

TA49



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**CERTIFIED MAIL - RETURN RECEIPT REQUESTED**

December 20, 2007

David Gregory  
Federal Project Director  
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David McInroy  
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**RE: NOTICE OF DISAPPROVAL FOR THE INVESTIGATION WORK PLAN FOR  
SITES AT TECHNICAL AREA 49 INSIDE THE NUCLEAR ENVIRONMENTAL  
SITE BOUNDARY  
LOS ALAMOS NATIONAL LABORATORY (LANL),  
EPA ID #NM0890010515  
HWB-LANL-07-033**

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's (LANS) (collectively, the Permittees) *Investigation Work Plan for Sites at Technical Area 49 Inside the Nuclear Environmental Site Boundary* (Plan), dated October 2007 and referenced by LA-UR-07-6076/EP2007-0551. NMED has reviewed the Plan and hereby issues this Notice of Disapproval (NOD).

**General Comments**

1. Table 4.4-1, *Summary of Proposed Boreholes and Sampling* requires revision. The Permittees must provide the subsurface sampling strategy for all SWMUs and AOCs in a table identical to the format of Tables 4.1-1 through 4.5-1 of the *Investigation Work Plan for S-Site Aggregate Area* (September 2007).

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**Specific Comments:**

**1. Section 1.0, Introduction, page 1, paragraph 6:**

**Permittees' Statement:** "Soil Contamination at AOC 49-008(c) is deferred per Table IV-2 of the Consent Order. Therefore, no surface investigation is proposed at AOC 49-008(c). Subsurface investigations will be conducted at all sites, including AOC 49-008(c)."

**NMED Comments:** The Permittees also state that "[a]lthough this work plan does include subsurface sampling for the SWMU 49-003, it does not propose sampling for the encompassing deferred site, AOC 49-008(c)." These statements are contradictory. The Permittees must revise the Plan to clarify whether or not subsurface sampling will be conducted at SWMU 49-008(c).

SWMU 49-008(c) is on Table IV-2 of the March 1, 2005 Order on Consent (Order); SWMU 49-003 is not. The Permittees must revise the Plan to include surface sampling at SWMU 49-003 in Area 11.

**2. Section 2.4.1, Area 1: SWMU 49-001(a), Experimental Shafts, Site Description, page 8, paragraph 1:**

**Permittees' Statement:** "Twenty-two shafts were drilled at Area 1 to depths ranging from 31 ft to 80 ft."

**NMED Comment:** Figure 2.2-1, *Area 1 Experimental Shaft Details*, depicts two shafts (1-K and 1-O) having depths of 85 feet, rather than a maximum depth of 80 feet. The Permittees must revise the Plan to state that the shafts were drilled at Area 1 to depths ranging from 31 feet to 85 feet, resolve the discrepancy.

**3. Section 4.3.1, Surface Sampling, page 31:**

**a) Permittees' Statement:** "In order to characterize the nature and extent of contamination, two types of data will be collected from each grid array: 1) field-screening analyses will be conducted to determine gross alpha and gross beta levels and 2) laboratory analyses to obtain decision-level data will be conducted to determine the nature and confirm the extent of contamination in surface soil."

**NMED Comment:** According to Sections 2.5 through 2.10 of the Plan, previous sampling results indicate that inorganics, as well as radionuclides, are present in surface soils. Pursuant to Section IX.B.2.d, the Permittees must also use X-ray fluorescence (XRF) to field-screen for inorganics.

**b) NMED Comment:** The description of the three categories of surface sampling locations proposed within each sampling array is confusing. For example, it is unclear; how many samples will be obtained, the rationale for selection of samples for off-site laboratory analysis, and the rationale for the proposed analytical suites. The Permittees must remove this language from the Plan and provide the surface sampling strategy in a table identical to the format of Tables 4.1-1 through 4.5-1 of the *Investigation Work Plan for S-Site Aggregate Area* (September 2007).

