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CERTIFIED MAIL - RETURN RECEIPT REQUESTED

June 7, 2010

Mr. Ed Riege
Environmental Manager
Western Refining, Southwest Inc., Gallup Refinery
Route 3, Box 7
Gallup, New Mexico 87301

**RE: SECOND NOTICE OF DISAPPROVAL
CORRECTIVE MEASURES IMPLEMENTATION WORK PLAN
SOLID WASTE MANAGEMENT UNIT (SWMU) NO. 1
WASTEWATER AERATION LAGOONS
WESTERN REFINING COMPANY SOUTHWEST INC., GALLUP REFINERY
EPA ID # NMD000333211
HWB-GRCC-09-003**

Dear Mr. Riege:

The New Mexico Environment Department (NMED) has completed its review of the *Corrective Measures Implementation Work Plan Solid Waste Management Unit (SWMU) No. 1 Wastewater Aeration Lagoons* (Work Plan), dated July 2009, submitted on behalf of Western Refining Company Southwest Inc., Gallup Refinery (the Permittee). NMED hereby issues this second Notice of Disapproval (NOD) and provides the following comments.

Comment 1

In Section 2 (Background), page 4, the Permittee states “[t]his CMI Work Plan is submitted pursuant to the requirements of Provision IV.B.9 of the Post Closure Care Permit issued by the NMED on August 17, 2000 and the requirements of the OCD Discharge Permit issued August 23, 2007.” Section IV.B.9 of the Post-Closure Care Permit (Permit) references an Alternative Corrective Action Approach that is divided into Voluntary Corrective Action or Expedited

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Cleanup (EP) (Item a) and Voluntary Corrective Measures (Item b), neither of which apply to closure of Aeration Lagoon 1 (AL-1) and Aeration Lagoon (AL-2). The Permittee must revise the Work Plan to state that the Work Plan was submitted pursuant to the requirements of Section IV.B of the Post-Closure Care Permit.

Comment 2

In Section 2.1 (Aeration Lagoons AL-1 and AL-2), page 4, the Permittee states “[m]onitoring data of the effluent from the two benzene air strippers, which discharges into the inlet aeration lagoon, and flows into AL-2 has indicated that concentrations of benzene above the toxicity characteristic (TC) regulatory threshold of 0.5 milligrams per liter (mg/l) may have entered into these impoundments.” The Permittee did not comply with Comment 3 of NMED’s May 6, 2009 NOD that required the Permittee to revise the paragraph to clearly state benzene has been detected at concentrations above 0.5 mg/L which exceed the toxicity characteristic maximum concentration for benzene. It has been documented and demonstrated through analytical testing that benzene above the toxicity characteristic of 0.5 mg/L has entered into the Aeration Lagoons. The revised Work Plan must clearly state that wastewater characteristic for benzene (D018) was discharged to the Aeration Lagoons.

Comment 3

In Section 2.1 (Aeration Lagoons AL-1 and AL-2), pages 4 and 5, the Permittee states “Western has reviewed the operation of the lagoons and has determined that the lagoons have met the definition of aggressive biological treatment using high [rate] aeration as defined in 40 CFR 261.31. Therefore, the sludges generated in the aeration lagoons are exempted from the listing as F037 and F038 wastes under this definition. Appendix A documents the operation details (aerator horsepower and unit retention times) supporting this documentation.” NMED does not agree the sludges in the Aeration Lagoons are exempt from the F037 and F038 listings. The regulations in 40 CFR 261.31(b)(3)(1) and (ii) for F037 and F038 wastes state “[s]ludges are considered to be generated at the moment of deposition in the unit, where deposition is defined as at least a temporary cessation of lateral particle movement.” The sludges removed from AL-1, AL-2, and EP-1 are not exempt from the F037/F038 listing, unless the Permittee can demonstrate the aerators have continuously operated since 1991 with no downtime. Additionally, there are several incidents where F037/F038 has been generated in the Evaporation Pond 1 (EP-1), Evaporation Pond 2 (EP-2), and Aeration Lagoons. In August and September 2005, the Permittee experienced various API separator upsets that resulted in the release of oil and sludge (K051) from the API separator (without treatment) to AL-1 and AL-2, EP-1, and EP-2. F037 and F038 waste were likely generated in EP-1 and EP-2, since these ponds do not have aerators. It is also likely that F037/F038 wastes were also generated in AL-1 and AL-2; it is not clear if the hydraulic retention time (40 CFR 261.31(b)(2)(i)) was met. In 2006, there was a period when two aerators in AL-2 were not operating due to pump failure; this could also result in the generation of F037/F038 waste. Additionally, in 2008, the aerators in AL-1 and AL-2 were shut

