



SUSANA MARTINEZ
Governor

JOHN A. SANCHEZ
Lieutenant Governor

NEW MEXICO
ENVIRONMENT DEPARTMENT

Hazardous Waste Bureau

2905 Rodeo Park Drive East, Building 1
Santa Fe, New Mexico 87505-6303
Phone (505) 476-6000 Fax (505) 476-6030
www.nmenv.state.nm.us



DAVE MARTIN
Secretary

BUTCH TONGATE
Deputy Secretary

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CERTIFIED MAIL - RETURN RECEIPT REQUESTED

January 23, 2012

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

**RE: NOTICE OF DISAPPROVAL
CORRECTIVE MEASURES EVALUATION REPORT
SOLID WASTE MANAGEMENT UNIT (SWMU) NO. 1 AERATION BASIN
WESTERN REFINING COMPANY SOUTHWEST INC., GALLUP REFINERY
EPA ID # NMD000333211
HWB-WRG-11-002**

Dear Mr. Riege:

The New Mexico Environment Department (NMED) has reviewed the *Corrective Measures Evaluation Report Solid Waste Management Unit (SWMU) No.1 Aeration Basin* (CME Report), dated April 2011, submitted on behalf of Western Refining Company Southwest Inc., Gallup Refinery (Permittee) and hereby issues this notice of disapproval (NOD).

Comment 1

In the response letter, Comment 1, the Permittee states, "Western wants to make certain that the CMI work plan and the ensuing corrective actions at the aeration lagoons are compliant with all applicable requirements, and requests written confirmation that if corrective actions are completed pursuant to 20.4.1.500 NMAC (incorporating 40 CFR 264.101), that this will also satisfy the requirements of the EPA CAFO relevant to the aeration lagoons. Does the use of the term "closure" in the EPA CAFO intend that the aeration lagoons are to be closed pursuant to the closure performance standards of 40 CFR 264.111 or 265.111? Western does not want to be at risk of EPA or future NMED staff revisiting the corrective actions completed pursuant to 40 CFR 264.101 and possibly asserting that the aeration lagoons should have been "closed"

Ed Riege
Gallup Refinery
January 23, 2012
Page 2

pursuant to the regulations applicable to hazardous waste management units." Corrective action complete status is equivalent to closure in this case. NMED will address this issue in the fact sheet for the remedy selection.

Comment 2

In Comment 2 of the response letter the Permittee states, "Western did an extensive review of all relevant historical documents and provided a detailed explanation (see Section 1 and Appendix A of the CMI work plan revised October 2010) of why the one cell in the Aeration Basin without aeration pumps (i.e., holding pond), is actually part of the Aeration Basin, and the fact that SWMU No.1 is the Aeration Basin, not the aeration lagoons. NMED has not provided any explanation or documentation to support its stated position. If NMED is in possession of documentation that clearly shows that SWMU No.1 is limited to only two of the cells (i.e., aeration lagoons) within the Aeration Basin, then Western would like to include this information in the CMI Work Plan so that there is not any potential confusion in the future when addressing SWMU No.2 Evaporation Ponds. Please share any such information so that this seemingly simple matter can be resolved clearly." NMED will consider EP-1 to be part of SWMU 1 and EP-1 will be identified as part of SWMU 1 in the Permit, no revision to the CME is necessary.

