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TA 53

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

June 2, 2005

David Gregory, Federal Project Director
Los Alamos Site Office
Department of Energy
528 35th Street, Mail Stop A316
Los Alamos, NM 87544

G. Pete Nanos, Director
Los Alamos National Laboratory
P.O. Box 1663, Mail Stop A100
Los Alamos, NM 87545

RE: NOTICE OF DISAPPROVAL FOR THE INVESTIGATION AND REMEDIATION REPORT FOR THE CONSOLIDATED SWMU 53-002(a)-99, INACTIVE WASTEWATER IMPOUNDMENTS, AND AOC 53-008, STORAGE AREA, AT TECHINCAL AREA 53
LOS ALAMOS NATIONAL LABORATORY (LANL), EPA ID #NM0890010515
HWB-LANL-04-002

Messrs. Gregory and Nanos:

The New Mexico Environment Department (NMED) is in receipt of the United States Department of Energy and Regents of the University of California (the "Permittees") report entitled *Investigation and Remediation Report for Consolidated SWMU 53-002(a)-99, Inactive Wastewater Impoundments, and AOC 53-008, Storage Area, at Technical Area 53*, dated January 2004 and referenced by LA-UR-03-9119 (ER2003-0772). NMED has reviewed this document and hereby issues this notice of disapproval of the aforementioned investigation and remediation report. The Permittees must address all comments and submit a revised Report within thirty (30) days of receipt of this letter. 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 cross-references NMED's numbered comments. All submittals must be in the form of two paper copies and one electronic copy in accordance with section XI.A of the March 1, 2005 Consent Order (Order).

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General Comments:

1) Figures must include all applicable features and structures, underground utilities, and existing well and/or borehole locations. This includes fence-lines, SWMU and AOC boundaries, and former structure locations and numbers. For example, Figure 2.0-2 (Configuration of SWMU 53-002(a)-99 impoundments) does not identify the structures approximately 100 ft off of the southeast corner of the southern impoundment. This type of information becomes important when determining if proposed sampling locations are adequate, if additional samples are required, and what Contaminants of Potential Concern (COPCs) should be retained based on uses of adjacent buildings/structures. The Permittees must identify these buildings and briefly describe their function. (Must be included as a response)

2) The second addendum to the work plan (LANL 2002, 73646) stated that borehole BH-1 would be drilled to a depth of 50 feet and sampled at the following intervals; ground surface, 30 ft and 50 ft. The Permittees must provide an explanation/justification as to why BH-1 was sampled at 24-25 ft rather than the previously specified 30-ft sampling interval. (Must be included as a response)

3) NMED understands that during the 2000 and 2002 IA activities, the sludge and liners were removed from the southern and northern impoundments, respectively. However, no information has been provided that describes how much material was removed from the impoundments, how deep they were excavated, or whether they were filled in with clean fill material. The Permittees must provide the total amount of material that was removed from the impoundments during the IA activities, to what depth the impoundments were excavated, and whether or not clean fill material was used to fill in the impoundments. (Must be provided as a revision to the Report)

4) Section 4.2.3, Borehole Samples to Confirm Tritium Transport Model of the second addendum to the Work Plan (LANL 2002, 73646), states that, "[s]amples will be collected according to ER Project SOPs for SVOCs, PCBs, gamma spectroscopy, and strontium-90." Based on this information, the Permittees must explain why only samples from borehole BH-3 were analyzed for PCBs when the work plan specifically states that samples (from BH-4 – BH-7) were to be analyzed for PCBs. (Must be included as a response and as a revision to the Report)

5) The Permittees must provide a brief description of investigation, sampling or analytical methods and procedures in documents submitted to NMED that includes sufficient detail to evaluate the quality of the acquired data in accordance with Section IX.A, Standard Operating Procedures of the Order. (Must be provided as a revision to the Report)

6) There are several items listed in Section 9.0 (References) that are not included in the NMED Reference Set for TA-53. NMED cannot adequately evaluate the work plan without reviewing the references provided throughout the report. The Permittees must supply these references to NMED for review. A list of these references is attached. (Must be included with the response to this letter)

Specific Comments:

1. **Section 1.0, Introduction, page 3, paragraph 1:**

   Permittees' Statement: "If extent is defined and the data indicate that human health and ecological risks are negligible, and groundwater/surface water contamination do not constitute a risk, no further action (NFA) will be proposed for this site (LANL 1998, 58841.2, p. 1-8)."