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down for a period time to conduct sediment sampling. During this time F037/F038 listed wastes were generated (see Appendix B of the Work Plan). The Permittee must revise the Work Plan to remove all statements that the sludges in the Aeration Lagoons are exempt from the F037 and F038 listing.

Comment 4

From the data in Appendix A (Documentation of Aggressive Biological Treatment in Aeration Lagoons (per 40 CFR 261.31)), it is not clear if the flow volumes from the API separator and weir box overflow pipes into the aeration lagoons were considered when calculating the hydraulic retention times (NMED notes that the overflow pipes are no longer operational at this time, but were part of the system previously). The Permittee must revise the Work Plan to discuss these details.

Comment 5

The Permittee may request a "no longer contained in" determination for the sludges/sediment/soils removed from the lagoons and EP-1. If the Permittee chooses to request such a determination, the Permittee must revise the Work Plan so that in addition to the TCLP sampling required in 40 CFR 261 Subpart C (Characteristic of Hazardous Waste), the sludges and sediment samples must also be analyzed for totals of volatile organic compounds (VOCs), semi volatile organic compounds (SVOCs), diesel range organics (DRO), gasoline range organics (GRO), motor oil range organics (MRO), and RCRA 8 metals.

Comment 6

In Section 2 (Background), page 4, the Permittee states "[t]his section presents background information for each of the lagoons and EP-1, including a review of the historical waste management activities for each location to identify the following: type and characteristics for all waste and all contaminants handled in the subject SWMU, known and possible sources of contamination, history of operations, and prior investigations." Beginning in 2005, the Permittee has had various upsets to the API separator and the weir box which have released oil/sludge/treated and untreated wastewater to the Aeration Lagoons and EP-1. A summary of these events was not addressed in the Work Plan; these events are relevant to the type and characteristics of waste and contaminants present at the units. The Permittee must revise the Work Plan to include a summary of the various upsets to the API separator and weir box that have resulted in releases to the Aeration Lagoons and EP-1.

Comment 7

In Section 4.1 (Planned Activities), page 12, the Permittee states "[p]rior to implementation of corrective measures, GWM-1, GWM-2, and GWM-3 will be plugged and abandoned in

accordance with all applicable regulatory requirements.” Once the wastewater treatment system has been installed and the Aeration Lagoons are closed, the Permittee will be required to continue to monitor the groundwater in this area. No revision to the Work Plan is necessary; however, the Permittee must take into consideration that new monitoring wells must be installed in the vicinity of the Aeration Lagoons and EP-1.

Comment 8

In Sections 4.1.1 (EP-1 Pilot Study and Maintenance) and Section 4.1.2 (Implement Selected Remedy), the Permittee proposes to conduct a pilot study to evaluate the effectiveness of biological degradation (bioremediation) of organic compounds in the sludges in Evaporation Pond 1. If successful, the Permittee will apply the same bioremediation method to the Aeration Lagoons. NMED does not approve the pilot study because it will not allow closure of the Aeration Lagoons and EP-1 to be completed in a timely manner. The Permittee must revise the Work Plan to remove all references to the pilot study.

