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ENVIRONMENT DEPARTMENT



*Hazardous Waste Bureau*

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**CERTIFIED MAIL – RETURN RECEIPT REQUESTED**

January 8, 2019

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

**RE: DISAPPROVAL  
REVISED ANNUAL GROUNDWATER MONITORING REPORT  
GALLUP REFINERY – 2016  
WESTERN REFINING SOUTHWEST INC., GALLUP REFINERY  
EPA ID # NMD000333211  
HWB-WRG-17-008**

Dear Mr. Moore:

The New Mexico Environment Department (NMED) has reviewed the *Revised Annual Groundwater Monitoring Report: Gallup Refinery - 2016* (Report), dated September 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 provided by both NMED and the New Mexico Energy Minerals and Natural Resources Department Oil Conservation Division (OCD):

**Comment 1**

An electronic version of the response to comments table was not included in the submittal. For all future submittals including the revised Report, provide both hard copies and an electronic version of the response to comments table along with other required documentation. In addition, the Permittee did not list sections, tables and/or figures in the Report where changes were made,

as required, in the response to comments table. Indicate where all changes were made to the Report in the response to comments table.

**Comment 2**

All revisions were not identified in the Redline Strikeout (RLSO) version. The RLSO version must identify where all revisions are made to the previous version of the Report, including the revisions made to the tables, charts and figures. Failure to provide an accurate RLSO version slows review, creates the potential for changes to be overlooked, and is misleading. Provide an accurate RLSO version of the revised Report.

**Comment 3**

The depth-to-water (DTW) measurement data for MKTF wells during the first and second quarters of 2016 are tabulated in Appendix B, *Field Inspection Logs*; however, DTW data for other wells are not tabulated. A table showing the 2016 DTW data for all groundwater monitoring wells must be included in the revised Report. In addition, the DTW tables must include the monitoring well depths, the screened intervals in each well, and the dates and times of measurement as required by the Permit Section IV.L.4.k (2).

**Comment 4**

The Permittee's response to NMED's *Disapproval* Comment 1 states, "[i]t is noted that Gallup Refinery is in the process of installing pneumatic pumps in all existing recovery wells in order to capture non-aqueous phase liquids (NAPL) as well as impacted groundwater." Prior to installation, the Permittee must submit a work plan to NMED for review. Refer also to Comment 9 in the NMED's *Disapproval for the Revised 2015 Annual Groundwater Monitoring Report*, dated January 4, 2019.

**Comment 5**

The Permittee's response to NMED's *Disapproval* Comment 4 states, "[i]t is noted that the Gallup Refinery intends to install an interim recovery system in the area to initiate the recovery of impacted groundwater until permanent system can be designed. See response to Item 2 above." The referenced Item 2 is pertaining to the installation of pneumatic pumps in the RW wells located in the tank farm area. Comment 4 pertains to the six recovery sumps (stand pipes) in the hydrocarbon seep area. Interim corrective measures have already been implemented at the hydrocarbon seep area. Clarify the intent of the statement in the revised Report.

**Comment 6**

The Permittee's response to NMED's *Disapproval* Comment 5 states, "[t]he text has been corrected to reference Table 9.1 and 9.2 as requested." Although the text was corrected, Tables 9.1 and 9.2 were not included. Include the tables in the revised Report.

**Comment 7**

The Permittee's response to NMED's *Disapproval* Comment 10, Item 7 states, "[t]he discussion has been modified to reflect that the lead concentrations in September and November 2014 exceeded the cleanup standard by a small margin." The lead concentrations in groundwater samples collected from well NAPIS-3 did not exceed standard in either September or November

2014. However, as stated in Comment 10.7, the lead concentrations in the groundwater samples collected from well NAPIS-3 exceeded standard during the third and fourth quarters of 2016. In addition, the text was incorrectly modified to address the exceedance of lead concentrations for well NAPIS-2 rather than NAPIS-3. The discussion is pertinent to NAPIS-3. Revise the response and the Report for accuracy.

**Comment 8**

The Permittee's response to NMED's *Disapproval* Comment 10, Item 8 states, "[t]he discussion has been modified to reflect the detection of the additional constituents." In Section 6.2.2, the Permittee states, "[i]n the fourth quarter well NAPIS-3 had detections below the applicable groundwater protection standards of naphthalene, 1,1-dichloroethane, 1,1-dichloroethene, isopropyl benzene, n-butyl benzene, sec-butyl benzene, and cis-bichloroethylene [sic]." These constituents were detected in the first quarter of 2016 rather than the fourth quarter. In addition, there is a typographical error (cis-bichloroethylene) in the statement. Revise the Report accordingly.

