



Michelle Lujan Grisham
Governor

Howie C. Morales
Lt. Governor

NEW MEXICO
ENVIRONMENT DEPARTMENT



ENTERED



Hazardous Waste Bureau

2905 Rodeo Park Drive East, Building 1
Santa Fe, New Mexico 87505-6313
Phone (505) 476-6000 Fax (505) 476-6030
www.env.nm.gov

James C. Kenney
Cabinet Secretary

Jennifer J. Pruett
Deputy Secretary

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

August 31, 2020

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

**RE: DISAPPROVAL
FACILITY WIDE GROUND WATER MONITORING WORK PLAN – UPDATES FOR 2020
WESTERN REFINING SOUTHWEST INC., GALLUP REFINERY
EPA ID # NMD000333211
HWB-WRG-20-012**

Dear Mr. Moore:

The New Mexico Environment Department (NMED) has reviewed the *Facility Wide Ground Water Monitoring Work Plan – Updates for 2020* (Work Plan), dated April 8, 2020, submitted on behalf of Marathon Petroleum Company dba Western Refining Southwest Inc., Gallup Refinery (the Permittee). NMED hereby issues this Disapproval with the attached comments.

The Permittee must submit a revised Work Plan that addresses all comments contained in the Attachment. 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, cross-referencing NMED’s numbered comments. The Revised Work Plan must be submitted to NMED no later than **December 31, 2020**.

Mr. Moore
August 31, 2020
Page 2

If you have questions regarding this Disapproval, please contact Michiya Suzuki of my staff at 505-476-6046.

Sincerely,

A handwritten signature in black ink, appearing to read "Dave Cobrain". The signature is fluid and cursive, with the first name "Dave" being more prominent than the last name "Cobrain".

Dave Cobrain
Program Manager
Hazardous Waste Bureau

cc: M. Suzuki, NMED HWB
C. Chavez, OCD
L. King, EPA Region 6 (6LCRRC)
B. Moore, WRG

File: Reading File and WRG 2020 File
HWB-WRG-20-012

Attachment

Comment 1

In Section 2.1, *Historical and Current Site Use*, page 5, the Permittee states, “[a]s a result of these processing steps, the refinery produces a wide range of petroleum products including propane, butane, unleaded gasoline, diesel, and residual fuel.” The ammonium thiosulfate and sulfur recovery units also produce fertilizer product and solid elemental sulfur. The refinery produces commercial products other than petroleum products. Clarify the statement for accuracy in the revised Work Plan.

Comment 2

In Section 2.1, *Historical and Current Site Use*, page 7, and Section 2.3, *Type and Characteristics of the Waste and Contaminants and any Known and Possible Sources*, page 10, the Permittee states, “[n]o waste water is discharged from the refinery to surface waters of the state,” and “[d]isposal of waste water into open fields is not practiced at the Gallup Refinery.” The *Hydrocarbon Seep Interim Measures 2019 1st Quarter Status Report*, dated April 30, 2019, states, “[t]his [reverse osmosis reject water] line transmits approximately 45 gallons per minutes (gpm) of reject from the Boiler House area (near potable water well PW-3) to evaporation pond number 9 (Pond-9).” The evaporation ponds contain surface water and reverse osmosis reject water is waste water; therefore, the statement is not accurate. Clarify the statements for accuracy in the revised Work Plan. If the discharge to Pond-9 already ceased, provide information regarding the current status for how reverse osmosis reject water is handled at the facility in a response letter. Additionally, the title of Section 2.3 (Type and Characteristics of the Waste and Contaminants and any Known and Possible Sources) lacks clarity. Revise the title of Section 2.3 for clarity in the revised Work Plan.

Comment 3

In Section 2.2, *Potential Receptors*, page 8, the Permittee states, “[c]urrently, PW-2 is sampled every three years, PW-4 is sampled semi-annually and PW-3 is sampled on an annual basis.” According to Appendix B, *Table 1 Gallup Refinery – Ground Water Monitoring Schedule*, the sampling frequencies for wells PW-3 and PW-4 are indicated as quarterly. Resolve the discrepancy in the revised Work Plan.