Comment 9

In Section 4.1.1 (EP-1 Pilot Study and Maintenance), pages 14 and 15, the Permittee affirms that if the pilot study yields no added benefit to minimize the wastes, then the Permittee will dewater the Aeration Lagoons and EP-1 and characterize the solids to be transported offsite. The Permittee states on page 15, paragraph 2 that “[c]onfirmation samples will be collected from the excavated surfaces (base and sidewalls of EP-1) to demonstrate the removal of characteristically hazardous waste after the completion of all activities conducted within EP-1. Confirmation samples will be analyzed for hazardous characteristics in accordance with 40 CFR 261, Subpart-C Characteristics of Hazardous Waste. After sampling confirms that all characteristically hazardous materials have been removed, then wastewater flows from the new WWTP will be redirected to EP-1.” A non-hazardous sample does not mean the sample is not contaminated. The Permittee must analyze the confirmation samples for DRO extended, GRO, SVOCs, VOCs, and RCRA metals. All confirmation soil samples must meet the applicable NMED Soil Screening Levels (SSLs) before the Aeration Lagoons can be backfilled and the process wastewater routed back to EP-1. The Permittee must revise the Work Plan to address these sampling requirements.

Comment 10

In Section 4.1.3 (AL-1 and AL-2 Surrounding Soils and Dikes), page 15, the Permittee states “[t]he dike wall between AL-1 and AL-2 will not be sampled since the entire wall will be excavated for disposal. Only exterior dike walls outside of AL-1 and AL-2 will be sampled to identify potential impacts from activities.” The Permittee must revise the Work Plan to describe how the dike wall between AL-1 and AL-2 will be removed, where the soils will be stockpiled, describe the characterization that will be conducted to determine soil disposal options, and

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describe the chemical analyses that will be conducted on the soil samples.

Comment 11

In Section 4.1.3 (AL-1 and AL-2 Surrounding Soils and Dikes), page 15, the Permittee states “[o]nly exterior dike walls outside of AL-1 and AL-2 will be sampled to identify potential impacts from activities.” The Permittee then states in bullet one, page 16, that “[d]ikes will be sampled at the center line along the length of the dike every 25 feet at depths of 0-6 inches and 18-24 inches below the ground surface (bgs) using a hand auger to characterize dike soils that would have reasonably come in contact with wastewaters (see Figure 4-3 for a representation of proposed sample locations).” The Permittee must collect dike wall samples from the dike/wall between the Aeration Lagoons and EP-1 and collect side-wall samples around EP-1. The Permittee must also make it clear that the “exterior dike wall” sample locations are the same locations as the “dike soil sample” locations identified as the blue triangle within a circle symbol in Figure 4-3. The Permittee must revise the Work Plan to include the additional sampling and clarify if the exterior dike wall sample locations are the same locations as the dike soil sample locations (represented by a blue triangle within a circle) in Figure 4-3.

Comment 12

In Section 4.1.3 (AL-1 and AL-2 Surrounding Soils and Dikes), page 16, under Surrounding Soils, the Permittee states “[s]urface soils (0-6”) and subsurface (18-24”) soils surrounding the dikes outside the AL-1 and AL-2 will be collected pursuant to Section 4.4.2.” However, there appears to be no Section 4.4.2 in the Work Plan. The Permittee must revise the Work Plan to reference the correct section.

Comment 13

In Section 4.1.3 (AL-1 and AL-2 Surrounding Soils and Dikes), page 16, (Surrounding Soils), the Permittee describes the chemical analytical methods to be used for the surrounding soil samples. The surrounding soil samples must also be analyzed for RCRA 8 metals. The Permittee must revise the Work Plan to include this analysis.

Comment 14

In Section 4.1.3 (AL-1 and AL-2 Surrounding Soils and Dikes), page 17, the Permittee states “[t]he two benzene strippers were constructed on a concrete slab.” In addition to removing the benzene strippers, the Permittee must also remove the concrete slab and collect soil samples from beneath the concrete slab and the ancillary piping at the locations of joints and intersections. The Permittee must revise the Work Plan to address removal of the concrete slab and the collection of additional soil samples. The proposed analytical methods must include Skinner list metals. The Permittee must also include a figure showing the additional sampling locations.

