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CERTIFIED MAIL – RETURN RECEIPT REQUESTED

February 20, 2019

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

**RE: DISAPPROVAL
INVESTIGATION WORK PLAN [SMW-2] AND [GWM-1] AREAS
WESTERN REFINING SOUTHWEST INC., GALLUP REFINERY
EPA ID # NMD000333211
HWB-WRG-18-007**

Dear Mr. Moore:

The New Mexico Environment Department (NMED) has reviewed the *Investigation Work Plan [SMW-2] and [GWM]-1 Areas* (Work Plan), dated August 2018, submitted on behalf of Marathon Petroleum Company dba Western Refining Southwest Inc., Gallup Refinery (the Permittee). NMED hereby issues this Disapproval. The Permittee must address the following comments:

Comment 1

The cover letter is titled as “*Investigation Work Plan SMWU-1 and GMW-1*” while the Work Plan is titled as “*Investigation Work Plan SMW-1 & GMW-1 Areas.*” The content of the Work Plan suggests that the title of the submittal may be “*Investigation Work Plan SMW-2 and GWM-1 Areas*”. Accordingly, NMED revised the title of the Work Plan for the purpose of correspondence. However, if the intended subject of this submittal is different, the Permittee may change the title. The title of all future documents must be reviewed before submittal to NMED to ensure that they do not contain typographical errors. Revise the title of the Work Plan, as appropriate.

Comment 2

The cover letter states that NMED's Comments 2, 8, and 9 in the June 4, 2018 *Disapproval of Annual Groundwater Monitoring Report- Gallup Refinery 2016*, required the Permittee to prepare a work plan. Comment 2 in the *Disapproval* is pertinent to the discussion of SPH in well RW-1 and outside of the scope of this Work Plan. Comment 2 was addressed in separate submittals. Revise the cover letter to remove reference to Comment 2.

Comment 3

In the *Executive Summary* and Section 2.2, *GMW-1 [sic] Area*, the Permittee states, "[i]n September 2015, a material apparently resembling separate-phase hydrocarbons (SPH) was observed in the well [GWM-1] for the first time." According to NMED's letter titled *Requirement to Remove Separate Phase Hydrocarbons and Monitor Groundwater Monitoring Well GWM-1*, dated October 28, 2015, the results of hydrocarbon fingerprint analysis indicated that the material resembling SPH collected from well GWM-1 consisted of 68% diesel range organics and 18% motor oil range organics. The material observed in well GWM-1 was SPH. Revise the statements and include information from the 2015 analysis in the revised Work Plan.

Comment 4

In Section 2.1, *SMW-2 Area* first paragraph, the Permittee states, "[t]he results for SMW-2 provided in Table 1 indicate the detection of chloride, sulfate, manganese, and uranium at concentrations above the applicable screening levels per the RCRA Permit." Table 1, *SMW-2 [sic] and GWM-1 Area Water Analyses*, does not list concentrations of manganese and uranium. Table 1 must be corrected to provide the detected concentrations of the referenced constituents in the revised Work Plan.

Comment 5

In Section 2.1, *SMW-2 Area* second paragraph, the Permittee states, "[i]t is noted that the area where the NMOCD Landfarm is currently located appears to overlie former Evaporation Pond #10 (Figure 3)." Figure 3, *Sulfate and Chloride Concentrations* does not present the locations of NMOCD Landfarm or former Evaporation Pond #10. Revise the figure to depict these locations and provide the revised Work Plan. In addition, NMED's Comment 2 in the *Approval with Modifications September and October 2016 Chloride Exceedance Excavation Report Central Oil Conservation Division Landfarm*, dated March 17, 2017 directed the Permittee to provide the dimensions of the pond and landfarm and documents from OCD related to use of the evaporation pond as a landfarm. Provide the information in the revised Work Plan. Furthermore, the response to March 17, 2017 *Approval with Modifications* should have been submitted to NMED by April 11, 2017; however, NMED's administrative record indicates that the Permittee has not submitted the response. The Permittee must respond to the March 17, 2017 letter by **April 5, 2019**.

Comment 6

In Section 2.1, *SMW-2 Area* third paragraph, the Permittee states, "[a] review of the boring/well completion logs for SMW-2 and SMW-4, as well as other wells in the immediate area, indicates that well SMW-4 is screened in the transmissive media (e.g., sands) that directly overlie the Chinle bedrock. A copy of the boring logs for SMW-2 and SMW-4 are included in Appendix A.

