

TA 35

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**ENVIRONMENT DEPARTMENT**



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**CERTIFIED MAIL  
RETURN RECEIPT REQUESTED**

June 8, 2006

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

David McInroy, Deputy Program Director  
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**SUBJECT: NOTICE OF DISAPPROVAL FOR INVESTIGATION REPORT FOR THE  
MIDDLE MORTANDAD/TEN SITE AGGREGATE  
LOS ALAMOS NATIONAL LABORATORY EPA ID No: NM0890010515  
HWB-LANL-05-016**

Dear Messrs. Gregory and McInroy:

The New Mexico Environment Department (NMED) has received the United States Department of Energy and Regents of the University of California report entitled *Investigation Report for the Middle Mortandad/Ten Site Aggregate* dated September 2005 (referenced by LA-UR-05-6135 and ER2005-0578). NMED hereby issues this Notice of Disapproval of the aforementioned Report.

**General Comments**

1. The Executive Summary, Introduction, and Background Sections of the risk assessment provided in Appendix F describe the dividing of Middle Mortandad/Ten Site Aggregate into the seven subareas that are to be evaluated. However, the discussions of contaminants, including identification of constituents of potential concern (COPCs) provided in Appendix D, are based on either Technical Areas (TAs) or solid waste management units (SWMUs). The risk assessment does not provide a clear discussion of which SWMUs are identified with



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which TA and which TA is associated with each subarea. Therefore, it is very difficult to cross-reference and understand the history and contamination for each subarea. Revise the introductory or background section of the risk assessment to include a discussion or a table that clearly references which SWMUs and TAs are associated with each of the seven subareas. Because of the large number of sites and the large data set included in this aggregate report, the report was difficult to review the way it is presented. Los Alamos National Laboratory's staff (LANL) as also stated that the report was difficult to prepare because of the large number of sites included in the report and managing the large volume of data from historical investigations carried out at the various sites. In the future, to facilitate both report preparation and review, investigation reports for aggregate areas that are complex and have large number of sites should be subdivided in a manner approved by NMED.

2. Several of the individual ecological risk assessments eliminate a chemical as a COPC due to the fact that the chemical was detected under asphalt or gravel. While present day conditions may indicate that the sample location does not represent a viable pathway, it is not clear how that assumption can be carried forward. For example, will institutional controls be used to ensure that all areas that are currently covered with asphalt be maintained in the future to ensure that no new ecological exposure pathways are created? Sufficient justification for excluding these data has not been provided. Please provide additional lines of evidence for excluding sample data based upon the fact that the media may presently be covered in asphalt or gravel.
3. The description of the anticipated land use for several of the subareas includes both industrial and recreational. However, in most cases, the risk assessment screening only evaluated risks to a recreational trail user (adult and child). The discussions on the screening levels indicate that an industrial land use scenario, assuming an industrial worker scenario (8 hours per day), is not realistic given current conditions. However, it is not clear that an industrial scenario may not be plausible at some time in the future. Unless land use controls are to be placed on these sites limiting occupational use of the site, the assessments should include an evaluation of an industrial worker exposure scenario. Please provide additional lines of evidence for exclusion of an evaluation of the industrial land use scenario in the risk screen.
4. Uncertainty Analysis sections for each of the subareas list several constituents that were not evaluated in the ecological screening assessment due to the lack of an ecological screening level (ESL). However, in reviewing the list of chemicals, it is not clear why some of them were excluded. For example, there are available toxicity data for aldrin to calculate an ESL (Sample, *et al*, 1996). Because a chemical is not listed (e.g. aldrin) in LANL's EcoRisk database is not an adequate reason for excluding a chemical. Please review the list of chemicals, and where toxicity data are available, an ESL should be calculated and the chemical evaluated.