**4. Section 4.3.6, Sediment in Drainage Channels, page 34, paragraph 1:**

**Permittees' Statement:** "In order to provide a snapshot of contaminant distribution within each drainage feature at TA-49, samples will be collected along a transect perpendicular to the channel at each location including one location in the center of the channel, two locations perpendicular to the direction of flow, and one location on each side of the active channel along the transect. A survey of each drainage channel will be conducted before sampling to identify zones of sediment accumulation near each sampling location."

**NMED Comment:** In addition to the samples obtained in areas of sediment accumulation, the Permittees must target areas of fine-grained sediment. Furthermore, Figure 4.3-5, *Proposed Sediment Sampling Locations* displays no transect lines and only one sample location. The Permittees must provide a map which clearly shows the transect lines and sediment sampling locations.

**5. Section 4.3.6, Sediment in Drainage Channels, page 34, paragraph 2:**

**Permittees' Statement:** "The South Canyons Investigation Work Plan (LANL 2006, 093713) addresses the potential to transport contamination from TA-49 SWMUs and AOCs by surface water into Water and Ancho Canyons."

**NMED Comment:** The Permittees must provide a brief description of the sampling strategy for the South Canyons (e.g., sampling intervals, analytical suites) and provide a map showing the locations of surface water samples and their proximity to SWMUs and AOCs at TA-49.

**6. Section 4.4.2, Areas 1, 3, and 4 (Experimental Shafts): SWMUs 49-001(a), 49-001(e), and 49-001(f), page 37, paragraph 2:**

**Permittees' Statement:** "The subsurface investigation activities at Areas 1, 3, and 4 share a common approach. Four vertical boreholes will be drilled along the perimeter of each area. Boreholes will be no closer than 20 feet from any shot point; the reported maximum fracture zone is a 10 to 15-ft radius from a shot point."

**NMED Comment:** NMED concurs with the proposed perimeter borehole locations for Areas 1, 3, and 4. However, the Permittees are reminded that in accordance with Section

IV.C.4.c.iii of the Order, the boreholes must be advanced within 25 feet from the perimeter of each of the experimental shaft areas.

**7. Section 4.4.8, Analysis Plan, page 40, paragraph 1:**

**Permittees' Statement:** "The selection of core samples to be submitted to an analytical laboratory will be based on the following criteria:

- The sample exhibiting the highest field screening detection
- The sample obtained from the maximum depth in each boring that displays field screening evidence of contamination
- The sample located at the base of a disposal unit or facility structure
- The sample obtained from the maximum boring depth or total depth (TD) of each borehole
- VOC detections at Areas 11 and 12 only"

**NMED Comment:** The Permittees state in the third paragraph of Section 4.4.8 that "[a]ll core samples will be submitted to an analytical laboratory and analyzed for explosive compounds, perchlorate, TAL metals, cyanide, isotopic americium, isotopic plutonium, isotopic uranium, and tritium." NMED understands this statement to mean that core samples will be selected based on the criteria above and *those* core samples will be submitted to an off-site analytical laboratory for analyses of the components listed above. The Permittees must clarify whether it is their intention to send a subset or *all* core samples to an off-site analytical laboratory for analysis.

Additionally, paragraph three of Section 4.4.8 states that "[s]ubsurface samples from Areas 11 and 12 submitted to an analytical laboratory will also be analyzed for VOCs and SVOCs." Based on the previous sampling results for Areas 1, 2, 2A, 2B, 3, and 4, only one sample was obtained for VOC and SVOC analyses. Furthermore, this sample was considered for acquisition of screening-level data only. The Permittees must therefore submit core samples from all Areas (1, 2, 2A, 2B, 3, 4, 11, and 12) for VOC and SVOC analyses.

**8. Section 4.4.8, Analysis Plan, page 40, paragraph 5:**

**Permittees' Statement:** "Vapor-phase samples will be collected during drilling from the perimeter boreholes at MDA AB and one borehole at each Area 1, 3, and 4; from two boreholes at Area 11; and from one borehole at Area 12 to determine if vapor-phase contamination is present. Tritium and VOC pore-gas samples will be collected from the intervals prescribed in Table 4.4-1 and at TD."

