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CERTIFIED MAIL – RETURN RECEIPT REQUESTED

April 26, 2016

Mr. Ed Riege  
Environmental Manager  
Western Refining, Southwest Inc., Gallup Refinery  
92 Giant Crossing Road  
Gallup, New Mexico 87301

**RE: DISAPPROVAL  
INTERIM MEASURES REPORT  
HYDROCARBON SEEP AREA  
WESTERN REFINING SOUTHWEST INC., GALLUP REFINERY  
EPA ID # NMD000333211  
HWB-WRG-15-002**

Dear Mr. Riege:

The New Mexico Environment Department (NMED) has reviewed the *Interim Measures Report Hydrocarbon Seep Area* (Report), dated July 2015, submitted on behalf of Western Refining Southwest Inc., Gallup Refinery (Permittee) and hereby issues this Disapproval with the following comments.

**Comment 1**

The Permittee improperly handled disposal of excavated soil. There are two issues to consider in disposal of contaminated soil: 1) is the soil characteristic hazardous waste, and 2) does the soil contain listed hazardous waste. NMED's July 31, 2013 letter regarding the hydrocarbon seep stated, "Western Refining must manage any gasoline-tainted soil removed from the site as hazardous waste unless and until analytical results confirm that the soil is not toxic hazardous waste for benzene (D018) or listed hazardous waste based on the source of the release." The laboratory analytical results for soil samples of excavated soil demonstrate that the soils were not characteristic hazardous waste. However, one of the sources of the seep is the Contact

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Wastewater/Storm Sewer which handles process wastewater among other types of fluid. In addition to the traditional use of the sewer system, the Permittee also uses vacuum trucks for initial cleanup of spilled material and disposes of these fluids back into the sewer system upstream from the API Separator, which may include listed hazardous waste. Once process wastewater ceases lateral flow, for example when process water from the Contact Wastewater/Storm Sewer leaked from the corroded pipe and flow ceased in the surrounding soil, listed hazardous waste (F037) is generated. While the Permittee's soil analytical sampling results demonstrate that the excavated soils from the pipe excavation are not characteristic hazardous waste, the soils carry listed waste determinations (F037 at a minimum and potentially others (K049, K050, K051) because of the use of the sewer system). Mixtures of solid waste and listed hazardous waste must be regulated as hazardous waste; therefore, the soils were handled improperly. On page 2-5, the Permittee states, "[a] total volume of 278 cubic yards of non-hazardous soil was disposed off-site at the Gandy Marley, Inc. landfill in Chaves County, New Mexico." This facility is not permitted to receive hazardous waste. This situation is an example where communication between the Permittee and NMED was necessary in order to ensure compliance with the regulations. NMED is issuing a Notice of Violation regarding this issue. No revision to the Report is necessary.

### **Comment 2**

The Permittee must include additional details in the revised Report. It is important to include descriptions of all field activities when reporting. The descriptions aid in understanding the data quality because the reader is not in the field to observe the activities. Revise the Report text to include the following:

1. Descriptions of the methods and procedures used to advance soil borings and install groundwater monitoring wells as well as the methods and procedures used to collect soil and groundwater samples for field screening and laboratory analysis. In addition, include information regarding the methods of logging the borings (e.g., collection of samples from split spoon, auger spoon/head, and auger cuttings), whether or not soil samples were collected for laboratory analysis (including locations) and how the sample intervals were chosen.
2. A description of the methods used to collect and dispose of recovered product.
3. Discussion of whether any additional soil removal may be necessary either in the seep area or in the areas where leaks occurred. Discuss whether or not additional dye tests will be conducted.
4. Discussion of the rationale for installing over twenty new permanent groundwater monitoring wells. Also provide information regarding whether or not the recovery wells are permitted through the Office of the State Engineer.

5. Discuss whether or not groundwater monitoring wells will be converted to recovery wells, if necessary. If not, propose to submit a Work Plan to continue hydrocarbon removal.
6. Discuss whether or not there are dedicated pumps in each well or if portable pumps are used. Discuss the disposition of the soil generated from the 14 excavations completed as part of the source identification.

**Comment 3**

The Permittee must include additional discussion of the effectiveness of the interim measures.