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5. Risk assessments were conducted for each of the seven subareas. The results of these assessments indicate that the subareas only meet the risk-based criteria for a non-intrusive industrial worker or a recreational user. Each subarea includes many SWMUs and areas of concern (AOCs). Human health risk assessments should have been conducted at individual SWMUs, AOCs or at the consolidated unit level, not at the subarea level. This approach does not evaluate individual sites and could result in inappropriate elimination of contaminants of concern and masking of the risk posed by individual sites. Additionally, SWMUs are listed on the permit as individual units and NMED makes determinations of "Corrective Action Complete" for individual units, not for the aggregate. Some sites may meet the criteria for residential use (unrestricted use) and may be eligible for "Corrective Action Complete without Controls." For the sites that meet the criteria for "Corrective Action Complete with Controls," the report should clearly indicate in the conclusions portion of the document that both current and future use of the site will be limited to non-intrusive industrial use and recreational use and that if at any time in the future land use changes (e.g., construction of a building or excavation of an area), additional remediation or risk analysis will be conducted. Revise the report to include risk assessments for each individual unit.
6. The exposure assessment included an analysis of evaluating the dose as a result of exposure to contamination in surface soil only (top one foot). As such there was no evaluation of exposure to contaminants in soil at depth. For example, in Figure F-3.2-15, sample location 35-02440 clearly shows increasing trend in Strontium-90 concentrations with depth and at location 35-02437, Strontium-90 was detected at 372 pCi/g at the depth of 4-5 feet, at which was the deepest sample collected. Because the land use for this site will be limited to non-intrusive land use only, the exposure to these depths has not been addressed. Leaving radioactive sources in place is contrary to the principle of As Low As Reasonably Achievable (ALARA). It is not clear that the principle of ALARA was taken into consideration in the evaluation of remedial alternatives and closure for the site. Please provide a discussion on how the site meets ALARA and provide justification for leaving "pockets" of delineated contamination in place.
7. The Report does not adequately address the potential for contaminants in soil to migrate to groundwater. Because of the identified land use and restriction of use to non-intrusive industrial and recreational scenarios, contamination at depth is not being addressed. The concern is that while direct contact with subsurface soil may not occur under the identified land uses, there is a possibility that contamination could migrate to groundwater, where contaminant transport and subsequent direct and indirect exposure to contaminants in groundwater could result. The United States Department of Energy/Los Alamos National Security (collectively the Permittees) should demonstrate that groundwater could not be adversely impacted through the migration of contaminants in soil. For example, a comparison of maximum detected site concentrations to soil-to-groundwater migration screening levels based on a dilution attenuation factor of 20 would provide sufficient

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evidence to demonstrate potential impact to groundwater.

8. In reviewing the tables summarizing the hazard quotients (HQs) for the human health risk assessment, it is noted that a HQ was calculated for lead and that this HQ was incorporated into the hazard index (HI). This is not correct. Lead is evaluated by relating soil lead intake to blood level concentrations. As such, lead should be evaluated individually and a HQ should not be calculated for this constituent. Please revise the risk table to remove the calculation of a HQ for lead and revise all subsequent HIs.
9. In Appendix F, Interpretation sections for each subarea provide the total dose and equivalent total risk for radionuclides for industrial or recreational use only. For comparison purposes, provide the total risk for radionuclides for residential use also. Revise and include this information in tables that provide screening evaluation for radionuclides for each subarea (e.g. Table F-3.4-6 for Mesa Top).

### **Specific Comments**

**1. Section 3.0, Scope of Activities, Page 5:**

The RFI Work Plan for OU 1114 (June 1993) should have been included in the chronological summary of investigation and remediation activities for sites in the aggregate. Initial evaluation of TA-60 sites was reported in this document. Revise the text to include these documents.