Comment 15

In Section 4.1.3 (AL-1 and AL-2 Surrounding Soils and Dikes), page 17, the Permittee discusses dismantling the benzene strippers and states “[t]he surface and subsurface soils surrounding the concrete slab will be investigated for the presence of contaminants according to the following specifications:

- Surface soils (0-6” below ground surface (bgs)) will be collected at the four corners of the slab (Figure 4-3).
- Subsurface soils (18-24” bgs) will be collected at all four sample locations.
- Investigative soil borings will be advanced to a minimum depth of 10 feet or deeper as warranted by PID screening or visual appearances. The boring will be logged for physical properties and visual appearances. Groundwater will be sampled if contacted.”

It is not clear if the surface and subsurface soil locations are the same locations as the investigative soil borings. The Permittee must revise the text and figure(s) in the Work Plan to clearly identify the locations for the surface, subsurface, and investigative soil boring locations.

Comment 16

In Section 4.1.3 (AL-1 and AL-2 Surrounding Soils and Dikes), page 17 and 18, the Permittee states “[c]onfirmation samples will be collected to demonstrate complete removal of affected soils. A minimum of one sample per excavation face, including sidewalls and the bottom of the excavation, will be collected, with additional samples, as necessary, so that no single sample represents more than 400 square feet.” The Permittee must revise the Work Plan to clarify the procedures and methods used to collect the confirmation samples. Additionally, the Permittee must clarify the term "excavation face" (e.g., three samples will be collected from the bottom floor of the excavations and two from each side wall, total of 11 samples). All confirmation soil samples must be discrete.

Comment 17

In Section 4.1.4 (EP-1 Solids Disposal) and Section 4.1.5 (Dewater and Stabilize AL-1 and AL-2 Sludge), page 18, the Permittee states “[p]ortland cement or fly ash will be added to the sludge to improve physical strength and reduce moisture content prior to excavation out of the lagoons. Once the sludge has been dewatered and stabilized, it will be re-located to EP-1 for stockpiling.” In the revised Work Plan, the Permittee must provide the source and analytical data to identify the composition of the fly ash. Also, the addition of fly ash or Portland cement to the sludge seems contrary to the Permittee's desire to reduce the volume of material removed from the

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Aeration Lagoons. The Permittee seems to be attempting to reduce the volume of material for off-site disposal through dewatering and bioremediation, but then proposes to increase the volume by the addition of fly ash or Portland cement. The Permittee must clarify this contradiction and revise the Work Plan accordingly.

Comment 18

In Section 4.1.5 (Dewater and Stabilize A1-1 and AL-2 Sludge), page 18, the Permittee states “[o]nce the sludge has been dewatered and stabilized, it will be re-located to EP-1 for stockpiling.” Since the Permittee will not be conducting the pilot study, the Permittee may consider removing the sludge from Aeration Lagoons for disposal rather than relocating them to EP-1. The Permittee must revise the Work Plan to clarify this or provide reasons for relocating the sludges instead of arranging for disposal and revise the Work Plan accordingly.

Comment 19

In Section 4.1.4 (EP-1 Solids Disposal), page 18, the Permittee states “EP-1 solids stockpiles will be sampled for waste characterization prior to transport. Multiple samples will be collected from each stockpile to generate a representative homogenous composite sample for laboratory analysis. All samples will be analyzed for hazardous characteristics in accordance with 40 CFR 261, Subpart C – Characteristics of Hazardous Waste, volatile and semi-volatile organics (EPA SW-846 Method 8260 and 8270), diesel range organics (DRO), gasoline range organics (GRO), motor oil range organics (ORO), iron, manganese, and the Skinner List for inorganics.” The Permittee must revise the Work Plan to address the following:

- a. All samples analyzed for VOCs must be discrete and not composite.
- b. The Permittee must describe how the composite samples will be collected (e.g., five samples will be collected and sent to the analytical laboratory for homogenization; five sub-samples will be placed in an 8 ounce glass jar).
- c. The Permittee must analyze the composite samples for Skinner list metals.
- d. The Permittee must propose the number of samples to be collected per unit volume of excavated soil that is representative of the stockpile (e.g., 10 samples per 100 cubic yards).