   NMED Comment: While the Permittees may propose sites for NFA status whenever they believe it is appropriate, NMED cannot grant NFA status for this site or any site until evidence illustrates that extent of contamination has been defined and there is no unacceptable ecological or human health risk. Based on the information provided in this report, the criteria for NFA status has not been met. (No response required)

2. **Section 2.0, Background, page 4, paragraph 6:**

   Permittees' Statement: "The impoundments are no longer in use. The subsurface sanitary waste and radioactive liquid-waste lines are no longer connected to the impoundments. Radioactive liquid waste has been diverted to the Radioactive Liquid Waste Treatment Facility (RLWTF) at Building 945 and Structure 53-954, two radioactive liquid-waste basins (Figure 2.0-2). There are no other underground pipelines, tanks, utility lines, or structures at consolidated SWMU 53-002(a)-99."

   NMED Comment: The Permittees must provide additional information regarding the subsurface sanitary waste and radioactive liquid-waste lines. The Permittees state that these lines are no longer connected to the impoundments; yet they are still depicted on Figure 2.0-2. Also, the Permittees must explain whether the lines have been removed entirely, whether they have been removed from within the boundary of the impoundments, or if they will be removed at a future date. (Must be included as a response)

3. **Section 2.1.1, Sampling and Analysis of Sludge and Water – 1988, 1991, 1992, page 5, paragraph 1:**

   Permittees' Statement: "In 1998, sludge from the northeastern and northwestern impoundments was sampled during the DOE Headquarters Environmental Survey (DOE 1989, 15367)."

   NMED Comment: The Permittees must revise the text so that the date is 1988, not 1998. (Must be provided as a revision to the Report)

4. **Section 2.2, Related SWMUs or AOCs, pages 6-7:**

   NMED Comment: While it is understood from the text that data collected from Area of Concern (AOC) 53-008 were included as characterization data to determine the nature and extent of contamination for consolidated Solid Waste Management Unit (SWMU) 53-002(a)-99, the Permittees must clarify whether these data were used in the risk assessment for SWMU 53-002(a)-99. (Must be included as a response)

5. **Section 4.2, Drilling Investigations, page 12, paragraph 1:**

   Permittees' Statement: "Continuous borehole logs were not recorded for the 15-ft-deep boreholes drilled in 2000; all tuff samples were taken within Unit 2 of the Tshirege Member of the Bandelier Tuff, and all descriptive information was recorded on the sample collection logs for those samples."

   NMED Comment: The Permittees must explain why continuous borehole logs were not recorded for the 15 ft deep boreholes. Borehole logs are used to keep a complete record of the drilling activities, a description of the conditions encountered, and field screening measurements (if obtained). (Must be included as a response)

6. **Section 4.3, Subsurface Conditions, page 12, paragraph 4:**

   Permittees' Statement: "The only subsurface man-made structures at the site are the sanitary waste and radioactive liquid-waste lines (Figure 2.0-2) which are no longer connected to the SWMU 53-002(a)-99 impoundments."

   NMED Statement: See Specific Comment # 2

7. **Section 6.3, Soil, Rock, and Sediment Sampling Analytical Results, page 19, paragraph 3:**

   Permittees' Statement: "The 2002 addendum to the work plan (LANL 2002, 73646) presented results of simulation modeling of the tritium transport beneath SWMU 53-002(a)-99. Those results were used to guide the placement and depth of the boreholes drilled in 2002. The simulation model has now been refined, using analytical results from the borehole samples to constrain the simulations. Simulations using the latest tritium data indicate that the subsurface tritium is expected to dissipate, through natural attenuation and radioactive decay, to levels below the 20,000 pCi/L EPA drinking water standard (40 CFR 141.66) by the year 2072 (Stauffer 2003, 80930)(see Figure 6.3-1). It also shows that the tritium will not move beyond a depth of approximately 200 ft. At that depth, the tritium will be approximately 800 ft above the regional aquifer and at least 500 ft above the nearest known perched groundwater (Well PM-1, about 1.5 mi to the east)."

