

**Response to the Notice of Disapproval for the
Upper Mortandad Canyon Aggregate Area Investigation Report,
Los Alamos National Laboratory, EPA ID #NM0890010515, HWB-LANL-09-053,
Dated January 12, 2010**

INTRODUCTION

To facilitate review of this response, the New Mexico Environment Department's (NMED's) comments are included verbatim. The comments are divided into general and specific categories, as presented in the notice of disapproval. Los Alamos National Laboratory's (LANL's or the Laboratory's) responses follow each NMED comment. This response contains data on radioactive materials, including source, special nuclear, and byproduct material. Information on radioactive materials and radionuclides, including the results of sampling and analysis of radioactive constituents, is voluntarily provided to NMED in accordance with U.S. Department of Energy (DOE) policy.

GENERAL COMMENTS

NMED Comment

- 1. Section 9.2, Request for Certificates of Completion, Second, Fourth And Sixth Paragraphs, Pages 129 and 130:**

Requests for Certificates of Completion must be submitted under separate correspondence and not as part of the Report. Statements concerning site risks and the need for further investigation of Areas of Concern (AOCs), Solid Waste Management Units (SWMUs) and various Consolidated Units (CUs) are appropriately addressed in either the Conclusions or Recommendations Sections of the Report. The Permittees must remove the requests from this Report and submit the requests (as appropriate) in separate correspondence.

LANL Response

1. After receiving approval of the investigation report, requests for certificates of completion will be submitted under separate correspondence. The sentences requesting the certificates have been removed from section 9.2, and the text has been revised to indicate these sites are appropriate for corrective action complete with or without controls. The title of section 9.2 has been revised to "Recommendations for Corrective Actions Complete."

NMED Comment

- 2. Report Data Analysis Sections and Appendix I**

The intent of this comment is to direct the Permittees to combine information related to data analysis in one section of future reports to facilitate NMED's review of those reports. NMED is currently reviewing the Permittees' December 21, 2009 Request for Concurrence on Changes to the Format and Content of Investigation Reports Prepared by the Los Alamos National Laboratory (EP-2009-0688) and will be providing a response letter in the next few weeks. In the future, the Permittees must combine report sections pertaining to data analysis and the content of Appendix I within sections like Section 2.0 through 7.0 of this Report to facilitate NMED's review of the

document. Due to the size and complexity of this Report, it is not necessary for the Permittees to revise the Report by combining the information discussed in this comment.

LANL Response

2. The Laboratory has noted the comment and will incorporate the guidance in future investigation report submittals. As noted in NMED's comment, this approach was proposed by the Laboratory in a December 21, 2009, letter. NMED concurred with the proposed approach in a January 26, 2010, letter to the Laboratory.

NMED Comment

3. *The Report contains a discussion of the identification of contaminants of potential concern (COPCs) for sites that were investigated even though the Report states that investigation is not complete and additional site sampling is necessary. Since additional data will be collected at these sites, evaluation of the COPCs is premature. The new data, when added to the existing database, will require re-evaluation of the COPCs and updates to the statistical evaluations of the datasets. Therefore, COPC selection for those sites was not reviewed at this time. Review of COPC selection for these sites will be completed once the datasets are revised and completed.*

LANL Response

3. The Laboratory acknowledges NMED's approach to reviewing the evaluation of chemicals of potential concern (COPCs) for sites where the investigation is not complete and where additional sampling is required.

The Laboratory will also apply the approach described in NMED's comment to future investigation reports to facilitate NMED's review. This approach was agreed upon through telephone communications between the Laboratory and NMED personnel on February 23, 2010. In future reports, the Laboratory will not evaluate and identify COPCs for any sites where the extent of contamination has not been defined and where additional sampling is recommended.

NMED Comment

4. *In determining the selection of COPCs, if the maximum detected concentration at the site was less than the maximum detected background concentration, the constituent was eliminated as a COPC. This approach is not consistent with the methodology for conducting a site attribution analysis (see also, General Comment 7 below). In addition, using the approach of being less than the maximum background could result in overlooking low level contamination. It is noted that graphical representation of the data are provided, which in most cases confirms that the site data are not elevated when compared to background; however, the Report appears to provide the graphs as a summary of the data and not as a step in the site attribution analysis. If the site concentrations are greater than background, and the graphical data (e.g., histograms and/or box and whisker plots) are used to demonstrate that site data are not elevated compared to background, the Report must include a brief discussion of this analysis and the Permittees must revise the Report accordingly.*

LANL Response

4. Statistical comparisons cannot be conducted for all sites because a minimum number of samples per medium must be available to run the statistical tests. Based on input from statisticians (and personal

communication between Paige Walton and Rich Mirenda, July 22, 2009), the minimum number of samples needed to conduct the statistical comparisons is 10 per medium being evaluated. If less than 10 samples are available for a medium, the background comparisons will continue to be done as presented in the report (i.e., comparison to maximum background concentrations [personal communication between Paige Walton and Rich Mirenda, July 22, 2009]). During the conference call on December 2, 2009, referred to in General Comment 6, the Laboratory and NMED staff discussed the site attribution analysis and agreed the second bullet should be amended to address those instances when the sampling size is not sufficient for statistical analyses. The second bullet in General Comment 6 (and as presented in the January 20, 2010, proposed Hazardous Waste Permit for the Laboratory) should now read as follows:

If the site maximum exceeds the background reference value, and sample size is sufficient, statistically compare the site data set to the background data set using appropriate statistical analyses (e.g., Wilcoxon Rank Sum Test). If the sampling size is not sufficient to perform statistical analysis, a comparison of the maximum site concentration to the maximum background concentrations shall be used.

The graphical representations of the data are provided to confirm the site data are or are not elevated when compared with background and to illustrate the relationship of the site data to the background data. This graphical analysis of site data and background data is the third step in the site attribution analysis referred to in General Comment 6. Box plots provide a visual representation of the data and allow a visual comparison between site and background concentration distributions. The plots are used in conjunction with the statistical tests (distributional comparisons). Therefore, no additional text is needed to discuss the results presented by the statistical comparisons and in the box plots.

NMED Comment

5. *NMED notes some incorrect soil screening level (SSL) values in Table 1.6-1 as well as some missing constituents in the table. The Permittees must review the values presented in the table for accuracy and include other constituents and SSL values that were used in evaluating COPCs throughout the Report. For sites where human health and/or ecological risk screening was performed, the Permittees must review the SSL values that were used in the screening process to ensure that correct SSL values were applied for a particular scenario. For example, the Permittees should compare the SSLs for TCDD[2,3,7,8-] equivalent that are presented in Report Table J-4.2-29 to those presented in Table J-4.2-32. Also, it is not clear from the various site data that speciation information for chromium is available. As such, if the speciation is unknown, or if data are not available to justify speciation, then data for hexavalent chromium must be applied. The Permittees must revise the screening assessments as appropriate. See also Specific Comment 1. below.*

LANL Response

5. Table 1.6-1 has been revised to include all relevant COPCs and the correct soil screening levels (SSLs) and screening action levels (SALs). The screening assessments in Appendix J have also been revised as appropriate for the particular scenario. Table J-4.2-32 has been revised to include the correct construction worker SSL for TCDD[2,3,7,8-] (2,3,7,8-tetrachlorodibenzo-p-dioxin) equivalent.

The approved investigation work plan (LANL 2008, 100750; NMED 2008, 101110) called for hexavalent chromium to be analyzed for at Solid Waste Management Units (SWMUs) 03-045(h), 03-049(a), 03-049(e), 35-016(g), 35-016(h), 48-003, 48-005, 48-007(b), and 48-007(c), Consolidated

Unit 48-007(a)-00, and Area of Concern (AOC) 48-001. For all sites, total chromium was analyzed as part of the target analyte list metals suite, and the data were compared with the total chromium screening values from U.S. Environmental Protection Agency (EPA) regional screening tables. The assumption used for the sites for which only total chromium was analyzed for is that hexavalent chromium is not the predominant form of chromium, hexavalent chromium is not a potential contaminant, and total chromium is a representative analysis to characterize the sites. The screening comparison follows the Compliance Order on Consent (the Consent Order) directions in Section VIII, values from EPA should be used when SSLs are not provided by NMED. The comparison of total chromium data to the EPA total chromium SSLs has been performed even before the Consent Order went into effect. Therefore, no revision to the screening assessment is warranted based on chromium.

NMED Comment

6. Appendix I, Section I-1.2, Fifth Paragraph, Page I-2:

Permittees' Statement: *"Four inorganic chemicals, calcium, magnesium, potassium, and sodium, receive additional consideration if they are detected above their BVs. These inorganic chemicals are essential nutrients that are common in the natural environment. For this reason, they are not identified as COPCs if they are detected above background infrequently or slightly above background concentrations (generally less than 2–3 times the maximum background concentration), particularly if they are not likely to have been associated with historical Los Alamos National Laboratory (LANL or the Laboratory) activities at the site."*

NMED Comment: *During a conference call on December 2, 2009, LANL and NMED staff representatives discussed how essential nutrients would be addressed in the site attribution analysis. As agreed upon, essential nutrients will follow the same tiered approach as other inorganics. Using an arbitrary amount (two to three times above background) is not an appropriate method to determine whether a constituent is site-related. For essential nutrients, the following process must be followed.*

- *Compare maximum detected site concentrations to a background reference value (e.g., upper tolerance limit, UTL);*
- *If the site maximum exceeds the background reference value, and sample size is sufficient, statistically compare the site data set to the background data set using appropriate statistical analyses (e.g., Wilcoxon Rank Sum Test);*
- *Conduct a graphical analysis of site data and background data (e.g., histograms and/or box and whisker plots);*
- *Conduct a geochemical analysis of site data to a background reference chemical; and/or,*
- *Evaluate essential nutrients and compare to recommended daily allowances and/or upper intake limits.*

Revise the Report accordingly.

