Response to the Notice of Disapproval for the Phase II Investigation Work Plan for North Ancho Canyon Aggregate Area, Los Alamos National Laboratory, EPA ID No: NM0890010515, HWB-LANL-10-104, Dated March 4, 2011

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 policy.

GENERAL COMMENTS—MULTI INCREMENTAL SAMPLING

NMED Comment

The Permittees have already conducted and are proposing additional Multi Incremental (MI) sampling to characterize PCB contamination associated with two capacitor staging areas and other areas used for stockpiling and handling waste and contaminated soils at SWMUs 39-001(a) and 39-001(b). MI sampling was also used for confirmation samples to verify removal of PCB-contaminated soils. The use of the MI sampling approach was not included in the approved Investigation Work Plan for North Ancho Canyon Aggregate Area, Revision 1 (Work Plan), dated December 2007 or the Investigation Report for North Ancho Canyon Aggregate Area, Revision 1 (IR Report), dated January 2010. NMED was never notified that MI sampling would be used for characterization and confirmation sample collection. Using methods not specified in the Consent Order or in approved work plans is in contravention of the Consent Order. Even if NMED has approved MI sampling, it was not correctly applied or conducted. NMED would not have approved MI sampling at this site in any case because it is inappropriate for this application. MI sampling may be acceptable as a screening tool in some situations, but not for compliance sampling to verify cleanup. MI sampling is intended for use for the "collection and processing of samples for characterization of secondary explosive and propellant residues [which are] heterogeneously distributed as particulates of various sizes, shapes, and compositions over large areas at firing point, around targets, and around individual detonation events" (EPA Method 8330B, Appendix A).

Additionally, MI sampling is only appropriate for surface sampling and can not define the lateral extent of the contamination when applied to a soil removal action. In fact, the method requires the sampler to avoid areas that could dilute the sample and collect a minimum of 30 subsamples, precluding the possibility of defining a contaminated area.

Nevertheless, if possible and technically defensible, NMED seeks to salvage some or all of the data collected in this unapproved manner. The Work Plan must therefore be revised to clarify how MI sampling was conducted and to address the following comments specific to MI sampling.

1. *Even if NMED had approved MI sampling, it was not conducted in accordance with the sampling protocol for EPA Method 8330B, Appendix A or the State of Alaska Department of Environmental Conservation guidance document (DEC Guidance) (Guidance Documents) that the Permittees reference. The Work Plan describes a modified MI sampling method by collecting and submitting composite samples to the laboratory. Page 17 of the Work Plan states "[w]ithin each decision unit, 50 increments were collected by stainless-steel scoop throughout the entire footprint of the decision unit and combined in a stainless-steel bowl into a single sample." The Permittees do not explain if the entire sample from the stainless-steel bowl was submitted to the laboratory or if only a portion of the sample was submitted for analysis.*

   Provide more information regarding the sampling method used to collect and homogenize confirmation samples as discussed in Section 2.9.1.2 (Soil Sampling). Clarify if homogenization of the confirmation samples was conducted in accordance with EPA Method 8330B. If the Permittees did not conduct homogenization in the field per the EPA Method 8330B, verify that it was conducted by the analytical laboratory.

LANL Response

1. The objective of the multi-increment (MI) confirmation sampling approach implemented in 2010 for the former waste stockpile areas at solid waste management units (SWMUs) 39-001(a) and 39-001(b) was to determine whether additional cleanup was required after waste management activities were completed. The 2010 confirmation sampling was unrelated to the Compliance Order on Consent (Consent Order) required sampling performed during the 2009 investigation to characterize the nature and extent of contamination at the associated SWMUs, and the results of the confirmation sampling do not affect the conclusions of the 2009 investigation (LANL 2010, 108500.11; NMED 2010, 108675). The 2010 confirmation data are adequate to confirm the need for additional soil removal and guide the excavation of contaminated soil on the surface of the former waste stockpile areas and adjacent areas where polychlorinated biphenyls (PCBs) were detected at concentrations greater than 1 mg/kg. Section 2.9.2 of the Phase II investigation work plan has been revised to indicate that MI sampling will not be used during any proposed Phase II investigation and remediation activities. Rather, confirmation of the cleanup will be evaluated using discrete samples collected from sampling grids. Section 2.9.2 has been revised to describe this approach, and Table 2.9-14 has been revised to present this approach. Figures 2.9-6 and 2.9-7 have been revised to show discrete samples to be collected from sampling grids.

   The Laboratory did not follow Appendix A of U.S. Environmental Protection Agency (EPA) Method 8330B because it did not apply to the confirmation sampling necessary at the former waste stockpile areas at SWMUs 39-001(a) and 39-001(b) to determine whether additional cleanup was required after waste management activities were completed. The Laboratory notes that Appendix A of EPA Method 8330B describes MI sampling for the very specific purpose of characterizing secondary explosive and propellant residues in solid matrices associated with firing ranges. This guidance was developed to address the heterogeneous distribution of small particles of explosive residues at such sites. Characterization of firing range residues is not the only application of MI sampling as indicated in the Alaska DEC Guidance, including investigation of sites contaminated with petroleum hydrocarbons or PCBs (State of Alaska DEC 2009, 110573). However, the procedures contained in Method 8330B Appendix A are not intended for use with other applications, such as PCB cleanups.

   Collection of the MI samples was performed in accordance with Standard Operating Procedure (SOP) 06.09, "Spade and Scoop Method for the Collection of Soil Samples." Using this method, 50 equal volume (tablespoon-size) aliquots were collected from each decision unit. These soils were

homogenized on-site in a stainless-steel bowl and containerized before shipment to an off-site fixed laboratory for analysis. The aliquots were sized so that the entire homogenized sample was submitted to the laboratory with no excess. Section 2.9.1 has been revised to provide additional details on collection of MI samples.

NMED Comment

2. *Clarify if confirmation sampling was completed as composite sampling in contravention of the methods. If the MI sampling method was modified, revise the Work Plan to explain how and why this method was modified. In addition, explain if a form of grid sampling was used to collect confirmation samples, and if and how they were composited into one sample for each decision unit and sent to the laboratory for analysis.*

LANL Response

2. The samples were collected as MI samples. At each decision unit, 10 equally spaced transects were marked and 5 sample aliquots were collected along each transect. The aliquot volume was selected so that 50 aliquots would provide the necessary sample volume, with no excess. The aliquots for each decision unit were placed in a stainless-steel bowl and homogenized before placing the entire sample into a sample container for shipment to the laboratory. Section 2.9.1 has been revised to describe this approach.

NMED Comment

3. *Explain how the samples were processed (e.g., by grinding and passage through a #10 (2mm) sieve) prior to being sent to the laboratory, at the laboratory, or both, prior to analysis.*

LANL Response

3. Fifty equal-volume (tablespoon) aliquots were collected from each decision unit and homogenized on-site in a stainless-steel bowl and containerized. No further processing was performed in the field or requested from the analytical laboratory. Because the samples consisted of soil, no grinding or sieving was necessary. The entire volume collected from each decision unit was included as a single sample. Section 2.9.1 has been revised to include additional details on how MI samples were processed.

NMED Comment

4. *The Permittees state, "QA/QC samples will include field duplicate, equipment rinsate, and field trip blank samples. Field duplicate and rinsate blank samples will be collected at an overall frequency of at least 1 for every 10 regular samples as directed by the current version of SOP-5059, Field Quality Control Samples." The aforementioned Guidance Documents discuss the importance of taking a triplicate sample. Clarify if this QA/QC was used for the MI sampling already conducted, and if so, explain why a triplicate sample was not collected for the MI sampling conducted at SWMU 39-001(a) and 39-001(b).*

LANL Response

4. Quality assurance/quality control samples were collected as described in SOP-5059 and did not include collection of triplicate samples. As noted in the referenced guidance documents, triplicate samples are recommended for calculating relative standard deviations and determining the uncertainty of estimated mean concentrations. Because the results of the MI sampling were not used for those purposes (i.e., calculating the upper confidence limit of the mean PCB concentration), triplicate samples were not collected. No revisions are necessary.