1. On page 2-4, under the Source Control heading, paragraph one, the Permittee states, “[t]he initial material recovered was estimated to be 50% water and 50% hydrocarbon; however, the percentage of hydrocarbon reduced significantly over the first couple of weeks and has declined to less than 1%.” Please revise the Report to discuss how the percentages were calculated and discuss whether or not measurements of separate-phase hydrocarbon (SPH) thicknesses are collected in the excavation recovery sumps.
2. In paragraph two under the same heading, the Permittee states, “[b]eginning in August 2014, product recovery from individual monitoring wells was initiated. This involved recovery of total fluids (water and hydrocarbon) without accurate measurements from individual wells. Later the recovery process was modified to more accurately record recovery of product from the individual wells. Through June 30, 2015, 21 gallons of SPH has been recovered.” In this instance, the Permittee needed to ensure that proper measurements were collected in order to effectively track changes in the plume. In the future, ensure that steps are taken to accurately measure initial product levels and then document changes over time so that there is a record of the effectiveness of the recovery. No revision is necessary.
3. Table 1 (Fluid Level Measurements) demonstrates that the hydrocarbon thickness since July 2013 has generally decreased, remained stable, or fluctuated over time in the groundwater monitoring wells with the exception of MKTF-12 and MKTF-45 where increasing levels of hydrocarbons were measured. Revise the Report to provide more discussion regarding trends in the amounts of SPH measured in groundwater monitoring wells over time and whether or not there are obvious patterns to the amount of hydrocarbons measured in the wells (to determine plume migration and the effectiveness of interim measures).

**Comment 4**

Revise the Report to discuss whether or not the vertical and lateral impacts of the leaks and related contaminant plumes have been determined or if additional soil borings and groundwater monitoring wells are planned. If impacts have not been fully defined or if the contaminant plume(s) require additional investigation to determine the nature and extent, then propose to install additional soil borings and/or groundwater monitoring wells.

**Comment 5**

On page 2-2, the Permittee states “[t]wo additional dye tests were conducted in the process sewer system with a yellow/green dye introduced into the sewer at the transmix unloading area (a short distance northwest of the main truck loading racks) on September 23, 2013 and a red dye introduced at the lab sinks on September 24, 2013 ... [t]he green/yellow dye appeared to be present in nine wells (SB04, SB05, SB06, SB08, SB10, SB11, SB19, SB20, and SB21), which are all located further south. Although the dye tests were not conclusive, the separate patterns of the two dyes suggest the possibility of two separate release points from the sewer lines. The red dye appears to have exited the sewer line from a hole identified near the bundle cleaning pad (see discussion below). The source location of the yellow/green dye is not currently known.” Revise the Report to describe the plans to address the source of the yellow-green dye that has yet to be determined. NMED is aware that the Permittee intends to submit a work plan for the Main Loading Rack Area (AOC 35); however, if there is an active leak, the Permittee must address this prior to the agreed upon submittal date for the work plan in RCRA Permit Table E-2. Additionally, the Permittee must identify all suspected units and piping and include a schedule for additional dye tracer or other studies to identify other potential sources of contamination.

**Comment 6**

Please provide a table, similar to the table provided in the Permittee’s Facility-Wide Groundwater Monitoring Report(s), that lists the newly installed groundwater monitoring wells by name, the design specifications of the wells, date installed, the surveyed groundwater top of casing information, the screened intervals, most recently measured depth to water, and the latest SPH measurement(s).

**Comment 7**

On page 2-3 the Permittee states, “[o]n August 19, 2013 an operator walking the aboveground pipeline rack looking for possible leaks observed hydrocarbon on the land surface in the secondary containment east of tank T-3. The location of the leak, which is just west of the above ground pipeline rack that runs north to south along the east side of the marketing tank farm, is shown on Figure 2. Once the release was discovered a small earthen berm was built approximately 10 ft to the west of the release, which held approximately 1.5 barrels of hydrocarbon.” This release was not reported to NMED or the Oil Conservation Division (OCD). NMED notes that OCD has a “minor release” reporting limit of 5 barrels; however, the Permittee is required to report all releases to NMED. In addition, it is likely that more than 1.5