Comment 3

In Comment 5 of the response letter, the Permittee states, "Western would like to clarify that the soil sampling conducted in 1986 and again in 1990 occurred after the original "Evaporation Pond No.1" had been in operation since the 1950s, thus the samples were collected after wastewater had been impounded for approximately 30 years plus. As NMED stated, over twenty years of wastewater treatment has occurred since these samples were collected, but a new potential for contaminant migration was not created after the samples were collected. In fact, the addition of aeration in AL-1 and AL-2 should have reduced concentrations of constituents in the Aeration Basin and thus potentially reduced the potential for migration of higher concentrations of constituents through the underlying soils. If the selected remedy is to leave waste in-place and place a protective cover over the Aeration Basin, then it should not be necessary or useful to collect soil samples from beneath the Aeration Basin." NMED agrees that a new potential for contaminant migration was not created, but the potential for the contamination to migrate through the clay layers beneath the ponds over time is certainly possible and would increase over time. The Permittee must determine whether or not hazardous constituents are present in the soil beneath the lagoons. Additionally, groundwater sampling has shown that wells GMW-1 and NAPIS-2 both have elevated levels of benzene and water has been observed in groundwater monitoring wells GMW-2 and GMW-3 when they are supposed to be dry indicating infiltration of water below the ponds. The Permittee must demonstrate that contamination above cleanup levels from AL-1, AL-2 and EP-1 has not infiltrated the native soil below or surrounding the impoundments or reached shallow groundwater. The Permittee must determine the source of the water observed in GWM-2 and GWM-3; therefore, the Permittee must submit a work plan proposing to investigate the soil and groundwater in the vicinity of the aeration basin to NMED.

Ed Riege
Gallup Refinery
January 23, 2012
Page 3

Comment 4

Comment 10 in the response to comments the Permittee states, “natural subsoils will act to prevent any future releases of hazardous constituents to groundwater. NMED is correct that the CME does not state that there has not been any migration of constituents into native subsoil or to groundwater, as Western has been directed to submit the CMI Work Plan prior to an investigation to determine if there are any releases from the impoundments.” The Permittee is aware that additional investigation of the soils and groundwater is necessary and proposed soil sampling in previous plans for remediation of the aeration lagoons. The Permittee proposes, in Section 5 of the CME Report, “Perimeter Investigation. Prior to construction activities, an investigation of soils that lie beyond the planned lateral extent of the final cover system will be conducted to ensure that all impacted soils are placed beneath the cover system.” The proposed perimeter investigation does not address all of the issues at the SWMU. The SWMU has not been adequately characterized; therefore, the Permittee must propose additional sampling. In the work plan, required by Comment 3 to be submitted to NMED, propose to collect soil samples to determine the extent of potential contamination (both laterally and vertically). Additionally, future releases of hazardous constituents to groundwater will not necessarily be prevented by the natural subsoil. The proposed complete removal of the existing hazardous waste or the proposed stabilization of that waste and ceasing discharge of hazardous constituents in wastewater into the unlined pond should effectively prevent hazardous constituents from further affecting groundwater.

Comment 5

The Permittee states in Comment 10 of the response to comments that “the effectiveness of the containment alternative is not dependent upon the proper construction of the original surface impoundments. The fact is that the underlying native soils have a very low permeability, regardless of the actions taken at the land surface during construction of the surface impoundments to improve upon existing conditions.” Even though the underlying soils have low permeability, groundwater has already been impacted. In Section 2.2 (Site Conditions) the Permittee states, “[o]n July 10, 2008, a water sample was collected at GWM-1 and the results were submitted to NMED in the 2008 Annual Monitoring Report. Detections at concentrations greater than New Mexico Water Quality Standards (WQS) (20.6.2.3103 NMAC) included benzene (0.011 mg/L), manganese (3.6 mg/L) and iron (14 mg/L), vs. the standards of 0.01 mg/l, 0.2 mg/l, and 1.0 mg/l, respectively.” It is the Permittee’s responsibility to demonstrate that hazardous constituents from the aeration lagoons have not contaminated the groundwater. Propose to investigate the extent of potential contamination in the work plan required by Comments 3 and 4. Additionally, the effectiveness of the containment alternative is not dependent on the proper construction of the original surface impoundments; however, corrective action at the SWMU may be contingent on whether or not the impoundments were constructed properly and whether or not the native soil acted as an effective barrier. The Permittee must address the construction of the impoundments (see Comment 14) in the revised CME Report.