LANL Response

6. The text has been revised to eliminate the paragraph in Appendix I, section I-1.2. The less than 2–3 times the maximum background concentration approach was not used in evaluating essential nutrients in this appendix. The statistical comparisons to background, box plots, and comparisons to

the maximum background concentration (when not enough samples are available for statistics to be performed) were used to evaluate essential nutrients as COPCs per the site attribution analysis steps referred to in NMED's comment.

However, EPA Risk Assessment Guidance for Superfund (RAGS), Part A (EPA 1989, 008021) indicates that a nonquantitative/statistical evaluation of essential nutrients, as discussed in section 5.9.4 (p. 5-23) may be appropriate. Per the EPA guidance, "Chemicals that are (1) essential human nutrients, (2) present at low concentrations (i.e., only slightly elevated above naturally occurring levels), and (3) toxic only at high doses (i.e., much higher than those that could be associated with contact at the site) need not be considered further in the quantitative risk assessment." Given this direction, using statistics or comparisons with the maximum background concentration as the only means for eliminating essential nutrients as COPCs is inadequate. If an essential nutrient is detected only slightly above naturally occurring levels in a few samples, additional evaluation should be permitted because statistics are not sufficient to properly evaluate the essential nutrients. A qualitative justification should be allowed to eliminate these chemicals as COPCs where appropriate. The concentrations detected, even if they are above background, are typically far below concentrations that might be considered toxic, especially if the concentrations are within 2 or 3 times the background concentrations.

SPECIFIC COMMENTS

NMED Comment

1. Table 1.6-1, Soil Screening Levels and Screening Action Levels, Page 287:

The SSL for Aroclor-1254 under the industrial scenario listed in the table (1.12 milligrams per kilogram (mg/kg)) is incorrect. The correct value for that constituent/scenario combination is 8.26 mg/kg. Elemental mercury and vanadium are not included in the listings for inorganic chemicals and must be added to the table. Additionally, the SSL for chromium appears to be incorrect and SSLs for both trivalent and hexavalent forms of chromium must be included in the table. The Permittees must correct these SSL values and review the entire table to ensure correct values are used and that all applicable analytes are included in the table. See also General Comment 6 above.

LANL Response

1. Table 1.6-1 has been revised to include the correct SSLs for the COPCs listed, other COPCs have been added to the table (including elemental mercury and vanadium), and notes have been incorporated as appropriate. Tables J-4.2-6, J-4.2-15, and J-4.2-30 in Appendix J have been revised to include the correct SSL for Aroclor-1254 under the industrial scenario.

The SSLs for total chromium from the EPA regional screening tables for residential and industrial scenarios are correct as originally presented in the table. Hexavalent chromium SSLs have been added to Table 1.6-1. Trivalent chromium SSLs are not included in Table 1.6-1 because trivalent chromium was not analyzed for per the approved investigation work plan, and the values are not as protective as either the total chromium or hexavalent chromium (see response to General Comment 5).

NMED Comment

2. Report Table of Contents (TOC), Page XIX, and Table 4.14-3, Pages 318 and 319:

Review of the TOC and Table 4.14-3 (Organic Chemicals Detected at AOC 03-041) indicates the table numbering sequence may be listed incorrectly in the TOC and on the table itself. Other tables associated with AOC 03-041 (Tables 2.14-1, -2, and -4) are numbered differently. The Permittees must review the TOC and the table numbering sequence to verify that the numbering sequence is correct for this AOC, or correct the Report as needed.

LANL Response

2. The table of contents and the table title have been corrected, and Table 4.14-3 is now Table 2.14-3. The numbering sequence for the other tables associated with AOC 03-041 were correct and do not require any change.

NMED Comment

3. Section 2.3.4, Delayed Site Investigation Rational, Page 16:

During a June 19, 2009 meeting with NMED, the Permittees' representatives indicated that data from a Toxic Substances Control Act (TSCA) 1992 cleanup was not available at the time the Upper Mortandad Canyon Aggregate Area Investigation Work Plan (UMCAA IWP) was submitted. The Permittees have subsequently supplied sufficient information to support delaying investigation of AOC 03-003(i) until decontamination and decommissioning (D&D) of building 03-32 is conducted. See also General Comment 5 above and Specific Comment 3 of the March 24, 2008 Approval with Modifications, Investigation Work Plan for Upper Mortandad Canyon Aggregate Area (AWM). Other than acknowledging that Specific Comment 3 of the AWM will be complied with at the time of D&D of building 03-32, no further response to this comment is needed.

LANL Response

3. The Laboratory acknowledges the comment and will comply with Specific Comment 3 of the March 24, 2008, Approval with Modifications, Investigation Work Plan for Upper Mortandad Canyon Aggregate Area, at the time building 03-32 undergoes decontamination and decommissioning (D&D).

NMED Comment

4. Section 2.9.4 Delayed Site Investigation Rationale, Page 26:

The Permittees must comply with the sampling and analytical requirements outlined in Specific Comment 10 of the AWM.

LANL Response

4. In section 2.9.4, delayed investigation was proposed for AOC 03-026(a) because the sump is located in the basement of an active nuclear facility and cannot be safely or practicably investigated at this time. The Laboratory will comply with Specific Comment 10 of the March 24, 2008, Approval with Modifications, Investigation Work Plan for Upper Mortandad Canyon Aggregate Area, at the time building 03-66 undergoes D&D.

NMED Comment

5. Section 2.14.4.2, Soil, Rock, and Sediment Field-Screening Results, First Sentence, Page 34:

Permittees' Statement: "No elevated organic vapors were detected during [photo-ionization detector] PID screening of subsurface cores."

NMED Comment: At AOC 03-041, elevated organic vapors (greater than 100 parts per million (ppm)) were noted in Table 1.4-2 at the following locations: MO-604987, 20-21.5 feet, 119 ppm; MO-604988, 1-2.5 feet, 131 ppm; MO-604988, 16-17.5 feet, 127 ppm; and, MO-604988, 26-27.5, 133 ppm. Although none of the samples with elevated readings contained volatile organic compounds (VOCs) at detectable concentrations, the Permittees' statement must be revised to acknowledge the elevated PID readings.

LANL Response

- Text has been added to section 2.14.4.2 to indicate organic vapors were detected above 100 ppm in four samples during photoionization detector (PID) screening of subsurface cores, and no visible evidence of contamination was present in those samples.

NMED Comment

6. Section 2.17.4.4, Nature and Extent of Contamination, Last Paragraph, Page 43:

Permittees' Statements: "The lateral extent of aluminum, chromium, total cyanide, lead, and perchlorate are not defined on the south side of the site." and, "The lateral and vertical extent of all other inorganic, organic, and radionuclide COPCs are defined."

NMED Comment: At CU 03-049(b)-00, chromium concentrations are increasing with depth at sample locations MO-605026 and MO-605031 which indicates the vertical extent of chromium contamination has not been defined on the east side of the site at those locations. Barium and beryllium concentrations are also increasing with depth at sample location MO-605031 which indicates the vertical extent has not been defined for those metals at that location. Lead and nickel concentrations are increasing with depth at sample location MO-605027 which indicates the vertical extent has not been defined for those metals at that location. The Permittees must revise the text statements in the Report to reflect all observed site conditions and propose additional evaluation at CU 03-049(b)-00 to determine the vertical extent of metals at the locations discussed in this comment.

LANL Response

- As shown in Table 2.17-1, a third sample was collected from greater depths at each of the locations (8–10 ft below ground surface [bgs] at location MO-605026; 6.5–7.5 ft bgs at location MO-605027; 6.5–7.5 ft bgs at location MO-605031). Because the concentrations in the deeper samples are below background value (BVs), they are presented only on the data DVDs in Appendix H. At locations MO-605026 and MO-605031, the concentration of chromium decreased to below the BV in the deepest samples (3.33 mg/kg at location MO-605026; 5 mg/kg at location MO-605031). At location MO-605031, the barium result in the deepest sample was rejected because the associated matrix spike recovery was less than 10%, but the reported concentration of barium was 23.9 mg/kg (below the BV of 46.0 mg/kg), a substantial decrease from the concentrations in the upper two samples. The beryllium concentration decreased to 0.312 mg/kg (below the BV of 1.21 mg/kg) in the deepest sample at location MO-605031. At location MO-605027, concentrations of both lead and nickel

decreased to below their BVs in the deepest sample (lead to 8.13 mg/kg, nickel to 3.36 mg/kg). Therefore, all metal concentrations decreased with depth at these locations, and vertical extent is defined. No revision to the text of section 2.17.4.4 is necessary.

NMED Comment

7. Section 9.2, Request for Certificates of Completion, Pages 129 and 130:

The Permittees requested Certificates of Completion without controls for eleven sites discussed in the Report. The request includes SWMU 03-034(a) which is located in building 03-154 and consists of four underground RLW storage tanks which are each located inside concrete vaults. The RLW tanks were taken out of service in 1985 and have not been reconnected to a replacement waste line installed at that time.

Four soil borings were placed around the perimeter of building 03-154. Based on analytical data from samples collected from the borings, a risk-screening assessment concluded the site does not pose unacceptable human health risks under a residential scenario. The soil samples were collected from depths over 15 feet below ground surface (bgs) so no complete exposure pathways are present at the site and ecological risk screening was not conducted for the site.

Soil samples have not been collected from beneath or immediately adjacent to the RLW tanks or from the concrete floors in the building. In Section 2.12.7 of the Report, the Permittees indicated that investigations performed to-date at the site are not sufficient to fully determine the nature and extent of potential contamination at the site. The Permittees have also indicated that further investigation of the site should be delayed until such time as buildings 03-154 and 03-29 (also known as the Chemistry and Metallurgy Research building) are decontaminated and decommissioned. Accordingly, NMED cannot consider issuance of a Certificate of Completion (with or without controls) until site risks are fully evaluated at SWMU 03-034(a). See also General Comment 1.

