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**CERTIFIED MAIL
RETURN RECEIPT REQUESTED**

June 6, 2005

Keith Landreth
Attn: ATZC-DOE (Landreth)
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Fort Bliss, New Mexico 79916-6812

**SUBJECT: NOTICE OF DEFICIENCY FOR THE SUPPLEMENTAL RCRA
FACILITY INVESTIGATION (RFI) REPORT, SWMU #19, MCGREGOR
RANGE CAMP OXIDATION POND
FORT BLISS, NEW MEXICO, EPA ID NO. NM4213720101-01
HWB-FB 05-002**

Dear Mr. Landreth:

The New Mexico Environment Department (NMED) has received the *Supplemental RCRA Facility Investigation (RFI) Report, SWMU #19, McGregor Range Camp Oxidation Pond*, dated February 2005. NMED has reviewed the aforementioned document submitted by Fort Bliss (the Permittee) and hereby issues this Notice of Deficiency of the report with the following comments. The Permittee must respond to all comments as outlined in this letter within sixty (60) days of receipt of this letter.

General Comments

1. The report indicated that previous subsurface investigations and vadose zone modeling indicated that there is no significant threat to groundwater from the oxidation pond (Tetra Tech). Additional justification that groundwater could not be impacted was provided

indicating that the pond was lined and that the area does not receive significant amounts of precipitation. Thus, there is no mechanism for contaminant transport. However, the report also indicates that the integrity of the liner has been compromised in several locations. Therefore, it is likely that contaminants in surface water could migrate downward, potentially into the shallow aquifer. It is not clear whether this was taken into consideration for the soil to groundwater analysis. It is also not clear whether a comparison of site sediment and subsurface soil concentrations to soil-to-groundwater screening levels (SSLs) based upon a dilution attenuation factor (DAF) of 20 was conducted. The Permittee must clarify how it was determined that groundwater could not be impacted.

2. There is a continuous problem with selection of reporting limits that are greater than screening benchmarks. Prior to sending samples to the selected laboratory, the data quality objectives (DQOs) should have been set. As part of defining the DQO process, the screening levels should have been reviewed to ensure that the laboratory could meet appropriate reporting limits. As screening levels are above reporting levels for several constituents, there is considerable uncertainty in the data and therefore the conclusions. There is no way to determine whether contamination is present at levels less than the reporting limits but greater than screening levels. In addition, reporting limits for the tissue samples were elevated due to the insufficient sample volume being collected. The Permittee should have determined what the required sample volume was for each type of tissue to be collected prior to sampling.
3. It is not clear if the information concerning human health risks provided in this report is supposed to represent a human health screening assessment. If it is, then the information provided in the report is inadequate and the report must be revised to provide a more thorough and complete evaluation of risk.
4. The RFI does not discuss the fate or potential impact of the Imhoff tanks. The Permittee must explain how the tanks will be addressed, and how the risk issues related to these structures will be handled.
5. Typically when tissue samples of biota are collected, the results are statistically compared to an initial baseline concentration or reference site concentration. If the tissue results are above the baseline concentration, then there is reason to assume that bioaccumulation has occurred and that the tissue contain elevated levels of contaminants. The next step would be to compare the tissue data to screening levels for ecological receptors. Examples may be no-observed-effect-levels (NOELs) or lowest-observed-effect-levels (LOELs). If the tissue data are greater than the selected screening level, then there is reason to assume that there has been an unacceptable ecological impact and corrective measures may be required. Since tissue data were collected, a comparison following the above outline should have been conducted. The risk assessment must be revised to address the results of the tissue sampling.