   NMED Comment: NMED will require and rely on monitoring data to evaluate the performance of corrective action. NMED may, in the future, require additional remedial action at the site based on the results of long-term site monitoring data. (No response required)

8. **Section 7.0, Conclusions, page 19, paragraph 2:**

   Permittees' Statement: "Site data for SWMU 53-002(a)-99 show that, after remediation of all three impoundments and Drainage Area B, the nature and extent of residual contamination remaining are defined. Contamination on the mesa top is largely confined to the boundaries of the impoundments and consists mainly of tritium in the underlying tuff at depths of less than 150 ft bgs."

   NMED Comment: The Permittees must explain why the CD provided in Appendix E entitled 'Analytical Suites and Results' does not provide all analytical results. For example, borehole BH-7, which was part of the 2002 IA, shows only tritium analysis and corresponding results below 110 ft. In order to confirm the Permittees statement that, "contamination on the mesa top is largely confined to the boundaries of the impoundments and consists mainly of tritium in the underlying tuff at depths of less than 150 ft bgs" the Permittees must demonstrate that tritium was the only detected constituent below 110 ft in BH-7, as well as BH-4 and BH-5, or that tritium was the only analysis performed below 110 ft. (Must be included as a response)

9. **Figure 3.0-1, SWMU 53-002(a)-99 mesa-top sample locations, page 51:**

   NMED Comment: The legend for this figure, as well as D-1.0-1, should indicate the dates on which the samples were obtained, not just the depths at which they were obtained. The

boreholes completed following the 2002 IA are identified, but there is no way of knowing when any of the remaining samples were obtained. The Permittees must revise these maps to reflect the change. (Must be provided as revisions to the Report)

10. Appendix A, Section A-1.0, Borehole Drilling and Sampling, page A-2, paragraph 5:

Permittees' Statement: "Upon completion, each borehole drilled during 2002 was abandoned by backfilling it with the cuttings from that hole to 3 ft below ground surface (bgs)."

NMED Comment: In the future, drill cuttings cannot be used to backfill boreholes. Drill cuttings are considered Investigation Derived Waste (IDW) and must be containerized and characterized in accordance with Section IX.B.2.b.iv, Drill Cuttings (Investigation Derived Waste) of the Consent Order. Furthermore, the Permittees may not return environmental media to the point of origin because, by doing so, the Permittees will change the hydraulic characteristics of the unit(s) and may provide a conduit for contaminant migration. (No response required)

11. Appendix D, Figure D-1.0-2, SWMU 53-002(a)-99 reach sampling locations, page D-92:

NMED Comment: Figure D-1.0-2 is a duplicate of Figure D-1.0-1, SWMU 53-002(a)-99 mesa-top sample locations. Figure D-1.0-2 must be replaced with the correct figure. (Must be provided as a revision to the Report)

12. Appendix E, Analytical Suites and Results and Chain-of-Custody Forms:

NMED Comment: The CD entitled *Analytical Report, part 2*, does not contain any information or has been corrupted. The Permittees must include another CD with their NOD response, so that NMED can review the data. (Must be provided as a revision to the Report)

The Permittees must explain why cyanide was not included in the analytical suite for sediment samples obtained from Reaches C, D, & E in 2001. (Must be included as a response)

13. Appendix F, Summary of 2000 and 2002 Interim Actions, F-2.4, Source-Removal Waste Management and Disposal, page F-2:

Permittees' Statement: "During source-removal activities, 54 B-25 containers were filled with sludge and vegetation from the impoundment. Three rolloff bins were also filled with Hypalon liner, plastic, and personal protective equipment (PPE). The total volume of waste removed from the southern impoundment included approximately 165 yd^3 of sludge and 30

yd^3 of liner material. Approximately 5000 gallons of rainwater had accumulated in the impoundment during the IA, and it was also managed as waste."

