

TA21



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CERTIFIED MAIL - RETURN RECEIPT REQUESTED

February 8, 2008

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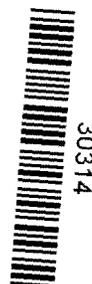
**RE: NOTICE OF DISAPPROVAL
PHASE II INVESTIGATION REPORT FOR MATERIAL DISPOSAL
AREA (MDA) T AT TECHNICAL AREA (TA) 21, NOVEMBER 2007
LOS ALAMOS NATIONAL LABORATORY
EPA ID #0890019515
HWB-LANL-07-038**

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) *Phase II Investigation Report for MDA-T at TA-21* (Report), dated November 2007 and referenced by LA-UR-07-7692/EP2007-0700. NMED has reviewed this document and hereby issues this Notice of Disapproval.

General Comments:

1. The Permittees proposed, in the approved work plan, to collect subsurface vapor samples at the same depth intervals where samples were collected during previous sampling events in the Phase II Investigation Work Plan (February 15, 2007, LA-UR-07-0930/EP2007-0105). The Permittees did not complete this requirement (e.g., 2005-2006 location ID 21-25263 depth of 79-81 feet versus 2007 sample location 2-603058 depth of 67.5-72.5). The Permittees must provide justification for the



30314

differences in sampling depths between sampling events. The Permittees are reminded that subsurface vapor samples must be collected for analysis of Volatile Organic Compounds (VOCs) and tritium using the same methods used in the 2006 sampling events unless prior approval is obtained from NMED. Vapor-monitoring data must continue to be conducted on a quarterly basis to provide a more accurate assessment of vapor-phase contamination at MDA T. The Permittees must submit to NMED periodic monitoring reports within 45 days of completion each of vapor sampling event. The periodic monitoring reports must be prepared in accordance with Section XI.D of the March 1, 2005 Order on Consent (Order).

2. The Phase I Investigation Report (September 2006, LA-UR-06-6506/EP2006-0779) states on page 5 that building 21-257 (SWMU 21-011(a) (Table 2.1-1, September 2006) page 75) "is scheduled for decontamination and decommissioning (D&D) in June 2007." However, this activity is not discussed in the Report. The Permittees must provide documentation that the building was removed. If the building has not been demolished, the Permittees must provide an explanation as to why this information was not included in Section 3.6 of the Report (Deviations).

Specific Comments:

3. Section 3.1, Borehole Abandonment, page 4

Permittees' Statement: "Four boreholes [locations 21-25372, 21-25373, 21-25375, and 21-25376] from the 2005-2006 investigation were to be abandoned. Location 21-25373 was abandoned...[t]he other three boreholes have not been abandoned as of November 15, 2007. Site access issues and operational protocols associated with Consolidated Unit 21-016(a)-99's designation as a NES regulated under 10 CFR 830 prevented the abandonment. These boreholes will be abandoned as soon as operational protocols permit access to the borehole locations."

NMED Comment: According to Figure 3.2-1 on page 14, the borehole locations are well outside of the NES boundary. The Permittees must properly abandon these wells as previously planned since they are not located within the NES boundary.

4. Section 3.2, Installation and Sampling of Permanent Vapor-Monitoring Wells, page 5, paragraph 2

Permittees' Statement: "Before sampling, pore gas was purged from each sampling port by pumping; once proper purge of the sampling system was verified, vapor sampling proceeded in accordance with standard operating procedure EP-ERSS-SOP-5074, Sampling for Sub-Atmospheric Air. Subsurface pore-gas samples were collected in SUMMA canisters for VOC analysis and in silica gel samplers for tritium analysis. Sample locations and depths are tabulated in Table 3.2-1."

NMED Comment: The Permittees reference a Standard Operating Procedure (SOP) in the Report without including a description of the sampling procedures actually used. The Permittees must provide descriptions of the procedures used during sampling. Section IX.A in the Order on Consent (March 1, 2005) specifically states that “[t]he Respondents shall provide a brief description of investigation, sampling or analytical methods and procedures in documents submitted to the Department that includes sufficient detail to evaluate the quality of the acquired data.” The Permittees must revise this section to provide adequate descriptions of the methods actually used during the sampling event. In addition, the Permittees must provide detailed vapor monitoring well construction diagrams and the associated boring logs for the newly installed vapor monitoring wells. The boring logs must provide detailed lithologic descriptions of the soils and rock observed during drilling.

5. Section 3.2, Installation and Sampling of Permanent Vapor-Monitoring Wells, page 5, paragraph 2

Permittees’ Statement: “One round of pore-gas sampling was collected from all ports in each well, except port 2 at location 21-603059. Port 2 did not produce pore-gas vapor, possibly because the welded formation does not allow the extraction of sub-surface vapor.”