6. Ingestion of pond water (surface water) was not addressed in the ecological risk assessment, with the justification that surface water concentrations were below Maximum Contaminant Levels (MCLs). However, MCLs are not solely risk-based numbers and as such are not appropriate for use in screening for a risk assessment. The risk assessment must be revised to address ingestion of surface water.
7. Given that the oxidation pond has become an integral habitat for such a diversity of aquatic flora, it seems reasonable that a phytotoxicity evaluation should have been conducted. The Permittee must discuss why toxicity to the plant species in the vicinity of the pond was not conducted.
8. The receptor species selected for the risk assessment all appear to be of higher trophic levels (trophic levels 3 and 4). It does not appear that lower trophic level organisms (levels 1 or 2), such as plants and invertebrates were evaluated. Typically at least one receptor species for each trophic level is selected for an ecological risk assessment. Note: larger species may not be justified for smaller areas, where the area of concern represents only a small fraction of the foraging range. The Permittee must discuss the rationale for the selection of the receptor species and demonstrate how they are representative of the entire ecosystem.
9. The VEGA study indicated that there was potential for ecological risks, as evidenced by elevated hazard quotients (HQs). The Permittee must discuss the difference between the VEGA ecological risk assessment and the risk assessment contained within the supplemental RCRA Facility Investigation (RFI). In addition, the Permittee must discuss any differences in methodology that may have been used. The RFI also concludes that there are elevated risks based upon the results provided in the supplemental RFI. Justification, such as the conservativeness of the assumptions and the fact that this was a screening level analysis, was provided to conclude that the risks are within acceptable limits. Given this, the Permittee must explain the differences in the magnitude of risk estimated in the VEGA study versus the RFI.
10. Given that some of the resulting HQs were well above the target level of one, discuss why a more refined (or Tier 2) analysis was not conducted. Typically if a screening level analysis fails to meet target levels, a refined analysis using site-specific data and less conservative toxicity data is conducted. Based upon the magnitude of some of the HQs, it is not clearly evident that if less conservative assumptions were applied, the risks would drop to within acceptable levels. The Permittee must provide additional analyses or justification to demonstrate that there are no unacceptable ecological risks.
11. The Permittee must discuss why background was not determined (or applied) for the inorganic constituents of concern. In ecological risk assessments, the screening level is

deemed inappropriate, and a comparison to ambient levels is conducted if natural background levels are greater than the respective screening limit. This approach may be appropriate for arsenic.

12. Aluminum was included as a constituent of concern (COC) in the risk assessment. However, bioavailability of aluminum for plant uptake and ecotoxicity is associated with pH, and aluminum is biologically inactive in neutral to alkaline (pH 5.5-8.0) conditions. Therefore, aluminum should only be included as a COC if soil pH is less than 5.5. The Permittee must discuss the pH of the soil/sediment at the oxidation pond and the appropriateness of the inclusion of aluminum as a COC.
13. Groundwater may not have been adequately characterized. While the 1997 subsurface investigations conducted by Tetra Tech indicated that migration of contaminants to groundwater is not a concern, it appears that only the deeper aquifer was addressed. The shallow aquifer (50-60 feet below ground surface) does not appear to have been addressed. It is not clear what the water quality of this aquifer is and whether any off-site receptors utilize this water for irrigation or livestock watering purposes. The Permittee must discuss why the shallow aquifer was not addressed and whether the shallow aquifer is utilized by off-site receptors. Also, if warranted, the Permittee must conduct a soil-to-groundwater screening assessment to verify whether there is a potential threat for contaminants to migrate to this shallow aquifer.
14. The report briefly addresses human health exposure to soil/sediment in the oxidation pond. However, the intent of this discussion is not clear. Both residential and industrial levels are used in comparison to site levels. In addition, there does not appear to be any calculation of actual risk levels. The Permittee must clarify whether this information is supposed to justify that no human health risk exists or whether the information is strictly background information. If the discussions are intended to represent a human health risk screen, the information is deficient and must be revised.
15. There is an inconsistency in the number of surface sediment samples. The report refers to both 34 and 37 samples. The Permittee must explain and resolve this discrepancy.

Specific Comments

1. Executive Summary, page ES-1, paragraph 2:

Permittee Statement: "The samples were analyzed for metals, polychlorinated biphenyls (PCBs), pesticides, and semi volatile organic compounds (SVOCs)."