barrels were released and some quantity of the released fluids soaked into the surrounding soils for 1.5 barrels to seep into the ground surface. Further in the paragraph the Permittee states, “[i]t was identified as a transmix/slop 6 to 8 inch line that is only used during the unloading of transmix trucks at the truck rack, thus it would only have been an intermittent source. Trucks are unloaded at the rack and this line transports the transmix/slop to T-231. The line was taken out of service, cleaned and blanked off. The line was replaced with an aboveground pipeline.” Revise the Report to also discuss whether any soil was excavated and whether the release was investigated to determine the extent of subsurface contamination.

**Comment 8**

On page 2-3 the Permittee states, “[a] camera survey was conducted on multiple segments of the sewer line in the western portion of the refinery on August 27 and 28, 2013. Based on this visual inspection, a hole in the sewer line was identified approximately 20 feet south of the sewer box on the west side of the bundle cleaning pad.” Revise the Report to discuss whether the camera survey was only conducted in the western portion of the refinery or if it included other areas of the sewer line. Please also explain if any other issues were noted that may not have been addressed by the removal of the corroded section of line. If available, provide still pictures from the video showing the corrosion and holes in the pipe. Additionally, provide information regarding the disposition of the section of pipe removed.

**Comment 9**

On page 2-4 under the Source Control Measures heading, the Permittee discusses the soil excavations which were left open to facilitate the recovery of hydrocarbons and groundwater. Revise the Report to include descriptions of the depths of the excavations as well as information regarding the depth of the six-inch PVC screens inserted into the excavations for recovery of liquids. The Permittee must discuss whether or not hydrocarbons are still being recovered from excavation sumps S1 through S6. See also Comments 2 and 3.

**Comment 10**

NMED notes that its concern regarding Tanks 101 and 102 as a potential source is partially addressed by the Permittee’s fuel distillation curve; however, as stated in correspondence dated November 8, 2013, NMED questions the quality of Western Refining’s in-house laboratory results and requires a fuel fingerprint conducted by an independent, analytical laboratory which has not been certified by the National Environmental Laboratory Accreditation Conference (NELAC) or demonstrated consistent comparability with off-site laboratory results in the past. Additionally, the cleanup of a spill at Tanks 101 or 102 resulted in the original seep being discovered in 2007; it does not appear that the Permittee conducted any soil or groundwater sampling in the area where the 2007 seeps were discovered during the current seep investigation. This source and migration pathway may still exist and must be investigated. NMED also notes that all of the contours for the contaminant plumes stop at these tanks; these figures are likely not

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accurate depictions of the contaminant plumes due to the absence of data. The Permittee must propose to investigate the potential contamination at Tanks 101 and 102 in the revised Report.

**Comment 11**

On page 2-5, the Permittee states, “[t]he overall excavation was approximately 180 feet long, 20 feet wide and up to 12 feet deep and is depicted in Figure 4.” In the next paragraph the Permittee states, “[a] total volume of 278 cubic yards of non-hazardous soil was disposed off-site at the Gandy Marley, Inc. landfill in Chaves County, New Mexico.” NMED understands that the variability of the bottom of the final excavation, the presence of the pipe, and backfill will affect the volume of soil removed, but it seems that 278 cubic yards of excavated soil may be an underestimation or miscalculation based on the dimensions of the excavation. Provide a description of the wastewater pipeline dimensions and also the disposition of the wastewater pipeline. Please revise the Report to provide a corrected volume estimate or address this concern in the comment response letter as part of the revised Report submittal.

**Comment 12**

The Permittee collected four soil samples from the intersection of the sidewall and floors on all four sides of the excavation to the west of the Heat Exchanger Bundle Cleaning Pad. The laboratory reports show the sample identifications as “Pit-North-9’, Pit-East-9’, Pit-South-9’, and Pit-West-9’.” If parts of the excavation went to depths of up to 12 feet, the Permittee should have collected samples from the deepest part of the excavation. Generally, confirmation samples should be collected from the sidewalls as well as the bottom of the excavation. No revision to the Report is required.