Comment 4

Section 2.4.1, *Separate Phase Hydrocarbons*, page 12, must provide an introductory statement for subsequent discussions (e.g., Section 2.4.1.1 through 2.4.1.5). Provide brief introductory statement under Section 2.4.1 that discusses detections of separate phase hydrocarbons (SPH). Additionally, the subsequent sections discuss detections of SPH in the Main Tank Farm, Hydrocarbon Seep, Aeration Basin, French Drain Release, and Truck Loading Rack areas. However, the Permittee did not include a discussion regarding the detection of SPH in the NAPIS Unit area. SPH has been detected in well NAPIS-1 since 2017. Discuss the detection of SPH in the NAPIS Unit area in the revised Work Plan.

Mr. Moore
August 31, 2020
Attachment Page 2 of 7

Comment 5

In Section 2.4.1.1, *Main Tank Farm*, page 12, the Permittee states, “[i]t is noted that observed SPH measurements may not accurately reflect site conditions.” The statement seems to conflict with the purpose of groundwater monitoring. Provide a clarification for why observed SPH measurements may not accurately reflect site conditions in the revised Work Plan.

Comment 6

In Section 2.4.2, *Methyl Tert Butyl Ether*, page 14, the Permittee states, “New Mexico Environmental Department – Hazardous Waste Bureau (NMEDHWB) requested two Work Plans to further investigate the known MTBE plume at the Facility and investigate a suspected plume north of the tank farm (SWMU 6).” Multiple MTBE plumes are present at various locations within and beyond the facility. NMED previously directed the Permittee to investigate the extent of MTBE plumes other than the one north of the tank farm. For example, the *[Revised] Work Plan 2015 Annual Groundwater Report Comments*, dated October 2019, states, “[t]o evaluate the potential migration of MTBE within the Sonsela aquifer, an additional well will be located approximately halfway between OW-12 and OW-13,” and “[t]o delineate the down-gradient extent of the [MTBE] plume detected at OW-1, a new Sonsela well will be installed approximately five hundred feet down-gradient to the west of OW-1.” Include the description of all planned and ongoing MTBE plume investigations directed by NMED in the revised Work Plan.

Comment 7

In Section 2.4.4, *Aeration Basin*, page 17, the Permittee states, “[b]oth GWM-2 and GWM-3 have been included in the Aeration Basin Corrective Action Work Plan which began investigative soil and water sampling near the aeration basin in the third quarter of 2012 to support selection of a remedy for SWMU NO. 1 and determine the source of water detected in GWM-2 and GWM-3. Figure 4 shows the location of all of the active monitoring wells on the facility.” Figure 4 does not present the location of SWMU 1 and the purpose of referencing Figure 4 in the statement is not clear. Although Figure 4 presents the location of wells GWM-2 and GWM-3, the former and latter sentences do not appear to connect one another. Provide a clarification in the response letter and revise the statement, as appropriate.

Comment 8

In Section 2.4.4, *Aeration Basin*, page 17, the Permittee states, “[t]he aeration lagoons and pond 1 (EP-1), are no longer in service.” The Permittee did not include the description of more recent activities associated with SWMU 1. The Permittee submitted the *Solid Waste Management Unit 1 Investigation Report*, dated March 31, 2020, which evaluated the extent of excavation associated with SWMU 1, and the submittal is currently under NMED review. In the revised Work Plan, include a discussion of the more recent activities associated with SWMU 1.

Comment 9

In Section 3.0, *Site Conditions*, page 19, the Permittee states, “[t]he surrounding land is

comprised primarily of public and private lands used for cattle and sheep grazing.² The footnote states, “² See, for example, the web site of McKinley County at <http://www.co.mckinley.nm.us/>” The referenced website is not relevant to the statement. Remove the footnote from the revised Work Plan.

