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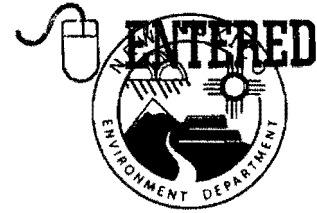
SUSANA MARTINEZ
Governor

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
Cabinet Secretary

RAJ SOLOMON, P.E.
Deputy Secretary

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

April 1, 2011

George J. Rael, Assistant Manager
Environmental Projects Office
Department of Energy/National
Nuclear Security Administration
Los Alamos Site Office
3747 West Jemez Road, MS A316
Los Alamos, NM 87544

Michael J. Graham, Associate Director
Environmental Programs
Los Alamos National Security, LLC
P.O. Box 1663, MS M991
Los Alamos, NM 87545

**RE: NOTICE OF DISAPPROVAL
PHASE II INVESTIGATION WORK PLAN
UPPER MORTANDAD CANYON AGGREGATE AREA
LOS ALAMOS NATIONAL LABORATORY
EPA ID #NM0890010515
HWB-LANL-10-092**

Dear Messrs. Rael and Graham:

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) *Phase II Investigation Work Plan for Upper Mortandad Canyon Aggregate Area* (IWP), dated December 2010 and referenced by LA-UR-10-7423/EP2010-0505. NMED hereby issues this Notice of Disapproval (NOD) with following comments./The Permittees must address the following comments before NMED can consider the IWP further.

1. Section 4.1.6.3, Proposed Sampling at SWMU 03-049(b)-00, page 13:

The Permittees propose to collect samples only at location MO-605029 to define the vertical extent of polychlorinated biphenyl (PCB) contamination. PCBs were only detected in the deepest sample (8-9 ft) at location MO-605025 indicating that the vertical

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extent of PCBs is not defined at this location. Even though the *Upper Mortandad Canyon Aggregate Area Investigation Report, Revision 1*, April 2010 (Report) concluded that the vertical and lateral extent of PCBs was not defined (See page I-62), the IWP does not include the collection of any additional samples to define the lateral extent of PCBs. PCB analysis must be added to the analytical suite for the samples proposed to be collected at location MO-605025 to define the vertical extent at this location, and to the analytical suite for samples proposed to be collected at location 49b-1 to define the lateral extent of PCB contamination at Solid Waste Management Unit (SWMU) 03-049(b)-00.

- 2. Section 4.1.7.3, Proposed Sampling and Soil Removal at SWMU 03-049(e), page 14:**
The section heading indicates that the Permittees intend to remove soil from SWMU 03-049(e). However, neither the text nor Figure 4.1-10 provides information on the area where soils will be removed and the anticipated depth of excavation. During previous investigations, samples were collected from 0-0.5 ft, 0.5-1.5 ft, and 1.0-2.0 ft. To define the vertical extent of inorganic chemicals, the Permittees propose to collect samples from greater depths (3-4 ft and 6-7 ft) at nine previously sampled locations. It is not clear if the proposed sampling depths are relative to the ground surface or the bottom of excavation. Without information on the proposed depth and extent of excavation, NMED cannot evaluate the proposed sampling locations and depths. Revise the IWP to provide this information on the proposed soil removal area and justification for the proposed sampling locations and depths.
- 3. Section 4.1.9.2, Previous Investigations, pages 16-17:**
According to Figure 4.1-16, location MO-604994 is north of locations MO-604990 and MO-604991, not south as reported.
- 4. Section 4.4.1.3, Proposed Sampling at AOC 48-001, page 23:**
Sampling location MO-604942 is located near the southwest corner of building 48-1, not the southeast corner as reported.
- 5. Section 4.4.2.1, Site Description and Operational History, page 23:**
According to Figure 4.4-2, SWMU 48-002(a) is located south and southeast of building 48-1, not southwest as reported.
- 6. Section 4.4.6.3, Proposed Sampling at SWMU 48-007(c), page 28:**
The vertical extent of chromium contamination is not defined at SWMU 48-007(c). In addition to locations MO-605163 and MO-605164, the concentrations of chromium increased at location MO-605165. However, chromium analyses are not proposed for samples to be collected at location MO-605165. Add chromium analysis for samples to be collected at location MO-605165 to define the vertical extent of chromium contamination at this location.