SPECIFIC COMMENTS

NMED Comment

5. Section 1.3 (Cleanup Levels), page 2:

Permittees' Statement: *"[a]s specified in section VIII.B.1 of the Consent Order, NMED soil screening levels (SSLs) (NMED 2009, 108070) or Laboratory screening action levels (SALs) (LANL 2009, 107655) will be used as soil cleanup levels unless they are determined to be impractical or unless values do not exist for the current and reasonably foreseeable future land use scenarios."*

NMED Comment: *Clarify that "laboratory screening action levels" are referencing the radionuclide screening action levels. This clarification must be applied to this and all future documents, as applicable.*

LANL Response

5. "Laboratory screening action levels" refer to the Laboratory's radionuclide screening action levels (SALs). The text in section 1.3 of the work plan has been revised to clarify that soil screening levels (SSLs) are applicable to inorganic and organic chemicals, and SALs are applicable to radionuclides.

NMED Comment

6. Section 2.2.3 (Delayed Site Investigation Rationale, SWMU 39-002(a), Area 1, page 5:

The Permittees propose to delay the investigation at SWMU 39-002(a), Area 1. The Investigation Report must state that site characterization and remediation at SWMU 39-002(a), Area 1 will be delayed until the operations have ceased and D&D of the new pad and adjacent buildings 39-2 and 39-62 have been completed.

LANL Response

6. The North Ancho Canyon Aggregate Area Phase II investigation report will state that site characterization and remediation at SWMU 39-002(a), Area 1 will be delayed until the site operations have ceased and the decontamination and decommissioning of the new pad and adjacent buildings 39-2 and 39-62 have been completed.

NMED Comment

7. Section 2.4.2 (Nature and Extent of Contamination), page 6 and 2.4.3 (Proposed Activities at SWMU 39-006(a)), page 7:

Permittees' Statement: *"Section 2.4.2, Former Septic Tank, bullet 2: "[l]ateral extent of tritium is not defined at sample locations 39-604874 and 39-604877." Section 2.4.3: "[s]amples will also be collected at three new locations (6a-1, 6a-2, and 6a-3) to define the lateral extent of tritium around the former septic tank location. Sample locations will be 2.0 ft outside of the 2009 septic tank excavation area to the west, east, and south. Samples will be collected at depths of 9.0 to 10.0 ft and 15.0 to 16.0 ft bgs and analyzed for tritium."*

NMED Comment: *Section 2.4.3 must be revised to include additional sampling for tritium at sample location 39-604874 to define the lateral extent as indicated in Section 2.4.2. Revise Section 2.4.3 accordingly.*

LANL Response

7. Tritium was previously detected at sample location 39-604874 but was not bounded laterally to the east, west, or south. As noted in Table 2.4-5, samples to be collected and analyzed for tritium from proposed locations 6a-1, 6a-2, and 6a-3 around sample location 39-604874 will define the lateral extent of tritium for sample location 39-604874. No revisions are necessary.

NMED Comment

8. Section 2.4.3 (Proposed Activities at SWMU 39-006(a):

The Work Plan does not discuss the depths of the former chemical seepage pit, former septic tank, or former sand filter. Ensure all sampling has been and will be conducted below the base of these former units. Revise the Work Plan to include the depths of the base of these former units and confirm that sampling has been, or will be, conducted below the base of the units.

LANL Response

8. The depths of the former chemical seepage pit, former septic tank, and former sand filter were presented in section 3.2.3.1 of the approved investigation report (LANL 2010, 108500.11; NMED 2010, 108675). As described in the approved investigation report, the former seepage pit, septic tank, and sand filter were removed by excavation and samples were collected at and below the bottom of the excavations. Therefore, these samples were collected and all Phase II samples will be collected from below the base of the units. No revisions are necessary.

NMED Comment

9. Section 2.5.3 (Proposed Activities at SWMU 39-007(a)), page 8:

Permittees' Statement: *"[t]he upper 2.0 ft of soil will be removed within a 4-ft radius around sample locations 39-10019 and 39-604854 where Aroclor 1254 and Aroclor 1260 concentrations were detected above 1.0 mg/kg. Confirmation samples will be collected at six new locations (7a 1 to 7a-6) on the sidewalls around the excavation to confirm cleanup to less than 1.0 mg/kg PCBs. Sidewall samples will be collected at depths of 0.0 to 1.0 ft, 2.0 to 3.0 ft, and 4.0 to 5.0 ft bgs."*

NMED Comment: *It is not clear how the sidewall samples will be collected from depths of 4.0 to 5.0 feet if soil will only be removed to depths of two feet below ground surface (bgs). Revise the Work Plan to clarify how the sidewall samples will be collected from 4.0 to 5.0 feet, and that all samples will be collected as discrete samples.*

LANL Response

9. Samples will not be collected from the sidewalls of the excavation. The text in section 2.5.3 and Table 2.5-4 have been revised to indicate that following removal of the upper 2.0 ft of soil within a 4-ft radius around sample locations 39-10019 and 39-604854 at SWMU 39-007(a), confirmation samples will be collected from six new locations (7a-1 to 7a-6) around the outside edge of the excavated area at depths of 0.0 to 1.0 ft, 2.0 to 3.0 ft, and 4.0 to 5.0 ft below ground surface (bgs). As noted by the depth intervals proposed in the revised work plan, all samples will be collected from 1-ft depth intervals, which constitutes collection of discrete (as opposed to composite) samples.

NMED Comment

10. Section 2.5.3 (Proposed Activities at SWMU 39-007(a)), page 8:

Permittees' Statement: *"[t]he upper 2.0 ft of soil will be removed within a 4-ft radius around sample locations 39-10019 and 39-604854 where Aroclor 1254 and Aroclor 1260 concentrations were detected above 1.0 mg/kg."*

NMED Comment: *Revise the Work Plan to describe the proposed method for removing the upper two feet within the four foot radius (e.g., shovel). Also discuss proposed management, testing, and disposal or remediation waste.*

LANL Response

10. The remediation subcontractor implementing this Phase II investigation work plan will determine the most appropriate method, taking into account health and safety as well as achieving the work plan objectives for removing the soil in accordance with approved SOPs described in section 3.0 of the Phase II investigation work plan. A description of excavation activities will be provided in the investigation report. Proposed waste management activities are described in Appendix B of the Phase II investigation work plan. Waste management activities implemented during the Phase II investigation will also be described in the investigation report. No revision to the work plan is necessary.

NMED Comment

11. Section 2.6.3 (Proposed Activities at SWMU 39-010), bullet 1, page 10:

Permittees' Statement: *"[s]amples collected from location 39-604437 will be analyzed for bis(2 ethylhexyl)phthalate, di-n-butylphthalate, and isotopic uranium."*

NMED Comment: *Confirm that sample location 39-604437 will be analyzed for isotopic uranium as indicated above (Section 2.6.2 (Nature and Extent of Contamination), bullet four does not list isotopic uranium to be analyzed at this sample location). Revise all related sections, figures, and tables of the Work Plan to clarify that isotopic uranium will be analyzed at sample location 39-604437. See also Comment 12.*

LANL Response

11. Isotopic uranium is included in the text in the bullet describing proposed sampling for location 39-604437 at SWMU 39-010, and Table 2.6-5 specifies that all of the samples to be collected at SWMU 39-010, including those at sample location 39-604437, will be analyzed for isotopic uranium. No revisions are necessary.

NMED Comment

12. Table 2.6-5 (Summary of Proposed Sampling at SWMU 39-010), page 105:

a. Sample location 39-604428 proposes analysis of isotopic uranium. However, according to Section 2.6.3 (Proposed Activities at SWMU 39-010), sample 39-604428 proposes analysis for tritium, not isotopic uranium. Further, the analysis for tritium is not listed in table 2.6.5. Table 2.6.5 must be revised to list the correct analysis, including tritium, for sample location 39-604428.

b. Column 2 (Sampling Extent Objective) states "[d]efine vertical extent of contamination for copper, lead, mercury, benzo(a)pyrene, bis(2-ethylhexyl)phthalate, di-n-butylphthalate, HMX, uranium-234, uranium-235/236, and uranium-238." The table must also include tritium.

c. Clarify that samples obtained at location 39-604437 are proposed to be analyzed for isotopic uranium (See also Comment 11).

LANL Response

12. a. Table 2.6-5 has been revised to indicate that the sample to be collected from location 39-604428 will be analyzed for tritium and isotopic uranium. The text in Section 2.6.3 has been revised to indicate that samples to be collected from location 39-604428 will be analyzed for tritium and isotopic uranium.

b. Column 2 of Table 2.6-5 has been revised to include tritium.

c. Table 2.6-5 already specifies that the samples to be collected from location 39-604437 will be analyzed for isotopic uranium. No revision is necessary.

