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From:(Senders - Organization) *(separate multiple values with semicolons)*	JAMES BEARZI, HWB-NMED
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CERTIFIED MAIL – RETURN RECEIPT REQUESTED

June 8, 2007

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RE: APPROVAL FOR THE "INVESTIGATION REPORT FOR MATERIAL DISPOSAL AREA G, CONSOLIDATED UNIT 54-013(b)-99, AT TECHNICAL AREA 54" LOS ALAMOS NATIONAL LABORATORY
EPA ID #NM0890010515
HWB-LANL-05-019

Dear Messrs. Gregory and McInroy:

The New Mexico Environment Department (NMED) is in receipt of the United States Department of Energy (DOE) and Los Alamos National Security, LLC (collectively, the Permittees) document entitled *Addendum to the Investigation Report for Material Disposal Area G, Consolidated Unit 54-013(b)-99, at Technical Area 54* (hereafter, the Addendum) dated May 2007 and referenced by LA-UR-07-2582/EP2007-0215. NMED has reviewed the Addendum and the previously submitted *Investigation Report for Material Disposal Area G, Consolidated Unit 54-013(b)-99, at Technical Area 54* (hereafter, the Report) dated September 2005 and referenced by LA-UR-05-6398/ER2005-0626, and hereby issues this Notice of Approval.

With this Notice, NMED hereby directs the Permittees to submit a Corrective Measures Evaluation (CME) work plan for MDA G. NMED imposes the following direction for the Permittees to develop the CME work plan and to continue to monitor volatile organic compounds (VOCs) and tritium in the subsurface pore gas at MDA G.

1. Uncertainty of the Fate of VOCs and Tritium in Subsurface Pore Gas

The monitoring data presented in the Addendum demonstrate that vapor-phase contamination consisting of VOCs and tritium has reached the Cerros del Rio basalt (the basalt). Figure 4.1-1 in the Addendum suggests that there is vapor-phase VOC contamination immediately overlying the basalt across MDA G. The borehole monitoring data also indicate that a tritium plume is present in the subsurface pore gas immediately overlying the basalt at least in the southern portion of MDA G. The monitoring data within the basalt confirm that VOCs and tritium have moved across the interface from the Bandelier Tuff (the Cerro Toledo interval or the Otowi Member) into the basalt. The decreased concentrations of vapor-phase VOCs and tritium that were observed within the basalt do not necessarily indicate the ultimate fate of these vapor-phase contaminants in the subsurface.

The monitoring data collected from the sampling ports that intercept the basalt strongly suggest that once the vapor-phase VOCs and tritium have reached the basalt, there is a considerable amount of uncertainty in any evaluation of the fate due to the fracture characteristics of the basalt. According to the MDA G modeling predictions (*Los Alamos National Laboratory's Hydrogeologic Studies of the Pajarito Plateau: A Synthesis of Hydrogeologic Workplan Activities 1998-2004*, LA-14263-MS, December 2005), it would take only 1 to 5 years for contaminants to migrate through the fractured basalt, even though the basalt comprises over 50% of the unsaturated zone at MDA G. Therefore, as long as contaminants reach the basalt, it is unlikely that the fractured basalt would prevent contaminants from quickly migrating downward toward the regional aquifer. In fact, the basalt may provide a preferential pathway for fast transport of contaminants. The monitoring data measured from BH-15-2 and BH-15-3 in the Report confirm that certain VOCs and tritium have migrated to depths as deep as 700 feet below ground surface. The regional groundwater table is projected to be located within the basalt approximately at 900 feet below ground surface at MDA G (*Characterization Well R-22 Completion Report,* LA-13893-MS, February 2002). Consequently, the vapor-phase plumes of VOCs and tritium in the subsurface pore gas are potential contamination sources to regional groundwater. The high concentrations of most vapor-phase VOCs and tritium that sit immediately over the basalt increase the likelihood of contaminant migration by fracture flow.

The uncertainty and risk associated with the fate and transport of VOCs and tritium in the fractured basalt require that the remedy selection at MDA G be conservative to protect the regional groundwater from contamination. Therefore, the Permittees must address in the CME work plan not only the potential release and migration of

contaminants from disposal shafts and pits at MDA G, but also the subsurface vapor-phase plumes of VOCs and tritium at the top of the basalt at MDA G. Specifically, the CME work plan must include evaluation of appropriate remedies, such as soil vapor extraction (SVE), to effectively remove and control the subsurface vapor-phase plumes at the top of the basalt.

2. Conducting a Pilot Study to Evaluate SVE for removal of the Vapor-Phase Plume

In order to expedite the evaluation and implementation of SVE as a corrective measure option at MDA G and increase the likelihood of the Permittees' compliance with the March 1, 2005 Order on Consent (the Order) milestones, the Permittees must propose a pilot study in the CME work plan. The pilot study must be conducted to provide design and operation parameter values for implementing a full-scale SVE at MDA G as a remedial option.

3. Continuous Monitoring of VOCs and Tritium in Subsurface Pore Gas

To provide reliable monitoring data for selecting and designing a remedy, the Permittees must add BH-2b, BH-10, BH-26, BH-34 and BH-37 as new sampling locations, in addition to those that have already been included in the periodic monitoring vapor sampling activity, for monitoring of VOCs and tritium in the subsurface pore gas. The current quarterly monitoring program of the vapor-phase VOCs and tritium must be continued until a long-term monitoring plan is put in place for future pore-gas monitoring at MDA G.

The Permittees must incorporate the above comments in developing the CME work plan, and submit the plan to NMED for approval no later than July 13, 2007. To meet the cleanup milestones for MDA G as specified in the Order, NMED implements the following new submittal dates for documents regarding MDA G.

a) Submit the CME Work Plan no later than July 13, 2007 (new notice date will be November 9, 2007);

b) Submit the CME Report no later than September 12, 2008 (new notice day will be January 31, 2009);

c) Submit the Remedy Completion Report no later than December 31, 2015.

Should you have any questions or comments, please contact David Cobrain at (505) 476-6055 or Hai Shen at (505) 476-6039.

Sincerely,

James P. Bearzi
Chief
Hazardous Waste Bureau

JPB:hs

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file: Reading and LANL TA-54 (MDA G, SWMU 54-013(b), IRMDAG)