**2. Section 3.0, Scope of Activities, Page 6:**

The text states that the policy for using legacy data was formalized by LANL after the approval of the Sampling and Analysis Plan for the Middle Mortandad/Ten Site Aggregate (SAP) and the Addendum to Sampling and Analysis Plan for the Middle Mortandad/Ten Site Aggregate (Addendum), and the data used in the investigation report is not identical to data used in the approved SAP and Addendum. NMED is concerned that exclusion of data that was utilized in the determination of data gaps, could have resulted in additional data gaps. Provide tables and figures depicting data that has been excluded because of the implementation of new policy for each subarea.

**3. Section 3.0, Scope of Activities, Page 6:**

At the time the report was written, investigation derived waste (i.e. mixed waste) was being managed at TA-35 in a satellite accumulation area. Provide information on the ultimate disposal of the waste.

**4. Table 4.0-1, Noncarcinogenic SSLs, Page, 156:**

There is a discrepancy between the Table 4.0-1 and footnote f. According to Table 4.0-1, pyrene was used as a surrogate for acenaphtylene, but the footnote states that pyrene was used

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as a surrogate for acenaphthene. Clarify for which of these two chemicals pyrene was used as a surrogate.

**5. Figures 5.0-2 to 5.0-6, Mesa Top Area Sampling Locations, Page, 175-179:**

The SAP used different nomenclature for proposed boreholes and auger holes than what is provided in the Investigation Report (Report). To facilitate review of the Report, provide a crosswalk between sampling locations proposed in the SAP and the Addendum and the location IDs provided in the Report.

**6. Figure 5.0-2, Mesa Top Area A Sampling Locations, Page, 175:**

The sampling location of borehole (location ID 35-02364) appears to have been changed. According to the Figure 3.2-1 of the SAP, location for AH2 should be to the right of building 35-188. Provide an explanation for deviating from the approved SAP.

**7. Figure 5.0-4, Page 177:**

The sampling location depicted by a black triangle on the southeast corner of the figure has not been identified. Revise the figure to include the sampling location ID.

**8. Appendix A, Field Methods, Page A-1:**

The information provided in Appendix A to satisfy the requirements of Section IX.A of the March 1, 2005 Consent Order (Order) is inadequate. The information included in the 'summary' column states what the standard operating procedure (SOP) is and what it encompasses. There is no description of the actual investigation, sampling or analytical methods and procedures used in sufficient detail to evaluate the quality of acquired data, which is specifically stated in Section IX.A, Standard Operating Procedures, of the Order. Appendix A must be revised to include descriptions of the field and laboratory methods and procedures used during investigations. Any deviations from the SOP should also be documented here. Provide SOP number for all the procedures listed in the Appendix A.

**9. Appendix D, Data Review, Page D-4 to D-46:**

In the data review section, statements were made repeatedly that rejected results did not adversely affect LANL's ability to evaluate subareas but the basis for these statements were not provided. Data gaps may exist because of the rejected data, investigation may not have met the objectives of the SAP and the Addendum, and additional samples may be required. Because the tables do not include rejected data, it is difficult to assess if the data available is sufficient to make an evaluation. Revise tables to include rejected data and indicate in the parenthesis if it was qualified as "R".

**10. Section D-2.1, Inorganic Chemicals in Soil and Fill, Page D-5:**

Lead should also have been retained as a chemical of potential concern (COPC) for the same reasons as chromium, copper, mercury, nickel and zinc were retained as COPCs. Lead was

detected in concentrations above the background value (BV) in 5/60 samples. Revise the text accordingly.

**11. Section D-6.1, Inorganic Chemicals in Soil and Fill, Page D-30:**

Cadmium, calcium, mercury, potassium, and silver were detected above background values (BVs), contrary to what the text states in bullet one. Cadmium and silver were retained as COPCs as stated in the bullets 4 and 5. Revise the text accordingly.

**12. Section D-6.6, Radionuclides in Tuff, Page D-33:**

According to Table D-6.6-2, uranium-235 was detected in 14 of 23 samples not 16 of 23 samples as stated in the text, plutonium-238 and plutonium-239 were detected in 6 of 22 samples not 10 of 22 as stated in the text. Resolve the discrepancy and revise the text accordingly.