NMED Comment

13. Section 2.9.1 (waste Characterization and Soil Sampling Results), page 11:

Permittees' Statement: *"[w]aste characterization sampling was performed to collect data needed for characterization of the contaminated soil being transported from the sites as waste. Soil sampling was performed after removal of waste to characterize residual contamination associated with waste management activities. These sampling activities and associated results are described below, and the data are provided in Appendix D (on CD included with this document)."*

NMED Comment: *Revise the text to include the following information:*

a. The total volume of soil removed from the site (waste characterization area) for disposal.

b. Definition of the entire area where waste characterization was conducted (i.e., identify the number of waste piles and their approximate volumes and footprints).

c. The location of where the soil was disposed and the method of shipment.

d. The document that described the waste characterization activities for the contamination soils at SWMUs 39-001(a) and 39-001(b) (reference NMED's approval document).

LANL Response

13. The text in section 2.9.1 has been revised to include the requested information. Specific details are provided below.

    a. The total volume of soil removed from the site for off-site disposal was 12,244 yd^3.

    b. The entire area where waste characterization was conducted encompassed the two waste stockpile areas. These stockpiles were located to the north of the waste trench excavations at SWMUs 39-001(a) and 39-001(b). The surface area of the waste stockpile at SWMU 39-001(a) was 8345 ft^2, and the surface area of the stockpile at SWMU 39-001(b) was 24,212 ft^2 (Green 2009, 106947). The volume of waste shipped from SWMU 39-001(a) was 2792 yd^3, and the volume shipped from SWMU 39-001(b) was 9,452 yd^3.

    c. All contaminated soil from the waste stockpile areas was transported from the site by truck. All waste was disposed of at the Energy Solutions disposal facility in Clive, Utah.

    d. The approved waste characterization strategy forms (WCSFs) for the management of all wastes generated during the North Ancho Canyon Aggregate Area Phase I investigation are provided in Appendix E of the revised Phase II investigation work plan. The investigation-derived waste management plan was included in the NMED-approved investigation work plan for North Ancho Canyon Aggregate Area (LANL 2007, 101894; NMED 2007, 098948).

NMED Comment

14. Section 2.9.1.1 (Waste Characterization Sampling), page 11:

Permittees' Statement: *"[t]he soil and debris removed from SWMUs 39-001(a) and 39-001(b) were stockpiled within the area of contamination at each site. As part of waste characterization activities, soil samples were collected from the waste pile at each site. Thirty-four samples were collected from the waste pile at SWMU 39-001(a), and ninety-two samples were collected from the waste pile at SWMU 39-001(b)."*

NMED Comment: *Revise the Work Plan to address the following items:*

a. The above paragraph uses the terms stockpile and waste pile. Clarify if these terms are synonymous or reference different media. Revise the Work Plan to use only one term or define both terms, if referencing different media.

b. Include the dimensions and total volume(s) of soil within each stock/waste pile associated with SWMU 39-001 (a) and SWMU 39-001 (b)

c. Explain how the number of samples collected from each waste pile was determined.

d. Explain the sample collection method(s), (e.g., discrete or composite samples collected, if composite, were the samples put in a stainless steel bowl or directly into a sample container, samples were collected using a shovel).

e. What criteria were used to determine which samples would be analyzed from the waste piles (e.g., samples with the highest screening levels, samples containing visual evidence of contamination).

LANL Response

14. The text in section 2.9.1 has been revised to include the requested information. Specific details are provided below.

    a. As used in the referenced paragraph, “stockpile” and “waste pile” are synonymous. The text has been revised to use only the term “waste stockpile” throughout.

    b. See response to Specific Comment 13b.

    c. The sampling frequency for the waste stockpiles was selected to provide at least 1 sample per every 100 yd^3 of waste.

    d. Waste samples were composited for a given volume of waste within the stockpile (i.e., 100 yd^3). A backhoe was used to reach the desired depth within the pile, and a hand auger was used to collect a representative sample directly from the waste stockpile, which was placed in a stainless-steel bowl and homogenized before being containerized.

    e. No criteria were used to select samples for analysis. Every sample collected from the waste stockpiles was submitted for laboratory analysis for the constituents specified in the WCSF.

NMED Comment

15. Section 2.9.1.1 (Waste Characterization Sampling), pages 11-12:

Permittees’ Statement: *“[a]ll samples from the SWMU 39-001(a) waste pile were submitted for laboratory analysis of americium-241, cyanide (total), explosive compounds, gamma-emitting radionuclides, herbicides (total and toxicity characteristic leaching procedure [TCLP]), isotopic plutonium, isotopic uranium, metals (TAL and TCLP), nitrate, PCBs, perchlorate, pesticides (total and TCLP), strontium-90, SVOCs (total and TCLP), total petroleum hydrocarbons − gasoline range organics (TPH-GRO), tritium, and VOCs (total and TCLP). All samples from the SWMU 39-001(b) waste pile were submitted for laboratory analysis of americium-241, cyanide (total), gamma-emitting radionuclides, herbicides (total), isotopic plutonium, isotopic uranium, metals (TAL and TCLP), nitrate, perchlorate, strontium-90, and tritium, and all samples but one were analyzed for explosive compounds, herbicides (TCLP), PCBs, pesticides (total and TCLP), SVOCs (total and TCLP), and VOCs (total and TCLP). Ten samples were also submitted for laboratory analysis of total petroleum hydrocarbons − diesel range organics (TPH-DRO), and seventy-six samples were submitted for laboratory analysis of TPH-GRO. The samples collected and analyses requested are summarized in Tables 2.9-1 and 2.9-2 for SWMUs 39-001(a) and 39 001(b), respectively.”*

NMED Comment: *Revise the Work Plan to address the items below.*

a. Waste pile samples from 39-001(a) were analyzed for gasoline range organics (GRO); explain why these samples were not also analyzed for diesel range organics (DRO).

b. In reference to the analyses conducted from the SWMU 39-001(b), explain why specific analyses for some samples were omitted (e.g., ten samples include DRO analysis and 76 analyzed for GRO, why all samples were not analyzed for both DRO and GRO).

LANL Response

15. The text in section 2.9.1.1 has been revised to include the requested information. Specific details are provided below.

    a. The WCSF specified that the soil would be analyzed for total petroleum hydrocarbon–diesel range organics (TPH-DRO) and/or total petroleum hydrocarbon–gasoline range organics (TPH-GRO) only if there was an indication of a petroleum release. Because there was no indication of a petroleum release, TPH-GRO and TPH-DRO analyses were both crossed out on the sample collection logs by the field team. The analytical laboratory incorrectly interpreted the forms and mistakenly analyzed some of the samples for TPH-GRO and/or TPH-DRO.

    b. See response to Specific Comment 15a.

NMED Comment

16. Section 2.9.1.2 (Soil Sampling), paragraphs 1- 2, pages 12:

Permittees' Statement: *"[s]oil sampling was directed toward characterizing contamination associated with two capacitor staging areas and contamination associated with the areas used for stockpiling and handling waste and contaminated soil at SWMUs 39-001(a) and 39-001(b). These sampling activities are described below. Two areas located along the eastern boundary of SWMU 39-001(a), within the designated area of contamination, were used to stage electrical capacitors removed from the SWMU 39-001(a) landfill (Figure 2.9-1)."*

NMED Comment: *Revise the Work Plan to describe the dimensions of the two capacitor staging areas and stockpile areas, and identify the volume of soil removed from these areas. Clarify whether the sampling described above was conducted after all of the contaminated media was removed from the capacitor staging areas and the stockpile areas. Confirm that the "designated area of contamination" is the same as the area of contamination as described in Section 2.9 of the Work Plan. In the Response Letter, identify the document or correspondence that describes the soil sampling methods and procedures used to characterize contamination and sampling methods as described in this Section, and reference NMED's approval letter.*

LANL Response

16. Section 2.9.1.2 of the work plan has been revised to provide additional details on the capacitor staging areas and the soil sampling conducted at both areas. The two capacitor staging areas measured 15 ft × 15 ft and were located directly east of the waste stockpile area for SWMU 39-001(a) as shown in Figure 2.9-3 of the Phase II investigation work plan. Each area was subdivided into 5-ft × 5-ft grids. Eight 5-ft × 5-ft decision units for the collection of MI samples were established in the north staging area and nine 5-ft × 5-ft decision units were established in the south staging area. A decision unit was not established in the grid cell in the northern corner of the north staging area because of the presence of a tree at this location. This location was inspected and found to have not been impacted by the PCB release. As described in section 2.9.1.2, several rounds of soil removal and sampling were performed at the capacitor staging areas. Initially, oil-stained soil was removed and the surface soil in the capacitor staging areas was sampled. An additional 2 ft of soil was then removed at locations where staining was noted or where MI sample results showed greater than 1 mg/kg PCBs. A second round of sampling was then performed and an additional 2 ft of soil was removed from locations having greater than 1 mg/kg PCBs. A third round of sampling was then

performed at the locations where additional soil had been removed. The total volume of soil removed is approximately 15 yd^3 at the northern capacitor staging area and 20 yd^3 at the southern capacitor staging area.