Ed Riege
Gallup Refinery
January 23, 2012
Page 4

Comment 6

In Section 2.2 (Site Conditions), page 8, the Permittee states, “[a]dditional investigation of subsurface conditions near the impoundments may be necessary to fully characterize the potential for lateral transport but existing information (i.e., prevalence of low permeability vadose zone soils) indicates a generally low potential for lateral transport of COCs.” The Permittee must provide NMED with adequate information to develop a statement of basis for the proposed remedy. All site characterization must be complete before a remedy can be selected. Additional subsurface investigation must be proposed in the work plan required to be submitted to NMED by this letter. See Comments 3, 4, and 5.

Comment 7

In Section 3.1 (Corrective Action Objectives), the Permittee states, “[a]s discussed above in Section 2.2, there is evidence of potential impacts to groundwater based on detection of constituents in groundwater samples collected from monitoring wells located immediately adjacent to the impoundments. However, there is not sufficient information currently available to determine if any response action will be required for groundwater or to support development of corrective measure alternatives for groundwater.” Propose to collect sufficient information in the work plan to determine whether or not the aeration lagoons affected the groundwater and whether or not corrective measures alternatives must be proposed for the groundwater. See Comments 3, 4, 5, and 6.

Comment 8

In Section 3.2 (Development of Corrective Measure Alternatives), page 11, the Permittee states, “[t]he selected process option is a multimedia cap, which includes a 24-inch thick clay cap with a 12-mil HDPE moisture retention liner to prevent desiccation. A protective 12-oz geotextile will be placed over the HDPE liner prior to placement of a rock armor layer consisting of eight inches of 1½-inch low-fines crushed limestone.” HDPE has been found to develop stress cracks through its life; EPA has accepted 60-mil HDPE to address the potential formation of stress cracks. Discuss the appropriateness of the 12-mil HDPE liner compared to a 60-mil liner. Additionally, permeability testing at the clay source area must be conducted to verify that it meets 10^{-7} cm/s permeability (less than or equal to the permeability of any bottom liner system or natural subsoils present) for the proposed clay cap. Adjust the cover specifications and cost estimate included in Appendix A as necessary. If the landfill remedy is selected, the Permittee must provide engineering drawings of the proposed cap in the Corrective Measures Implementation (CMI) plan.

Comment 9

In Section 3.2 (Development of Corrective Measure Alternatives), the Permittee states, “[i]t should also be noted that any such institutional controls would be enforceable under the EPA CAFO, as an element of the final CMI work plan.” Any institutional controls will become

Ed Riege
Gallup Refinery
January 23, 2012
Page 5

conditions in the Permittee's RCRA Permit in a long-term monitoring and maintenance plan for the SWMU.

Comment 10

In Section 4.1 (Off-site Disposal Alternative), the Permittee states, "[t]he uncertainty is associated with the required depth of excavation to remove all soils with concentrations of constituents above the applicable screening levels. Groundwater samples collected from GMW-1, GMW-2, and NAPIS 2, which are located near the aeration basin, have indicated the presence of site-related constituents. GMW-1 is screened across a sand interval that occurs at a depth of 21.5 to 24 feet, where the impacted groundwater was observed. If constituents from the aeration basin have migrated vertically to a depth of 21.5 feet, then excavation to these depths could become technically infeasible." Propose to investigate the soil and groundwater to eliminate the uncertainty related to the extent of contamination. The constituents may be present at concentrations less than the applicable screening levels and the soils may not need to be removed. Submit a work plan describing the proposed soil and groundwater investigations to NMED for review (see also Comments 3 through 7). Additionally, the well installation diagram for GMW-1 indicates that the screened interval is from 17.5 to 23.5 feet below ground surface (ft bgs) and the sand interval occurs at 22 ft bgs according to the boring log (the rest of the well is screened in clay). The clay likely includes silt or sand stringers which accelerated the migration of contaminants from the lagoons to groundwater. Provide additional information and explain the discrepancies between the text of the CME Report and the well log. Also, the Permittee seems to assert that constituents could not have migrated from the aeration lagoons in other sections of the CME Report and then states that constituents have migrated in this section. Revise the CME Report to correct the discrepancy.