LANL Response

7. References to SWMU 03-034(a) have been removed from the text in sections 8.1.1, 8.2.1, and 8.2.2. The text in section 9.2 has been revised to remove SWMU 03-034(a) from the list of sites that pose no potential unacceptable risks or doses under a residential scenario. The text in section 9.2 has also been revised to indicate that certificates of completion will be requested under separate correspondence for sites recommended and approved as complete with or without controls (see response to General Comment 1).

NMED Comment

8. Appendix I, Data Review and Assessment, Section I-2.15.1.1, Inorganic Chemicals in Soil, Fifth Paragraph, First Sentence, Page 1-44:

Permittees' Statement: "Hexavalent chromium, nitrate, and perchlorate were detected in at least soil sample and have no BVs."

NMED Comment: Revise the text to indicate the number of samples the constituents were found in at SWMU 03-049(a).

LANL Response

8. The text in Appendix I, section I-2.15.1.1, has been revised as follows: "Hexavalent chromium, nitrate, and perchlorate were detected in at least one soil sample and have no BVs."

NMED Comment

9. **Section 3.2.4.4, Nature and Extent of Contamination, Last Paragraph, Page 53 and Appendix I, Section I-3.1.5.1, Second Paragraph, Page I-86:**

Permittees' Statement: "The lateral and vertical extent of cesium-137 are not defined at SWMU 35-016(g) in the drainage at location MO-605136." and, "Chromium was detected above the BV in the deeper samples at locations MO-604933 and MO-604935, at concentrations of 26.3 and 18.1 mg/kg, respectively. These concentrations are less than twice the maximum background concentration. Chromium was not detected above the BV in the samples at the farthest downslope locations MO-604936 and MO-604937. The lateral and vertical extent of chromium are defined."

NMED Comment: Citing sample location MO-605136 may represent a typographical error; based on the discussion presented in Section I-3.1.5.1, the applicable sample location is likely MO-604937. While NMED agrees that the extent of cesium-137 contamination has not been defined, the Permittees must review the Report figures and tables to confirm the applicable sample location.

At SWMU 35-016(g), chromium is reported at 9.3 mg/kg in the 0-1 foot interval at sample location 35-02386. At adjacent sample location CAMO-09-5978, chromium is reported present at 26.3 mg/kg in the 1.5-2.5 foot sample interval, indicating the vertical extent of chromium contamination has not been identified at that location. Comparison of contaminant concentrations with background values (BVs) or multiples of background values is not appropriate when determining vertical extent; if the concentration is increasing with depth and the highest relative concentration is in the deepest sample interval, vertical extent has not been determined at that location. The Permittees must revise the text statements in the Report to reflect site conditions and discuss the potential need for additional evaluation of chromium at SWMU 35-016(g).

LANL Response

9. The statement in section 3.2.4.4 regarding extent for cesium-137 has been revised as follows: "The lateral and vertical extent of cesium-137 are not defined at SWMU 35-016(g) in the drainage at location MO-604936 and at the location farthest downslope, MO-604937." Tables 3.2-1 and 3.2-4, Figure 3.2-3, and the text in Appendix I, section I-3.1.5.3, list the correct locations and do not require revision. The text in Appendix I, section I-3.1.5.3, has also been revised to refer to MO-604937 as the farthest downgradient location.

The text in section 3.2.4.4 and in Appendix I, section I-3.1.5.1, has been revised to indicate chromium concentrations increase with depth at locations MO-604933 and MO-604935 and the vertical extent is not defined at these locations.

The bulleted lists in sections 8.1.2 and 9.1 have been revised to indicate the vertical extent of chromium is not defined at SWMU 35-016(g).

NMED Comment

10. Section 4.2.4.2, Soil, Rock, and Sediment Field Screening Results, First Sentence, Page 58:

Permittees' Statement: "No elevated organic vapors were detected during PID screening of samples."

NMED Comment: At CU 42-001(a)-99, elevated organic vapors (greater than 100 ppm) were noted in Table 1.4-2 at the following locations: MO-605060, 0-0.5 feet, 2,900 ppm; MO-605068, 40-41.5 feet, 386 ppm; MO-605068, 50-51.5 feet, 612 ppm, MO-605288, 0-0.5 feet, 141 ppm; and, MO-605288, 4-4.5 feet, 1,299 ppm. VOCs were not analyzed at locations MO-605060, 0-0.5 feet or MO-605288, 0-0.5 feet. Both sample locations were described as "fill". According to the discussion in the last paragraph of Section 4.2.1 (Site Description and Operational History), SWMU 42-003 (which is included in CU 42-001(a)-99) consisted of a septic system that included a septic tank, a drainline, a filter trench, a tile leach field and an outfall to Mortandad Canyon. The discussion also indicates the septic system may have received solvents, acids, and grease. The Report text must be revised to include a discussion concerning the detected organic vapors at the site and how field decisions were made concerning whether or not to analyze samples for VOCs at locations with elevated vapor readings. The discussion must include an analysis of whether additional site evaluation is needed for VOCs at CU 42-001(a)-99.

LANL Response

10. Organic vapors were field screened in the 0–0.5-ft interval for health and safety purposes only. Consistent with other investigations, the approved investigation work plan specified that volatile organic compounds (VOCs) will not be analyzed for in samples collected from the surface (e.g., locations MO-605060, 0–0.5 ft bgs and MO-605288, 0–0.5 ft bgs) because VOCs are very unlikely to be retained in surface soil and sediment. It is even less likely that VOCs are retained in surface material identified as fill because fill material typically has been mechanically excavated, transported, and placed at the current site. Such extensive disturbance provides ample opportunity for volatile compounds to volatilize into the atmosphere. The subsurface samples collected at locations MO-605060, MO-605068, and MO-605288 were analyzed for VOCs as proposed in the approved investigation work plan.

Consolidated Unit 42-001(a)-99 was a facility used to store and decontaminate radioactively contaminated equipment and to incinerate certain radioactive wastes. It is unlikely that VOC contamination would be identified anywhere other than at locations with residual radiological contamination. Table 1.4-2 shows that despite elevated organic vapors in some samples, neither alpha- nor beta/gamma-screening readings were elevated. For this reason and because no corresponding signs of contamination were found (visible staining or odors), the field team determined additional sampling depths were not warranted. Because VOCs were analyzed in all but the surface (0–0.5 ft bgs) samples at the locations mentioned and no substantial concentrations of VOCs were detected, additional site evaluation of Consolidated Unit 42-001(a)-99 is not necessary. The text in section 4.2.4.2 has been modified to include the discussion presented in this response.

NMED Comment

11. Section 5.3.4.4, Nature and Extent of Contamination, Last Paragraph, Page 65 and Appendix I, Section I-5.2.1.1, Fifth Paragraph, Second Sentence, Pages I-115 and I-116:

Permittees' Statement: "The lateral and vertical extent of all inorganic, organic, and radionuclide COPCs are defined, except for the vertical extent of perchlorate." and, "Mercury is interpreted as being substantially above background, and no further evaluation is necessary."

NMED Comment: Sample locations 48-02133 and MO-604926 had reported mercury concentrations of 22.4 mg/kg and 27.6 mg/kg, respectively. These concentrations are approximately three times higher than the residential SSLs for mercury (7.71 mg/kg) and were found in the 0-0.5 foot interval at each location. In the case of location 48-02133, deeper samples were not collected so the vertical extent has not been determined at that location. The Permittees must consider limited soil removal and sampling to confirm removal of mercury-contaminated soils at these two locations. According to Section 5.3.1 of the Report, approximately 200 rusty flasks were found during an inspection at SWMU 48-002(a) in 1986. Each flask apparently held approximately two quarts of high purity mercury. The Report indicates the flasks had been present since about 1976 and that they were removed in 1989 but the Report does not indicate whether any soil was removed during flask removal activities. Section 5.3.3 of the Report indicates an expedited cleanup plan was developed for SWMUs 48-002(a and b) and implemented in 1995. The cleanup plan established soil cleanup levels for mercury and polycyclic aromatic hydrocarbons (PAHs) and provided for soil removal activities in an area east of SWMU 48-002(a). The Report does not indicate what the established cleanup levels were, how much soil was removed, or the final disposition of the contaminated soil. The limited, future soil removal action may be proposed as part of Phase II sampling efforts to delineate perchlorate vertical extent and mercury vertical extent at sample location 48-02133.

Residential SSLs are also exceeded for certain PAH compounds at sample locations MO-604921, MO-604924 and MO-604926 (also an elevated mercury location). The Permittees must also consider proposing limited soil removal and confirmation sampling for PAHs at these locations during Phase II sampling efforts.

The areas of elevated mercury and PAH compounds are quite small, with all affected sample locations less than approximately 35 feet from each other according to Report Figures 5.3-2 and 5.3-3.

LANL Response

11. A risk-screening assessment for SWMUs 48-002(a and b) has not been conducted because the extent of contamination has not been defined. When additional sampling has been completed, the risk-screening assessment will use the elemental mercury SSLs in the evaluation because previous investigations have noted the presence of metallic mercury in the soil. Although the concentrations of mercury in two samples exceed the residential elemental mercury SSL, they do not exceed the industrial elemental mercury SSL. Because these sites are located within an active technical area (TA) within the Laboratory, the current and reasonably foreseeable future land use is industrial. The decision concerning soil removal will be addressed after the risk assessment is performed.

The same approach will be used with regard to the polycyclic aromatic hydrocarbons (PAHs). In this case, concentrations of benzo(a)pyrene in several samples exceed the industrial SSL and other PAH concentrations are close to the industrial SSLs. However, based on the site description and the operational history of these sites, PAHs are not related to releases and are probably from the

adjacent asphalt roadway, as stated in section 5.3.1: “The storage area was located against the south wall of building 48-1 on an area of soil between the building and an asphalt roadway.” Therefore, the elevated PAH concentrations are probably from pieces of asphalt in the samples, and soil removal is not an appropriate corrective action for these sites. However, the site decision will not be made until additional samples are collected and a risk assessment is performed.