The term "designated area of contamination" refers to and is the same as the two "areas of contamination" identified in section 2.9 as having been approved by NMED for waste management.

The soil removal and sampling performed at the capacitor staging areas was performed as part of a self-implementing soil cleanup regulated by EPA under the Toxic Substances Control Act (TSCA) regulations [40 Code of Federal Regulations (CFR) 761.61(a)]. This cleanup was initiated after discovery of a release of PCB-contaminated oil. This release was reported to EPA Region 6 and the National Response Center on June 29, 2009 (report number 910135). Because this sampling was conducted in response to a release of PCBs as part of a TSCA cleanup, it was not included in the NMED-approved investigation work plan or investigation report for North Ancho Canyon Aggregate Area and is being presented in the Phase II work plan revision in order to provide an historical context for the additional cleanup and sampling needed to complete site activities within the areas of contamination.

NMED Comment

17. Section 2.9.1.2 (Soil Sampling), paragraph 2, page 12:

Permittees' Statement: *"[f]ollowing removal of the capacitors, surface samples (0.0 ft to 0.17 ft bgs) were collected from the staging areas. Each staging area was divided into 5-ft × 5-ft decision units, and multi-increment (MI) samples were collected from seven decision units in the northern area and from nine decision units in the southern area and submitted for laboratory analysis of PCBs, (the technical approach for MI sampling is described in section 3.4.1.1). Two ft of soil was excavated from seven decision units in the northern staging area and from nine decision units in the southern staging area where PCBs were detected above 1.0 mg/kg or soil staining was noted because of leakage from the capacitors. Following excavation, the Laboratory collected confirmation samples within the boundaries of the two capacitor staging areas. MI samples were collected from a depth of 2.0 ft to 2.17 ft bgs from each of the seven excavated decision units in the northern staging area. In addition, discrete confirmation samples were collected at depths of 2.0 ft to 2.17 ft bgs at two locations in the excavation sidewall from the northern staging area and three locations in the excavation sidewall from the southern staging area. All samples were submitted for laboratory analysis of PCBs."*

NMED Comment: *Revise the Work Plan to address the following items:*

a. *Include the dimensions of the entire area excavated.*
b. *Identify the number of MI samples collected within each decision unit.*
c. *Describe how the MI samples were collected (e.g., tool used to collect the samples, were samples collected as discrete or composite, if composite samples describe how the samples were composited (put in stainless steel bowl, put directly into sample container). See also Part I Comments.*
d. *Describe how the discrete confirmation samples were collected from the excavation side walls and explain if the discrete confirmation samples collected from the excavation sidewalls were collected from within decision units.*
e. *Explain how the sidewall sample locations were determined.*

f. Explain why PCBs were the only constituent analyzed. Section 2.9.1.1 identifies the analysis for various constituents located at 39-001(a) and 39-002(b).

g. Explain why MI sampling was used. See also Part I Comments.

h. Clarify if the entire footprint of the capacitor staging areas and stockpile areas were sampled or just portions of these areas (e.g., did decision units cover the entire footprint of the staging area or a portion of the staging areas). Provide all dimensions as necessary.

LANL Response

17. The text in section 2.9.1.2 has been revised to provide the requested information. Additional details are provided below.

    a. Dimensions of the entire area excavated within both capacitor staging areas are 15 ft ×15 ft.

    b. As shown in Table 2.9-8, at least one MI sample (composed of 49 aliquots) was collected from within each decision unit. If the results of an MI sample showed PCBs greater than 1 mg/kg, 2 ft of soil was removed from the decision unit and an additional MI sample was collected. This process was repeated until the results of all MI samples showed less than 1 mg/kg PCBs.

    c. See response to General Comments 2 and 3.

    d. The sidewall samples were collected to confirm the lateral extent of contamination to the north and south at the northern capacitor staging area and to the north, east, and south at the southern capacitor staging area. The work plan text incorrectly refers to these samples as discrete samples. These samples were MI samples collected from the outermost sidewall of the decision unit after excavation to 2 ft bgs. The MI samples were collected from the sidewall using the same procedure and number of increments as the other MI samples. Section 2.9.1.2 and Table 2.9-8 have been revised to indicate that sidewall samples were MI samples.

    e. The sidewall samples were located to confirm the lateral extent of contamination to the north and south at the northern capacitor staging area and to the north, east, and south at the southern capacitor staging area. Extent to the west of both capacitor staging areas is defined by the waste stockpile area sampling. Extent to the east of the northern capacitor staging areas is defined by PCB concentrations less than 1 mg/kg in the eastern row of decision units.

    f. The MI sampling at the capacitor staging areas was performed as part of a self-implementing PCB cleanup under 40 CFR 761.61(a) of TSCA. This cleanup was implemented upon discovery of a release of PCB-containing oil at the site. No other hazardous constituents are known to be associated with this release, so PCBs were the only constituent analyzed. Section 2.9.1.1 identifies the analysis for various constituents located at SWMUs 39-001(a) and 39-001(b), which is related to the waste stockpile areas and not the capacitor staging areas. Section 2.9.1.2 relates to the capacitor staging areas.

    g. Because the spill was from small drips over a relatively small area, discrete grab samples had a high probability of underestimating the true mean concentration within each 5 ft × 5 ft decision unit. Under the correct circumstances and when properly conducted, MI sampling produces a more accurate and lower-cost estimate of the mean contaminant concentration than does discrete sampling.

    h. The entire footprint of each 15 ft × 15 ft capacitor staging area was sampled. The 5-ft × 5-ft decision unit array completely covers the areas where the capacitors were stored. The decision units for the waste stockpile areas were selected to encompass the areas that potentially could have been contaminated by waste storage and/or handling activities. These areas are

approximately 250 ft × 250 ft at SWMU 39-001(a) and approximately 225 ft × 325 ft at SWMU 39-001(b). As explained in section 2.9.2.1, PCBs at concentrations above the 1 mg/kg cleanup level were detected at several locations along the boundaries of the waste stockpile areas, and additional sampling is needed to define the extent of contamination.

NMED Comment

18. Section 2.9.1.2 (Soil Sampling), paragraph 1, page 13:

Permittees' Statement: *""[b]ased on the results of this sampling, an additional 2.0 ft of soil was removed from one decision unit in the northern area and from two decision units in the southern area where PCBs were detected above 1.0 mg/kg. Following excavation, MI samples were collected from a depth of 4.0 ft to 4.17 ft bgs from each of the three decision units and submitted for laboratory analysis of PCBs. The results from these samples showed PCB concentrations of less than 1.0 mg/kg at all locations, and the excavated areas were backfilled with clean soil."*

NMED Comment:

a. Identify the volume of excavated soil and where it was disposed.

b. The northern area contained nine decision units and the southern area contained seven decisions units. Identify which decision units required soil removal.

c. Explain how the MI samples collected from 4.0 to 4.17 feet were collected (e.g., shovel, composite or discrete sample).

d. The samples from 4.0 to 4.17 feet were only analyzed for PCBs. Explain why no additional chemical analyses were necessary.

e. Explain how it was determined that the excavated area could be backfilled with clean soil when the only analysis conducted was for PCBs.

f. MI sampling, as modified by the Permittees, does not address "hot spots." Explain how it was determined that no hot spots existed within the decision units.