**13. Table D-1.1-1, Page D-54:**

Tritium value for media code ALLH is reported as not available under column "Background Value"; under column "Background Data?" it is indicated that data is available. Additionally, for some radionuclides (i.e., Th-228, Th-230, Th-232, U-234, U-235, and U-238) values are provided under column "Background Value", while under the column "Background Data?" it is indicated that data is not available. Resolve the discrepancy and revise the table.

**14. Appendix D, Table D-1.1-1, Background/Fallout Values and Background Data for Inorganic Chemicals and Radionuclides Detected in the Mortandad/Ten Site Aggregate, Page D-47 to D-55:**

For several of the radionuclides, the table indicates that background data were not available. This was identified for Am-241, Cs-137, Pu-238, Pu-239, and H-3 for the media "Qbt 2,3,4", "Qbt 1v", and "Qbt 1g/Qct/Qbo". However, in reviewing the referenced 1998 LANL background document, in particular Table 6.0-2, a background value for these media for the above-listed radionuclides was provided. It is noted that the Table 6.0-2 indicates that the values provided are based upon nominal detected activity. However, it is not clear why the background values were not applied. Please clarify whether the background values for radionuclides that were based upon nominal detectable activity were not applied as a measure of conservatism, or provide additional rationale for why these data were not used.

**15. Table D-2.1-1, Page D-57:**

Four samples should have been collected for TAL metal analysis at location ID 35-24415 (for SWMU 35-004(h)), as agreed to by LANL in response to comment #6 of the request for supplemental information (RSI) dated April 14, 2003. Tables, D-2.1-1 and D-2.2-1 list only three samples taken at this location. The borehole advanced at location 35-22958 (for SWMU 35-002) should have been drilled and sampled to a depth of 30 feet, but the last depth sampled is at 15 feet. Additionally, samples collected at location 35-22958 should have been analyzed

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for tritium, alpha and gamma spectroscopy as indicated in the approved SAP. Extent of radiological contamination has not been defined for SWMU 35-002. Provide an explanation for not following the approved SAP.

**16. Table D-3.5-2, Page D-120:**

Maximum detected value for strontium-90 (for media code ALLH) is 1.25 pCi/g, which is less than the background/fallout value of 1.31 pCi/g. The table indicates that 1 of 9 samples was detected above background value. Resolve the discrepancy.

**17. Table D-4.5-2, Page D-120:**

Maximum detected value for cesium-137 (for media code ALLH) is 0.8 pCi/g, which is less than the background/fallout value of 1.65 pCi/g. The table indicates that 4 of 18 samples were detected above background/fallout value. Resolve the discrepancy.

**18. Table D-8.5-2, Page D-333:**

Maximum detected value for cesium-137 (for media code ALLH) is 0.257 pCi/g, which is less than the background/fallout value of 1.65 pCi/g. The table indicates that 5 of 24 samples were detected above background/fallout value. Resolve the discrepancy.

**19. Figures D-2.1-2 to D-8.5-4, Pages D-345 to D-479:**

These figures do not provide information on what is denoted by crosses and open circles. Provide legends for the figures. Figures for uranium-234, -235 and -238 for soil/fill for Mesa Top subarea have not been included in the Report. Revise figures accordingly and provide missing figures.

**20. Appendix F, Section F-3.2.3, Nature and Extent, Page F-22:**

The text for SWMU 35-009(a) states that no inorganic chemicals were detected at concentrations greater than BV, but mercury was detected at location 35-22960 at 0.136 mg/kg at depth of 6-7 feet as depicted in figure F-3.2-9. Revise the statement or resolve the discrepancy.