**Comment 9**

The Permittee's response to NMED's *Disapproval* Comment 11, Item 1 states, "[a] discussion of the analytical data obtained from the leak detection system has been added. Gallup Refinery submitted information to the NMED on July 16, 2018 documenting repairs to the NAPIS, therefore, it should be noted that samples collected from the LDUs are not perceived to be wastewater." Comment 11.1 directs the Permittee to include a discussion pertaining to metal detections in wastewater samples collected from West LDU; however, the discussion was not included in the revised Report. Include the discussion in the revised Report. In addition, the Permittee states that the water collected in the LDUs are not wastewater because the NAPIS was repaired. However, the repairs were conducted on September 1, and December 11, 2017. At the time when the samples were collected in 2016, the LDUs were not yet repaired; therefore, the statement is not applicable. Regardless, previous repairs on NAPIS indicated that the attempts did not completely prevent leakage in most cases. The completion of repairs is not always successful. In Section 6.2.3, the Permittee also states, "Artesian flow has been observed from the East LDU wells in the past. The liner of the treatment unit has been evaluated for leaks and appears to be water-tight. For these reasons it appears that the East LDU may have leaks that allow impacted groundwater to enter. Andeavor will further evaluate the possible source of the contaminants detected within the LDU." Explain what is meant by "Artesian flow has been observed from the East LDU." It should be noted that the LDUs are not screened wells; they are constructed with stainless steel pipes directly connected to the secondary containment wall of NAPIS. The Permittee's August 5, 2013 letter titled *API Separator Leak Detection Units*, states, "[t]he water table in this area is approximately 9 – 10 feet below the ground surface. NAPIS-1 total depth is 13.53 feet and NAPIS-2 total depth is 13.61 feet, and the East and West LDUs are approximately 8 – 9 feet below ground surface." Based on the information, groundwater unlikely intersects with the bottom of the LDUs. Even if groundwater intersects the bottom of the LDUs, it will not likely flow into the LDUs because of the nature of their construction unless there are holes in the outer walls of the LDUs. Therefore, the Permittee's discussion does not appear to make sense. Remove the discussion or provide additional details to support the discussion. Revise the Report accordingly.

**Comment 10**

NMED's *Disapproval* Comment 11, Item 2 states, "[t]he analytical results of VOCs for the third quarter of 2016 are not included in Table 8.10.3. Include the results for the third quarter of 2016 sampling in Table 8.10.3." The analytical results of VOCs for the third quarter of 2016 were not included. Include the results or explain why the results are not included in the revised Report. In Section 6.2.3, the Permittee states, "[c]oncentrations of 1,2,4-trimethylbenzene and 1,3,5-trimethylbenzene exceeded the EPA RSL and NMED standards in the East LDU in the first, second and third quarter of 2016." As stated in Comment 11.2, there are no NMED standards for 1,2,4-trimethylbenzene and 1,3,5-trimethylbenzene. Revise the Report accordingly.

**Comment 11**

The Permittee's response to NMED's *Disapproval* Comment 11, Item 2 also states, "Tables associated with the Leak Detection Unit have been revised to reflect no cleanup standards exists for 1,2,4-trimethylbenzene and 1,3,5-trimethylbenzene." The Permittee revised the tables by removing the EPA Regional Screening Levels (RSLs) for Tap Water; however, Comment 11, Item 2 states that there are no NMED standards for these compounds. It is appropriate to use EPA RSLs for these compounds. Include the EPA RSLs to evaluate concentrations of 1,2,4-trimethylbenzene and 1,3,5-trimethylbenzene. Revise the tables accordingly.

**Comment 12**

NMED's *Disapproval* Comment 12 states, "[t]he bis(2-ethylhexyl) phthalate concentrations detected in the groundwater samples collected from well OAPIS-1 were above the standard in 2016." The exceedance was not addressed in the Report. Address the exceedance in the revised Report.

**Comment 13**

The Permittee's response to NMED's *Disapproval* Comment 14 states, "MTBE samples will be scheduled for collection from STP1-NW." The response did not fully address Comment 14. MTBE has been analyzed for samples collected from well STP1-NW in the past. Comment 14 directs the Permittee to collect samples from STP-1 to compare MTBE concentrations between the samples collected from STP-1 and well STP1-NW and evaluate potential leaks from STP-1. Revise the response to fully address Comment 14.

**Comment 14**

The Permittee's response to NMED's *Disapproval* Comment 18 states, "[l]anguage acknowledging the detections has been added as well as proposed changes to sampling frequency and modifications to the sampling plan regarding frequency of sample collection for OW-50 and 52." Section 6.3.2 states that the Facility Groundwater Monitoring Plan will also be modified to reflect the more frequent sampling schedule as will Table 1, Section 10 (sampling frequency) of this report as well as the Facility Wide Groundwater Monitoring Plan. The referenced table (Table 1, Section 10) is not included in the Report. Include the table in the revised Report.