LANL Response

18. a. Approximately 15 yd^3 of PCB-contaminated soil was excavated from the northern capacitor staging area, and approximately 20 yd^3 of PCB-contaminated soil was excavated from the southern capacitor staging area. This soil was disposed of at the Energy Solutions disposal facility in Clive, Utah.

b. The northern capacitor staging area contained eight decision units, and the southern capacitor staging area contained nine decision units. Soil was removed from all 17 decision units.

c. Collection of the samples was by the spade and scoop method, whereby tablespoon aliquots of soil were collected within each decision unit. The depth reflects the fact that 4 ft of soil was removed from each of these decision units before collection of the MI samples (i.e., the samples were collected from the surface of the bottom of the excavation).

d. See response to Comment 17f. The quoted text refers to the capacitor staging areas. This cleanup was implemented upon discovery of a release of PCB-containing oil at the site. No other hazardous constituents are known to be associated with this release, so PCBs were the only constituent analyzed.

e. See response to Comment 17f. The quoted text refers to the capacitor staging areas. PCBs were the only analysis required, because the sampling was performed to document cleanup of the PCB spill under 40 CFR 761.61(a) of TSCA. Backfilling was appropriate because the cleanup level for self-implementing PCB cleanups under TSCA (1 mg/kg) was achieved.

f. The MI sampling performed at the capacitor staging areas involved collecting 49 sample aliquots within each 25 ft^2 decision unit (i.e., one sample increment per 0.5 ft^2). Although the MI sampling was performed for the purpose of characterizing the mean concentration of the decision unit, the number of sample increments is high enough to detect "hot spots." Because the sample result was less than 1 mg/kg PCBs, the Laboratory concluded that no "hot spots" were present (i.e., no single aliquot could have contained more than 49 mg/kg PCBs).

NMED Comment

19. Section 2.9.1.2 (Soil Sampling), paragraph 2, page 13:

Permittees' Statement: *"[f]ollowing completion of packaging and transportation of wastes from the site, the Laboratory collected confirmation samples from the areas where contaminated soil had been stockpiled and handled. The objective of this confirmation sampling was to characterize residual PCB contamination remaining on the surface after completion of waste management activities to determine whether additional cleanup was required. This confirmation sampling is unrelated to the sampling performed during the 2009 investigation to characterize the nature and extent of contamination at the associated SWMUs, and the results of the confirmation sampling do not affect the conclusions of the 2009 investigation."*

NMED Comment: *Clarify if this paragraph is summarizing the previous paragraphs in this Section (describing soil removal, confirmation, and MI sampling) or whether additional confirmation samples were collected. If additional confirmation samples were collected as described above, describe where and how the confirmation samples were collected. In addition, explain why PCB contamination was characterized and no other constituents were considered.*

LANL Response

19. This referenced paragraph describes the confirmation MI samples collected from the waste stockpile areas at SWMUs 39-001(a) and 39-001(b) following the removal of stockpiled waste. The MI confirmation sample locations are shown in Figures 2.9-1 and 2.9-2 of the Phase II investigation work plan. The capacitor staging areas were sampled separately as shown in Figure 2.9-3 and described in responses to Specific Comments 17 and 18. No additional confirmation samples have been collected. As described in section 2.9.1.2 of the Phase II investigation work plan, PCBs were the best indicator of residual contamination, based on the frequency of detected concentrations above residential SSLs and/or SALs in the waste characterization sampling and the magnitude of the concentrations above the respective SSLs and SALs. Therefore, all MI confirmation samples were submitted for laboratory analysis of PCBs only.

NMED Comment

20. Section 2.9.1.2 (Soil Sampling), paragraph 2, page 13:

Permittees' Statement: *"[t]he confirmation sampling approach for the former soil stockpiles and waste-handling areas at SWMUs 39-001(a) and 39-001(b) was based on the MI sampling approach discussed in section 3.4.1.1. The MI sampling approach was followed for the collection of*

confirmation samples, with the former soil stockpiles and surrounding areas divided into 25-ft × 25-ft decision units; decision-unit boundaries and dimensions were determined before MI confirmation sampling. Each decision unit within the areas where waste or spoils had been stockpiled or handled was sampled. Figures 2.9-2 and 2.9-3 show the decision units sampled at each site, respectively."

NMED Comment: *Revise the Work Plan to address the items below.*

a. *Define the "waste handling areas," including the dimensions, and explain if these areas are the same as the "capacitor staging areas." Use consistent terminology.*

b. *This paragraph discusses decision units as being 25 ft × 25 ft; however, page 12 discusses decision units being 5 ft × 5 ft. Clarify which decision units are associated with each staging unit or waste pile (e.g., 5 ft × 5 ft decision units are associated with the capacitor staging piles, 25 × 25 decision units are associated with soil stockpiles).*

c. *Explain how MI sampling was used to determine that cleanup is complete at these sites. See also Part I Comments.*

LANL Response

20. The text in section 2.9.1.2 has been revised to provide the requested information. Additional details are provided below.

    a. The "waste-handling areas" were south of and adjacent to each waste stockpile and are distinct and not the same areas as the "capacitor staging areas." See responses to Specific Comments 13 and 14 for details on the waste stockpile areas at SWMUs 39-001(a) and 39-001(b); see responses to Specific Comments 16 and 17 for details on the capacitor staging areas. The capacitor staging areas each measured 15 ft × 15 ft, while the waste stockpile for SWMU 39-001(a) covered an irregularly shaped area of approximately 8345 ft^2 and the waste stockpile for SWMU 39-001(b) covered an irregularly shaped area of approximately 24,212 ft^2.

    b. The text in the second paragraph of section 2.9.1.2 describes the MI sampling conducted within the two capacitor staging areas, where each staging area was divided into 5-ft × 5-ft decision units. The discussion of the waste stockpile areas in section 2.9.1.2 states that following the removal of the waste stockpiles, 25-ft × 25-ft decision units were established over both waste stockpile areas and MI confirmation samples were collected. Because the capacitor staging areas were much smaller than the waste stockpile areas for SWMUs 39-001(a) and 39-001(b), the sizes of the decision units for each area were adjusted accordingly.

    c. Where MI sampling data showed that PCB concentrations were at or below 1 mg/kg, cleanup was determined to be complete within the corresponding decision unit.

NMED Comment

21. Section 2.9.1.2 (Soil Sampling), paragraph 4, page 13:

Permittees' Statement: *"[b]ased on the frequency of detection of contaminants above residential SSLs and SALs in the waste characterization sampling, and the magnitude of sample results above SSLs and SALs, PCBs were determined to the best indicator of residual contamination. Therefore, all MI samples were submitted for laboratory analysis of PCBs."*

NMED Comment: *Revise the Work Plan to demonstrate why other residual constituents of the waste piles and stock piles are not as good or better indicators of the presence of contamination.*

LANL Response

21. As described in the response to Specific Comment 19 and as described in the referenced paragraph above in section 2.9.1.2 of the Phase II investigation work plan, PCBs were the best indicator of residual contamination, based on the frequency of detected concentrations above residential SSLs and/or SALs in the waste characterization sampling and the magnitude of the concentrations above the respective SSLs and SALs. Therefore, all MI confirmation samples were submitted for laboratory analysis of PCBs only.

    Based on the waste characterization sampling described in section 2.9.1.1 of the Phase II work plan, the only contaminants present above residential SSLs/SALs were PCBs, lead, and uranium-238 at the SWMU 39-001(a) waste stockpile area, and PCBs and semivolatile organic compounds (SVOCs) at the SWMU 39-001(b) waste stockpile area. Therefore, the objective of the additional cleanup activities at these sites will be to ensure that concentrations of lead, uranium-238, and SVOCs are below residential SSLs/SALs and concentrations of PCBs are below the default Consent Order cleanup level of 1 mg/kg for PCBs. As described in section 2.9.2.1 of the Phase II work plan, PCBs exceeded cleanup levels by the greatest amount, and PCB results from the previous MI decision-unit sampling will be used to direct additional cleanup activities. Following excavation, confirmation samples from in and around the former waste stockpile areas at SWMUs 39-001(a) and 39-001(b) will be analyzed for PCBs, lead, and uranium-238 at the SWMU 39-001(a) waste stockpile area and for PCBs and SVOCs at the SWMU 39-001(b) waste stockpile area. No revisions are necessary.

NMED Comment

22. Section 2.9.1.2 (Soil Sampling), paragraph 5, page 13:

Permittees' Statement: *"[r]esults of the MI sampling are presented in Table 2.9-12 and Figure 2.9-4 for SWMU 39-001(a) and in Table 2.9-13 and Figure 2.9-5 for SWMU 39-001(b). Thirty nine of the 46 decision units at SWMU 39-001(a) and 4 of the 80 decision units at SWMU 39 001(b) had PCBs greater than 1.0 mg/kg."*

NMED Comment: *Page 12 discusses the creation of 16 decision units. Revise the Work Plan to clearly, accurately, and consistently describe the number of decision units created for each SWMU, their dimensions, whether all decision units were sampled, indicate if they covered the entire footprint of the contaminated media staging areas.*

LANL Response

22. The text in the second paragraph of section 2.9.1.2 describes the decision units and MI sampling conducted within the two capacitor staging areas. Each capacitor staging area was divided into 5-ft × 5-ft decision units, with eight decision units established at the north staging area and nine in the south staging area. MI samples were collected from eight decision units in the northern capacitor staging area and from nine decision units in the southern capacitor staging area and submitted for laboratory analysis of PCBs. The decision units covered the entire footprint of the capacitor staging areas.