NMED Comment

12. Sections 5.7.4.1, 5.7.4.2, and 5.7.4.3; Discussions Concerning Delayed Investigations, Pages 72, 73, and 74:

CU 48-004(a)-99 includes SWMU 48-004(a,b,c) which includes sumps and tanks in the basement of the main radiochemistry laboratory (building 48-1). The Permittees have provided documentation to support delaying investigation of the CU until D&D of building 48-1. Information provided by the Permittees includes drawings which illustrate piping, floor drains, and sumps located in the building basement and on the first building floor. A drawing showing the layout of the RLW as it exits from building 48-1 was also provided. The Report indicates that although various sumps located in building 48-1 are no longer active, they function as part of a secondary containment system within the building. Placing borings in the sumps would compromise the integrity of the system. Field notes taken during the June 19, 2009 on-site meeting indicate the Permittees would provide inspection records, photographic documentation of tank integrity, and facility procedures for inspecting and repairing flooring cracks. Section 5.7.1 of the Report indicates the sumps and tanks were last inspected in late-1991 or early-1992. The information requested at the June 2009 meeting is not provided in the Report and must be included in the revised Report.

LANL Response

12. The text in sections 5.7.1, 5.7.2, 5.7.4.1, 5.7.4.2, and 5.7.4.3 has been revised to provide additional details on the design, construction, and operation of the tanks and sumps comprising these SWMUs. Additional engineering drawings have been provided in Appendix C, C-9, to illustrate how these waste-treatment systems were constructed and to show design details related to waste containment. Photographs have been provided to show current site conditions and the integrity of the remaining tanks and sumps (Appendix C, C-9). Because these tanks and sumps are not actively used to manage waste, they are not specifically included in the facility’s inspection schedule. The active liquid waste collection systems in the vicinity of these sites, however, are inspected daily. Conditions that could result in releases of contamination to the environment (e.g., leakage from active liquid waste lines) are noted during these inspections. Copies of a current inspection form and several representative past inspection forms are provided in the revised report (Appendix C, C-9).

The statement indicating the sumps and tanks were last inspected in late 1991 or early 1992 is not correct. The text has been revised to state the purpose of the referenced inspections was to assess site conditions at the time the Operable Unit 1129 Resource Conservation and Recovery Act facility investigation (RFI) work plan was being prepared. The revised report notes that inspections have been performed more recently.

NMED Comment

13. Section 5.8.4.1 Soil, Rock, and Sediment Sampling, First Paragraph, Last Sentence, Page 76:

Permittees' Statement: "Sampling at SWMU 48-005 will consist of the following activities:"

NMED Comment: Subsequent Sections of the Report include discussion of the sampling that was completed in 1997 and 2009. The language may be a carry-over from a previous work plan submittal. Revise the sentence to reflect what sampling was completed as part of the investigation.

In Sections 5.8.5 and 5.8.6 (Summary of Human Health Risk Screening and Summary of Ecological Risk Screening, respectively), the Report discussion is focused on AOC 48-001 rather than SWMU 48-005, while the following Section (5.8.7, Delayed Site Investigation Rational) continues discussion of 1993 sampling results at SWMU 48-005. Review the affected Sections and revise the numbering as needed.

LANL Response

13. The verb tense in section 5.8.4.1 has been revised from "will consist" to "consisted" and now reads "Sampling at SWMU 48-005 consisted of the following activities. . . ." Sections 5.8.5 and 5.8.6 have been revised to reference SWMU 48-005 and not AOC 48-001.

NMED Comment

14. Section 5.9.4.2 Soil, Rock, and Sediment Field Screening Results, First Sentence, Page 81:

Permittees' Statement: "No elevated organic vapors were detected during PID screening of samples."

NMED Comment: At SWMU 48-007(a)-00, elevated organic vapors (greater than 100 ppm) were noted in Table 1.4-2 at the following locations: MO-605119, sample intervals from zero to 17 feet had PID readings of 340 to 2,231 ppm, MO-605121, sample intervals from zero to 19 feet had PID readings of 281 to 2,416 ppm, and MO-605122, sample intervals zero to 19 feet had PID readings of 218 to 2,416 ppm. Although only one of the samples with such elevated readings contained VOCs at detectable concentrations (MO-605121, acetone at 0.00795 ppm), other samples collected at intervals where VOCs were detected by PID were not analyzed for VOCs. The Report text must be revised to include a discussion concerning elevated organic vapors detected by field screening and the basis for field decisions made concerning whether or not to analyze samples for VOCs at locations with elevated organic vapor readings.

LANL Response

14. At locations MO-605119, MO-605121, and MO-605122 (as at other locations at this and other sites as noted above in the response to Specific Comment 10), the only samples not submitted for VOC analysis were the surface samples (0–0.5 ft bgs) per the approved investigation work plan. All other samples were submitted for VOC analysis, as indicated in Table 5.9-1. Surface samples are routinely not submitted for VOC analyses because of the high probability that VOCs in the surface have volatilized to the atmosphere. At these locations, the PID readings decreased substantially with depth and were approximately an order of magnitude lower in the deepest samples than in the shallower samples. As noted in NMED's comment, only one sample with elevated PID readings contained VOCs at detectable concentrations (MO-605121, acetone at 0.00795 ppm). The text in

section 5.9.4.2 has been revised to indicate some samples had elevated PID readings and to state the rationale for field decisions.

NMED Comment

15. Section 5.12.4.2, Soil, Rock, and Sediment Field Screening Results, First Sentence, Page 88:

Permittees' Statement: "No elevated organic vapors were detected during PID screening of samples."

NMED Comment: At SWMU 48-007(f), elevated organic vapors (greater than 100 ppm) were noted in Table 1.4-2 at the following locations: MO-605097, zero to 0.5 feet, 1 to 2 feet and 3 to 3.5 feet intervals all reported PID readings of greater than 10,000 ppm, MO-605099, 2.5 to 3 feet had a PID reading of 3,275 ppm, and MO-605101, zero to 0.5 feet, 1 to 2 feet, and 3 to 3.5 feet had PID readings of 750, 3,497 and 229 ppm, respectively. The intervals with elevated readings were either not analyzed for VOCs or VOCs were not present at detectable concentrations. The Report text must be revised to include a discussion concerning elevated organic vapors at the site and the basis for field decisions concerning whether or not to analyze samples for VOCs at locations with elevated vapor readings.

LANL Response

15. At locations MO-605097, MO-605098, MO-605099, and MO-605101, the only samples not submitted for VOC analysis were the surface samples (0–0.5 ft bgs) per the approved investigation work plan. All other samples were submitted for VOC analysis as indicated in Table 5.12-1. Surface samples are routinely not submitted for VOC analyses because of the high probability that VOCs in the surface have volatilized to the atmosphere (see response to Specific Comment 10).

Although PID readings were elevated in the deepest sample at these locations, the field team did not collect any deeper samples. Because there was no other indication of contamination at these locations (visible staining or odors), no additional samples were collected at greater depths. As noted in NMED's comment, no concentrations of VOCs were detected in the samples with elevated PID readings. The text in section 5.12.4.2 has been revised to indicate that some samples had elevated PID readings and to state the rationale for field decisions.

NMED Comment

16. Section 5.13.4.1, Soil, Rock, and Sediment Sampling, First Paragraph, Last Sentence, Page 90:

Permittees' Statement: "Sampling at AOC 48-011 will consist of the following..."

NMED Comment: In Section 5.13.4.1, change the tense from future tense to past tense in the last sentence of the first paragraph.

LANL Response

16. The verb tense in section 5.13.4.1 has been revised from "will consist" to "consisted" and now reads "Sampling at AOC 48-011 consisted of the following activities in 2009. . . ."

NMED Comment

17. Section 5.13.4.1, Soil, Rock, and Sediment Sampling, First Paragraph, Last Sentence, Page 90 and Section 5.13.4.4, Nature and Extent of Contamination, Second Paragraph, Page 91:

Permittees' Statements: *"The vertical extent for all inorganic and organic COPCs is defined at AOC 48-011. Lateral extent was not evaluated because only one location was sampled, as directed by the approved work plan (LANL 2008, 100750; NMED 2008, 101110)." and, "Sampling at AOC 48-011 will consist of the following..."*

NMED Comment: *One sample was approved to determine if a release had occurred at this AOC; it sufficiently defined the vertical nature and extent at that sample location. However, additional sampling is needed at AOC 48-011 to define the nature and extent of contamination at the AOC. The Permittees must modify the Report to reflect that the extent of contamination is not defined at AOC 48-011. Revise the text to indicate past, rather than future, tense to describe the sampling that was performed at the AOC.*

LANL Response

17. The verb tense in section 5.13.4.1 has been revised as indicated in the response to Specific Comment 16.

The second paragraph of section 5.13.4.4 has been revised to indicate the lateral extent of contamination is not defined for inorganic and organic COPCs because only one location was sampled. Also, sections 8.1.4 and section 9.1 have been revised to include AOC 48-011 in the list of sites requiring additional sampling to define the nature and extent of contamination. Section 9.2 has also been revised to remove AOC 48-011 from the list of sites that have been found not to pose potential unacceptable risks or doses under a residential scenario.

NMED Comment

18. Section 5.14.5, Summary of Human Health Risk Screening, Page 93, Section 9.2, Request for Certificates of Completion, Fifth Paragraph, Pages 129 and 130 and Appendix J, Risk Assessments, Section J-4.2.6, AOC 48-012 Page J-15:

AOC 48-012 had a slightly elevated cancer risk for the residential scenario when compared to the target risk level of 1E-05. The risk is primarily driven by the presence of PAHs. It is unclear whether the detections of the PAHs are due to the presence of asphalt or past site activities. A voluntary removal action was completed at this site and additional removal may be warranted. The Permittees must provide additional discussion of site data in the Report concerning whether additional removal may be warranted or if site controls such as limiting the site to industrial use only is justified.