**Comment 15**

The Permittee's response to NMED's *Disapproval* Comment 20 states, "[t]he last report that included VOCs was submitted August 24, 2016 and no organic constituents were detected [in the

samples collected from the PW wells].” However, Section 6.4.1 of the Report states, “[t]here were a total of five organic constituents detected in PW-3 all at concentration below the applicable standards in 2016... 10 organic compounds were detected at concentration levels below the applicable standards in PW-4.” The response contradicts the 2016 analytical results. Provide more detailed explanation for the response and provide a copy of the August 24, 2016 report.

**Comment 16**

The Permittee’s response to NMED’s *Disapproval* Comment 23, Item 1 states, “[w]ells contained SPH them [sic] are identified in the data summary tables. The requested revisions have been added to the report.” The data tables of the 2016 third and fourth quarter measurements for the MKTF wells are not included. Include the data tables in the revised Report. In addition, Section 6.6 was revised to state, “[d]uring the fourth quarter 2016, SPH was detected in wells MKTF-01 (1.35’), MKTF-26 (1.39’), MKTF-23 (0.12’), MKTF-14 (1.10’), MKTF-13 (0.96’), MKTF-12 (0.29’), MKTF-37, MKTF-45 (0.46’).” SPH was detected in other MKTF wells that were not listed in the statement during the first and second quarters of 2016 as well. Section 6.6 must include the discussion regarding the detections of SPH in the MKTF wells during all quarters of 2016. Revise the Report accordingly.

**Comment 17**

NMED’s *Disapproval* Comment 23, Item 11 states, “[a]ccording to Table 8.17.1, the sulfate concentrations in the groundwater samples collected from wells MKTF-29 and MKTF-43 exceeded the standard in 2016. Include and discuss the exceedance in the revised Report.” Although the Permittee’s response states that the requested revisions have been added to the Report, the revisions were not included in the Report. Include and discuss the exceedance in the revised Report.

**Comment 18**

NMED’s *Disapproval* Comment 23, Item 13 states, “[t]he total barium concentrations in the groundwater samples collected from wells MKTF-18 through MKTF-22 also exceeded the standard in 2016.” The discussion regarding the exceedances in the samples collected from wells MKTF-18 and 22 were included in the Report; however, the exceedances in wells MKTF-19, 20 and 21 were not discussed. Include the discussion regarding the barium concentration exceedances in groundwater samples collected from wells MKTF-19, 20 and 21 in the revised Report.

**Comment 19**

NMED’s *Disapproval* Comment 23, Item 17 states, “[b]utylbenzene is not listed in Table 8.17.4, *MKTF WELLS Semi-Volatile Organic Compound Analytical Result Summary*.” Butylbenzene is listed as one of SVOCs that were detected above the standard in Section 6.6 of the Report; however, Table 8.17.4 does not list butylbenzene. Either the text of the Report in Section 6.6 or Table 8.17.4 must be corrected to resolve the discrepancy. Revise the Report accordingly.

**Comment 20**

The Permittee's response to NMED's *Disapproval* Comment 24 states, "Gallup Refinery is not aware of any discharges to the ponds that could result in such BTEX detections." However, BTEX concentrations have been detected in samples collected from the ponds. If there are no discharges to the ponds other than from STP-1, either the wastewater treatment system is not capable of removing BTEX or BTEX leached into the ponds from groundwater. Evaluate wastewater treatment system breakthrough for BTEX constituents. Also, compare the depths of the ponds where BTEX were detected to evaluate whether groundwater potentially leaches into the ponds. Since the ponds are unlined earthen structures, if groundwater potentially leaches into the ponds, the water stored in the ponds also may migrate to groundwater. In this case, the integrity of the ponds must be evaluated. Include the discussion in the revised Report.

**Comment 21**

The Permittee's response to NMED's *Disapproval* Comment 25, Item 5 states, "[t]he requested revisions were added to the report." Section 6.7.1 was revised to state, "[s]ee table 8.15.4 for a complete list of VOCs." However, the revision was incorrect. The revision must be made to state, "[s]ee Table 8.15.5 for a complete list of SVOCs" because the relevant text discusses the detection of SVOCs. Revise the Report accordingly.

**Comment 22**

The Permittee's response to NMED's *Disapproval* Comment 29 states, "[t]he requested revisions were added to the report." Section 7.1 was revised to state, "[f]ive organic constituents were detected at concentration levels below the applicable standards in 2016 (Benzoic acid, bis(2-ethylhexyl) phthalate, di-n-octyl phthalate, dimethyl phthalate, and phenol)." The revision was incorrect. The detection of phenol is not recorded while the pyrene concentration is reported as 0.0046 mg/L in the sample collected from well SMW-2 according to Table 8.3.4. Revise the Report accordingly.