    As shown in Figure 2.9-1, 46 decision units were established for the former waste stockpile area at SWMU 39-001(a), and as shown in Table 2.9-10, MI samples were collected from all 46 decision units and analyzed for PCBs. As shown in Figure 2.9-2, 80 decision units were established for the former waste stockpile area at SWMU 39-001(b), and as shown in Table 2.9-11, MI samples were

collected from all 80 decision units and analyzed for PCBs. Figures 2.9-1 and 2.9-2 also show that the decision units covered the entire footprint of the waste stockpile areas at SWMUs 39-001(a) and 39-001(b). The decision-unit dimensions over the footprints of the waste stockpile areas at SWMUs 39-001(a) and 39-001(b) was 25 ft × 25 ft.

NMED Comment

23. Section 2.9.1.2 (Soil Sampling), pages 12-13:

NMED Comment: *This Section is missing pertinent details (e.g., dimensions of staging piles, sample collection methods, and if the entire staging areas were sampled) to make an evaluation of whether residual contamination is present at the areas of contamination. Revise the Work Plan as follows:*

a. Clearly define the areas of contamination (e.g., provide the dimensions and locations).

b. MI sampling was inappropriately applied. Propose and describe grid sampling (e.g., grid spacing, discrete sample collection) for the entire areas of contamination, include the capacitor staging areas and the soil stockpile areas. See also Part 1.

c. Propose the chemical analytical suite for each discrete sample.

d. Describe the sample collection methods.

e. Describe the waste sampling activities already completed in accordance with the comments associated with Section 2.91, 2.9.1.1, and 2.9.1.2. Identify the areas that have been excavated and how much soil has been removed from the staging and stockpile areas.

LANL Response

23. a. Information on the dimensions and locations of the waste stockpiles was provided in the responses to Specific Comments 13 and 14. PCB data for MI samples collected from decision units within the former waste stockpile areas at SWMUs 39-001(a) and 39-001(b) are shown in Figures 2.9-4 and 2.9-5 and presented in Tables 2.9-12 and 2.9-13 of the Phase II investigation work plan. Decision units where MI sample results were greater than 1 mg/kg PCBs are shown in Figures 2.9-6 and 2.9-7 of the Phase II investigation work plan.

b. Section 2.9.2 has been revised to propose grid sampling rather than MI sampling to confirm removal of contaminated soil. Sampling of the entire designated areas of contamination is not necessary, as the entire areas were not used for management of waste. Sampling will be conducted where wastes were known to have been handled and will extend outward until the extent of contamination is defined.

c. Because the area of contamination approval letter (NMED 2008, 104332) does not allow soil contaminated above residential SSLs to remain on-site, the analytical suites include all constituents detected above residential SSLs and SALs (PCBs, lead, uranium-238, and SVOCs) in the wastes managed on-site. See Table 2.9-14 in the revised Phase II investigation work plan.

d. Following excavation of the top 1 ft of soil from decision units with PCB concentrations greater than 1 mg/kg, the sampling grids described in response to Specific Comment 23b will be established at both sites, and confirmation samples will be collected from within each grid. Sample collection methods are described in section 3.4 of the Phase II investigation work plan.

e. See responses to Specific Comments 13 and 14.

NMED Comment

24. Section 2.9.2 (Proposed Activities), page 14:

MI sampling as described in this Section will not be effective to define the area to be excavated. Explain how excavation will be conducted, identify how excavated soils will be managed and disposed and propose confirmation sample collection (samples must be discrete) using a grid sampling method. All sampling methods and procedures must be described in detail. Propose chemical analysis of the discrete samples as well. Additional sampling may be required at the capacitor staging areas and stockpile areas.

LANL Response

24. See responses to General Comment 1, and Specific Comments 21 and 23b. The text in section 2.9.2 has been revised to indicate that following excavation of the top 1 ft of soil from decision units with PCB concentrations greater than 1 mg/kg, the sampling grids described in the response to Specific Comment 23b will be established over the former waste stockpile areas at SWMUs 39-001(a) and 39-001(b) and confirmation samples will be collected from each grid. The analytical suites for the confirmation samples are described in the response to Specific Comment 21. Sample collection methods are described in section 3.4 of the Phase II investigation work plan. Confirmation samples from the capacitor staging areas showed PCBs concentration were all below 1 mg/kg; no other type of waste was managed in these areas. Discrete samples will be collected from each grid cell and analyzed for PCBs to confirm the cleanup of both staging areas.

NMED Comment

25. Section 3.6 (Quality Assurance/Quality Control Samples), page 18:

Permittees' Statement: *"QA/QC samples will include field duplicate, equipment rinsate, and field trip blank samples. Field duplicate and rinsate blank samples will be collected at an overall frequency of at least 1 for every 10 regular samples as directed by the current version of SOP-5059, Field Quality Control Samples."*

NMED Comment: *The activities associated with SOP-5059 must be included in the revised Work Plan in accordance Consent Order Section IX.A.*

LANL Response

25. As is the practice with all previous aggregate area investigation work plans, the activities associated with SOPs are incorporated through reference to the associated SOPs. As specified in section IX.A of the Consent Order, brief descriptions of SOPs are provided in the work plan (Table 3.0-1), along with a reference to the internet address where complete copies of the SOPs may be obtained. No revision to the work plan is necessary.

NMED Comment

26. Section 3.12 (Well and Angled Borehole Abandonment), page 19:

Permittees' Statement: *"[w]ells and boreholes specified in sections 2.7 and 2.8 will be abandoned in accordance with SOP-5034, Monitoring Well and RFI Borehole Abandonment, and will be consistent with Sections IV.B.1.b.v and X.D of the Consent Order."*

NMED Comment: *Describe the proposed activities associated with SOP-5034 in accordance Section IX.A of the Consent Order. In addition, Section IV.B.1.b.v of the Consent Order refers to the Los Alamos/Pueblo Canyon Investigation Report; explain this reference as the Work Plan is not associated with Pueblo Canyon.*

LANL Response

26. As is the practice with all previous aggregate area investigation work plans, the activities associated with SOPs are incorporated through reference to the associated SOPs. As specified in section IX.A of the Consent Order, brief descriptions of SOPs are provided in the work plan (Table 3.0-1), along with a reference to the internet address where complete copies of the SOPs may be obtained. The reference to section IV.B.1.b.v was incorrect and has been deleted from section 3.12.

NMED Comment

27. Section 3.13.1 (Removal of Contaminated Soil, Rock, and Sediment), page 20:

Prior to backfilling any area, the Permittee must have NMED approval.

LANL Response

27. The Laboratory is not required to obtain NMED approval before backfilling any area. The bottom of any excavated areas will be surveyed and marked before backfilling in the event additional removal and/or sampling are required. No revision to the work plan is necessary.

NMED Comment

28. Section 3.13.4 (Confirmation Sampling), page 21:

Permittees' Statement: *"[c]onfirmation sampling will be performed at all remediated sites as described in section 2 of this work plan."*

NMED Comment: *Details of how confirmation samples will be collected were not provided in Section 2 of the Work Plan. Revise this section to describe how confirmation samples are proposed to be collected (e.g., discrete samples from native media).*

LANL Response

28. See responses to General Comment 1 and Specific Comments 21, 23b, and 24. The text in section 2.9.2 has been revised to indicate that following excavation of the top 1 ft of soil from decision units with PCB concentrations greater than 1 mg/kg, the sampling grids described in the response to Specific Comment 23b will be established over the former waste stockpile areas at SWMUs 39-001(a) and 39-001(b) and confirmation samples will be collected from each grid. The analytical suites for the confirmation samples are described in section 2.9.2 and presented in Table 2.9-14. Sample collection methods are described in section 3.4 of the Phase II investigation work plan. Proposed sample locations within each grid cell are shown in Figures 2.9-6, 2.9-7, and 2.9-8 of the revised work plan.