Comment 10

In Section 3.2, *Drainages*, page 20, the Permittee states, “[a]t the new waste water treatment plant, there are three storm drains located on the south, southwest and west side of the waste water treatment plant which is connected to an underground storm culvert that exits on the northwest section of STP-1 into a conveyance ditch along the northern edge of pond 2 into a holding pond equipped with manual flow valves, located north of evaporation pond 3. The discharge from this holding pond then flows north-northwest towards the Outfall 001 area.” Section 2.4.1.4, *French Drain Release*, page 13, discusses the discovery of SPH at the stormwater drainage ditch south of STP-1 referred as “French Drain”. It is not clear whether the “French Drain” where SPH was discovered is connected to the Outfall 001 area through the stormwater drainage ditch. If SPH in the “French Drain” follows the ditch to the Outfall 001, the entire ditch can be contaminated with SPH. Provide a figure that depicts the location of the “French Drain” and the flow paths to the Outfall 001, as appropriate. Discuss whether an investigation of soil contamination associated with SPH for the ditch from the “French Drain” to the Outfall 001 is warranted in the response letter.

Comment 11

In Section 3.5.1, *Soil Types and Associations*, page 21, the Permittee states, “[m]ost of the soils found at the surface in the locations where wells are located consist of the Gish-Mentmore complex.³” A footnote is provided to reference the source of the statement on the same page. Since there are several such references, it is more appropriate to create a reference section in the Work Plan and list all citations. Revise the Work Plan accordingly.

Comment 12

In Section 4.0, *Investigation Methods*, page 23, the Permittee states, “Appendix A provides a thorough discussion on actual sampling methods that will be used.” Actual field sampling methods must be discussed within the text of the Work Plan (see Permit Section IV.L. 2.h). Revise the Work Plan accordingly.

Comment 13

In Section 4.1, *Ground Water Sampling Methodology*, page 23, the Permittee states, “Appendices C-2 and C-2.1 include well information for the non-MKTF wells and MKTF wells, respectively. The well information consists of the survey data, screened intervals, and stratigraphic unit in which the wells are screened. Appendix C-3 includes well information for artesian wells also known as Process or Production wells (PW).” Appendices C-2, C-2.1, and C-3 are not included in the Work Plan. Include these appendices in the revised Work Plan.

Comment 14

In Section 4.1.2, *Well Purging*, page 24, the Permittee states, “[w]ell purging and sampling will be performed using 1.5-inch x 3 foot and/or 3-inch x 3-foot disposable polyethylene bailers for ground water sampling and/or appropriately decontaminated portable sampling pumps.” The Permittee must provide a table that presents a list of wells with a type of sampling device used to collect groundwater samples in future periodic groundwater monitoring reports. No revision is necessary.

Comment 15

Section 4.2.1, *Sample Handling*, page 25, and Appendix A, *Gallup Refinery Field Sampling Collection and Handling Standard Procedures, Order of Collection*, page 3, lists volatile organic compounds (VOC) first among other analytes. The Permittee has been collecting nitrite samples for laboratory analysis in recent sampling events despite its short holding time. Refer to Comment 12 of *NMED’s Approval with Modifications Investigation Report Sanitary Lagoon*, dated April 24, 2020, and Comment 11 of *NMED’s Approval with Modifications Annual Ground Water Monitoring Report Gallup Refinery – 2018*, dated January 22, 2020 for references. If laboratory nitrite analysis is feasible for future sampling events, nitrite samples must be collected first in the order to accommodate its short holding time. If field nitrite analysis is conducted using a colorimeter as proposed in the *Response to Disapproval Facility Wide Ground Water Monitoring Work Plan - Updates for 2019*, dated September 11, 2019, include a section that discusses procedures for the field nitrite analysis in the revised Work Plan. Revise the Work Plan accordingly.

Comment 16

In Section 4.4.6.1, *Blanks*, page 30, the Permittee states, “[i]f contaminants are detected in field or laboratory blanks, the sample data will be qualified, as appropriate.” The data quality must be discussed and the implications must be identified if such data are qualified rather than rejected. Revise the Work Plan accordingly.