NMED Comment: The Permittees must explain why the waste volumes described in the above statement do not coincide with the volumes provided in Table F-4.4-1, *Waste Volumes for Southern Impoundment.* They must also provide consistent units (the volumes provided in the text are given in cubic yards and the volumes included in Table F-4.4-1 are given in cubic meters). (Must be included as a response and as a revision to the Report)

14. Appendix F, Summary of 2000 and 2002 Interim Actions, Section F-4.6, Investigation-Derived Waste (IDW), page F-14:

NMED Comment: The description provided for the handling of IDW is unacceptable. The Permittees must provide a detailed description of IDW management including, characterization, containment, storage, and shipment of waste off-site if necessary. (Must be provided as a revision to the Report)

15. Appendix G, Risk Assessment:

NMED Comment:

A) The risk assessment consisted of a comparison of site concentrations to EPA Region 6 outdoor worker screening levels. While labeled an outdoor worker, the screen does not allow for a construction worker scenario. The EPA Region 6 screening values for the outdoor worker closely correlate to the industrial screening levels in New Mexico's Soil Screening Guidance. However, the EPA Region 6 outdoor worker levels may underestimate risk to a construction worker. While the EPA Region 6 levels incorporate longer exposure duration, the soil ingestion rate is considerably less than that recommended for a construction worker (EPA Supplemental Guidance for Developing Soil Screening Levels for Superfund Site, March 2001 and New Mexico Soil Screening Guidance, August 2004). For example, the EPA Region 6 outdoor worker screening level for antimony is 450 mg/kg, compared to the New Mexico industrial level of 454 mg/kg. However, the New Mexico screening level for antimony under a construction worker scenario is 124 mg/kg. Thus, if the EPA Region 6 values for an outdoor worker are to be applied, the site should be limited to non-intrusive activities. If at any time in the future, the site is to be developed (i.e., a building constructed), additional analyses will be required to ensure protection of a construction worker. (No response required)

B) There is concern over the elimination of chemicals detected in less than 5% of samples. EPA guidance (*Risk Assessment Guidance for Superfund* [RAGS], 1989) allows for the elimination of chemicals from a risk assessment if it is detected infrequently (e.g., less than 5% per 20 samples), not detected in other sampled media, and/or if there is no reason to

believe the chemical may be present. However, RAGS clearly states that, "chemicals expected to be present should not be eliminated" from the risk assessment. If there is any evidence that a constituent has been historically present at the site, and if waste data and/or history indicate that the constituent could be present as a result of site activities, then this constituent must be included in the risk assessment. For each constituent excluded from the risk assessment based upon the frequency of detection, the Permittees must discuss whether the chemical could be present as a result of site activities. If there is evidence that the chemicals could be present, the Permittees must revise the risk assessment to include these chemicals. (Must be included as a response)

C) There were several non-naturally occurring radionuclides included in the RESRAD analyses (Eu-152, Eu-154, Eu-155, I-129, Np-237, Pu-240, Ru-106, and Tc-99) that were not included in the risk assessment screen. In addition, while it is noted that the thorium isotopes are products of decay, thorium was not included in risk assessment, but was addressed in RESRAD. Also, it is noted that Cs-134 was not included in the RESRAD modeling. The Permittees must discuss the differences in the radionuclides that were included as constituents of potential concern for the risk assessment and those included in the RESRAD analysis. (Must be included as a response)

Should you have any questions, please contact Kathryn Chamberlain at (505) 428-2546.

Sincerely,

James P. Bearzi
Chief
Hazardous Waste Bureau

JPB: kc

cc: D. Goering, NMED HWB
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file: Reading and LANL '05 TA-53 (SWMU 53-002(a)-99)