NMED Comment

29. Section 5.0 (Schedule), page 22:

Permittees' Statement*: "[p]reparation for investigation activities is anticipated to begin in October 2012. Fieldwork is expected to begin in November 2012 and be completed in May 2012. A submittal date of no later than September 30, 2012, is proposed for the Phase II investigation report."*

NMED Comment: *The schedule appears to be in error. The schedule will need to be adjusted based on the revisions to the Work Plan.*

LANL Response

29. The text in section 5.0 has been revised to read "preparation for investigation activities is anticipated to begin in October 2011. Fieldwork is expected to begin in November 2011 and be completed in May 2012. A submittal date of no later than September 30, 2012, is proposed for the Phase II investigation report."

NMED Comment

30. Appendix B, B-2.1 (Drill Cuttings), page B-2:

Permittees' Statement: *"[c]uttings will be land applied if they meet the criteria in the NMED approved Notice of Intent Decision Tree for Land Application of Investigation Derived Waste Solids from Construction of Wells and Boreholes."*

NMED Comment: *The cuttings can only be land applied if the Permittees can demonstrate that all media does not contain any hazardous waste or hazardous constituents at concentrations greater than the New Mexico residential soil screening levels. The Permittees must also adhere to the requirements found in Section IX.B.2.b.iv of the Consent Order. Revise the Work Plan accordingly.*

LANL Response

30. Appendix B has been revised to clarify that drill cuttings must not be hazardous waste and must meet residential SSLs in order to be land applied. Compliance with section IX.B.2.b.iv is achieved through adherence to the approved investigation-derived waste management plan.

NMED Comment

31. Appendix B, B-2.2 (Excavated Environmental Media), page B-2

Permittees' Statement: *"[a] minimum of one sample will be collected for every 100 yd^3 of excavated material."*

NMED Comment: *Propose to collect a minimum of two samples from the total volume of excavated material. If the total volume is less than 200 yd^3, one sample must be collected for every 50 yd^3. Revise the Work Plan accordingly.*

LANL Response

31. The text in section B-2.2 in Appendix B has been revised to indicate that a minimum of two samples will be collected from the total volume of excavated material and if the total volume is less than 200 yd^3, one sample will be collected for every 50 yd^3 of excavated material.

NMED Comment

32. Appendix B, B-2.2.2 (Soil Removed from Former Stockpiles and Waste-Handling Areas at SWMUs 39-001(a) and 39-001(b)):

NMED Comment: *This section may require changes based on revisions to the Work Plan.*

LANL Response

32. Sections B-2.2.2 and B-2.2.3 of Appendix B have been revised to discuss only waste stockpile areas.

NMED Comment

33. Appendix B, B-2.4 (Purge Water from Wells and Boreholes at SWMUs 39-001(a) and 39-001(b)):

Permittees' Statement: *"[a]ny generated purge water will be analyzed for VOCs, SVOCs, radionuclides (as identified for each site in the work plan), total metals, and, if needed, TCLP metals and other analytes required by the receiving facility (e.g., total suspended solids, Microtox, chemical oxygen demand, oil and grease, pH, nitrates). The Laboratory expects any generated purge water to be nonhazardous liquid waste or PCB liquid waste that will be sent to one of the Laboratory's wastewater treatment facilities or to an authorized off-site facility where the WAC allows the waste to be received."*

NMED Comment: *The purge water generated from the wells and boreholes must be analyzed for total metals, PCBs, dioxins and furans, and explosive compounds. Revise the Work Plan appropriately.*

LANL Response

33. The text in section B-2.4 in Appendix B has been revised to indicate that purge water generated from the wells and boreholes will be analyzed for PCBs and explosive compounds if adequate sample volume is available. The text already indicates that purge water will be analyzed for total metals. Dioxins and furans are not associated with historical activities at Technical Area 39 (TA-39), because no burning has taken place at TA-39 and no waste related to burning was disposed of at TA-39. Therefore, dioxins and furans are not included in the proposed waste characterization analytical suite for purge water.

REFERENCES

Green, D., September 18, 2009. North Ancho Canyon Aggregate Area Geodetic Survey Data, on CD, Portage Environmental, Inc., Los Alamos, New Mexico. (Green 2009, 106947)

LANL (Los Alamos National Laboratory), December 2007. "Investigation Work Plan for North Ancho Canyon Aggregate Area, Revision 1," Los Alamos National Laboratory document LA-UR-07-8272, Los Alamos, New Mexico. (LANL 2007, 101894)

LANL (Los Alamos National Laboratory), January 2010. "Investigation Report for North Ancho Canyon Aggregate Area, Revision 1," Los Alamos National Laboratory document LA-UR-10-0125, Los Alamos, New Mexico. (LANL 2010, 108500.11)

NMED (New Mexico Environment Department), December 21, 2007. "Approval with Modifications for the Investigation Work Plan for North Ancho 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 2007, 098948)

NMED (New Mexico Environment Department), December 30, 2008. "Approval of an Area of Contamination for the Investigation and Remediation of Solid Waste Management Units (SWMUs), 39-001(a), 39-001(b), and 39-006(a) at Technical Area 39," 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, 104332)

NMED (New Mexico Environment Department), January 28, 2010. "Approval, Investigation Report for North Ancho Canyon Aggregate Area, Revision 1," New Mexico Environment Department letter to G.J. Rael (DOE-LASO) and M. Graham (LANL) from J.P. Bearzi (NMED-HWB), Santa Fe, New Mexico. (NMED 2010, 108675)

State of Alaska DEC (State of Alaska Department of Environmental Conservation), March 2009. "Draft Guidance on Multi Increment Soil Sampling," State of Alaska Department of Environmental Conservation, Division of Spill Prevention and Response Contaminated Sites Program, Juneau, Alaska. (State of Alaska DEC 2009, 110573)

Cross-Reference of NMED NOD Comments and Revisions to North Ancho Canyon Aggregate Phase II Investigation Work Plan

NMED NOD Comment No.	Summary of NOD Comment	Section(s) in Original Report	Section(s) in Revised Report	Nature of Revision
General Comments				
1	Provide additional information on multi-increment (MI) sampling approach.	Section 2.9.1.2	Sections 2.9.1 and 2.9.2 Table 2.9-14 Figures 2.9-6 and 2.9-7	Additional details have been provided on how MI sampling was performed, including collection and homogenization of sample aliquots.
2	Clarify if composite sampling was performed.	Section 2.9.1	Section 2.9.1	Additional details have been provided on how MI sample aliquots were collected.
3	Explain how samples were processed.	Section 2.9.1	Section 2.9.1	Additional details have been provided on how MI samples were processed.
4	Clarify how quality assurance/quality control samples were collected and if triplicate samples were collected.	Section 2.9.1	n/a*	No revisions are necessary.
Specific Comments				
5	Clarify that screening action levels (SALs) are for radionuclides.	Section 1.3	Section 1.3	Text has been revised to clarify that SALs refer to Laboratory SALs for radionuclides.
6	Investigation report must state that characterization and remediation of Solid Waste Management Unit (SWMU) 39-002(a), Area 1 will be delayed until operations cease.	Section 2.2.3	n/a	No revisions are necessary.
7	Include additional sampling for tritium at location 39-604874.	Sections 2.4.2 and 2.4.3	n/a	No revisions are necessary. Sampling around location 39-604874 to define lateral extent has already been proposed.
8	Include depths of the base of the former seepage pit, septic tank, and sand filter at SWMU 39-006(a).	Section 2.4.3	n/a	No revisions are necessary. The approved investigation report describes how samples were collected below the base of these units.
9	Explain how sidewall samples will be collected below excavation.	Section 2.5.3	Section 2.5.3, Table 2.5-4	Text revised to replace sidewall samples with boreholes around excavation.