NMED Comment: The Permittees do not explain why Sampling Port 2 was placed at a depth corresponding to a welded interval in the tuff. NMED assumes that the boring log was reviewed prior to construction of the vapor monitoring well and that welded intervals were identified before installation began. Since the Permittees have not abandoned boring 21-25262, both borings must be monitored in the future at all depths corresponding to those sampled during the 2006 sampling events. Based on Table 6.5-2 (page 215) of the Investigation Report for MDA-T (September 2006, LA-UR-06-6506), NMED understands port 2 to be at depth 114-116 feet below ground surface (bgs). The Permittees must explain why they were unable to collect a sample at port 2 when two samples were collected at this depth in the 2005-2006 sampling rounds at sample location 21-25262. The Permittees must provide NMED with sufficient justification for not collecting samples from this location when samples were collected previously at that depth.

6. Section 3.4.2, MDA-T Subsurface Vapor Data, Tritium, page 8

Permittees’ Statement: “Tritium activities are substantially lower in the first round of samples collected during the 2007 investigation than in samples collected during the 2005-2006 sampling rounds.”

NMED Comment: The Permittees have not provided a rationale for why tritium activities measured in 2007 are significantly lower than the 2005-2006 results. Further, the Report provides no description in Section 3.2 (“Installation and Sampling of Permanent Vapor-Monitoring Wells” page 5) of the type of well the Permittees have installed in the borings. The Permittees did not provide sufficient information to determine whether the reduction in tritium concentrations is the result of the vapor monitoring well installation, a change in the method in which the samples were collected, or a result of some other factor. The as-built

diagrams for vapor-monitoring well locations 21-603058, 21-603059, and 21-25264 in Figures 3.2-2 to 3.2-4 (pages 15-17) of the Report indicate that the samples were collected over a larger interval (five feet) than the straddle packer system that isolated a two foot interval within the boreholes (see Phase I Investigation Report for MDA-T, September 2006, LA-UR-06-6506, page 18). Section IX.A in the Order on Consent (March 1, 2005) specifically states that “[t]he Respondents shall provide a brief description of investigation, sampling or analytical methods and procedures in documents submitted to the Department that includes sufficient detail to evaluate the quality of the acquired data” (page 168). The Permittees must revise this section to describe all of the differences between the 2005-2006 sampling events and the November 2007 sampling event. The description must include an adequate description of all pore-gas sampling methods used during each sampling event.

7. Table 3.4-2, Summary of VOCs Detected in Pore Gas at Consolidate Unit 21-016(a)-99, page 37

NMED Comment: The information provided in this table is insufficient. The Permittees have included dashes in the table, but did not define the symbol in the table’s key. Revise the table accordingly.

8. Table 3.4-2, Summary of VOCs Detected in Pore Gas at Consolidated Unit 21-016(a)-99, page 37

NMED Comment: The report indicates that VOCs are present in the subsurface and that concentrations decrease with depth. The soil screening levels for an industrial worker do not include an evaluation of VOC migration to indoor air.

In reviewing the pore gas data, several volatile organic compounds (VOCs) were detected. It is possible to model pore gas data and evaluate the vapor intrusion pathway for the migration of VOCs from pore gas into buildings. Under an industrial scenario, the vapor migration to indoor air pathway should be identified as a complete exposure route and evaluated using a vapor intrusion model, such as the Johnson and Ettinger model. Unless the Permittees provide additional lines of evidence for determining that the pore gas data are not applicable to the risk assessment as a source for exposure via inhalation, the data should be used in a quantitative evaluation of this pathway. The Permittees must provide an evaluation for vapor intrusion to in the revised Report.

9. Table 3.4-3, Summary of Tritium Detected in Pore Gas at Consolidate Unit 21-016(a)-99, page 39

NMED Comment: The information provided in this table is insufficient. It is unclear if the function of Table 3.4-3 is only to identify sample locations or whether other information was omitted. The Permittees must revise the table to indicate all sample locations, depths, and analytical results, including non-detects.

10. Table 3.5-1, Summary Statistics, Exposure Point Concentrations, and Calculated Doses for Residential and Recreational Scenarios for the DP Canyon Slope, at Consolidated unit 21-016(a)-99, MDA-T, pages 40-41

NMED Comment: The Permittees entitle two columns, "Mean Concentration" and "Screening Level", yet do not provide the units of measure. Revise the table to include the appropriate units of measure.

11. Table 3.5-1, Summary Statistics, Exposure Point Concentrations, and Calculated Doses for Residential and Recreational Scenarios for the DP Canyon Slope, at Consolidated unit 21-016(a)-99, MDA-T, pages 40-41

NMED Comment: The Permittees compare the number of samples analyzed from the Phase I IR to that of the Phase II; however, the number of reported analyses is inconsistent. For example, the Permittees have indicated that under residential statistics 58 sampling events were analyzed for plutonium-238 and 87 for plutonium-239/240. Based on a review of the Phase I IR (September 2006), 85 samples were analyzed for plutonium-238 and 87 for plutonium-239/240. The Permittees must explain this discrepancy.