**NMED Comment:** The Permittees must collect vapor-phase samples from all boreholes drilled at Areas 1, 3, 4, 11, 12, and MDA AB. The vapor-phase samples shall be obtained at the same intervals as core samples in accordance with Section 4.4.7 of this Plan. Vapor-phase samples shall be sent for off-site laboratory analysis of VOCs and tritium. The Plan must be revised to reflect this change.

**9. Section 4.4.9, Groundwater Monitoring, page 41:**

**Permittees' Statement:** "Each of the two wells will be located downgradient from MDA AB. One of these planned wells is R-30, which was proposed as part of the "South Canyons Investigation Work Plan". However, R-30 will now be drilled in the context of this investigation."

**NMED Comment:** Regional well R-30 must be addressed under the approved South Canyons Investigation Work Plan (IWP). In the approval with modifications dated March 28, 2007, NMED stated "[e]ven though the South Canyons Investigation Report is not due to be submitted until 2011, the Permittees must complete the installation of all intermediate and regional groundwater monitoring wells associated with this work plan no later than March 31, 2008..." In accordance with the approved South Canyons IWP, the Permittees must complete the drilling of R-30 by March 31, 2008. The Well Completion Report is due to NMED 150 days (the 120-day clock for well completion report submittal for regional aquifer wells begins 30 days after well completion) after well completion pursuant to Section IV.A.3.e.iv of the Order.

**10. Section 4.4.9, Groundwater Monitoring, page 41, paragraph 2:**

**Permittees' Statement:** "Additionally, R-27, drilled in Water Canyon in 2005, will be evaluated for suitability as an additional downgradient monitoring well. The existing DT-series wells provide composite groundwater-level data. However, the construction materials and long screen lengths (up to 220 ft) limit the usefulness of the analytical data for monitoring purposes and for determining the flow gradients beneath MDA AB."

**NMED Comment:** In order to evaluate the suitability of R-27 as a downgradient groundwater monitoring well, the Permittees must submit a well evaluation report. The Well Evaluation Report for R-27 must be submitted to NMED no later than March 31, 2008.

**11. Section 5.2.3, Vapor-Monitoring Well Installation, page 44:**

**Permittees' Statement:** Vapor-monitoring wells will be installed if vapor-phase contamination is confirmed by field-screening results."

**NMED Comment:** The Permittees must install vapor-monitoring wells if vapor-phase contamination is confirmed by *laboratory* analysis, rather than by field-screening. The Permittees must revise the text to reflect this change.

**12. Section 5.4.3, Laboratory Analytical Methods, page 47:**

**Permittees' Statement:** "The analytical suites required for laboratory analyses vary by area as specified in section 4.5.8 and summarized in Table 4.5-1."

**NMED Comment:** The Permittees have not provided Table 4.5-1 in this Plan. The Permittees must revise the text to reference the appropriate table or provide the correct table with the response to this NOD.

**13. Section 6.3, Sediment and Surface Water, page 48, paragraph 2:**

**Permittees' Statement:** "Surface-water gauging stations within TA-49 are monitored under the Federal Facilities Compliance Agreement (FFCA) established to regulate stormwater discharges from SWMUs and AOCs. This monitoring will continue under the FFCA. Surface water and sediment sampling locations for TA-49 are presented on Figure 2.11-4."

**NMED Comment:** Figure 2.11-4, *Sediment and Sampling Locations at TA-49*, does not make a distinction between sediment sampling locations and surface water sampling locations. The Permittees must revise the Figure to differentiate between the two types of sampling locations.

The Permittees must address all comments and submit a revised Plan by January 31, 2007. As part of the response letter that accompanies the revised Plan, the Permittees shall include a table that details where all revisions have been made to the Plan 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, the Permittees shall submit a redline-strikeout version that includes all changes and edits to the Plan (electronic copy) with the response to this NOD.

Please contact Kathryn Roberts at (505) 476-6041 should you have any questions.

Sincerely,



James P. Bearzi  
Chief  
Hazardous Waste Bureau

cc:

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file: Reading and LANL'07, TA-49 (SWMUs:49-001(a), 49-001(b), 49-001(c), 49-001(d), 49-001(e), 49-001(f), 49-001(g), 49-003; AOCs: 49-008(c), 49-008(d))