Comment 20

In Section 4.1.6 (Stockpile and Characterize AL-1 and AL-2), page 19, the Permittee states “[s]ludges not exhibiting hazardous characteristics will be containerized in open ended trucks or roll-off boxes for transport to the landfill for disposal.” The Permittee must note: listed waste

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must be managed as hazardous waste unless the Permittee obtains a no-longer contained-in determination from NMED; additional analysis maybe required by the disposal facility; and all manifests must be kept on site for NMED review if requested. If the Permittee considers any of this material to be used as backfill, additional analysis will be required by NMED and the Permittee must obtain permission from NMED and OCD to determine if the material can be used onsite. These requirements must be addressed in the revised Work Plan.

Comment 21

In Section 4.1.7 (Confirmation Sampling at AL-1 and AL-2), page 19, the Permittee states “[a]fter the removal of sludge material and the upper one foot of native clay liner material...” The term native clay liner material is misleading, because a liner was not installed at the base of the Aeration Lagoons or EP-1. The Permittee must revise the Work Plan to remove the term liner and state “[a]fter the removal of sludge material and the upper one foot of native clay...” See Comment 29.

Comment 22

In Section 4.1.7, the Permittee discusses confirmation sampling at AL-1 and AL-2 and states “[a]fter the removal of sludge material and the upper one foot of native clay liner material, the underlying lagoon soils will be sampled along all faces of the excavation with an approximate spacing of 40 feet between sample grid locations (Figure 4-3). Sample results will be compared to NMED residential Soil Screening Levels (SSLs). Locations exhibiting constituent concentrations in excess of NMED SSLs will be further excavated and excavated soils will be stockpiled in EP-1 in anticipation of transport and disposal. Newly excavated faces will be re-sampled at a spacing grid of every 20 feet to confirm removal of impacted material.” The Permittee must incorporate the following requirements into the revised Work Plan and revise figures as necessary:

- a. The Permittee must collect confirmation soil samples from the Aeration Lagoons and EP-1 along all faces of the excavation with an approximate spacing of 30 feet between sample grid locations instead of 40 feet.
- b. The Permittee states the newly excavated faces will be resampled at a spacing grid of every 20 feet to confirm removal of impacted material. The Permittee must clarify this statement; it is not clear how samples will be obtained every 20 feet (i.e., will 20 feet surrounding the location of the contamination be excavated).
- c. The Permittee must include language that specifies that discrete rather than composite confirmation samples will be collected.
- d. The Permittee must also collect samples from five feet below the base of the

excavation in order to demonstrate that contaminants have not migrated below the Aeration Lagoons and EP-1. The number of confirmation samples from five feet below the base of the excavation must be half of the total confirmation samples collected (e.g., if 20 confirmation samples are collected at the base of the excavation, then an additional 10 samples must be collected from five feet below the base of excavation). The Permittee must include these sample locations on a figure to be included with the revised Work Plan.

- e. All sidewall confirmation samples must be collected from two locations; one soil sample must be collected on the sidewall at the base of the excavation and the other soil sample must be collected on the side wall that corresponds approximately five feet below the base of the average water line.
- f. The Permittee must also collect sidewall samples from three feet into the sidewall to demonstrate contamination has not migrated laterally. The Permittee must collect a minimum of one sample per side wall (approximately 10) from locations approximately five feet below the base of the water line at the three-foot depth from the excavation limits. These sidewall confirmation sample locations must be identified in a figure.

Comment 23

The Permittee must revise Figure 4-3 to label all structures. This includes the benzene stripper unit, the unit located northeast from the northeast corner of the benzene stripper unit, and the unit located southeast from the southeast corner of the benzene stripper unit.