NMED Comment: VOCs were not included in the list of analytes even though they were included in the analytical suite. The Permittee must revise the text so that it includes VOCs.

2. Executive Summary, page ES-2, paragraph 2:

Permittee Statement: "Sample results from the sediment had reported concentrations of arsenic above the SSL of 3.9 mg/kg. Based on the limited samples that exceeded the SSL for one COC (arsenic), the industrial use of the property, and the lack of access to the affected sediment by humans, risk to humans from the sediment of the oxidation pond is expected to be acceptable."

NMED Comment: The report discussed the fact that arsenic was detected above the soil screening level of 3.9 mg/kg. However, there is no discussion of the arsenic levels related to background. It is common to find naturally high levels of arsenic present in soil in this part of the country, and therefore the screening levels are often lower than background. In these cases, site-specific screening levels must be determined. The Permittee must discuss the arsenic levels relative to background.

3. Section 1.3.1 1997 RFI Investigation, page 1-2:

Permittee Statement: "No constituents in surface water were reported at concentrations greater than U.S. Environmental Protection Agency (EPA) maximum contaminant levels (MCLs)."

NMED Comment: The report discusses the comparison of concentrations in surface water to MCLs. MCLs are useful in guiding corrective action and assessing effectiveness of remediation, however, MCLs are not risk-based numbers but are developed using both toxicity information and industry standards. Therefore, use of MCLs is not an appropriate tool for assessing risk. A more appropriate screening level would be the 20.6.4 NMAC Standards for Interstate and Intrastate Surface Waters.

4. Section 2.4.1, 1997 RFI, page 2-4, paragraph 3:

Permittee Statement: "The analytical results of the groundwater sample from one well indicated a lead concentration of 0.026 mg/L. The maximum contaminant level (MCL) for lead is 0.015 mg/L. No other chemicals were reported above the MCLs of the analytical reporting limit in any of the wells. Based on solubility processes, the lead reported in groundwater is potentially representative of natural conditions and not necessarily attributed to the oxidation pond."

NMED Comment: The Permittee indicates that lead present in the groundwater samples is indicative of natural levels. However, no comparison to background levels was conducted. Sufficient justification demonstrating that the lead concentration is representative of natural background levels has not been provided. The Permittee must either provide additional lines of evidence to support this conclusion or revise the report to address potential lead contamination in groundwater.

5. **Section 2.4.2, 1997 RFI Addendum, page 2-5:**

Permittee Statement: “The 4,4-DDT value did not exceed the EPA Region III criteria for Industrial Soil Ingestion and Soil to Air Transfer scenarios.”

NMED Comment: The Permittee must explain why they used EPA Region III screening levels in the evaluation of 4,4-DDT, rather than EPA Region VI or NMED Soil Screening Levels (SSLs).

6. **Section 2.4.5, 2004 Ecological Risk Assessment, page 2-6, paragraph 1:**

Permittee Statement: “Surface water was not determined to be a media of concern and was not sampled because the majority of the data were not positively identified above the reporting limits in the WESTON 1997 RFI.”

NMED Comment: Surface water was not addressed in this risk assessment because the 1997 investigation indicated that surface water did not contain elevated concentrations of contaminants. However, the rationale was that concentrations were below reporting limits. This does not provide adequate justification for not conducting additional sampling, as there were several problems with elevated reporting limits compared to screening levels during the investigation. Therefore, while the constituent may have been below the reporting limit, there is no way to determine if the concentration was above a screening level. In addition, there is no discussion of whether the wastewater conditions have remained consistent over time. It is possible that wastewater concentrations vary with time and processes. The exclusion of surface water has not been justified and the risk assessment should be revised to address this exposure medium.

7. **Section 2.4.5, 2004 Ecological Risk Assessment, page 2-6, paragraph 2:**

Permittee Statement: “In addition, the maximum reporting limits of several chemicals (5 PCBs, 13 pesticides, and 9 SVOCs) exceeded sediment risk-based screening values, but were not positively identified in any sediment samples for those chemicals. These chemicals were

also identified as COPECs in surface sediment, but were not quantitatively evaluated in the ERA.”