**21. Appendix F, Section F-4.2.1, Summary of Results, Page F-44:**

At consolidated unit 35-014(g)-00, zinc was detected at concentrations greater than BV at locations 35-02596 and 35-02170, 35-02169 and 35-22975. Zinc was detected at the concentration of 752 mg/kg in a surface sample at location 35-02170, at 163 mg/kg in a surface sample at location 35-02169; no samples were collected at greater depth at these locations. Zinc was detected at 586 mg/kg at 0.00-0.36 ft and at 214 mg/kg at 0.36-0.85 ft at location 35-22975. Explain how the extent of zinc contamination is considered defined. Revise the statement.

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**22. Appendix F, Section F-4.2.1, Summary of Results, Page F-46:**

At consolidated unit 35-004(g)-00, Aroclor1254 was also detected at location 35-22937, not only at location 35-23284 as reported in the text. Revise the text accordingly or resolve the discrepancy. Fix the typographical error; location ID should have been 35-22938 not 35-2938.

**23. Appendix F, Section F-4.2.1, Summary of Results, Page F-47:**

At consolidated unit 35-016(c)-00, according to Table D-3.3-2, cadmium was not detected at location 35-23291. The text states that cadmium was detected at this location. Resolve the discrepancy and revise the text accordingly.

**24. Appendix F, Section F-5.2.3, Nature and Extent, Page F-68:**

For consolidated unit 35-008-00 and AOC 35-016(e), text states that no radionuclides were detected on the slope. Plutonium-239 was detected at location 35-02250 and cesium-137 was detected at locations 35-02453 and 35-02454. Revise the text accordingly.

**25. Appendix F, Section F-5.2.3, Nature and Extent, Page F-72:**

For SWMU 35-016(p), at location 35-23188, cadmium, copper, lead, mercury and zinc concentrations increased with depth. Vertical extent of contamination is not defined at this sample location. However, as recommended in the Report, contaminated soils will be removed from this location and adjacent areas to remove PAH-contaminated soils. The removal activity may consequently result in removal of soils contaminated with metals at location 35-23188. Confirmatory samples must be collected from the sidewalls and bottom of the excavation. The removal activity and subsequent sampling may result in the delineation of nature and extent. NMED requires that confirmatory samples be analyzed for organic and inorganic constituents.

**26. Appendix F, Section F-6.2.3, Nature and Extent, Page F-89:**

For consolidated SWMU 35-003(d)-00, vertical extent is not defined for strontium-90. Strontium-90 concentrations increase with depth at locations 35-24402, and 35-24405. Strontium-90 was detected at a concentration of 34.6 pCi/g at location 35-24404 (0.82-1.28 ft). Revise the text accordingly.

**27. Appendix F, Section F-7.2.3, Nature and Extent, Page F-105:**

Consolidated unit 35-010(a)-99 is erroneously referred to as 35-010(a)-00 throughout the text. Fix the typographical errors.

**28. Appendix F, Section F-8.2.3, Nature and Extent, Page F-121:**

For consolidated unit 05-001(a)-99, text states that vertical extent for inorganic COPCs is defined because samples at locations 05-02055, 55-02056, and 55-02057 had no detected inorganic chemicals. At location 05-02056, chromium was detected at a concentration of 71.1 mg/kg and nickel at 493 mg/kg in the sample collected at 19-20 ft depth, the deepest depth

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sampled. At location 05-02060, lead concentrations increase with depth. Revise the text accordingly.

**29. Appendix F, Section F-8.2.3, Nature and Extent, Page F-124:**

For AOC 52-003(b), the approved Addendum proposed digging fifteen transects or auger holes (TR21-TR35). Data for these locations is not provided in Appendix E nor are these locations depicted on figures provided in the Report. Explain why approved SAP was not followed and these proposed locations not sampled.

