Response to the "Notice of Disapproval for the Investigation Work Plan for S-Site Aggregate Area Los Alamos National Laboratory (LANL), EPA ID # NM0890010515 HWB-LANL-07-029" Dated November 29, 2007

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

NMED Comment

1. *The page numbers in the Table of Contents (TOC) in the Plan do not accurately reflect the actual pages where certain sections are located (e.g., Section 4.0, Scope of Investigation Activities is on page 40 not page 12). The Permittees must correct the TOC to accurately identify the page numbers that each section(s) and subsection(s).*

LANL Response

1. The table of contents has been revised to accurately reflect the actual pages where certain sections are located.

NMED Comment

2. *In various locations throughout the Plan (Sections 4.0, 4.2, 4.2, 4.3, and 4.4), the Permittees make the statement: "A minimum of 30% of the field-screening samples collected will be submitted for laboratory analysis." However, the Permittees state elsewhere that all samples will be submitted for analysis of the parameters in one of five tables (4.0-1 - 4.0-5). The Permittees must clarify whether it is their intention to submit a minimum of 30% of field screened samples and additionally those samples with detections above background (based on field screening) for off-site analysis, or whether the intention is to submit all samples (every depth at each location) for off-site analysis of the parameters listed in one or more of the above-referenced tables. If the intent is the former, the Permittees must provide the rationale for selecting samples for submittal to an offsite laboratory for analysis.*

LANL Response

2. The text has been clarified. LANL intends to submit a minimum of 30% of field-screened samples and those samples with detections above background (based on field screening) for off-site analysis.

NMED Comment

3. The tables in the Plan that provide historical sampling data (i.e., Tables 2.3-2, 2.3-3, 2.4-1, 2.4-2, and 2.4-3) do not include units of measure for detected constituents. The Permittees must add a footnote to all appropriate tables specifying the units reported for each analytical method.

LANL Response

3. A footnote has been added to the tables specifying the units of measure.

NMED Comment

4. Throughout the Plan, structure numbers provided in the text are not consistent with the designated numbers provided for the associated structures in the figures (e.g., Section 2.2.5.1, SWMU 16-004(b), structure number 16-531 on page 15 is referenced on Figure 1.1-3 as 531). The Permittees must revise the Plan denoting the same building numbers on the figures as used in the text. In order to avoid confusion between Solid Waste Management Unit (SWMU) and Area of Concern (AOC) numbers and building/structure identifiers, NMED suggests utilizing the denotation style "building/structure 531" rather than "building/structure 16-531."

LANL Response

4. LANL agrees that the naming convention for buildings and structures should be consistent between text and figures. However, because two different TAs are discussed in this work plan, removing the TA from the building designations in the text would lead to confusion (e.g., building 11-015 and building 16-015 would both become building 15). Therefore, LANL did not make changes to the text. Given the large number of figures that need to be revised, LANL is unable to correct them in the short time frame provided for submitting the revision.

NMED Comment

5. Table 5.3-1, "Analytical Methods for Chemical Analyses" on page 164 states that the Permittees will be using Environmental Protection Agency (EPA) Method 8330 to analyze for high explosives (HE). This is not the same method (8321 A) listed on Tables 4.1-1 to 4.5-1 ("Subaggregate Proposed Sampling Description and Analyses", pp.151-160) for HE. The Permittees must revise Tables 4.1-1 to 4.5-1 to indicate that EPA Method 8330, rather than EPA Method 8321A will be used for analysis of HE. In addition, the Permittees must ensure that all HE constituents listed in Table III-1 on page 37 in the March, 2005 Order on Consent (Order) are included in the analysis.

LANL Response

5. Tables 4.1-1 to 4.5-1 were revised to indicate that U.S. Environmental Protection Agency (EPA) Methods 8330B and 8141A will be used for analysis of high explosives (HE). EPA Methods 8330B and 8141A ensure that the samples are analyzed for the constituents listed in Table III-1 of the March 2005 Compliance Order on Consent (the Consent Order).