NMED Comment: Several chemicals (5 PCBs, 13 pesticides, and 9 SVOCs) were identified as contaminants of potential ecological concern (COPEC) and were addressed qualitatively. However, Appendix 2, Section 9, which discusses the uncertainties associated with the risk assessment, does not appear to address this issue. The Permittee must clarify where in the report these COPECs are addressed. Also, the Permittee should address this issue in the uncertainties section of the report. The Permittee must revise the text to reflect these changes.

8. Section 2.5.1, Geologic Framework, page 2-7:

NMED Comment: The Permittee must discuss the water quality, flow direction, and hydraulic properties of the shallow aquifer.

9. Section 2.5.2, Nature and Extent of Contamination, page 2-8:

Permittee Statement: “In addition, the pond is fenced, clearly marked as a wastewater pond and is designated off-limits.”

NMED Comment: It is not clear how these restrictions control ecological access. It is assumed that this information is provided to show that human exposures are mitigated through institutional and engineering controls. The Permittee must clarify the purpose of providing this information.

10. Section 2.5.3, Environmental Fate, page 2-8, paragraph 1:

Permittee Statement: “Water and sediment in the oxidation pond are confined to the pond, based on the lack of operational outfalls and the liner in place under the pond sediments.”

NMED Comment: The Permittee statement indicates that water and sediment are confined to the pond. However, various sections in the report (Section 2.2.1 and Appendix 2) reveal that the integrity of the liner of the pond has been compromised. This information appears to contradict this section. The Permittee must explain and resolve this discrepancy.

11. Section 3.2.1, Human Health, pages 3-1 and 3-2:

NMED Comment: The discussion of human health risk only addresses a current scenario, and does not address any future or potential scenarios. For example, during dredging of the pond or periods when the pond is dry, sediment may migrate off-site via dust re-suspension.

Risk assessments must address both current and future scenarios. The Permittee must revise the discussion to address whether there could be any complete exposure pathways in the future, and if so, address potential risks.

12. Section 3.2.2, Ecological, page 3-2, paragraph 3:

Permittee Statement: “Actual risk from COPECs identified in sediment and tissue samples associated with the oxidation pond is not expected to be present based on conservative factors applied to the HQ calculation,”

NMED Comment: This statement is not clear, as data from the tissue samples were not evaluated. It is assumed that the intent of this information is to show that since the HQs are acceptable, the resulting tissue data would verify this conclusion. The Permittee must clarify the intent of this information.

13. Appendix 1, Table 1 – Summary of Residential Soil Benchmarks:

NMED Comment: Several comments were noted concerning this table. They are as follows:

- a. The 2000 residential data from the New Mexico Environment Department’s (NMED) “Technical Background Document for Development of Soil Screening Levels” were applied as soil benchmarks. However, NMED updated these criteria and released the revised document in October 2004. Since the date on Table 1 is February 2005, the updated values must be used in the risk assessment.
- b. The NMED soil screening level for trivalent chromium was applied. This is the least conservative approach. The Permittee must discuss whether site data indicated that all chromium present was in the form of trivalent chromium. If total chromium data was obtained, then a screening level for total chromium should have been applied. Also, the Permittee must discuss the uncertainty and potential for underestimation of risk if hexavalent chromium could be present at the site.
- c. Some of the data presented in the table are extrapolated from the Region 9 Preliminary Remediation Goal (PRG) table. It is noted that beginning with 1,1-biphenyl, the conversion of the data to be based on a 1E-05 risk was not conducted. (The datum for methoxychlor was correctly adjusted.) Thus, Table 1 presents data based on both a 1E-05 and a 1E-06 risk. The Permittee must correct those data obtained from the Region 9 PRG table accordingly.