Comment 11

In Section 5 (Selected Corrective Measures), the Permittee states, "Perimeter Investigation. Prior to construction activities, an investigation of soils that lie beyond the planned lateral extent of the final cover system will be conducted to ensure that all impacted soils are placed beneath the cover system." Include investigation for vertical extent of potentially impacted soils as well in the work plan. See also Comments 3 through 7.

Comment 12

In Section 5 (Selected Corrective Measures), the Permittee states, "Drying and Stabilization of Sludge. Following draining of the impoundments, the sediment/sludge in the impoundments will be allowed to air dry followed by stabilization by appropriate reagents (e.g., fly ash, cement kiln dust). A treatability study will be conducted prior to stabilization to identify the suitable reagent and mixing ratio." The Permittee must investigate the use of other stabilizing material (e.g., cement); fly ash and kiln dust are known to leach boron and lithium. If fly ash or kiln dust is chosen, then the Permittee must include boron and lithium as part of any long-term groundwater monitoring analytical suite.

Ed Riege
Gallup Refinery
January 23, 2012
Page 6

Comment 13

Appendix A, Table A-1.1 (Closure Cost Estimate – Offsite Disposal Alternative Aeration Lagoons (AL-1 & AL-2) and EP-1 March 29, 2011) includes a line item for dismantling and disposing of the benzene strippers. Dismantling the benzene strippers is part of the Old API Separator work plan and not part of the corrective action at the lagoons and should not be included in the cost estimate. The dismantling of the benzene strippers is not included in the discussion of either remedy. Revise the cost estimate tables to remove costs associated with removal of the benzene strippers. The benzene stripper, as required by the CAFO, must be removed within 90 days of the WWTS start up (February 29, 2012).

Comment 14

Information concerning the design of the surface impoundments is included in Appendix B. However, Appendix B does not include information regarding the construction of the ponds; it only provides plans. For example in the report titled *Technical Specifications for Construction of an Aerated Lagoon API Separator Effluent Treatment Facility*, revised August 5, 1986, point C of the Lagoon Earthwork section says “[t]he top 6 inches of excavated areas comprising the final embankment shall be compacted to a density equal to 90% of maximum density as determined by the Modified Proctor Test, ASTM D1557 or latest revision. Such a sand lens is thought to exist on the east side as evidenced by a readily observed natural seep.” Provide documentation that the lagoons were constructed as recommended in the plans. Point F of the same section states, “[a]ll soft and yielding material, and material which will not readily compact when rolled or tamped, shall be removed, and replaced with suitable material as directed by the Engineer. All sand lenses and other permeable zones will be excavated to a minimum of 2 feet below the finished grade and shall be removed...” It is not clear whether or not this was completed during the construction of the ponds. Point I of the same section discusses the natural seepage area; it is not clear if a cutoff drain and trench were installed to divert the natural seep as was proposed in the report. Provide additional information regarding the construction of the lagoons to demonstrate that they were constructed properly.

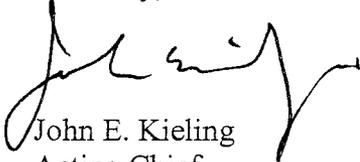
Ed Riege
Gallup Refinery
January 23, 2012
Page 7

The aeration basin has not been adequately characterized; therefore, the Permittee must submit a work plan for additional soil and groundwater characterization to be submitted no later than **February 27, 2012**.

Once the SWMU has been adequately characterized, the Permittee must submit a revised CME Report that includes the information acquired during the investigation and address all comments in this NOD. The revised CME Report must be accompanied 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 CME Report must be submitted identifying where all changes were made to the CME Report in red-line strike-out format. The revised CME Report must be submitted to NMED no later than **July 30, 2012**.

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

Sincerely,



John E. Kieling
Acting Chief
Hazardous Waste Bureau

cc: D. Cobrain NMED HWB
K. Van Horn NMED HWB
A. Allen WRG
C. Johnson WRG
J. Dougherty EPA

File: Reading File and WRG 2012 File
WRG-11-002