**30. Tables F-3.4-7 to 9, Page F-176:**

Sixteen organic chemicals that were detected at SWMU 35-015(a) (see Appendix E) were not included in the screening evaluation (i.e., benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, and benzo(k)fluoranthene at location 35-02285; butanone[2-] at location 35-22928; chrysene at location 35-02285; DDT[4,4], hexanone[2-], and methyl-2-pentanone[4-] at location 35-22928; phenanthrene and pyrene at location 35-02285; tetrachloroethene at location 35-22928; trichloro-1,2,3 trifluorethane at location 35-02497; trichlorofluoromethane at location 35-02496; xylene[1,2-] and xylene[1,3]+xylene[1,4] at location 35-22928 were detected at various depths but were not included in the screening evaluation). Revise the screening evaluation to include these chemicals that were detected at depths greater than 0-1 ft.

**31. Table F-3.4-8, Page F-176:**

Maximum value for bis(2-ethylhexyl)phthalate should be 3.8 mg/kg (at location 35-02286 at 2-3 feet), not 0.686 as indicated in the table. Revise the table and screening evaluation for SWMU 35-015(a) using correct value.

**32. Table F-3.4-9, Page F-176:**

Europium-152 was detected at a concentration of 0.336 pCi/g at location 35-02497 at 1-2 ft; it should have been included in the table. Revise the table and screening evaluation for SWMU 35-015(a) using correct values.

**33. Table F-3.4-12, Page F-177:**

Cobalt-60 was detected at a concentration 0.1 pCi/g at location 35-02564 at 1-2 ft; it should have been included in the table. Revise the table and screening evaluation for SWMU 35-014(a) using correct value.

**34. Table F-3.4-13, Page F-178:**

The value for fluoranthene should have been 23 mg/kg instead of 4.6 mg/kg for the maximum value detected at 0-1 feet. Fluoranthene was detected at 23 mg/kg at location 35-02353 at 0-0.5 feet. Revise the table and screening evaluation for SWMU 35-018(a) using correct value.

**35. Table F-3.4-13 and -14, Page F-178:**

Mercury was detected at a concentration 0.41 mg/kg at location 35-02268 at 2-3 feet, and bis(2-ethylhexyl)phthalate was detected at a concentration 0.066 mg/kg at location 35-02294 at 2-2.5 feet. These should have been included in the tables. Revise the table and screening evaluation for SWMU 35-018(a) using correct values.

**36. Table F-3.4-19 and -20, Page F-180:**

Fix the typographical error in the caption. The consolidated unit should be denoted as 35-003(a)-99 instead of 35-003(a)-00. The following chemicals were not included in the screening evaluation: acetone was detected at a concentration of 0.11 mg/kg at 0-1 ft at location 35-02300, Aroclor 1260 at 14.2 mg/kg at location 35-02276 at 9-9.5 ft, mercury at 2.0 mg/kg at location 35-02300 at 0-1 ft, lead at 26.7 mg/kg at location 35-02441 at 0-1 ft, and silver at 1.9 mg/kg at location 35-02445 at 8-9 feet. Revise the table and screening evaluation for SWMU 35-003(a)-99 using correct values.

**37. Table F-3.4-21, Page F-181:**

Europium-152 was detected at a concentration of 0.506 mg/kg at 4-5 ft at location 35-02437 and plutonium-239 was detected at a concentration of 0.042 mg/kg at location 35-02271 at 7-7.5 ft. These chemicals were not included in the screening evaluation. Revise the table and screening evaluation for SWMU 35-003(a)-99 using correct values.

**38. Table F-4.4-4, Page F-189:**

Frequency of detects above BV for cesium-137 is reported as 7 of 41 but the maximum detected value is reported as 0.743 pCi/g, which is less than BV of 1.65 pCi/g. Similarly, for strontium-90, the reported maximum concentration of 1.25 pCi/g is less than BV of 1.31 pCi/g but the frequency of detects above BV column reports 1 of 9. Resolve the discrepancy.

**39. Figure F-3.2-19, Page F-338:**

Sampling location for 35-02292 is not depicted on the figure. Revise the figure to include this location on the figure.