7. Section 4.5.1.3, Proposed Sampling at Consolidated Unit 50-004(a)-00, page 32:

- a. The text states that shallow subsurface samples will be collected at 26 previously sampled locations, extending the depth at these locations to define the vertical extent of radionuclides and inorganic chemicals. However, Table 4.5-1 indicates only 19 locations where additional samples are proposed to be collected. Resolve this discrepancy.
- b. Table 6.8-2 of the Report indicates that barium concentrations increased with depth at locations 50-03018, 50-03020, 50-03021, 50-03022, 50-03025, 50-03032, 50-03038, MO-605458, MO-605473, and MO-605626. The Permittees propose to collect samples from location MO-605473, but did not include barium analyses for samples to be collected at this location. Include barium in the analytical suite for samples to be collected at location MO-605473.
- c. Cobalt was detected in the deepest samples at locations MO-605458 and MO-605473, indicating that the vertical extent is not defined at these locations. Cobalt analyses are proposed for samples to be collected from location MO-605473 (4.17 mg/kg), but not from location MO-605458 (6.95 mg/kg). Include cobalt in the analytical suite for samples to be collected at location MO-605458 to define the vertical extent.
- d. Copper was detected in the deepest samples at locations 50-03038, MO-605458, and MO-605473. The IWP includes collection of samples from deeper depths at all three locations, but did not include copper analyses for samples that will be collected from location MO-605458. Add copper to the analytical suite for the samples to be collected from location MO-605458.
- e. Table 4.5-1 indicates that samples are proposed to be collected from location MO-605468 from two depths (14-15 ft and 24-25 ft). However, the table does not indicate what analyses will be conducted on these samples. Revise Table 4.5-1 to provide information on proposed analyses for these samples.

8. Section 4.5.3.2, Previous Investigations, page 35-36:

- a. The text states that the vertical extent of perchlorate is not defined at location MO-605084. However, Table 6.11-2 of the Report indicates that the vertical extent of perchlorate is defined at location MO-605084, but is not defined at location MO-605087. Resolve this discrepancy. Propose to collect additional samples at this location, or provide justification for not collecting them.
- b. The text states that the vertical extent of americium-241, cesium-137, plutonium-238, strontium-90, tritium, and uranium-235/236 is not defined at SWMU 50-006(d). Section 9.1 (Additional Field Characterization Activities) of the Report

concluded that the vertical extent was also not defined for cobalt-60, plutonium-239/240, thorium-232, and uranium-234. However, analyses of cobalt-60, isotopic uranium, and isotopic plutonium are included in Table 4.5-3 (Proposed Sampling at SWMU 50-006(d)), but thorium-232 is not included. Resolve this discrepancy between the text and table, or provide justification for not including thorium-232 in the analytical suite.

9. Section 4.5.3.3, Proposed Sampling and Soil Removal at SWMU 50-006(d), page 35:

- a. The section heading indicates that the Permittees intend to remove soil from the SWMU 50-006(d). However, neither the text nor Figure 4.5-4 provides information on location where soil removal is proposed or the anticipated depth of the excavation (*See* Comment 3). Without information on the anticipated dimensions of the excavation, NMED cannot evaluate if the proposed sampling locations and depths will be adequate to define the nature and extent of contamination. Revise the IWP to provide information on the proposed excavation and justification for the proposed sampling locations and depths.
- b. The vertical extent of americium-241 is not defined at locations MO-605088, 50-06007 and 50-06024 (*See* Table 6.11-4 of the Report). The Permittees propose to collect additional samples only at location MO-605088 to define the vertical extent of americium-241 contamination. Additional samples at the other two locations are required to define the vertical extent of contamination. In addition, americium-241 was detected at concentrations above background/fallout values (BV/FV) at locations 50-06000, 50-06001, 50-06006, 50-06013, 50-06025, 50-06026 in surface samples; samples were not collected from greater depths to define the vertical extent. Propose additional sampling to define the vertical extent of americium-241 at these locations, or provide justification for not proposing to collect additional samples at these locations.
- c. The concentrations of cesium-137 increased with depth at locations 50-06002, 50-06007, 50-06012, 50-06016, 50-06018, 50-06022, 50-06023, 50-06024, MO-605085, and MO-605088. In addition, samples collected from locations 50-06000, 50-06001, 50-06003, 50-06006, 50-06010, 50-06011, 50-06025, and 50-06026 (where samples were collected from only one depth) contained concentrations of cesium-137 several orders of magnitude higher than the BV/FVs. The highest concentration of cesium-137 (373.11 mg/kg) was detected in the deepest sample collected (3.0 ft-4.0 ft) at location 50-06022. The IWP includes collection of additional samples only at locations MO-605085 and MO-605088 to define the vertical extent. Propose the collection of additional samples at all these locations to define the vertical extent of contamination, or provide justification for not proposing to collect additional samples at these locations.