Comment 24

In Section 4.2.1 (Soil Sample Filed Screening and Logging), page 19, the Permittee states “[s]amples obtained from borings will be screened in the field on 2.5 foot intervals for evidence of contaminants.” The Permittee must clarify that samples obtained from borings includes samples collected from hand dug locations.

Comment 25

In Section 4.2.3 (Groundwater Sample Collection), page 21, the Permittee states “[i]f soil sample analysis indicates the presence of constituents at concentrations and depths capable of impacting groundwater, groundwater will be sampled and analyzed.” The Permittee must collect a sample of groundwater if the groundwater is encountered regardless of whether or not the soil samples indicate the presence of contaminants. The Permittee must revise the Work Plan accordingly.

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Comment 26

In Section 4.2.8 (Chemical Analyses), the Permittee discusses the chemical analyses that will be conducted. However, this section does not discuss the analysis for 40 CFR 261 Subpart C – Characteristics for Hazardous Waste (e.g., discuss sampling for TCLP versus total metals). The Permittee must revise the section to include sampling for the determination of hazardous waste.

Comment 27

In Section 4.2.9 (Data Quality Objectives), page 27, it appears that the Permittee does not complete the last sentence of paragraph 3 and states “[i]n addition, sample collection techniques...” In the revised Work Plan, the Permittee must complete this sentence.

Comment 28

The Permittee must revise Figure 4-2 (Flow Chart) to incorporate the changes required by this NOD (e.g., remove the reference to the pilot study).

Comment 29

In Section 4.1.7 (Confirmation Sampling at AL-1 and AL-2), page 19, the Permittee states “[a]fter the removal of sludge material and the upper one foot of native clay liner material, the underlying lagoon soils will be sampled along all faces of the excavation...” Then in Figure 4-2, the fifth box in the left column, the Permittee states “[c]ollect AL confirmation samples from bottom liner and side walls.” The first passage implies the one foot native clay "liner" will be removed, while the second indicates the "liner" will not be removed. The Permittee must clarify this discrepancy in the revised Work Plan. See Comments 21 and 22.

Comment 30

In Appendix D (Investigation Management Plan), the Permittee discusses that drill cuttings and used soil cores will be stored in 55-gallon drums and analyzed for ignitability, corrosivity, reactivity, and toxicity. If the material is not characteristically hazardous, additional analysis may be required by the disposal facility. If the Permittee considers using the material on-site, additional analysis must be conducted to determine the disposal options for the soils and the use approved by NMED. The results must also meet NMED residential soil screening standards. The investigation report must document all disposal activities. No revision to the text is necessary.

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Comment 31

In Appendix D (Investigation Management Plan), the Permittee states “[t]he IDW may be characterized for disposal based on the known or suspected contaminants potentially present in the waste. It was assumed that there are no listed wastes present in environmental media at any of the planned investigation areas.” The Permittee cannot assume there are no listed wastes in the media where the investigation will take place. Potential listed wastes that could be present in the soils resulting from the various releases to the Aeration Lagoons and EP-1 include D018, F037, F038, and K051 listed wastes. The Permittee must revise Appendix D to remove the above quote. (See Comment 3).

Comment 32

Upon completion of all cleanup activities, the Permittee must obtain permission from NMED prior to leveling the dikes and bringing the Aeration Lagoons to final grade. The Permittee must include a statement referring to this in the Work Plan.

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Unless otherwise noted, the Permittee must address all comments contained in this NOD and submit a revised Work Plan to NMED on or before July 30, 2010. The revised Work Plan must be submitted with a response letter that details where all revisions have been made, cross-referencing NMED's numbered comments. In addition, an electronic version of the revised Plan must be submitted that identifies where all changes have been made in red-line strikeout format.

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

Sincerely,



James P. Bearzi
Chief
Hazardous Waste Bureau

cc: J. Kieling, NMED HWB
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File: Reading File and WRG 2010 File
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