**Comment 13**

Table 2 (Chemical Analyses) demonstrates that the groundwater at the facility is impacted by total petroleum hydrocarbons as well as solvents and polycyclic aromatic hydrocarbons (PAHs). Revise the Report to include discussion of the groundwater analytical results.

1. The analytical results for MKTF-9 (SB13) reveal that concentrations of trichloroethene (TCE) above the regulatory limit are present in the groundwater. TCE was also detected at concentrations above the maximum contaminant level (MCL) in groundwater monitoring wells MKTF-2, MKTF-4, MKTF-25 and MKTF-37. Discuss the possible sources of TCE at the facility.
2. Vinyl chloride is consistently detected in groundwater at concentrations above standards in well MKTF-11 with other detections above cleanup levels in other groundwater monitoring wells, but not with any consistency. 1,2-Dichloroethane (EDC) was also detected in the groundwater. Discuss the possible source(s) of chlorinated solvents at the facility. Since EDC is a lead scavenger, the Permittee must add analysis for 1,2-Dibromoethane (EDB) in all monitoring wells where EDC has been detected; this change

must be incorporated into the latest Facility-Wide Groundwater Monitoring Work Plan. The Permittee must use an analytical method capable of detecting EDB at concentrations less than 0.004 micrograms per liter (e.g., EPA Method 8011).

3. Concentrations of 2-Methylnaphthalene are above the cleanup standard in groundwater monitoring wells MKTF-4, MKTF-9, MKTF-10, MKTF-11, MKTF-15, MKTF-16, MKTF-18, MKTF-19, MKTF-20, MKTF-22, MKTF-23, MKTF-36, and MKTF-37. 2-Methylnaphthalene was detected once in production well PW-3 in 2009; however, rather than being an anomaly, the result may be a consequence of contamination in soils and groundwater migrating to the Sonsela aquifer. Discuss the detection of 2-Methylnaphthalene.

Revise the Report to discuss the analytical results in more detail as well as discuss the plumes depicted in Figures 10 through 16 in the text. The Facility-Wide Groundwater Monitoring Plan must include proposed chemical analyses of groundwater samples for semi-volatile organic compounds (SVOCs) and volatile organic compounds (VOCs) in all wells downgradient from the Marketing Tanks and the Sewer/Contact Wastewater System.

**Comment 14**

NMED notes that SVOCs were not included in the analytical suite for the soil samples collected for confirmation and waste disposal. In the revised Report discuss the reasons why SVOCs were not analyzed. In the future, SVOC testing must be included in the laboratory analytical suite for soil samples.

**Comment 15**

On page 2-8 the Permittee states, “[b]ased on well development and sampling efforts, many of the wells do not produce significant volumes of water with the exception of wells located near the sanitary lagoon.” The Permittee did not provide boring logs or well construction diagrams for the STP-wells. In the revised Report provide the boring logs and well construction details for STP1-NW and SW. Revise the Report to discuss whether or not the water levels at the sanitary lagoon are currently elevated due to the leaking system or if the water levels are not affected by refinery operations. The Permittee must discuss whether or not the sanitary lagoon is leaking and whether or not saturated zones were encountered when constructing STP-1. Also identify the other monitoring wells which are not producing water and monitoring wells with low recharge rates (i.e., name the wells with low recharge, provide the flow rate). Propose to install groundwater wells at depths that intersect the water table.

**Comment 16**

The groundwater level measurements presented in Table 1 are variable. For example:

MKTF-01	Top of Casing (ft msl)	Depth to HC (ft btoc)	Depth to GW (ft btoc)	Hydrocarbon Thickness (ft)	Corrected GW Elev	Difference
7/11/2013	6920.67	ND	6.60	0.00	6914.07	
7/12/2013	6920.67	ND	6.60	0.00	6914.07	0
7/17/2013	6920.67	ND	6.80	0.00	6913.87	-0.2
8/14/2013	6920.67	ND	9.19	0.00	6911.48	-2.39
9/25/2013	6920.67	5.44	6.36	0.92	6915.04	3.56
11/20/2013	6920.67	ND	6.64	0.00	6914.03	-1.01
1/13/2014	6920.67	7.90	8.34	0.44	6912.68	-1.35
2/12/2014	6920.67	6.73	6.74	0.01	6913.94	1.26
3/11/2014	6920.67	6.10	6.38	0.28	6914.51	0.57
4/8/2014	6920.67	7.05	7.25	0.20	6913.58	-0.93
9/15/2014	6920.67	6.94	6.98	0.04	6913.72	0.14
3/11/2015	6920.67	ND	5.85	0.00	6914.82	1.1
6/9/2015	6920.67	ND	7.15	0.00	6913.52	-1.3

Revise the Report to explain the variability in the groundwater elevations.