LANL Response

18. AOC 48-012 has only subsurface contamination. The industrial scenario was not evaluated because this receptor is not exposed to the residual levels of contamination present following a voluntary corrective action conducted in 2002. The construction worker scenario indicates no potential unacceptable risk. Because the site is located within an active TA at the Laboratory, the current and reasonably foreseeable future land use is industrial. Therefore, the site is recommended as corrective action complete with controls. As stated in section 9.2, the Laboratory intends to retain ownership of the property indefinitely and will continue to restrict the property to industrial use only. The controls

required include continuation of the current land use (i.e., industrial) and maintenance of current site conditions. The Laboratory has several processes in place to ensure work conducted within the site boundaries is performed with the appropriate controls to protect future workers from exposure to potential contamination. Text has been added to Appendix J, section J-4.4, to clarify why the industrial scenario was not evaluated. The recommendation for AOC 48-012 (section 9.2) of corrective action complete with controls has not been revised.

NMED Comment

19. Section 6.3.4, Delayed Site Investigation Rationale, Page 98:

The Permittees have indicated a process is underway to provide upgrades to the vaults, including replacement of seals which have deteriorated over time, allowing infiltration of stormwater into the vault/manhole penetrations. The Permittees have not indicated when the upgrades will be completed. The Permittees must provide a schedule for upgrading the vault/manhole seals. Revise the Report as necessary.

LANL Response

19. Three vaults were scheduled to be upgraded and sealed in fiscal year (FY) 2010. To date, one vault has been completed, and the other two vaults are scheduled to be completed by the end of July 2010. Three additional vaults will be upgraded and sealed in FY2011. The text in section 6.3.4 has been revised to present the schedule for upgrading the vault seals.

NMED Comment

20. Section 6.4.1, Site Description and Operational History, Page 99:

The Report indicates that waste line 67 was plugged in 1975 but the Report does not indicate whether additional waste lines or tanks that are no longer in use at SWMU 50-002(a) have been plugged as directed in the AWM. Revise the Report to include discussion on the status of inactive lines and tanks at the SWMU and provide a schedule for plugging or otherwise abandoning inactive structures as appropriate.

LANL Response

20. No drainlines (other than waste line 67) have been abandoned and/or plugged, and no tanks associated with vault building 50-2 have been abandoned. Although two of the tanks are available for standby use, they are still classified as active and have not been abandoned. The tanks and waste lines associated with vault building 50-2 will continue to be used until the new Radioactive Liquid Waste Treatment Facility (RLWTF) is constructed and comes online in 2013 or 2014. The text in section 6.4.1 has been revised to indicate no other waste lines have been abandoned and/or plugged, and all the tanks are active.

NMED Comment

21. Section 6.6.4.3, Swipe Sampling Analytical Results, Page 102, Section 6.6.7, Delayed Site Investigation Rationale, Page 103 and Section 8.1.5, TA-50, Page 126:

The Permittees have provided sufficient documentation to support delaying investigation of AOC 50-002(d) until D&D of the TA-50 RLWTF by providing additional information on construction details and noting that area access is very difficult due to space and utility concerns. However, the Permittees state that the nature and extent of contamination is defined at AOC 50-002(d). It is not clear how the Permittees made this determination based on analyses of four swipe samples. The site has never been characterized. NMED noted that swipe samples collected at AOC 50-002(d) contained several metals and PAHs in addition to Aroclor-1260. The Report indicates that since the tank was only used to store nitric acid and the detected swipe sample inorganic and organic contaminants from the sump below the tank "...are unrelated to AOC 50-002(d)." While this assertion may or may not be the case, no discussion of the source of the contaminants is provided. The future site investigation work plan to define the nature and extent of site contamination must include proposed analyses of nitrate, nitrite, target analyte list (TAL) metals, polychlorinated biphenyls (PCBs), semi-volatile organic compounds (SVOCs), gamma-emitting radionuclides, isotopic plutonium, and isotopic uranium.

LANL Response

21. The Laboratory acknowledges that the nature and extent of contamination are not defined for AOC 50-002(d) on the basis of swipe sample results. Section 8.1.5 has been revised, removing AOC 50-002(d) from the list of sites for which the nature and extent of contamination are defined. Section 9.1 already indicates additional sampling is required at AOC 50-002(d) and does not require revision.

The text in Appendix I, section I-6.5.5.3, has been revised to remove statements that extent is defined.

Future site investigations at AOC 50-002(d) after D&D of the TA-50 RLWTF will include analyses of nitrate, nitrite, target analyte list metals, polychlorinated biphenyls, semivolatile organic compounds, gamma-emitting radionuclides, isotopic plutonium, and isotopic uranium.

NMED Comment

22. Section 6.8.4.2, Soil, Rock, and Sediment Field-Screening Results, Page 105, Table 6.8-2, Inorganic Chemicals above BVs at Consolidated Unit 50-004 (a)-00, Page 511, and Appendix B, Deviations from Work Plan, Section B-8.0, Page B-5:

Permittees' Statements: "No elevated organic vapors were detected during PID screening of samples."

NMED Comment: At CU 50-004(a)-00, elevated organic vapors (greater than 100 ppm) were noted in Table 1.4-2 at the following locations: MO-605625, 15 to 17 feet, 139 ppm and MO-605625, 20 to 21.5 feet, 115 ppm. Although VOCs were not reported present in either sample interval, the Report text must be revised to discuss the observed, elevated PID readings in the samples and provide the basis for field decisions that were made concerning whether or not to analyze samples for VOCs at locations with elevated vapor readings.

Soil, sediment, and Qbt background values reported in the Table 6.8-2 for magnesium, manganese, mercury, nickel, nitrate, perchlorate, potassium, selenium, silver, thallium, vanadium, and zinc are incorrect. For example, the sediment background value for nickel is reported as 2,370 mg/kg while the correct value is 9.38 mg/kg. The Permittees must revise this table (and any other table with incorrect values) with correct background values.

The Permittees refer to sampling locations 4a-12, 4a-15, 4a-17, 4a-19, and 4a-30 through 4a-33 in the text and in Table B-8-0-1. The Permittees were not able to collect samples at these locations due to the presence of utilities and various safety concerns. These locations are not depicted on Figure 6.8-1 of the Report or on Figure 6.8-1 (Proposed Sampling locations at Consolidated Unit 50-004(a)-00) of the revised UMCAA IWP. Table 1.4-3 of the Report which provides the cross walk between proposed and sampled locations does not provide the information because samples were not collected. Without knowledge of locations where samples were proposed but not collected, it is difficult for NMED to determine if investigation is complete at CU 50-004(a)-00. The Permittees must provide a figure that depicts the locations where samples were proposed but could not be collected.

LANL Response

22. Although PID readings were elevated, the field team did not observe any other evidence of contamination (visible staining or odors), and PID readings decreased with depth. Therefore, no additional samples were collected. As noted in NMED's comment, no detectable concentrations of VOCs in the samples with elevated PID readings were detected. The text in section 6.8.4.2 has been revised to indicate some samples had elevated PID readings and to state the rationale for field decisions.

Table 6.8-2 has been revised to list the correct BVs for magnesium, manganese, mercury, nickel, nitrate, perchlorate, potassium, selenium, silver, thallium, vanadium, and zinc.

Figure 6.8-1 has been revised to include the eight proposed sampling locations that could not be sampled. The locations are indicated by a distinct symbol and legend entry to clarify their status.

NMED Comment

23. Appendix I, Radionuclides in Sediment, Section I-6.8.3.3, Page I-191:

The Permittees state that at SWMU 50-006(a) americium-241 was detected in 37 sediment samples, with a maximum sample concentration of 2.844 pCi/g. Review of the data indicates that it was detected at concentrations of 4.172 pCi/g and 3.219 pCi/g at locations 50-06561 and 50-06563, respectively. Similarly, maximum sample concentration for plutonium-239/240 is 19.51 pCi/g (at location 50-06563), not 12.815 pCi/g as reported. The Permittees must revise the text accordingly.

LANL Response

23. The text in Appendix I, section I-6.8.3.3, has been revised to provide the correct maximum concentrations of americium-241 (4.172 pCi/g) and plutonium-239/240 (19.51 pCi/g).

NMED Comment

24. Section 6.10.5; Summary of Human Health Risk Screening, Pages 111 and 112 and Section J-4.2.7, SWMU 50-006(c), Page J-15:

SWMU 50-006(c) has an elevated residential cancer risk for the residential scenario. The primary risk drivers are PAHs. In addition to an elevated cancer risk, the radiological dose for both the industrial worker and the resident exceeded the target dose level of 15 millirem per year (mrem/yr). This also results in excess cancer risk in the residential scenario. Additional site evaluation is necessary if Corrective Action Complete without controls is the desired site status; otherwise, the site must be limited to industrial use only.

Several inconsistencies were noted between the text and Tables J-4.2-29 and J-4.2-30. For example, the total excess cancer risk and the Hazard Index (HI) under the industrial scenario are 4×10^{-6} and 0.001, not 5×10^{-6} and 0.003, respectively. The Permittees must revise the text accordingly.

LANL Response

24. SWMU 50-006(c) consists of the surface soil contamination at TA-50 resulting from the deposition of radioactive contaminants (primarily plutonium and americium) from historical stack emissions at TA-50. The elevated cancer risk for the residential scenario is from PAHs from the asphalt roads and parking lots. The PAHs are not related to historical stack emissions. Therefore, PAHs should be eliminated from the risk-assessment calculations because they are not related to the SWMU. With PAHs removed, the excess cancer risk is reduced to 2×10^{-7} , which is less than the NMED target risk level of 1×10^{-5} (NMED 2009, 106420). Therefore, no potential unacceptable cancer risk exists for the residential scenario. Sections 6.10.5 and J-4.4 of Appendix J have been revised to include this discussion.