NMED Comment

6. Tables 1.1-1 and 1.1-2 on pages 101-117 do not correctly reference the sections in the Plan where SWMUs and AOCs are addressed (e.g., SWMUs 16-001(e) and 16-003(d) on page 102 references Section 4.2 when they are actually found to be described in Section 4.3). Revise these pages so that all SWMUs and AOCs are referenced correctly in the appropriate sections.

LANL Response

6. Tables 1.1-1 and 1.1-2 have been corrected and cross-checked with what they reference in the document. All necessary revisions have been made so that solid waste management units (SWMUs) and areas of concern (AOCs) are correctly referenced in the appropriate sections.

NMED Comment

7. In Table 1.1-1, SWMU 11-006(c) is listed twice in the table under consolidated unit 11-006(a)-99. SWMU 16-017(u)-99 is part of consolidated unit 16-013-99, but is not included in the table. SWMUs 16-029(c) and 16-029(d) are part of consolidated unit 16-026(b)-99, not 16-029(h)-99 as indicated in the table. The Permittees must correct the table and include investigation of SWMU 16-017(u)-99 in the Plan.

LANL Response

7. The double listing for SWMU 11-006(c) has been removed from Table 1.1-1. SWMU 16-017(u)-99 is not within the S-Site Aggregate Area and is not part of Consolidated Unit 16-013-99. SWMU 16-017(u)-99 is located 1152 ft northwest of the V-Site Subaggregate and is part of the Cañon de Valle Aggregate Area.

NMED Comment

8. Samples within the drainages must be collected along the entire length of the drainage and to the toe of the colluvium. The Permittees must ensure that the investigations of all drainages associated with the aggregate area are included in the Plan. Sample locations must be selected based on geomorphic relationships and sedimentary packages following canyon investigation procedures. The Permittees must revise all applicable text, figures, and tables within the Plan to include sampling of the drainages.

LANL Response

8. The drainage sampling proposed in this work plan will be supplemented by data collected by other LANL environmental sampling programs, which includes sampling the length of the drainage. Section 4.5, Extended Drainages, has been revised to clarify this approach. In addition, Figure 4.5-1 has been revised to show additional drainage sampling, and Plate 4 has been added to show the relationship between the sampling proposed in this work plan and the reaches being investigated under the South Canyons investigation work plan.

SPECIFIC COMMENTS

K-Site Subaggregate

NMED Comment

1. ***Section 4.1.1, AOC C-11-002, Area of Potentially Contaminated Soil at Former Building 11-002, page 42:***

   Permittee's Statement: *"Because no samples have been collected from AOC C-11-002, two samples (one surface and one subsurface) will be collected at one location from within the boundary of the SWMU to define the nature of potential contamination."*

   NMED's Comment: *The Permittees must not only define the nature, but also the extent of contamination. One sample is not sufficient to define the lateral extent of contamination from the building that housed a photo-fission laboratory. To define the lateral extent, the Permittees must collect samples beneath the former drain lines, the source of drainlines (e.g., floordrains, sumps or sinks), and select three sampling locations outside the building footprint (south, east and west). To define the vertical extent, samples must be collected from two depths at each of the above-mentioned locations; the samples must also be analyzed for similar parameters as proposed in Table 4.1-1.*

LANL Response

1. Text, tables, and figures have been revised to reflect that a total of 10 (5 surface and 5 subsurface) proposed sampling locations have been added in and around the site boundary to define the nature and extent of potential contamination. In addition, four samples will be collected downgradient of the site within a drainage to define the nature and extent of potential contamination.