14. Appendix 1, Tables 2 through 4 – Screening Against Residential Soil Standards:

NMED Comment: The tables (Tables 2 through 4) list the sampling data results. For those data that exceeded the NMED soil screening level, the values were bolded and boxed. However, there does not appear to be any calculation of a 95% upper confidence level (UCL) for each constituent, which would be compared to the screening level and an actual risk estimated. The Permittee must clarify where the actual risk determinations for human receptors were calculated.

In addition, the screening levels are an amalgamation of values based on either carcinogenic or noncarcinogenic risk or a saturation limit. It is not clear, since neither Table 1 nor these tables clarifies the corresponding health effect, how the risks were estimated.

15. Appendix 2, Executive Summary, page ES-1:

NMED Comment: As noted in previous comments, the use of MCLs cannot be used to screen out contaminants in a risk assessment. The evaluation of surface water constituents should be conducted using appropriate risk-based data.

16. Appendix 2, Executive Summary, page ES-3:

Permittee' Statement: "The HQs calculated were based on NOAEL-based TRVs. The HQs for all chemicals are below one when calculated using LOAEL-based TRVs."

NMED Comment: The Permittee indicates that HQs for all chemicals are below one when calculated using LOAEL-based toxicity reference values (TRVs). However, in reviewing Table 9-1 of Appendix 2, this is not the case. The HQs for the White-faced Ibis, American Coot, and the Northern Shoveler are greater than one for dibenz(a,h)anthracene. In addition, elevated HQs resulted for the raccoon for vanadium, arsenic, barium, and aluminum (see general comment 12). However, there does not appear to be an estimation of LOAEL-based HQs for the raccoon. The Permittee must provide the evaluation of LOAEL-based TRVs for the raccoon.

17. Appendix 2, Section 3.3, Sediment Sampling (2003), page 3-3:

Permittee Statement: "The sediment was only sufficiently thick enough to allow sampling of the deeper interval at two locations, as noted above. In lieu of the remaining subsurface sediment samples which could not be collected, WESTON collected 20 samples at another site for various Geotechnical analyses."

NMED Comment: The Permittee must identify at which site these 20 samples were collected. Also, the Permittee must discuss how geotechnical analyses of soil at another site relate to the risk assessment and the data quality objectives outlined for this study.

18. Appendix 2, Section 6.1.1, Sediment, page 6-2:

NMED Comment: Methodologies outlined in EPA guidance (1992) were applied in determining the 95% upper confidence level (UCL) of the mean. The UCL was then applied as the exposure point concentration. However, when the data set showed neither a lognormal nor a normal distribution, the maximum 95% UCL between the UCLs estimated for a lognormal and a normal distribution was used. This approach is incorrect. If the data set did not exhibit a set distribution, then non-parametric statistics should have been used to estimate the UCL (for example bootstrapping). The UCLs should be recalculated because there is significant concern over the integrity of the values. NMED suggests that the Permittee review the following guidance: "Calculating Upper Confidence Limits for Exposure point Concentrations at Hazardous Waste Sites" OSWER 9285.6-10, December 2002, and the associated ProUCL software, which determines data set distributions, and run appropriate statistical tests.

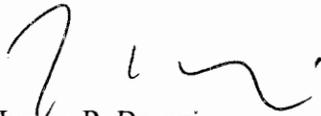
19. Appendix 2, Table 7-2, Toxicity Reference Value (TRV) Calculations for the Raccoon:

NMED Comment: Toxicity information was listed as not available for beryllium. However, the Agency for Toxic Substances and Disease Registry (ASTDR) provides toxicity information for beryllium. A NOAEL of 3.10E+01 mg/kg/day (based on a two-year diet study on rats) is provided. The Permittee must revise the assessment to include toxicity information for beryllium.

Keith Landreth
June 6, 2005
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If you have any questions regarding this letter, please contact Dave Cobrain of my staff at (505) 428-2553.

Sincerely,



James P. Bearzi
Chief
Hazardous Waste Bureau

JPB:kc

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