As discussed in the uncertainty analysis (section J-4.3.2), the doses at SWMU 50-006(c) are in part influenced by thorium-232, which is a naturally occurring isotope of thorium. The soil BV for thorium-232 is 2.33 pCi/g (LANL 1998, 059730) and is subtracted from the exposure point concentration (EPC) (4.03 pCi/g). The dose is recalculated using the portion of thorium-232 above background (1.7 pCi/g). By subtracting the background contribution (2.33 pCi/g) for thorium-232 from the EPC, the total doses are 11 mrem/yr, 12 mrem/yr, and 26 mrem/yr for the industrial, construction worker, and residential scenarios, respectively. Therefore, the total doses for the industrial and construction worker scenarios are below the DOE target dose of 15 mrem/yr (DOE 2000, 067489).

SWMU 50-006(c) is appropriate for corrective actions complete without controls because no potential unacceptable risk exists under a residential scenario. Although there is potential unacceptable dose under a residential scenario, DOE maintains, and will continue to maintain, controls over the use of this site, as required by DOE Order 5400.5. The potentially unacceptable dose is primarily from cobalt-60, which has a half-life of 5.3 yr. Because of radioactive decay, this site should pose no potential unacceptable dose under the residential scenario in approximately 10 yr. At that time, DOE will continue to maintain controls over the site or demonstrate that such controls are no longer needed. The text in section 9.2 has been revised to include the recommendation for corrective action complete without controls under a residential scenario.

Table J-4.2-29 is correct. Table J-4.2-30 has been revised to include the correct industrial noncarcinogenic SSL and the correct hazard index (HI) for Aroclor-1254. The text in sections J-4.2.7 and J-4.4 has been revised to present the correct industrial cancer risk and HI for this site as presented in the tables.

NMED Comment

25. Section 6.15.4, Delayed Site Investigation Rational, Pages 117 and 118:

The Permittees have provided some documentation to support delaying investigation of AOC 50-010 until D&D of the TA-50 facility. NMED noted that the floor drains in room 34B of building 50-1 and the connected piping that goes to a large tank in vault building 50-2 are no longer in use. Photos provided by the Permittees (Appendix C, C-13 a, b, and f) show an open floor drain located next to various containers and drums that are stored on secondary containment pallets. While NMED does not object to delay of investigation at this AOC, the revised Report must provide a schedule for plugging the floor drains in room 34B of building 50-1 and describe how the drains will be plugged. Alternatively, the Permittees must provide documentation indicating why the floor drains cannot or should not be plugged.

LANL Response

25. The sentence in section 6.15.1 stating the waste line connecting the floor drains in room 34B and the storage tanks in vault building 50-2 is no longer active has been deleted. As stated in the next to last sentence of section 6.15.1 of the revised report, "The floor drains in room 34B are open and piped directly to the 75,000-gal. influent tank in vault building 50-2." Room 34B in building 50-1 currently houses two 25,000-gal. storage tanks for treated effluent from the RLWTF, which is sampled and analyzed to ensure National Pollutant Discharge Elimination System (NPDES) permit requirements are met before it is discharged to the SWMU 50-006(d) NPDES-permitted outfall 051 in Mortandad Canyon. The containers stored on secondary containment pallets next to the treated effluent tanks contain chemicals used to adjust the pH of effluent to ensure it meets NPDES requirements before it is discharged. The floor drains in room 34B remain open to ensure any potential releases from the treated effluent tanks are directed to the 75,000-gal. influent tank in vault building 50-2. The floor drains will remain operational until the new RLWTF is constructed and comes online in 2013 or 2014. The text in section 6.15.1 has been revised to indicate the floor drains will remain operational until the new RTWTF is constructed and comes online in 2013 or 2014.

NMED Comment

26. Section 6.16.3, Summary of Previous Investigations for SWMU 50-011(a), Page 118:

The Permittees state that Phase I RFI activities were conducted at SWMU 50-011(a) in 1994, the data were presented in the RFI report, and no metals or radionuclides were detected above BVs. It is not clear if some of the data from 42 samples (six depths from seven locations) collected in 1994 is included in Table 6.16-1. Table 6.16-1 only reports data for seven samples collected from four locations. The Permittees must clarify if data from the 1994 investigations was of decision level quality and is included in the Report. Also provide information concerning the time-frame that samples with the "AAC0XYZ" designation were collected.

In October 2004, two boreholes were drilled (sampling locations 50-23548 and 50-23549) and three samples were collected from each borehole. Table 6.16-1 reports samples collected from only two depths for each location. The Permittees must provide an explanation for excluding data from the risk screening evaluations.

The Permittees refer to four samples collected from location 50-24250. The data are discussed in the text but were not included in Table 6.16-1 and the risk screening evaluations did not include data from this location in Table 6.16-1.

In Specific Comment 60 of the March 28, 2008 AWM, the Permittees were directed to provide documentation in the Report that describes the removal of the seepage pit and presents the results of post-removal confirmation sampling. The Permittees must provide the requested information in the revised Report, or explain why the work was not conducted and provide a work plan and proposed schedule for collection of the additional data.

LANL Response

26. Table 6.16-1 includes all investigation samples for which decision-level data are available.

Section 6.16.3 states that seven samples were collected from seven sampling locations. This text was incorrect and should have been stated that seven samples were collected from four locations during the 1994 Phase I RFI. The seven samples are included in Table 6.16-1. The text of the first paragraph in section 6.16.3 has been revised to clarify the number of samples collected and the number of sampling locations. As stated in that paragraph, the samples with the "AAC0xyz" designation were collected in 1994.

The text of section 6.16.3 incorrectly states three samples were collected from both borehole locations, 50-23548 and 50-23549. In fact, only two samples were collected from each location. The depths of each sample collected were also incorrect in the text. The text in section 6.16.3 has been revised to give the correct number of samples and their depths. The samples from these locations were collected from depths greater than 52 ft bgs and are, therefore, not applicable for inclusion in the risk-screening assessments.

Section 6.16.3 states that the actual location of the seepage pit was discovered on November 15, 2004. During the excavation for the foundation of new building 50-250, the backhoe uncovered a perforated polyvinyl chloride drop pipe and gravel associated with the seepage pit. The location of the seepage pit was designated as 50-24250. Four samples were collected from location 50-24250 within the seepage pit as the pit was excavated. Samples were collected at 16–16.5-ft bgs and at the bottom of the seepage pit from 32–32.5-ft bgs. Photographs documenting the sampling and removal of the seepage pit were provided in Appendix C, C-14 and have been reorganized and labels added for additional clarification in the revised report.

The total depth of the seepage pit was 32 ft bgs, not 50 ft bgs as stated in sections 6.16.1 and 6.16.3. The text in section 6.16.3 has been revised accordingly. Although the sampling results from location 50-24250 are summarized in section 6.16.3, the location was subsequently excavated and, therefore, is not included in Table 6.16-1 and the related data tables and figures. Because the site was excavated to below the depth of the samples and no longer represents site conditions, the data were not used in the risk-screening assessments for SWMU 50-011(a). The data from the samples collected beneath the seepage pit indicated the nature and extent of contamination were not defined. Since the former seepage pit is now located beneath building 50-250, additional samples cannot be collected. As stated in the approved investigation work plan, delayed investigation is recommended for SWMU 50-011(a) because completing characterization of the site, which is located next to an active nuclear facility, is not feasible. Additional site characterization of the seepage pit will also be delayed until D&D of the RLWTF.

NMED Comment

27. Section 6.16.5.4, Nature and extent of Contamination, Page 120:

In the revised UMCAA IWP, the Permittees proposed to delay investigation of SWMU 50-011(a) until D&D of the RLWTF. The Permittees did not collect any additional samples in 2009. No data have been collected from beneath the former septic tank, inlet or outlet pipes. The nature and extent of contamination is not defined for the SWMU. The Permittees must collect additional samples to define the nature and extent of contamination. The Permittees may defer the investigation until D&D of the RLWTF. Revise the Report accordingly.

LANL Response

27. The Laboratory concurs that the nature and extent of contamination are not defined at SWMU 50-011(a). Therefore, sections 6.15.5 through 16.16.7 describing site contamination, nature and extent, and risk screening and all corresponding data tables and figures called out in these sections have been deleted. The text in sections 8.1.5, 8.2.1, 8.2.2, and 9.2 has been revised to remove all references to SWMU 50-011(a). In addition, all text, figures, and tables associated with SWMU 50-011(a) in Appendixes I and J have also been deleted.

Because it is not currently feasible to collect additional samples, SWMU 50-011(a) is recommended for delayed site investigation. The text in section 6.16.4 has been revised to provide rationale for delaying characterization until D&D of the RLWTF.

NMED Comment

28. Section 8.0, Conclusions, Pages 125 through 128 inclusive:

Revise all subsections as appropriate based on the General and Specific comments in this NOD.

LANL Response

28. Sections 8 and 9 have been revised to reflect changes to site conclusions in response to the general and specific comments, as appropriate.

NMED Comment

29. Appendix B, Field Methods, Section B-3.1, Field Screening for VOCs, Last Sentence, Page B-1:

Permittees' Statements: *"The screening results are presented in Table 4.5-1 of the investigation report."*

NMED Comment: *According to the Report TOC, there is no Table 4.5-1 in the Report. The screening results are summarized in Table 1.4-2 of the Report, starting on page 257. Revise the statement to reference the correct table number.*

LANL Response

29. The text in Appendix B, section B-3.1, has been corrected to refer to Table 1.4-2.

NMED Comment

30. Appendix I, Section I-1.2.1, Third And Fourth Paragraphs, Page I-3:

Permittees' Statements: "The standard set of tests is run whenever the detection rate for both the site data set and the Laboratory background data set is greater than 50%; if there are fewer than 50% detections in either set, then the Gehan test is not applicable." (emphasis added by NMED) and, "If the Gehan test is not applicable because either the site or background data set includes more than 50 percent nondetects, the quantile test is performed first."