**Comment 23**

NMED's *Disapproval* Comment 34 states, "[a] column listing barium concentrations is missing from Table 8.8.3. Include the column for barium concentrations on Table 8.8.3 in the revised Report." The column was still missing from the Report. Include the column for barium concentrations in the table in the revised Report.

**Comment 24**

The Permittee's response to NMED's *Disapproval* Comment 40 states, "[t]he source of the cyanide is unknown as it is not used as a feedstock in any of the processes at the refinery." Although cyanide is not used as a feedstock, Fluid Catalytic Cracking Unit (FCCU) may generate cyanides in the waste stream and some crude oil may contain cyanide. An increase of cyanide concentrations in the groundwater samples collected from well OAPIS-1 was observed and must be closely monitored.

**Comment 25**

The Permittee's response to NMED's *Disapproval* Comment 45 states, "[a]n attempt was made to locate all records of spills, leaks and releases in order to update the report. A revised summary

is provided in Appendix E of the attached report.” Since no additional spill record was included between October 5, 2016 and the end of 2016, it is not clear which parts in the summary (Appendix E) were updated. Comment 45 requires the Permittee to clarify whether leaks, spills or releases have occurred between October 5, 2016 and December 31, 2016. The clarification is not provided. Indicate which parts in Appendix E were updated in the revised Report.

**Comment 26**

In Section 6.6, *Constituent Levels for MKTF Wells*, the Permittee states, “[c]hloride concentration exceedances above the standard (250 mg/L) were found in the following wells: MKTF-1, MKTF-2, MKTF-10, MKTF-11, MKTF-15, MKTF-16, MKTF-20, MKTF-15, MKTF-24, MKTF-25, MKTF-26, MKTF-27, MKTF-28, MKTF-30, MKTF-31, MKTF-32, MKTF-34, MKTF-38, MKTF-39, MKTF-40, MKTF-41, MKTF-42, MKTF-43, and MKTF-44 (Table 8.17.1).” MKTF-15 is listed twice. Remove the repetition from the revised Report.

**Comment 27**

In Section 6.6, *Constituent Levels for MKTF Wells*, the Permittee indicates the screening levels for 1,2,4-trimethylbenzene and 1,3,5-trimethylbenzene as “no cleanup standard in guidance”. Although there are no NMED standards for 1,2,4-trimethylbenzene and 1,3,5-trimethylbenzene, it is appropriate to use EPA RSLs for these compounds. Refer to Comment 11. Include the EPA RSLs to evaluate the detections of 1,2,4-trimethylbenzene and 1,3,5-trimethylbenzene. Revise the Report accordingly.

**Comment 28**

In Section 6.7.1, *Evaporation Ponds 1 through 12B*, the Permittee states, “[t]he presence of Escherichia coli in water is used as an indicator of fecal contamination, but recent reports indicate that soil populations can also be detected in tropical, subtropical, and some temperate environments. The presence of significant populations of naturalized populations of E. coli in temperate soils may confound the use of this bacterium as an indicator of fecal contamination.” According to Section 1.3, *Site Characteristics*, at least three offsite ponds are present near the refinery. Propose to collect the water samples from the offsite ponds to compare e-coli concentrations in the water samples to the e-coli concentrations in ponds EP1 through EP12B, if necessary. Evaluate whether the cause of elevated e-coli concentrations is fecal in the revised Report, if necessary.

**Comment 29**

In Section 7.2, *Group B - Groundwater Monitoring*, the Permittee states, “[b]oth LDUs continue to be pumped on a regular basis. The East Bay of the LDU was out of service and closed in 2015. The presence of water in the East LDU during that period suggests that there may be an inflow of groundwater through an opening in the liner. Andeavor intends to conduct testing on the LDU to ascertain the source of the water in the East LDU. Recent water column measurements on the West LDU also indicate that the bay is leaking into the LDU, or that there is a source of inflow into the LDU. Plans are to inspect the east bay, place it back in service and then take the west bay out of service for inspection.” It is not likely that groundwater flows into the LDUs. Refer to Comment 9. Remove the statement or provide additional details to support the statement. Revise the Report accordingly. In addition, clarify whether the inspection of the bays is

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currently planned or the plans have already been already executed in 2017. If there are still on-going leaks (e.g., detection of wastewaters in the LDUs), the Permittee must propose to submit a work plan to inspect and repair the NAPIS.

The Permittee must address all comments in this Disapproval and submit a revised Report. Two bound hard copies and an electronic version of the revised Report must be submitted to NMED. In addition, include a red-line strikeout version in electronic format showing where all revisions to the Report have been made. The revised Report must be accompanied with a response letter that details where revisions have been made, cross-referencing NMED's numbered comments. The revised Report must be submitted to NMED no later than **April 5, 2019**.

If you have questions regarding this Disapproval, please contact Michiya Suzuki of my staff at 505-476-6059.

Sincerely,



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 2018 File  
HWB-WRG-17-008