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**RETURN RECEIPT REQUESTED**

May 12, 2005

David Gregory, Federal Project Director  
Los Alamos Site Office  
Department of Energy  
528 35<sup>th</sup> Street, Mail Stop A316  
Los Alamos, NM 87544

G. Pete Nanos, Director  
Los Alamos National Laboratory  
P.O. Box 1663, Mail Stop A100  
Los Alamos, NM 87545

**RE: NOTICE OF DEFICIENCY**  
**CORRECTIVE MEASURES STUDY REPORT FOR**  
**SOLID WASTE MANAGEMENT UNIT 16-021(c)-99**  
**LOS ALAMOS NATIONAL LABORATORY (LANL), NM0890010515**  
**HWB-LANL-03-021**

Dear Messrs. Gregory and Nanos:

The New Mexico Environment Department (NMED) is in receipt of the Corrective Measures Study Report for Solid Waste Management Unit 16-021(c)-99, dated November 2003 and referenced by LA-UR-03-7627 (ER2003-0709). NMED has reviewed this document and is issuing a notice of deficiency. The Department of Energy and the University of California (collectively, the "Permittees") must respond to the following comments within thirty (30) days of receipt of this letter. The response shall be in the form of a resubmitted report with the changes denoted in a redline/strikeout manner.

1. Section 3.2 Development of CMS COPCs, pg. 21:

**NMED Comment:** The text indicates that the Phase III RFI risk assessment showed acceptable risks outside of the source area soils. However, the Phase III risk assessment limited the evaluation of risk to a trail user in the areas outside of the source area (Cañon de Valle alluvial



6544

area and Martin Springs Canyon). As an environmental worker and construction worker were not evaluated for areas outside of the source area, all future land use for the Cañon de Valle alluvial area and Martin Springs Canyon must be limited to trail use. If the Permittees anticipate that any construction of new buildings or other structures may occur in these areas at some time in the future, additional risk analyses are warranted, and additional corrective action may be required. The Permittees must clarify Section 3.1, Current and Reasonably Foreseeable Future Land Use, to indicate that construction of new buildings and other structures will be limited to the source area only and that the Cañon de Valle alluvial area and Martin Springs Canyon will be limited to trail use only.

2. Section 4.1 Identification of ARARs, pg. 60:

**NMED Comment:** The proposed ARAR for alluvial sediment is “the requirement that alluvial sediment contaminant concentrations not cause shallow site water contaminant concentrations above the shallow site water ARAR cited above.” Another ARAR identified by NMED for alluvial sediment is the requirement to not pose unacceptable risk to the ecological environment. Previous sampling by the Permittees has identified silver concentrations that pose unacceptable ecological risk. Even though subsequent sampling has not duplicated the results, NMED believes the elevated silver concentrations and unacceptable risk still exist. The Permittees must remediate the silver concentrations to meet this ARAR.

3. Section 4.2.1 Identification of Risk-Based MCSs for Soil and Tuff in the Outfall Source Area, pg. 62.

**NMED Comment:** In the source area, a MCS of 10,000 mg/kg was estimated for barium. It appears that a backwards risk calculation was conducted. The three COPCs in the source area are TNT, RDX, and barium. If confirmation sampling determined that the average residual concentrations of TNT and RDX were right at the MCS, the Permittees calculated what allowable average concentration of barium could be present and still result in acceptable risks. The CMS Report presented this average barium concentration as 10,000 mg/kg. The proposed MCS for barium appears reasonable for the environmental worker; however, the MCS may be high if a construction worker scenario is evaluated. In addition, risk assessments are not based upon an average concentration but rather the 95% upper confidence level (UCL) of the mean, which is greater than the average. Therefore, it appears the MCS may have been overestimated for barium. The Permittees must demonstrate how an MCS of 10,000 mg/kg for barium will be protective of a construction worker.

4. Section 4.2.2 Outfall Source Area Surge Bed MCSs, pg. 62:

The Permittees propose isolation or removal for the 17-foot surge bed. The Permittees must explain how the 45-ft surge bed, where RDX was detected at 4 ppm, and the other identified contaminated tuff discontinuities will be handled to prevent unacceptable risk to the regional groundwater. According to WQCC regulations (20.6.2 NMAC Section 4103.A), the vadose zone

must be abated to be protective of ground water.

5. Section 4.3 Proposed MCSs for Springs, Groundwater and Surface Water, pg. 62:

**NMED Comment:** The Permittees must explain how they will determine naturally occurring manganese, given NMED's prohibition to use the geochemical evaluation for this site presented in the Phase III RFI Report.

6. Section 4.4 Proposed MCSs for Alluvial Sediment, pg. 63:

**NMED Comment:** The Permittees must provide more information on how compliance with ARARs will be determined. See comment #2.

7. Section 4.5 POCs, pg. 64:

**NMED Comment:** The Permittees must ensure that all the monitoring wells used for compliance monitoring are located within the contaminated groundwater plume in both Cañon de Valle and Martin Spring Canyon. The Permittees must install additional alluvial wells downgradient of existing monitoring wells, if needed, to achieve this objective. The Permittees must provide information on the actions that will be taken if contaminated groundwater is encountered in the new groundwater well proposed for the surge bed. The Permittees must ensure that all springs are sampled at the same location for eight quarters, regardless of where they emerge seasonally.

8. Section 4.6 CTF, pg. 64:

**NMED Comment:** NMED agrees with the Permittees' assertion that the magnitude and extent of contamination and potential risks do not warrant the imposition of an urgent, set time frame. However, NMED's position would change if future monitoring reveals increasing contaminant levels in groundwater.