Comment 17

Section 6.0, *Monitoring Program Revisions*, page 35, does not reference NMED’s comments that directed revisions to the monitoring program. For example, Comment 12 of *NMED’s Approval with Modifications Annual Ground Water Monitoring Report Gallup Refinery – 2018*, dated January 22, 2020, states, “[i]f the causes are not known and the chromium level did not decline in 2019, include hexavalent chromium analysis for the groundwater samples collected from well NAPIS-2 in the two subsequent sampling events in 2020.” Hexavalent chromium analysis for the groundwater samples collected from well NAPIS-2 is not proposed in Appendix B – Table 2, *Gallup Refinery – Requested/Approved Changes to the Ground Water Monitoring Schedule* or in Section 6.0. Section 6.0 must reference Comment 12 of the January 22, 2020 *Approval with Modifications* and include a discussion for why hexavalent chromium analysis was not proposed at this time. Reference all relevant NMED’s comments that directed revisions to the monitoring program and provide a discussion in the revised Work Plan.

Comment 18

Figure 5, *Sonsela Water Elevation Map – 2020*, presents the potentiometric surface for the Sonsela aquifer. Wells MW-1, MW-2, MW-4, MW-5, BW-1C, BW-2C, BW-3C, BW-5C, OW-01, OW-10, OW-11, OW-12, and OW-1 were presented; however, the groundwater elevation data for these wells were not included in the figure. Include the elevation data in the revised figure. In addition, the date on the figure is indicated as March 27, 2020. However, it is not clear whether the date represents actual gauging date or preparation date for the figure. Indicate the date when the gauging data was collected in the revised figure.

Comment 19

In Appendix A, *Gallup Refinery Field Sampling Collection and Handling Standard Procedures, Field Data Collection, Elevation and Purging*, page 1, the Permittee states, "Gallup does not have any recovery well pumps that need to be shut off and removed prior to water elevation measurements." Groundwater recovery pumps were installed in wells RW-1, RW-2, RW-5, RW-6, OW-14, OW-58, OW-30, and OW-55 in August 2019. Comment 13 of the January 22, 2020 *Approval with Modifications* states, "[s]ince the groundwater level was depressed due to the fluid recovery operation, the Permittee must halt the pumping operation at least 48 hours prior to conducting depth measurements in these wells. Include the provision in the future groundwater monitoring events." These pumps must be shut off prior to water elevation measurements as required by Comment 13 of the letter. Revise the Work Plan accordingly.

Comment 20

In Appendix A, *Gallup Refinery Field Sampling Collection and Handling Standard Procedures Field Data Collection, Elevation and Purging*, page 1, the Permittee states, "[t]he portable pump intake is lowered to the midpoint of the listed screened interval for each specific well using the markings identified on the pump hose which are set every ten feet." The pump hose is marked every ten feet to set the intake at the midpoint of screened intervals. A ten-foot increment on the hose may not allow accurate enough placement to position the pump intake at the midpoint of screened intervals. The increment must be small enough (e.g., one-foot) to allow more accurate placement. Revise the Work Plan accordingly.

Comment 21

In Appendix A, *Gallup Refinery Field Sampling Collection and Handling Standard Procedures, Field Data Collection, Elevation and Purging*, page 1, the Permittee states, "[f]ield water quality parameters measured during purging (pH, electrical conductivity, temperature, and dissolved oxygen), must stabilize to within 10% for a minimum of three consecutive measurements before collection of ground water samples from each well." Clarify whether purging is considered complete when one or all of these criteria is met in the revised Work Plan.

In addition, Section 4.1.2, *Well Purging*, page 24, includes oxidation-reduction potential (ORP) as one of stabilization criteria in addition to the water quality parameters listed in Appendix A. ORP readings must be included as one of stabilization criteria. The pH, electrical conductivity,

temperature, dissolved oxygen, ORP data must be collected from all groundwater monitoring wells. Resolve the discrepancy in the revise Work Plan accordingly.