- d. The Report concluded that the vertical extent of cobalt-60 was not defined at SWMU 50-006(d). Propose analysis of additional samples for cobalt-60, or provide a justification for not collecting samples to define vertical extent of cobalt-60.
- e. Plutonium-238 was detected at several locations where either only surface samples were collected or concentrations increased with depth. However, the Permittees propose to collect additional samples only from two locations MO-605085 and MO-605088. For example, concentration increased with depth at locations 50-06007, 50-06021, 50-06022, and 50-06024, but no additional sampling is proposed. Review the data presented in the Report and propose to collect additional samples at locations where concentrations increased with depth or where samples were collected from one depth and concentrations were above BV/FVs.
- f. Plutonium-239/240 was detected at several locations where either only surface samples were collected or concentrations increased with depth. However, the Permittees propose to collect additional samples only from two locations MO-605085 and MO-605088. Plutonium-239/240 concentrations also increased with depth at location 50-06024 and concentrations were above BV/FVs at locations 50-06025 and 50-06026 (samples collected from only one depth). Review the data presented in the Report and propose to collect additional samples at locations where concentrations increased with depth or where samples were collected only from one depth and concentrations were above BV/FVs.
- g. Strontium-90 concentrations increased with depth at several locations in the drainage but no additional sampling to define the vertical extent is proposed. For example, concentrations increased with depth at 50-06015, 50-06018, 50-06022, and 50-06023, but no additional sampling is proposed to define the vertical extent of contamination. Review the data presented in the Report and propose to collect additional samples at locations where concentrations increased with depth or where samples were collected only from one depth and concentrations were above BV/FVs.
- h. Tritium concentrations increased with depth at several locations. In addition to sampling proposed at locations MO-605084, MO-605085, MO-605088, and MO-605506, propose to collect additional samples at locations 50-06013, 50-06016, and 50-06018 to define the vertical extent of tritium at these locations.

10. Appendix B, Section B-2.0, IDW, page B-1:

Module VIII of the Laboratory Hazardous Waste Facility Permit is no longer in effect. Update the text to provide the correct reference to effective Hazardous Waste Facility Permit.

Messrs. Rael and Graham
April 1, 2011
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The Permittees must address all comments and submit a revised IWP by **May 3, 2011**. As part of the response letter that accompanies the revised IWP, include a table that details where all revisions have been made to the IWP and that cross-references NMED's numbered comments. All submittals (including maps) must be in the form of two paper copies and one electronic copy in accordance with Section XI.A of the Order. In addition, submit a redline-strikeout version that includes all changes and edits to the IWP (electronic copy) with the response to this NOD.

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

Sincerely,



James P. Bearzi
Chief
Hazardous Waste Bureau

cc: J. Kieling, NMED HWB
D. Cobrain, NMED HWB
N. Dhawan, NMED HWB
S. Yanicak, NMED DOE OB, MS J993
T. Skibitski, NMED DOE OB
L. King, EPA 6PD-N
C. Rodriguez, DOE-LASO, MS A316
K. Rich, EP-CAP, MS M992

File: LANL, Upper Mortandad Canyon Aggregate Area Phase II IWP, 2011.
LANL 10-092