NMED Comment: The Gehan test uses a modified ranking of sample results to accommodate non-detected values together with detected values, and then applies the Wilcoxon rank-sum test. The Gehan test is recommended when non-detects are relatively frequent (greater than 10% and less than 50%), but not if either of the two data sets has more than 50% non-detects. Therefore, the step wise approach described in the report appears to contradict the applicability of the Gehan test. Revise the Report to include a step-by-step description of the statistical procedures applied to the investigation data. See also: Gehan, E.A., 1965, A Generalized Wilcoxon Test for Comparing Arbitrarily Singly-Censored Samples. *Biometrika* 52.1 and 52.2: pp. 203-223; and, Millard, W.P. and S.J. Deverel. 1988, Nonparametric Statistical Methods for Comparing Two Sites Based on Data with Multiple Nondetect Limits. *Water Resources Research* 24-12: 2087-2098.

LANL Response

30. NMED's comment that "The Gehan test is recommended when non-detects are relatively frequent (greater than 10% and less than 50%), but not if either of the two data sets has more than 50% non-detects" says essentially the same thing as the Laboratory's statement that "The standard set of tests is run whenever the detection rate for both the site data set and the Laboratory background data set is *greater* than 50%; if there are *fewer* than 50% detections in either set, then the Gehan test is not applicable" (emphasis added). That is, if there are too many nondetects in either the site data set or the background data set, the Gehan test should not be used. Therefore, no revision is necessary.

NMED Comment

31. Appendix I, Nature and Extent of Inorganic COPCs, Section I-6.8.5.1, Page I-193:

The Permittees state that the lateral and vertical extent of nickel is defined. The maximum detected concentration of nickel (58.9 mg/kg) was from the most distant sample point location in the canyon. Detected concentrations of nickel increased down slope; therefore, the lateral extent of nickel is not defined. The Permittees must revise the text to reflect site conditions.

LANL Response

31. The text in Appendix I, section I-6.8.5.1, has been revised to state the following:

Nickel was not detected above BV immediately below the outfall area and for 600–700 ft downgradient of the outfall. Nickel was detected above the BV at three locations within Ten Site Canyon at a substantial distance from SWMU 50-006(a), with the maximum concentration (58.9 mg/kg) detected at location 50-06541, which is approximately 1300 ft downgradient of the outfall. Concentrations decreased with depth at all three locations. The maximum nickel concentration is within reach TS-1C in Ten Site Canyon and is the farthest downcanyon sampling location presented in

the report. However, nickel was not detected above BV in two adjacent sampling locations (50-06542 and 50-06543) (Figure 6.9-2) or in samples collected in farther downcanyon reaches in Ten Site and Mortandad Canyons (LANL 2006, 094161, Table 6.2-1). Therefore, the lateral and vertical extent of nickel are defined for SWMU 50-006(a).

REFERENCES

- DOE (U.S. Department of Energy), June 13, 2000. "Procedure for the Release of Residual Radioactive Material from Real Property," U.S. Department of Energy memorandum to D. Glenn, I.R. Triay, M. Zamorski, E. Sellers, D. Gurule, and D. Bergman-Tabbert from C.L. Soden, Albuquerque, New Mexico. (DOE 2000, 067489)
- EPA (U.S. Environmental Protection Agency), December 1989. "Risk Assessment Guidance for Superfund, Volume I: Human Health Evaluation Manual (Part A), Interim Final," EPA/540/1-89/002, Office of Emergency and Remedial Response, Washington, D.C. (EPA 1989, 008021)
- LANL (Los Alamos National Laboratory), September 22, 1998. "Inorganic and Radionuclide Background Data for Soils, Canyon Sediments, and Bandelier Tuff at Los Alamos National Laboratory," Los Alamos National Laboratory document LA-UR-98-4847, Los Alamos, New Mexico. (LANL 1998, 059730)
- LANL (Los Alamos National Laboratory), February 2008. "Investigation Work Plan for Upper Mortandad Canyon Aggregate Area, Revision 1," Los Alamos National Laboratory document LA-UR-08-1272, Los Alamos, New Mexico. (LANL 2008, 100750)
- NMED (New Mexico Environment Department), March 24, 2008. "Approval with Modifications, Investigation Work Plan for Upper Mortandad Canyon Aggregate Area," New Mexico Environment Department letter to D. Gregory (DOE-LASO) and D. McInroy (LANL) from J.P. Bearzi (NMED-HWB), Santa Fe, New Mexico. (NMED 2008, 101110)
- NMED (New Mexico Environment Department), August 2009. "Technical Background Document for Development of Soil Screening Levels, Revision 5.0," New Mexico Environment Department, Hazardous Waste Bureau and Ground Water Quality Bureau Voluntary Remediation Program, Santa Fe, New Mexico. (NMED 2009, 106420)

Cross-Reference of NMED NOD Comments and Revisions to Upper Mortandad Canyon Aggregate Area Investigation Report

NMED NOD Comment No.	Summary of NOD Comment Requirement	Section(s)/Page(s) in Original Report	Section(s)/Page(s) in Revised Report	Nature of Revision
General Comments				
1	Do not request certificates of completion in the investigation report.	Section 9.2, pp. 129–130	Section 9.2, pp. 129–130	Revised text to remove sentences requesting certificates of completion Changed heading of section.
2	Incorporate data review material into main text sections and delete data review appendix in future submittals	Appendix I	None	No revisions necessary. Guidance will be incorporated in future investigation report submittals.
3	No requirement. NMED commented that sections of the report discussing chemicals of potential concern (COPCs) were not reviewed for sites where the investigation is not complete.	Main text, Appendix I	None	No revisions necessary. Evaluation and identification of COPCs for sites where extent of contamination is not defined and additional sampling is recommended will not be included in future investigation reports.
4	Comparison to maximum background concentration to identify COPCs is not consistent with approved methodology of statistical and/or graphical methods; report should include discussion of graphical analyses if used to state site data not elevated.	Appendix I	None	No revisions necessary. The agreed approach allows that “If the sampling size is not sufficient to perform statistical analysis, a comparison of the maximum site concentration to the maximum background concentrations shall be used.”
5	Review soil screening levels (SSLs) in Table 1.6-1 and correct as needed; revise the screening assessments in Appendix J as appropriate.	Table 1.6-1 Appendix J, Tables J-4.2-29 and J-4.2-32	Table 1.6-1, pp. 285–286 Appendix J text and Table J-4.2-32	Revised Table 1.6-1 to include all relevant COPCs and correct SSLs/screening action levels (SALs). Revised Table J-4.2-32 to include correct construction worker SSL for 2,3,7,8-tetrachlorodibenzo-p-dioxin equivalent. Revised screening assessment as necessary to reflect corrected SSLs/SALs.
6	Revise evaluations of essential nutrients, do not use arbitrary levels (e.g., 2–3 times background).	Appendix I, section I-1.2, p. I-2	Appendix I, section I-1.2, p. I-2.	Revised text; only statistical and graphical comparisons were used to evaluate whether essential nutrients are elevated.

NMED NOD Comment No.	Summary of NOD Comment Requirement	Section(s)/Page(s) in Original Report	Section(s)/Page(s) in Revised Report	Nature of Revision
Specific Comments				
1	Correct the SSL for Aroclor-1254 in Table 1.6-1; add SSLs for elemental mercury, vanadium, hexavalent chromium, trivalent chromium. Review entire table to ensure correct SSLs are included.	Table 1.6-1, pp. 287–288	Table 1.6-1, pp. 285–286 Tables J-4.2-6, J-4.2-15, and J-4.2-30	Revised tables to include the correct SSLs. Did not add trivalent chromium to table because it was not analyzed per approved work plan and is not as protective as total or hexavalent chromium. Added notes to tables as appropriate.
2	Correct discrepancy in table number for organic chemicals detected at Area of Concern (AOC) 03-041 (listed as Table 4.14-3 in table of contents and in table title).	Main text, p. xix Table 4.14-3	Table of contents, p. xviii; Table 4.14-3 title, pp. 316–318	Changed “Table 4.14-3” to “Table 2.14-3” in the table of contents and table title.
3	Acknowledge that Specific Comment 3 of the approval with modifications will be complied with at the time of decontamination and decommissioning (D&D) of building 03-32.	Section 2.3.4, p. 16	None	No revisions necessary.
4	Comply with sampling and analytical requirements outlined in Specific Comment 10 of NMED’s approval with modifications.	Section 2.9.4, p. 26	None	No revisions necessary. AOC 03-026(a) is in an active nuclear facility and will be investigated after building 03-66 undergoes D&D.
5	Revise text to acknowledge elevated field-screening results.	Section 2.14.4.2, p. 34	Section 2.14.4.2, p. 34	Revised text to indicate four samples had photoionization detector (PID) readings above 100 ppm but no visible evidence of contamination found.
6	Revise text to indicate vertical extent was not defined for some metals at Consolidated Unit 03-049(b)-00.	Section 2.17.4.4, p. 43	None	No revisions necessary. Concentrations of all indicated metals decreased to below background values (BVs) in deepest sample at the three locations mentioned and vertical extent is defined.
7	Do not request certificate of completion for Solid Waste Management Unit (SWMU) 03-034(a) because extent sampling is not complete, pending D&D of CMR building.	Section 9.2, pp. 129–130	Sections 8.1.1, 8.2.1, 8.2.2, and 9.2, pp. 125–130	Revised sections to remove references to SWMU 03-034(a).