Comment 22

In Appendix A, *Gallup Refinery Field Sampling Collection and Handling Standard Procedures, Field Data Collection, Elevation and Purging*, page 2, the Permittee states, “[t]he water level in the well, total depth of well and thickness of floating product (if any) will be measured using an oil/water interface meter. If product is present, a ground water sample is not obtained.”

Provide information regarding specific product thickness that allows or prevents groundwater sample collection in the revised Work Plan.

Comment 23

Appendix A, *Gallup Refinery Field Sampling Collection and Handling Standard Procedures, Sampling Equipment at Gallup Refinery*, pages 2 and 3, lists sampling equipment to be maintained in the facility. However, the list does not include an instrument for ORP, TDS and salinity measurements, nitrite field testing kit, or coarse (100 µm) filters for turbid waters as required by previous NMED correspondence. Explain if the equipment will be maintained at the facility or provided by contractors in the revised Work Plan.

Comment 24

In Appendix A, *Gallup Refinery Field Sampling Collection and Handling Standard Procedures, Filtration*, page 3, the Permittee states, “[t]he syringe is then used to force the sample water through a 0.45 micron pore filter into the proper sample bottle to collect dissolved metals samples.” Refer to Comment 9 of NMED’s January 22, 2020 *Approval with Modifications* for the direction how to handle groundwater samples with high level of total suspended solids. Use the sequential filtration process (e.g., 100 to 45 µm filter) for dissolved metals sampling, where applicable. Include the provision in the revised Work Plan.

Comment 25

In Appendix A, *Gallup Refinery Field Sampling Collection and Handling Standard Procedures, Filtration*, page 4, the Permittee states, “[s]ampling personnel carry a cell phone when gathering ground water and other water samples. While sampling procedures are generally well known and the appropriate sample bottles are ordered to match each sampling event, occasional questions do arise from unforeseen circumstances which may develop during sampling. At such times, sampling personnel contact Hall Environmental Analytical Laboratory to verify that sampling is correctly performed.” It is not clear under what circumstances personnel would call a laboratory to receive instructions during sampling events. Provide examples for the situation where personnel must call a laboratory amid sampling in the revised Work Plan.

Comment 26

Appendix A, *Gallup Refinery Field Sampling Collection and Handling Standard Procedures*,

Mr. Moore
August 31, 2020
Attachment Page 7 of 7

General Well Sampling Procedures, page 5, describes sampling procedures in a manner which appears to be directions for field personnel. Note that the Work Plan is submitted for NMED's formal review. Revise the Work Plan to describe the sampling procedures in a manner that does not constitute instructions.

Comment 27

Appendix B includes Table 1, *Gallup Refinery – Ground Water Monitoring Schedule*, and Table 2, *Gallup Refinery – Requested/Approved Changes to the Ground Water Monitoring Schedule*. These tables do not include page numbers. Include page numbers in the revised tables.

Comment 28

Appendix B, Table 2, *Gallup Refinery – Requested/Approved Changes to the Ground Water Monitoring Schedule*, and Appendix E, *Field Methods for Nitrite Analysis* are included in the Work Plan; however, these appendices are not referenced within the text of the Work Plan. These appendices must be referenced in relevant sections and a discussion must be provided within the text of the Work Plan. Revise the Work Plan accordingly.

Comment 29

In Appendix C-1, *2019 Fluid Level Measurements*, page 8 of 8, the stratigraphic unit for the screened interval of well SMW-2 is not legible. Present a legible description in the revised Work Plan.

Comment 30

Appendix C-1, *2019 Fluid Level Measurements*, indicates that some wells were not gauged in 2019 due to the presence of elevated hydrogen sulfide gas in the ambient air. Comment 3 of NMED's *Approval with Modifications Annual Ground Water Monitoring Report Gallup Refinery – 2018*, dated January 22, 2020, states, "[t]he Permittee must conduct the required sampling and change the scheduled sampling dates as necessary, if the H₂S concentrations are too high to allow personnel to conduct the sampling event on the scheduled sampling timeframe." The Permittee must collect required data from these wells in future gauging and sampling events. Reference the NMED's direction and include the provision in the revised Work Plan.