NMED NOD Comment No.	Summary of NOD Comment	Section(s) in Original Report	Section(s) in Revised Report	Nature of Revision
10	Provide proposed method for removing soil. Discuss management, testing, and disposal of remediation waste.	Section 2.5.3	n/a	No revisions are necessary. Appropriate soil removal methods will be selected by remediation subcontractor. Waste management is already described in Appendix B and will be described in the investigation report.
11	Include analysis of samples from location 39-604437 for isotopic uranium.	Section 2.6.3	n/a	No revisions are necessary. The requested sampling has already been proposed.
12a	Analyze samples from location 39-604428 for tritium.	Table 2.6-5	Section 2.6.3, Table 2.6-5	Text has been revised to indicate that samples will be analyzed for isotopic uranium and tritium. Table has been revised to include tritium analysis.
12b	Add tritium to column 2 of Table 2.6-5.	Table 2.6-5	Table 2.6-5	Table has been revised to include tritium.
12c	Clarify that samples from location 39-604437 will be analyzed for isotopic uranium.	Table 2.6-5	n/a	No revision is necessary. The table already included isotopic uranium analysis for samples from this location.
13a	Revise text to include volume of soil removed.	Section 2.9.1	Section 2.9.1	Text has been revised to add requested information.
13b	Define areas where waste characterization was performed and provide areas and volumes.	Section 2.9.1	Section 2.9.1	Text has been revised to add requested information.
13c	Identify where soil was disposed and method of shipment.	Section 2.9.1	Section 2.9.1	Text has been revised to add requested information.
13d	Identify document describing waste characterization activities.	Section 2.9.1	Section 2.9.1, Appendix E	Text has been revised to add requested information.
14a	Clarify if terms “stockpile” and “waste pile” are synonymous.	Section 2.9.1.1	Sections 2.9.1, 2.9.1.1, and 2.9.1.2; Tables 2.9-10, 2.9-11, 2.9-12, and 2.9-13.	Text and tables have been revised so that consistent terminology is used.
14b	Provide dimensions and volumes of soil in stockpiles.	Section 2.9.1.1	Section 2.9.1.1	See response to Specific Comment 13b.
14c	Explain how number of samples was determined.	Section 2.9.1.1	Section 2.9.1.1	Text has been revised to add requested information.
14d	Explain sample collection methods.	Section 2.9.1.1	Section 2.9.1.1	Text has been revised to add requested information.

NMED NOD Comment No.	Summary of NOD Comment	Section(s) in Original Report	Section(s) in Revised Report	Nature of Revision
14e	Identify criteria used to determine which samples would be analyzed.	Section 2.9.1.1	n/a	No revisions were necessary; all samples were submitted for analysis.
15a	Explain why samples from SWMU 39-001 (a) were analyzed for gasoline range organics (GRO) but not for diesel range organics (DRO).	Section 2.9.1.1	Section 2.9.1.1	Text has been revised to add requested information.
15b	Explain why all samples from SWMU 39-001(b) were not analyzed for both GRO and DRO.	Section 2.9.1.1	Section 2.9.1.1	Text has been revised to add requested information.
16	Provide additional information on capacitor staging areas and stockpile areas and the sampling that was performed at each area.	Section 2.9.1.2	Section 2.9.1.2	Text has been revised to add requested information.
17a	Provide dimensions of excavated area.	Section 2.9.1.2	Section 2.9.1.2	Text has been revised to add requested information.
17b	Identify number of MI samples collected within each decision unit.	Section 2.9.1.2	Section 2.9.1.2	Text has been revised to add requested information.
17c	Describe how MI samples were collected.	Section 2.9.1.2	Section 2.9.1.2	See responses to General Comments 2 and 3.
17d and 17e	Explain how sidewall samples were collected.	Section 2.9.1.2	Section 2.9.1.2, Table 2.9-8	The text and table have been revised to add requested information.
17f	Explain why PCBs were the only constituent analyzed.	Section 2.9.1.2	Section 2.9.1.2	Text has been revised to add requested information.
17g	Explain why MI sampling was used.	Section 2.9.1.2	n/a	No revision is necessary.
17h	Clarify if entire footprint of capacitor staging areas and stockpile areas was sampled.	Section 2.9.1.2	Section 2.9.1.2	Text has been revised to add requested information.
18a	Identify the volume of excavated soil and where it was disposed.	Section 2.9.1.2	Section 2.9.1.2	Text has been revised to add requested information.
18b	Identify which decision units required soil removal.	Section 2.9.1.2	Section 2.9.1.2	Text has been revised to add requested information.
18c	Explain how MI samples were collected from 4.0 to 4.17 ft.	Section 2.9.1.2	Section 2.9.1.2	Text has been revised to add requested information.

NMED NOD Comment No.	Summary of NOD Comment	Section(s) in Original Report	Section(s) in Revised Report	Nature of Revision
18d	Explain why samples were analyzed only for PCBs.	Section 2.9.1.2	Section 2.9.1.2	See response to Specific Comment 17f.
18e	Explain why excavations were backfilled when samples were analyzed only for PCBs.	Section 2.9.1.2	Section 2.9.1.2	See response to Specific Comment 17f.
18f	Explain how it was determined that there were no “hot spots”	Section 2.9.1.2	n/a	No revision is necessary.
19	Clarify if text is summarizing sampling previously described or if it is describing additional sampling.	Section 2.9.1.2	Section 2.9.1.2	Text has been revised to specifically identify and describe each sampling event.
20a	Define “waste-handling areas” and include dimensions.	Section 2.9.1.2	Section 2.9.1.2	See response to Specific Comments 13 and 14.
20b	Clarify which decision units are associated with each staging and stockpile area.	Section 2.9.1.2	Section 2.9.1.2	Text has been revised to add requested information.
20c	Explain how MI sampling was used to determine that cleanup is complete.	Section 2.9.1.2	n/a	No revision is necessary.
21	Revise work plan to demonstrate why other constituents are not as good or better indicators of contamination.	Section 2.9.1.2	n/a	No revision is necessary.
22	Identify the number of decision units created at each area, their dimensions, and whether they were sampled.	Section 2.9.1.2	Section 2.9.1.2	Text has been revised to better describe the decision units and associated samples.
23a	Clearly define the area of contamination with dimensions and locations.	Section 2.9.1.2	Section 2.9.1.2	See response to Specific Comments 13 and 14.
23b	MI sampling was inappropriately applied. Propose discrete grid sampling for entire areas of contamination.	Section 2.9.1.2	Section 2.9.2	Text has been revised to propose discrete grid sampling.
23c	Propose the chemical analytical suite for each discrete sample.	Section 2.9.1.2	Table 2.9-14.	Table 2.9-14 has been added to present the proposed analytical suites.
23d	Describe the sample collection methods.	Section 2.9.1.2	Sections 2.9.2 and 3.4	Text has been revised to propose discrete grid sampling and describe sampling methods.

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23e	Describe the waste sampling activities already completed and identify the areas that have been excavated and the amount of soil removed.	Section 2.9.1.2	Section 2.9.1.2	See response to Specific Comments 13 and 14.
24	Additional sampling may be required at the capacitor staging area and stockpile areas.	Section 2.9.2	Section 2.9.2	See response to General Comment 1 and Specific Comments 21 and 23b.
25	Activities associated with SOP-5059 must be included in the revised work plan.	Section 3.6	n/a	No revision is necessary. This SOP was incorporated by reference in the same manner as with previous work plans.
26	Describe the proposed activities associated with SOP-5034. Explain reference to Consent Order section IV.B.1.b.v.	Section 3.12	Section 3.12	This SOP was incorporated by reference in the same manner as with previous work plans. Text has been revised to delete the reference to section IV.B.1.b.v.
27	NMED approval must be obtained before backfilling any area.	Section 3.13.1	n/a	No revision is necessary.
28	Provide details of how confirmation samples will be collected.	Section 3.13.4	Sections 2.9.2 and 3.13.4 Figures 2.9-2, 2.9-7, and 2.9-8 Table 2.9-14	See responses to General Comment 1 and Specific Comments 21, 23b, and 24.
29	The schedule appears to be in error and will need to be adjusted based on revisions to the work plan.	Section 5.0	Section 5.0	The proposed schedule has been revised.
30	Cuttings can be land applied only if they do not contain hazardous waste and no constituents are above residential SSLs.	Section B-2.1	Section B-2.1	Text has been revised to state that cuttings must not be hazardous or contain constituents above residential SSLs.
31	Revise text to propose collecting a minimum of two samples of excavated material and one sample per every 50 yd^3 if the volume is less than 200 yd^3.	Section B-2.2	Section B-2.2	Text has been revised as indicated in comment.

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32	Section may require changes based on revisions to the work plan.	Section B-2.2.2	Sections B-2.2.2 and B-2.2.3	Sections B-2.2.2 and B-2.2.3 of Appendix B have been revised to discuss only waste stockpile areas.
33	Purge water must be analyzed for total metals, PCBs, dioxins and furans, and explosive compounds.	Section B-2.4	Section B-2.4	Text has been revised to add PCBs and explosive compounds if there is adequate sample volume. Dioxins and furans are not associated with site activities.
n/a	n/a	Throughout	Throughout	Minor editorial changes were made throughout the document for the sake of correctness and clarity.

*n/a = Not applicable.