NMED NOD Comment No.	Summary of NOD Comment Requirement	Section(s)/Page(s) in Original Report	Section(s)/Page(s) in Revised Report	Nature of Revision
8	Revise text to indicate the number of samples with hexavalent chromium, nitrate, and perchlorate were found at SWMU 03-049(a).	Appendix I, section I-2.15.1.1, p. I-44	Appendix I, section I-2.15.1.1, p. I-44	Revised text to indicate the analytes were detected in at least one soil sample at SWMU 03-049(a).
9	Review figures to confirm applicable sampling location; revise text to reflect site conditions and discuss need for additional evaluation of chromium at some locations to define extent.	Section 3.2.4.4, p. 53 Appendix I, section I-3.1.5.1, p. I-86	Section 3.2.4.4, p. 53 Section 8.1.2, p. 125 Section 9.1, p. 128 Appendix I, section I-3.1.5.1, p. I-86, and section I-3.1.5.3, p. I-86	Revised section 3.2.4.4 to correct the location. Revised text in section I-3.1.5.1 to indicate vertical extent of chromium is not defined. Revised text in section I-3.1.5.3 to refer to MO-604937 as the farthest downgradient location; revised text in sections 8.1.2 and 9.1 to indicate vertical extent of chromium is not defined at SWMU 35-016(g).
10	Revise text to discuss detected organic vapors (field screening) and the basis of field decisions concerning whether or not to analyze for volatile organic compounds (VOCs); discuss whether additional site evaluation is needed for VOCs.	Section 4.2.4.2, p. 58	Section 4.2.4.2, p. 58	Revised text to indicate elevated organic vapors were detected in some samples during field screening and samples (except surface) were analyzed for VOCs according to approved work plan.
11	Consider limited soil removal and sampling for mercury at locations MO-604926 and 48-02133; also consider proposing limited soil removal for polycyclic aromatic hydrocarbons.	Section 5.3.4.4, p. 65 Section I-5.2.1.1	None	No revisions necessary. Extent is not defined; therefore, no risk screening was conducted.
12	Provide inspection records, photographic documentation of tank integrity, and facility procedures for inspecting and repairing flooring cracks.	Sections 5.7.4.1, 5.7.4.2, 5.7.4.3, pp. 72-74	Sections 5.7.1, 5.7.2, 5.7.4.1, 5.7.4.2, 5.7.4.3, pp. 72-75 Appendix C, C-9	Revised text to describe the tanks and sumps comprising the SWMUs. Provided additional engineering drawings illustrating containment of the tanks. Provided photographs of current conditions and current and past inspection records.
13	Correct verb tense of sentence and correct reference to site in sections 5.8.5 and 5.8.6.	Section 5.8.4, p. 76	Section 5.8.4.1, p. 76 Sections 5.8.5, and 5.8.6. p. 78	Corrected verb tense in section 5.8.4.1, and corrected site number in sections 5.8.5 and 5.8.6.

NMED NOD Comment No.	Summary of NOD Comment Requirement	Section(s)/Page(s) in Original Report	Section(s)/Page(s) in Revised Report	Nature of Revision
14	Revise text to included discussion of elevated organic vapors (field screening) and basis for field decisions about whether to analyze for VOCs.	Section 5.9.4.2, p. 81	Section 5.9.4.2, pp. 81–82	Revised text to indicate some elevated organic vapor (PID) readings obtained and provided rationale for field decisions.
15	Revise text to included discussion of elevated organic vapors (field screening) and basis for field decisions about whether to analyze for VOCs.	Section 5.12.4.2, p. 88	Section 5.12.4.2, p. 89	Revised text to indicate some elevated organic vapor (PID) readings obtained and provided rationale for field decisions.
16	Correct verb tense of sentence.	Section 5.13.4.1, p. 90	Section 5.13.4.1, p. 91	Corrected verb tense of sentence.
17	Revise text to indicate nature and extent are not defined at AOC 48-011 and correct verb tense of sentence.	Section 5.13.4.1, p. 90 Section 5.13.4.4, p. 91	Section 5.13.4.1, p. 91 Section 5.13.4.4, p. 92 Section 8.1.4, p. 126 Section 9.1, p. 129 Section 9.2, p. 129	Revised text to indicate lateral extent not defined. Removed AOC 48-011 from list of sites found to pose no unacceptable risk under a residential scenario. Corrected verb tense of sentence.
18	Provide additional discussion of site data concerning whether additional removal may be warranted or if site controls are justified.	Section 5.14.5, p. 93 Section 9.2, pp. 129–130 Section J-4.2.6, p. J-15	Section J-4.4, p. J-19	Added text to clarify why an industrial scenario was not evaluated.
19	Provide schedule for upgrading vault/manhole seals and revise report as necessary.	Section 6.3.4, p. 98	Section 6.3.4, p. 99	Revised text to present the schedule for upgrading the vault seals.
20	Discuss status of inactive lines and tanks and provide schedule for plugging or otherwise abandoning inactive structures as appropriate.	Section 6.4.1, p. 99	Section 6.4.1, p. 100	Revised text to indicate no drainlines other than waste line 67 have been abandoned and/or plugged and all tanks in vault building 50-2 remain active.
21	Remove AOC 50-002(d) from sites where nature and extent are defined and include proposed analyses of nitrate, nitrite, target analyte list metals, polychlorinated biphenyls, semivolatile organic compounds, gamma spec, isotopic plutonium, and isotopic uranium in future investigation reports.	Section 6.6.4.3, p. 102 Section 6.6.7, p. 103 Section 8.1.5, p. 126	Section 8.1.5, p. 126 Section I-6.5.5.3, p. I-174	Removed AOC 50-002(d) from list of sites for which the nature and extent are defined and revised text to remove statements that the extent is defined.

NMED NOD Comment No.	Summary of NOD Comment Requirement	Section(s)/Page(s) in Original Report	Section(s)/Page(s) in Revised Report	Nature of Revision
22	Revise text to discuss elevated PID readings as the basis for field decisions on VOCs. Revise Table 6.8-2 to correct BVs. Provide a figure depicting locations where samples were proposed but could not be collected.	Section 6.8.4.2, p. 105 Table 6.8-2 Section B-8.0, p. B-5	Section 6.8.4.2, p. 106 Figure 6.8-1 Table 6.8-2	Revised text to indicate some elevated organic vapor (PID) readings obtained and provided rationale for field decisions. Revised Table 6.8-2 to include correct BVs, and revised Figure 6.8-1 to show proposed locations that could not be sampled.
23	Revise text to state correct maximum concentrations of americium-241 and plutonium-239/240.	Section I-6.8.3.3, p. I-191	Section I-6.8.3.3, pp. I-190–I-191	Corrected maximum concentrations for americium-241 and plutonium-239/240.
24	Perform additional site evaluation or limit site to industrial use only. Correct inconsistencies between text and Tables J-4.2-29 and J-4.2-30.	Section 6.10.5, pp. 111–112 Section J-4.2.74, p. J-15	Section 6.10.5, p. 113 Section 9.2, p. 129 Section J-4.2.7, p. J-15 Section J-4.4, p. J-20 Table J-4.2-30	Clarified total excess cancer risk is not related to historical releases. Revised table to include correct SSL for Aroclor-1254. Revised hazard index (HI) values to reflect change in SSLs. Revised text to present correct industrial cancer risk and HI for this site.
25	Provide schedule for plugging floor drains in room 34B of building 50-1, and describe how drains will be plugged. Alternatively, provide documentation to explain why drains cannot or should not be plugged.	Section 6.15.4, pp. 117–118	Section 6.15.1, p. 118	Revised text to remove statement that the waste line connecting the floor drains in room 34B are no longer used and will remain operational until the new Radioactive Liquid Waste Treatment Facility (RTWTF) is constructed.
26	Clarify if 1994 data (42 samples) are decision-level and are included in report. Provide time frame for samples with “AAC0xyz” designation. Provide explanation for samples from locations 50-23548 and 50-23549. Explain why data from location 50-24250 are not included in Table 6.16-1. Provide documentation of removal of seepage pit.	Section 6.16.3, p. 118	Section 6.16.3, p. 119–120	Revised text to clarify number of samples collected in 1994 and number of locations sampled. Revised text to state that two, not three, samples were collected from each borehole location. Corrected total depth of the seepage pit. Explained why data from location 50-24250 were excluded from risk-screening assessments.

NMED NOD Comment No.	Summary of NOD Comment Requirement	Section(s)/Page(s) in Original Report	Section(s)/Page(s) in Revised Report	Nature of Revision
27	Collect additional samples to define nature and extent of contamination (may defer until D&D of RLWTF; revise report accordingly).	Section 6.16.5.4, p. 120	Section 6.16.4, 6.16.5, 6.16.6, 6.16.7, 8.1.5, 8.2.1, 8.2.2, 9.2, I-6.15, J-2.1.3, J-2.2, J-2.3, J-3.1, J-4.2.8, J-4.3.2, J-4.4, J-5.4.8, J-5.5.2, J-6.1, and J-7.0 Figures 6.16-1, 6.16-2, 6.16-3, 6.16-4, I-6.15.1, I-6.15.2, I-6.15.3, and I-6.15.4 Tables 6.16-1, 6.16-2, 6.16-3, 6.16-4, I-6.15-1, J-2.2-11, J-4.0-1, J-4.2-38, J-4.2-39, J-4.2-40, and J-4.2-41, J-6.1-1	Deleted text regarding nature and extent discussion and risk-screening assessments. Revised text to recommend delayed investigation and provide rationale for delaying characterization until D&D of the RLWTF. Deleted sections describing site contamination, nature and extent, and risk screening and all corresponding data tables and figures referenced in these sections. Deleted text, figures, and tables associated with SWMU 50-011(a) in Appendixes I and J.
28	Revise all subsections based on the general and specific comments in the NOD.	Section 8.0, pp. 125–128	Section 8.0, pp. 125–127 Section 9.0, pp. 128–130	Revised text and bullet lists to reflect changes in responses to NOD comments.
29	Correct reference to screening results table (call out Table 1.4-2 instead of Table 4.5-1).	Appendix B, section B-3.1, p. B-1	Appendix B, section B-3.1, p. B-1	Corrected text to call out Table 1.4-2.
30	Revise report to include step-by-step description of statistical procedures applied to investigation data.	Section I-1.2.1, p. I-3	None	No revisions necessary. Description of procedures is consistent with NMED's statement.
31	Revise text to indicate lateral extent of nickel is not defined.	Section I-6.8.5.1, p. I-193	Section I-6.8.5.1, p. I-192	Revised text to indicate lateral extent of nickel is defined.