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CERTIFIED MAIL - RETURN RECEIPT REQUESTED

July 29, 2009

David Gregory  
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David McInroy  
Remediation Services Deputy Project Director  
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**RE: NOTICE OF DISAPPROVAL FOR TA 32 SITES INCLUDED IN THE  
INVESTIGATION REPORT FOR UPPER LOS ALAMOS CANYON  
AGGREGATE AREA  
LOS ALAMOS NATIONAL LABORATORY  
EPA ID #NM0890010515  
HWB-LANL-09-020**

Dear Messrs. Gregory and McInroy:

The New Mexico Environment Department (NMED) has received the United States Department of Energy (DOE) and the Los Alamos National Security, LLC (LANS) (collectively, the Permittees) *Investigation Report for Upper Los Alamos Canyon Aggregate Area* (IR), dated May 2009 and referenced by LA-UR-09-3325/EP2009-0238. Los Alamos County (LAC) requested NMED to conduct an expedited review of solid waste management units (SWMUs) and areas of concern (AOCs) located at former Technical Area (TA)-32. LAC wants to use this area for commercial development. To accommodate LAC, NMED has conducted an expedited review of the sites located at TA-32 that were included in the IR and hereby issues this Notice of Disapproval (NOD) specific to those sites located at TA-32. NMED will subsequently complete the review and provide comments for the remaining SWMUs/AOCs included in the IR. NMED is providing these comments to assist the Permittees with completion of investigation/remediation activities at TA-32 so LAC can proceed with their development project at former TA-32.

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## General Comments

1. During evaluation of data to identify contaminants of potential concern (COPCs), the Permittees have excluded some chemicals as COPCs, when either the detected concentration or the detection limit was above the background reference datum, but the detected concentration was within the range of background concentrations. This is not an appropriate method for excluding a chemical as a COPC. A statistical comparison of the data sets should be conducted to determine if the site data are statistically different from background. To compare site data to the background, the Permittees must follow procedures outlined in NMED's approval letter for Investigation Report for Middle Cañada del Buey Aggregate Area, Revision 1, (April 27, 2009). The Permittees must revise the IR and use appropriate method for identification of COPCs.
2. For the evaluation of mercury in the risk assessments, a soil screening level (SSL) for mercury as an inorganic salt was applied for the residential and industrial scenarios, although a datum for elemental mercury was applied for the construction worker. Unless specific analytical data are available to confirm the presence of mercury in an inorganic salt, screening data for elemental mercury are typically applied. In addition it is noted that background data based on elemental mercury are applied, resulting in conflicting data and evaluation of mercury. While the application of a SSL based on elemental mercury would not significantly change the conclusions of the risk assessments, discuss the rationale for using SSLs for mercury as an inorganic salt for the residential and industrial scenarios and revise the screening assessments as appropriate. (This comment is directed at SWMU 32-001, although similar inconsistencies are noted for SWMU 32-004).
3. For the residential, industrial, and construction worker screening evaluations for SWMU 32-004, lead has been retained as a noncarcinogen and a hazard quotient was calculated and summed with other noncarcinogens. The result is an overestimation of noncarcinogenic risk, as inclusion of lead in the hazard index is incorrect. Lead SSLs are based upon blood lead levels, unlike most noncarcinogens which have SSLs based on more traditional toxicological data (e.g., no-observed adverse effect levels) and should be evaluated independently. The Permittees must revise the assessment accordingly.
4. There is an inconsistency in how chromium is evaluated in the screening assessments. For example, at SWMU 32-001, the industrial and residential scenarios evaluated total chromium but the construction worker scenario applied data for hexavalent chromium. It is not clear from the data that speciation of chromium is available. As such, for conservatism, if the speciation is unknown, or if site data are not available to justify speciation, then data for hexavalent chromium should be applied. The Permittees must discuss why different forms of chromium were applied at the same site and revise the screening assessments as appropriate.
5. Sampling for both SWMUs 32-001 and 32-004 indicated the presence of some volatile organic compounds (VOCs). Use of the Regional Screening Levels (RSLs) and the New Mexico SSLs are appropriate for the pathways defined in their derivations. However, if additional exposure pathways not addressed in the RSLs or SSLs are complete, risks via

exposure from these pathways must be evaluated and assessed in conjunction with the risks/hazards determined through comparison of the RSLs/SSLs. The presence of VOCs indicates that inhalation of indoor air via the vapor intrusion scenario is a complete pathway and must be addressed. The Permittees must revise the assessments for SWMUs 32-001 and 32-004 to address the vapor intrusion scenario.