**Comment 17**

The hydrocarbon thickness measurements for groundwater monitoring well MKTF-15 (SB31) indicate that SPH was not observed from November 2013 through September 2014; however, in March 2015 and June 2015 hydrocarbons were detected at 0.75 feet and 0.58 feet thickness respectively. MKTF-15 is located just east of the crude tanks (Tank 101 and Tank 102) and is one of the closest groundwater monitoring wells to both the Marketing Tanks and to the Sewer line leak. Revise the Report to discuss the apparent lag in detection of hydrocarbons in the groundwater monitoring well located closest to the sources of the seep.

**Comment 18**

The boring and well completion logs for MKTF-27 and MKTF-28 do not demonstrate that any moist or saturated intervals were encountered (although the borings were described as “damp” throughout the soil column) nor is there a water level recorded on the log. However, groundwater samples were collected according to laboratory results in Table 2 and the laboratory reports in Appendix D. Discuss the water levels in these wells and whether or not the wells are screened across the water table. Additionally, if there are other wells that were installed without the presence of groundwater at the time of installation, the Permittee must discuss water levels relative to the screened intervals at those groundwater monitoring wells (many of the well logs

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indicate “saturation” rather than a water level, discuss whether a water level was measured at the time of installation and whether or not the well screen intersects the water table).

**Comment 19**

Figure 12 (Dissolved Iron Concentration) shows three elevated areas of dissolved iron in groundwater that generally correlate to the two suspected release areas and to an area just south of Tanks 101 and 102. Please revise the Report to discuss whether or not the third area containing elevated dissolved iron concentrations can be correlated to any underground piping in that area or releases of petroleum-related contaminants.

**Comment 20**

Figure 13 displays MTBE concentrations and clearly demonstrates that MTBE was released in the vicinity of the Main Loading Racks/Crude Slop (Transmix) and Ethanol Unloading Facility/Loading Rack Additive Tank Farm. Revise the Report to include information about historic use of MTBE at the facility and discuss how and where the MTBE was stored and conveyed at the facility.

**Comment 21**

Appendix XCC contains the well survey report from DePauli Engineering. The well surveys for MKTF 35 through MKTF 45 are not included. Provide the well survey data for these wells in the revised Report.

**Comment 22**

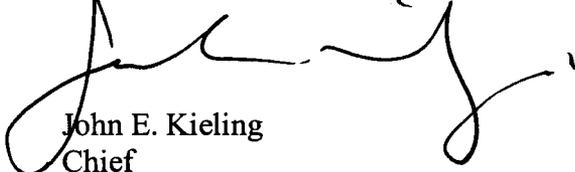
Because the investigation is not yet complete, the Permittee must revise the Report to propose providing quarterly status reports regarding product recovery, planned additional measures and efforts to address leaking pipes or tanks at the Main Truck Loading Racks.

The Permittee must address all comments in this Disapproval and submit a revised Report. In addition, include a red-line strikeout version in electronic format showing where all revisions have been made. The revised Report must be accompanied with a response letter that details where all revisions have been made, cross-referencing NMED's numbered comments. The revised Report must be submitted to NMED no later than **August 1, 2016**.

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If you have questions regarding this Disapproval, please contact Kristen Van Horn of my staff at 505-476-6046.

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 "K".

John E. Kielling  
Chief  
Hazardous Waste Bureau

cc: D. Cobrain, NMED HWB  
N. Dhawan, NMED HWB  
K. Van Horn, NMED HWB  
C. Chavez, EMNRD OCD  
A. Hains, WRG  
L. King, EPA

File: Reading File and WRG 2016 File  
WRG-15-002