12. Section 3.6, Deviations, page 9

Permittees' Statement: "Two of the vapor-monitoring wells were moved outside of the NES boundary..."

NMED Comment: The Permittees' rationale for drilling two new borehole locations, 21-603058 and 21-603059, to replace borings 21-25262 and 21-25263 is unclear (see Figure 3.2-1, page 14 of the Phase II Investigation Report (IR) (November, 2007)).

On page 12 of the Phase I Investigation Report for MDA-T (LA-UR-06-6506, September 2006) the Permittees state that boreholes 21-25262, 21-25263, and 21-25264 were, "...drilled to characterize subsurface tritium and VOC pore gas..." This sentence is included in Section 3.1, "Surface and Subsurface Investigation Outside of the Nuclear Environmental Site."

On page 3 of the Permittees "Submittal of the Phase II Investigation Work Plan (IWP) for Consolidated Unit 21-016(a)-99" (LA-UR-07-0930, February 15, 2007), the Permittees propose to abandon borings 21-25263 and 21-25264, rather than clean out the borings by removing residual slough and install a multi-port pore gas monitoring well at location 21-25262. The Permittees rationale was that "location 21-25262 is centrally located with respect to the MDA-T absorption beds and the central axis of DP Mesa..." indicating that there were no access issues with respect to the NES boundary. This document specifically indicates that boreholes 21-25262 and 21-25263 are not located within the NES boundary (Figure 3.2.1).

In NMED's "Approval with Modifications Phase II IWP for Consolidated Unit 21-016(a)-99" dated April 9, 2007, NMED directed the Permittees to "remove the slough from all three pore-gas sampling locations (21-25262, 21-25263, and 21-25264) and install permanent pore-gas monitoring wells" (page 2). The Permittees agreed to do so in their response, "Submittal of the Response to the Approval with Modifications, Phase II IWP" dated June 22, 2007 (LA-UR-07-3844 (page 2)).

NMED agreed to an October 26, 2007 emailed request from Bruce Wedgeworth of your staff to move borehole locations 21-25262 and 21-25263 "...from within the Solid Waste Management Unit (SWMU) boundaries of MDA-T to outside SWMU boundaries and fence line to assist in getting an immediate start, which is currently not possible because of requirements within nuclear sites." However, this agreement appears to have been based on inaccurate information, since NMED was led to believe that boreholes 21-25262 and 21-25263 were located within the NES boundary. NMED's administrative record indicates otherwise (Report Figure 3.2-1, page 14).

Finally, the earliest figure illustrating the NES boundary at MDA-T dates back to the Permittees June 22, 2005 "Response to the Notice of "Approval with Modifications IWP for MDA-T Solid Waste Management Unit 21-016(a)-99" (LA-UR-05-4548). There is no evidence that the designation of this NES boundary has changed according to the figure in the Report (November 2007).

The Permittees must therefore remove the slough from boreholes 21-25262 and 21-25263, as previously directed by NMED, and continue to conduct quarterly vapor-monitoring for VOCs and tritium at boreholes 21-25262, 21-25263, 21-25264, 21-603058 and 21-603059. The Permittees must submit to NMED periodic monitoring reports within 45 days of completion of each vapor sampling event. The Permittees must prepare the reports in accordance with the applicable procedures included in Section XI.D of the March 1, 2005 Order on Consent.

13. Section 4.0, Conclusions, page 10

Permittees' Statement: "The 2007 data indicate that the vertical extent of americium-241, plutonium-238, and plutonium-239 on DP Canyon slope is defined...the data also indicate that there has been some redistribution of americium-241, plutonium-238, and plutonium-239 on the DP-Canyon slope. There is some potential for the radionuclides to migrate further into DP Canyon. However, as presented in the investigation report for MDA-T, the extent of contamination beyond the toe of the slope into DP Canyon has been defined and presented in the Los Alamos and Pueblo Canyons investigation report."

NMED Comment: The Permittees must provide the appropriate information (e.g., sample collection locations, relevant maps, sample analytical results) to support this

assertion. Revise the Report to include the appropriate information and specific reference citations.

14. Appendix A, Field Information

NMED Comment: Appendix A provides logs for borings 21-01860, 21-01861, 21-01862, 21-02568, 21-02569, 21-25266, and 21-60300. The Appendix does not include logs for borings 21-25264, 21-603058, and 21-603059. The Permittees must provide the logs for these three boreholes. See comment #4.

15. Section 4.0, Conclusions, page 10

The Permittees must reference concentrations not dose when discussing relative risk. Revise the Report accordingly.

The Permittees must address all comments and submit a revised Report by February 29, 2008. As part of the response letter that accompanies the revised Report, the Permittees shall include a table that details where all revisions have been made to the Report 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 Report (electronic copy) with the response to this NOD. Please contact Rebecca Kay at (505) 476-6040 should you have any questions.

Sincerely,



James P. Bearzi
Chief
Hazardous Waste Bureau

JPB:rk

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