it is unnecessary to list two separate cleanup levels. Similarly, Table 3-2, page 4 of 4 lists cleanup levels for motor oil, oil range organics (ORO) and TPH (C28-C40) as 85.8 µg/L, 85.8 µg/L and NA, respectively. However, motor oil, ORO and TPH (C28-C40) represent the same result and it is unnecessary to list three separate cleanup levels.
- c) Table 3-2, page 4 of 4 lists cleanup levels for total dissolved solids (TDS), Biochemical Oxygen Demand (BOD), Chemical Oxygen Demand (COD), Coliform, E-Coli, E-Coli and pH as NA for all. New Mexico Administrative Code (NMAC) Sections 20.6.2.2101 and 3103 list the standards for BOD, COD, and fecal coliform bacteria, as 30 mg/L, 125 mg/L, and 500 organisms per 100 ml, respectively. Evaluate whether these standards are applicable to the site monitoring program. Include the standards, as appropriate.
- d) Table 3-2 does not provide information regarding the screening levels for PFAS. Include the screening level of PFAS in the revised Table 3-2. See the June 2022 NMED *Risk Assessment Guidance for Site Investigation and Remediation* for the most recent cleanup levels.

Comment 10

There are some issues identified in Table 5-2 (Semi-volatile Compounds Analytical Data). Resolve the issues below in the 2022 groundwater monitoring report.

- a) According to Table 5-2, it is not clear whether 1,4-dioxane was analyzed by EPA Method 8270 SIM, as directed by NMED's October 20, 2021 *Disapproval*. Indicate the analytical method used to analyze 1,4-dioxane in the revised table.
- b) Table 5-2 must only present analytical data for semi-volatile compounds (SVOCs) as titled for the table; however, it also contains analytical data associated with pesticides

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analysis (e.g., 4,4'-DDD). The results of pesticides analysis must be presented in a separate table for clarity. Provide a separate table that reports analytical data associated with pesticides in all future annual groundwater monitoring reports.

Comment 11

According to Table 5-5 (General Chemistry and Total Petroleum Hydrocarbon Analytical Data), sulfide analysis was not listed. Comment 18a of the NMED's October 20, 2021 *Disapproval* states, "[i]nclude the sulfide analytical data collected from pertinent wells in the 2021 Report." Include the analytical data for sulfide in the revised Report and provide replacement pages.

Comment 12

According to Table 5-7 (PFAS Analytical Data), page 1 of 1, the total per- and polyfluoroalkyl substances (PFAS) concentrations in the groundwater samples collected from well OW-63 were recorded as more than 3,000 ng/L during the 2021 sampling events which exceed the screening level. Based on this information, a PFAS plume may be present in the vicinity of OW-63. Submit a work plan to investigate the extent of the PFAS contamination no later than **December 31, 2022**.

The Permittee must address all comments above and submit a response letter, replacement pages, and an electronic version of the revised Report no later than **December 15, 2022**. In addition, a work plan required by Comment 12 must be submitted no later than **December 31, 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.

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

Sincerely,

Rick Shean

Digitally signed by Rick
Shean
Date: 2022.08.23 13:42:32
-06'00'

Rick Shean
Chief
Hazardous Waste Bureau

cc: D. Cobrain, NMED HWB
L. Tsinnajinnie, NMED HWB
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