### Specific Comments

1. **Table 8.4-2, Inorganic Chemicals above BVs at SWMU 32-002(a), Page 419:** Table 8.4-2 indicates that magnesium was detected at a concentration of 830 milligrams/kilogram (mg/kg) at sample location 32-06353. Review of the data indicates that it was manganese not magnesium that was detected at 830 mg/kg at location 32-06353. Revise the table accordingly.
2. **Appendix F, Section-5.1.2, Organic Chemicals at SWMU 32-001, Page F-130:** Dioxin and furan congeners were detected at most of the sites within the former TA-32. However, these constituents were excluded from further assessment based on the rationale that the levels are similar to levels at other locations within the LANL boundary (specifically TA-21). However, a qualitative comparison to other areas is not sufficient justification for exclusion from further analysis. The Permittees must provide additional lines of evidence (to include quantitative evaluations, statistical analyses, and site history) to support the conclusion that the detected levels at the former TA-32 are representative of anthropogenic levels. Either provide sufficient lines of evidence to support exclusion of dioxins/furans or revise the risk evaluations contained in Appendix G to include these constituents. In addition, when presenting data for dioxin/furan/polychlorinated biphenyl congeners, a table showing the derivation of the toxicity equivalent concentration (or TEQ) should always be provided. The Permittees also must revise the report to include a table showing the determination of the dioxin/furan TEQs.
3. **Section F-5.1.1, Inorganic Chemicals at SWMU 32-001, Page F-128:** Lead, manganese and sodium were detected above their respective background values but were not identified as COPCs because the detected values were less than the maximum background concentrations. It is not appropriate to compare site specific concentrations with maximum background concentration to identify COPCs. The Permittees must conduct statistical comparison of site data to background data to evaluate COPCs. Cadmium must also be evaluated in a similar manner.
4. **Appendix F, Section-5.1.2.1, Organic Chemicals in Soil and Fill, Page F-130:** Aroclor-1260, cis-1,2-dichloroethene, tetrachloroethene, and trichloroethene are identified as COPCs for soil and fill at SWMU 32-001. However, none of the risk evaluations contained in Appendix G include these constituents. The Permittees must revise the risk evaluations for SWMU 32-001 to include all the identified COPCs.
5. **Section F-5.2.5.1, Nature and Extent of Inorganic COPCs, Page F-136-137:** At SWMU 32-002(a), concentrations of barium increased with depth at several locations indicating that the vertical extent of barium is not defined. Concentrations of chromium and nickel

increased with depth at most of the locations where samples were collected from two depths. The vertical extent of chromium and nickel also is not defined. Selenium was detected in four samples at the site, not only in two samples, as reported. Zinc was detected above background in more than one sample as reported. The Permittees must revise the text accordingly.

6. **Section F-5.3.1, Inorganic Chemicals at SWMU 32-002(b), Page F-138:** Cadmium was detected at concentrations exceeding the background value and must be retained as a COPC. Similarly, calcium must be retained as a COPC and carried forward to screening assessment.
7. **Section F-5.3.5.2, Nature and Extent of Organic COPCs, Page F-143:** A typographical error was noted on page 143. Methylene chloride was detected at locations 00-603594 and 00-603599, not 00-603948 and 00-603599 at SWMU 32-002(b). Revise the text accordingly.
8. **Appendix G, Table G-4.2-80.** The industrial SSL for total chromium should be 1,400 mg/kg and not 14,000 mg/kg, resulting in a cancer risk increased by an order of magnitude. In addition, the total cancer risk should indicate a datum of 5.6E-08. Revise the table accordingly.
9. **Attachment G-1 ProUCL Input Files for TA-32.** Several discrepancies were noted between the input files provided in Attachment G-1 and the TA-32 data tables provided in the main text of the report. Specifically, address the following:
  - SWMU 32-001, inorganics at 0-1 foot (ft) below ground surface (bgs): Table 8.3-2 shows positive detections for manganese above the background soil levels and detection limits above background soil levels for cadmium; however, neither cadmium nor manganese are retained as potential COPCs and thus excluded from the exposure point calculations and subsequent risk analysis. It is noted that Appendix F-5.1.1.1 indicates that because the detections (and elevated non-detects) are below the maximum detected background concentration, cadmium does not need to be retained as a constituent of potential concern. However, comparison to a maximum background datum will not show slightly elevated levels across a site; a statistical comparison of site concentrations to the background population must be conducted. The Permittees must either provide additional discussion to justify excluding cadmium and manganese from additional review or include cadmium and manganese in the risk analysis. This comment also applies to the determination of the exposure point concentrations (EPCs) for SWMU 32-001, inorganics at 0-5 ft bgs and at 0-10 ft bgs.
  - SWMU 32-001, organics at 0-1 ft bags: Table 8.3-3 shows positive detections for several constituents including trichloroethene, tetrachloroethene, several dioxin and furan congeners, and Aroclor-1260. However, none of these constituents are retained for the risk analysis and determination of EPCs. Sufficient justification has not been provided to demonstrate that these constituents are not potentially site related, and as such, must be retained for risk analysis. The Permittees must revise the EPCs for SWMU 32-001 to include these constituents. In addition, the

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Permittees must address polychlorinated biphenyls (PCBs) detected at this site and revise the EPCs to include PCBs. This comment also applies to the determination of the EPCs for SWMU 32-001, organics at 0-5 ft bgs and at 0-10 ft bgs.

- SWMU 32-004, inorganics at 0-1 foot (ft) bgs: Table 8.7-2 shows positive detections for cadmium above the background soil levels; however, cadmium is not retained as potential contaminant of concern and thus is excluded from the exposure point calculations and subsequent risk analysis. While it is noted that the concentrations do not appear to be significantly elevated when compared to background, they are still elevated. The Permittees must either provide additional discussion to justify excluding cadmium from additional review or include cadmium in the risk analysis. This comment also applies to the determination of the EPCs for SWMU 32-001, inorganics at 0-5 ft bgs and at 0-10 ft bgs.

Please contact Neelam Dhawan of my staff at (505) 476-6042 should you have any questions.

Sincerely,



James P. Bearzi  
Chief  
Hazardous Waste Bureau

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File: LANL, TA-32 Upper Los Alamos Canyon Aggregate Area, 2009