9. Section 5.3.3.2 In Situ Treatment of Soils, pg. 79:

**NMED Comment:** The Permittees discuss grouting of the 17-foot source area surge bed as a means to isolate it from groundwater. The relatively higher permeability (compared to the surrounding tuff) of the surge bed is a key component to the performance and reliability of this remedial alternative to achieve its goal. However, the Permittees have not provided to NMED information on the permeability of the surge bed and, thus, NMED is unable to determine its effectiveness. The Permittees must provide this information.

10. Section 6.4.4.4 Time Required for Implementation, pg. 95:

**NMED Comment:** The Permittees estimate the installation of three borings to define the extent

of the surge bed will take up to six months or more. NMED believes this is a gross overestimation for completion of the investigation. The Permittees must explain what factors were considered to derive this estimation.

11. Section 6.4.4.7 Institutional Constraints, pg. 96:

**NMED Comment:** The Permittees state that the institutional constraints for excavation of the surge bed may include a prohibition on blasting, in which case the excavation alternative would not be feasible. NMED cannot select a remedy based on constraints that may or may not exist. The Permittees must obtain and provide an adequate and realistic evaluation of the constraints that will be in place for this alternative.

12. Section 7.4 Monitoring Plan, pg. 115:

**NMED Comment:** The Permittees propose sampling the POC wells and the new wells installed with each PRB quarterly for the first three years and twice a year thereafter. The Permittees are reminded that, according to the WQCC standards and section 4.3 of this report, the MCS must be attained at each POC well for at least eight consecutive quarters. If this has not occurred after the proposed three-year period, NMED will require quarterly sampling to continue.

13. Table 7.5-1 Schedule of CMS/CMI Activities:

**NMED Comment:** The following changes should be noted in the table.

- Final SOB Issued by NMED – 90 days after end of public comment period
- NMED Approves CMI Plan – 120 days after submittal of CMI plan to NMED

13. Appendix B, All Tables:

**NMED Comment:** The Permittees shall update the tables to reflect the revised COPCs submitted as part of the response to the Phase III RFI Report.

14. Appendix B, Section B1.1 Cañon de Valle Surface Water, pg. 1:

**NMED Comment:** The Permittees must update the text to reflect the revised COPCs submitted as part of the response to the Phase III RFI Report notice of disapproval (NOD). The Permittees must provide and evaluate perchlorate data collected from March 2002 until present to determine if it should be included as a CMS COPC.

Even though thallium was detected infrequently above the CMS screening criteria in surface water, thallium is also detected, albeit infrequently, in Cañon de Valle alluvial groundwater. Thallium was also detected above the screening limit in a sample from R-25. Given that the goal of this corrective measures is to abate those COPCs that potentially pose unacceptable risk to regional groundwater, it appears thallium should have been considered a CMS COPC. This is

particularly important because the intermediate and regional groundwater risk assessments have not been completed. The Permittees must include thallium as a CMS COPC or provide further justification for its exclusion.

15. Appendix B, Section B1.2 Cañon de Valle Alluvial Groundwater, pg. 6:

**NMED Comment:** The Permittees must update the text to reflect the revised COPCs submitted as part of the response to the Phase III RFI Report NOD. The Permittees must provide and evaluate perchlorate data collected from March 2002 until present to determine if it should be included as a CMS COPC.

16. Appendix B, Section B2.1 Martin Spring Canyon Surface Water, pg. 13:

**NMED Comment:** Arsenic is detected above the CMS screening level (which is the EPA MCL of 10 ppb) in the regional groundwater and is a COPC in the sediment. Manganese is also detected above the CMS screening level (highest detection is 66,800 ppb) and is detected in the regional groundwater. The Permittees must show how eliminating arsenic and manganese as COPCs in surface water (e.g., not remediating arsenic) is protective of the regional groundwater aquifer.

17. Appendix B, Section B2.2 Martin Spring Alluvial Groundwater, pg. 17:

**NMED Comment:** Arsenic is detected above the CMS screening level (which is the MCL of 10 ppb) in the regional groundwater and is a COPC in the sediment. The Permittees must show how eliminating arsenic as a COPC in surface water (e.g., not remediating arsenic) is protective of the regional groundwater aquifer.

Even though thallium was not detected above the CMS screening limit in surface water, thallium is detected, albeit infrequently, in Martin Spring Canyon alluvial groundwater and spring water above the CMS screening level. Thallium was also detected above the screening limit in a sample from R-25. Given that the goal of this corrective measures is to abate those COPCs which potentially pose an unacceptable risk to regional groundwater, it appears thallium should have been considered a CMS COPC. This is particularly important because the intermediate and regional groundwater risk assessments have not been completed. The Permittees must include thallium as a CMS COPC or provide further justification for its exclusion.

18. Appendix B, Section B.3 Springs, pg. 24:

**NMED Comment:** The Permittees must update the text to reflect the revised COPCs submitted as part of the response to the Phase III RFI Report NOD. The Permittees must provide and evaluate perchlorate data collected from March 2002 until present to determine if it should be included as a CMS COPC.

Messrs. Gregory and Nanos

May 12, 2005

Page 6

Should you have any questions, please feel free to contact Ms. Darlene Goering of my staff at (505) 428-2542.

Sincerely,



James P. Bearzi

Chief

Hazardous Waste Bureau

JB:dxg

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