The screened interval in well SMW-2 appears to include not only any transmissive materials on top of the bedrock, but also some of the upper sands.” Soil boring logs for SMW-2 and SMW-4 are included in Appendix A, *Boring Logs*; however, well construction diagrams for these wells are not included. Provide well construction diagrams for SMW-2 and SMW-4 in the revised Work Plan. In addition, boring log SMW-2 indicates that the total depth of the boring is 40 feet below ground surface (bgs). According to Table 2, *Fluid Level Measurements*, the depth of screened interval in SMW-2 is recorded as 34.31 – 54.31 feet bgs. Provide an explanation for the discrepancy in the revised Work Plan. Furthermore, the soil boring log SMW-2 does not appear to indicate the presence of bedrock or to include screened interval over upper sand lenses present above 34 feet bgs. Provide a clarification for the statement in the revised Work Plan.

Comment 7

In Section 2.1, *SMW-2 Area* fourth paragraph, the Permittee states, “[i]n response to NMED’s request [sic] for additional wells in the area to evaluate the source of chloride and sulfate, two new wells (OW-59 and OW-60) were installed up-gradient of SMW-2 in September 2016.” NMED reviewed a work plan titled *Work Plan SMW-2 Area Investigation and Boundary Well Installations*, dated October 2016 and issued an *Approval with Modifications*, dated March 17, 2017. The Permittee references monitoring wells OW-59 and OW-60, which were installed near the OCD Landfarm, in the work plan. However, the Permittee has not submitted the investigation report associated with an installation of those wells. The Permittee must submit the investigation report for the SWM-2 Area Investigation and Boundary Well Installations before NMED can complete a review this Work Plan. Submit an investigation report for the SMW-2 Area Investigation and Boundary Well Installations to NMED for review no later than **April 5, 2019**.

Comment 8

In Section 2.1, *SMW-2 Area* fifth paragraph, the Permittee states, “[b]oth the chloride and sulfate concentrations increased across the OCD landfarm area, but even higher chloride concentrations are up-gradient in well STP1-NW that is located east of Evaporation Pond No. 2. The sulfate concentrations observed in OW-59, at the down-gradient end of the OCD landfarm, are the highest observed in groundwater in the area. The sulfate concentrations in the groundwater sample collected at OW-59 are also higher than the historic sulfate concentrations in Evaporation Ponds 2 and 3 dating back to 2010.” STP1-NW is located on the hill near pond STP-1 and most likely is capturing water from STP-1, rather than any other upgradient sources. Water from STP-1 as well as contaminant migration from the OCD Landfarm may be contributing to the elevated chloride and sulfate levels. In order to assess potential source areas for the elevated chloride and sulfate levels, provide a topographic map that includes the area in the vicinity of the OCD Landfarm, pond EP-10, pond STP-1 and pond EP-2 in the revised Work Plan. The map must be at a scale adequate to depict subtle changes in elevation contours. Also, explain whether the OCD Landfarm is still in active and if so provide a description of the activities associated with it. If the OCD Landfarm is determined to be the source of chloride and sulfate in groundwater, propose to submit a work plan to mitigate the issue (e.g., source removal). The OCD has regulatory authority regarding the chloride and sulfate exceedances in groundwater. Ensure that OCD is included on all correspondence related to this issue.

Comment 9

In Section 4.1, *SMW-2 Investigation*, the Permittee states, “[e]ach well will be screened in the upper-most saturated interval(s) with a maximum screen length of 10 feet. Due to concerns over the construction of SMW-2 using a 20-foot well screen, which possibly allows cross-communication between separate zones (upper sands vs. Chinle/alluvial Interface), care will be taken to avoid screening across intervals that may not otherwise be in hydraulic communication.” NMED’s Comment 8 in the June 4, 2018 *Disapproval* states, “[p]ropose to investigate whether wastewater is leaking from the northern perimeter or bottom of pond EP-2 through a work plan.” The proposed locations of the two wells appear appropriate to detect potential leaks from pond EP-2; however, these wells must be screened across the depths corresponding to the base of pond EP-2. Presumably, pond EP-2 is relatively shallow and more comparable to the depths where the upper sands are present. Evaluate the depth of pond EP-2 and install the well screens at depths where the screens can detect potential leaks from the perimeter and bottom of pond EP-2. In addition, in order to accommodate the decreasing trend of groundwater elevations in recent years, a longer screened interval (e.g., 20-foot screen) may be more appropriate. The screened intervals of the proposed wells must also intersect the water table. Discuss the screened interval in the revised Work Plan.