**40. Figure F-4.2-2, Page F-342:**

Sampling locations of TR5 and TR7 proposed in the approved SAP (see Figure 3.2-3 of the SAP) do not correspond to the sampling locations 35-23201 and 35-22974 of Figure F-4.2-2. Provide an explanation for deviating from the approved SAP and not reporting the deviations in the Report.

**41. Figure F-4.2-3, Page F-343:**

Sampling locations of TR14 and TR15 proposed in the approved SAP (see Figure 3.2-4 of the SAP) do not correspond to the sampling locations 35-23290 and 35-023291 of Figure F-4.2-2.

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Provide an explanation for not following the approved SAP and not reporting the deviations in the Report.

**42. Figure F-4.2-5, Page F-345:**

In Figure F-4.2-5, sampling location depicted as 35-23299 should have been 35-23289. Provide a revised figure.

**43. Figure F-5.2-4, Page F-353:**

Chromium and nickel detected at location 35-02456 are not depicted on the figure. Location 35-23153 is erroneously marked as 35-23152. Provide a revised figure.

**44. Figure F-5.2-7, Page F-356:**

Two separate sampling locations are identified with the same location ID (35-02551). Provide a revised figure with corrected location IDs.

**45. Figure F-6.2-6, Page F-364:**

Sampling location for 35-22927 is erroneously marked as 35-02527. Correct the typographical error and provide a revised figure.

**46. Figure F-7.2-2, Page F-369:**

Sampling locations 35-22987 and 35-22993 should have been included as 2004/2005 sampling locations on the figure. Revise the figure accordingly and provide a revised figure.

**47. Figures F-7.2-4, -6 and -8, Page F-371, 373 and 375:**

Sampling locations 35-22987 and 35-22993 should have been depicted on the figures as 2004/2005 sampling locations and denoted by black triangles. Provide revised figures depicting these locations.

**48. Figure F-8.2-2, Page F-378:**

Sampling locations for TR21 - TR35 proposed in the approved Addendum, are not depicted in the figure. Provide an explanation for not collecting samples at these locations and deviating from the approved plan.

**49. Figure F-8.2-3, Page F-379:**

Sampling locations 04-23235, 04-23236, and 04-23239 do not correspond to the locations proposed in the Addendum. Provide an explanation for deviating from the approved Addendum.

**50. Figure F-8.2-4, Page F-371, 380:**

Sampling locations 05-02012, 05-02022, 05-02024 and 05-22893 are depicted on the figure as existing sampling locations (i.e., green circles); these locations should be depicted with black

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triangles indicating 2004/2005 sampling locations. Location 05-02019 is depicted as a new 2004/2005 sampling location (i.e., a black triangle), although it was an existing location and should be indicated as a green circle. Provide a revised figure.

### Other Comments

1. **Parameters Used to Calculate Chemical SSLs:** The tables that provide the input data used to calculate the soil screening limits (SSLs) for recreational users indicate that the averaging time for carcinogens is 70 years times 365 days. This is correct for an adult user, but for a child, the averaging time should be 6 years times 365 days. Please ensure that these values were used for the child trail user.
2. Conversions of dose into risk were computed using the code RESRAD. While the conversions appear reasonable, none of the RESRAD input/output files were provided for review. Please provide additional information from the RESRAD runs to support the conversions of the dose into risk.

The Permittees must respond to all comments as outlined in this letter within thirty (30) days of receipt of this letter. If you have any questions, please contact Neelam Dhawan at (505) 428-2540.

Sincerely,



James P. Bearzi  
Chief  
Hazardous Waste Bureau

JPB:nmd

cc: N. Dhawan, NMED HWB  
S. Yanicak, NMED DOE OB, MS J993  
L. King, EPA 6PD-N  
N. Quintana, ENV ERS, LANL, MS M992  
D. Stavert, ENV-DO, LANL, MS J591

File: ~~Reading and~~ LANL/Middle Mortandad/Ten Site Aggregate