Comment 10

In Section 4.2, *Installation of Well near GMW-1 [sic]*, the Permittee states, “[a] new shallow monitoring well will be installed to the west of GWM-1, approximately halfway between the former Aeration Basin and EP-2 (Figure 4). The well will be screened just above the Chinle bedrock in the Chinle/Alluvial Interface zone.” NMED’s Comment 9 in the June 4, 2018 *Disapproval* directs the Permittee to propose to install a monitoring well downgradient from well GWM-1 to evaluate the extent of SPH in the shallow aquifer. Note that the screened interval of the proposed well must intersect the water table to assess presence or absence of SPH. Include the provision in the revised Work Plan.

Comment 11

In Section 4.3, *Soil Sample Field Screening and Logging*, the Permittee states, “[a]lthough the borings are being drilled at locations outside known areas of concern, Western will collect soil samples for laboratory analysis if screening indicates the potential for site impacts.” Whether or not field screening results indicates potential impacts, the Permittee must collect at least one soil sample per boring at the depth corresponding to the capillary fringe for laboratory analyses. The analyses required for the samples must include all contaminants of potential concern. Additionally, it is the Permittee’s responsibility to investigate outside “known areas of concern” in order to evaluate contaminant migration from SWMUs or AOCs. It is not acceptable to only collect samples when field screening indicates potential impacts. Revise the Work Plan to include the requirement.

Comment 12

In Section 4.3.1, *Drilling Activities*, the Permittee states, “[s]lotted (0.01 inch) PVC well screen will be placed at the bottom of the borings and will extend for 10 feet.” Comment 9 states, “in order to accommodate [the] decreasing trend of groundwater depth in recent years, a longer

screened interval (e.g., 20-foot screen) may be more appropriate.” Revise the Work Plan, if appropriate.

Comment 13

In Section 4.4, *Groundwater Sample Collection*, the Permittee states, “[g]roundwater samples will be collected from the new monitoring wells within 24 hours of the completion of well purging using disposable bailers. Alternatively, well sampling may also be conducted in accordance with the NMED’s Position Paper Use of Low-Flow and other Non-Traditional Sampling Techniques for RCRA Compliant Groundwater Monitoring (October 30, 2001, as updated). Sample collection methods will be documented in the field monitoring reports. The samples will be transferred to the appropriate, clean, laboratory-prepared containers provided by the analytical laboratory.” Prior to collection of groundwater samples for laboratory analyses, the Permittee must measure depth to water (DTW), the total depths of each well, and collect groundwater quality parameter data (e.g., dissolved oxygen, pH, temperature, conductivity, redox potential, turbidity) during well purging. Include descriptions of the field procedures in the revised Work Plan. In addition, the discussion regarding well development is not included in the Work Plan. Include a discussion of well development and monitoring methods in the revised Work Plan.

Comment 14

In Section 4.7, *Chemical Analyses*, the Permittee states, “[g]roundwater samples will also be analyzed for major cations (calcium, magnesium, sodium, and potassium) and anions (e.g., carbonate, bicarbonate, sulfate, fluoride and chloride).” The listed cations and anions are not included in the table titled as Inorganic Analytical Methods (page 4-7). Revise the table to include all inorganic constituents that will be analyzed. In addition, groundwater samples must also be analyzed for nitrate and nitrite. Include the nitrate and nitrite analyses for groundwater samples in the revised Work Plan.

The Permittee must address all comments in this Disapproval and submit a revised Work Plan. Two bound hard copies and an electronic version of the revised Work Plan must be submitted to NMED. In addition, include a red-line 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 revisions have been made, cross-referencing NMED's numbered comments. The revised Work Plan must be submitted to NMED no later than **August 9, 2019**.

The investigation report for SWM-2 Area Investigation and Boundary Well Installations required by Comment 7, and the response to the March 17, 2017 *Approval with Modifications September and October 2016 Chloride Exceedance Excavation Report Central Oil Conservation Division Landfarm*, required by Comment 5 must be submitted no later than **April 5, 2019**.

Mr. Moore
February 20, 2019
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If you have questions regarding this letter, please contact Michiya Suzuki of my staff at 505-476-6059.

Sincerely,

A handwritten signature in black ink, appearing to read "John E. Kielling". The signature is fluid and cursive, with a large initial "J" and a long, sweeping underline.

John E. Kielling
Chief
Hazardous Waste Bureau

cc: K. Van Horn, NMED HWB
D. Cobrain, NMED HWB
M. Suzuki, NMED HWB
C. Chavez, OCD
L. King, EPA Region 6
B. Moore, WRG

File: Reading File and WRG 2019 File
HWB-WRG-18-007