NMED Comment

2. ***Section 4.1.2, SWMUs 11-005(a),11-005(b) and 11-011(d): Active Septic Systems and Associated Outfall for Buildings 11-001, 11-003, and 11-004, page 42:***

   Permittee's Statement: *"No sampling investigations have been conducted at this SWMU; therefore, two samples (one surface and one subsurface) will be collected at one location from within the boundary of the SWMU to determine the nature of potential contamination."*

   NMED's Comment: *The Permittees must not only define the nature, but also the extent of contamination. One sampling location for each SWMU is not sufficient to characterize the nature and extent of contamination at a site. The Permittees must revise the Plan to include sampling collection locations beneath the septic tank, the inlet and outlet pipes, the mouth of the outfall, and in the drainages for each septic system. Samples must be collected at two depths at each location to define the vertical extent and should be analyzed for similar parameters as proposed in Table 4.1-1. The Permittees must revise the text and appropriate figures and tables to reflect these additional sampling locations.*

LANL Response

2. The text, table, and figure have been revised to reflect that a total of 20 (10 surface and 10 subsurface) proposed sampling locations have been added in and around the SWMU 11-005(a) boundary to define the nature and extent of potential contamination. In addition, two samples will be collected downgradient within a drainage to define the nature and extent of potential contamination.

   The text, table, and figure have been revised to reflect that a total of 24 (12 surface and 12 subsurface) proposed sampling locations have been added in and around the SWMU 11-005(b) boundary to define the nature and extent of potential contamination. In addition, two samples will be collected downgradient within a drainage to define the nature and extent of potential contamination.

   The text, table, and figure have been revised to reflect that a total of eight (four surface and four subsurface) proposed sampling locations have been added in and around the boundary of SWMU 11-011(d) to define the nature and extent of potential contamination. Because SWMU 11-011(d) is adjacent to SWMU 11-005(b) and located within the same drainage, only one sample will be collected downgradient of SWMU 11-005(b).

NMED Comment

3. Section 4.1.3.3, SWMUs 11-006(c), Catch Basin and Associated Outfall, page 43:

Permittee's Statement: *"HMX was detected and barium and copper were detected above BVs at sampling location 16-05903."*

NMED's Comment: *HMX, barium, and copper were detected at sampling location 16-05902, not at location 16-05903 as stated. The Permittees must correct the error in the Plan. Cyanide was identified as a chemical of potential concern (COPC) in the work plan for OU 1082 (1993). However, cyanide is not considered a potential COPC in the Plan for the catch basins and associated outfalls (see SWMUs 11-006(a-d)). Revise the text and the appropriate table to include cyanide in the parameters to be analyzed.*

LANL Response

3. Sampling location 16-05903 has been corrected to read 16-05902 in the text. Cyanide has added to the discussion of chemicals of potential concern (COPCs) for the catch basins and associated outfall in the text of section 2.1.3.1 and has also been added to the applicable tables.

NMED Comment

4. Section 4.1.4, SWMUs 11-005(c), 11-011(a) and 11-011(b): Inactive Outfalls from Drainlines at Buildings 11-002, 11-030A, and 11-030, page 43:

Permittee's Statement: *"No sampling investigations have been conducted at this SWMU; therefore, two samples (one surface and one subsurface) will be collected at one location from the SWMU at the outfall to determine the nature of potential contamination."*

NMED's Comment: *The Permittees must not only define the nature, but also the extent of contamination. One sampling location for each SWMU is not sufficient to characterize the nature and extent of contamination at a site. The Permittees must revise the Plan to include additional sample collection locations from beneath the drainlines that connected the buildings to the outfalls, and the source of drainlines (e.g., floordrains, sumps or sinks). Samples must be collected from two depths at*

each location to define the vertical extent and must be analyzed for all parameters proposed in Table 4.1-1. Samples must be collected along the entire length of the drainage and to the toe of the colluvium. The Permittees must revise the text and appropriate figures and tables to reflect these additional sampling locations.

LANL Response

4. The text, table, and figure have been revised to reflect that a total of 10 (5 surface and 5 subsurface) proposed sampling locations have been added in and around the boundary of SWMU 11-005(c) to define the nature and extent of potential contamination. In addition, eight samples will be collected from the drainage downgradient of the site to define the nature and extent of potential contamination.

   The text, table, and figure have been revised to reflect that a total of eight (four surface and four subsurface) proposed sampling locations have been added in and around the boundary of SWMU 11-011(a) to define the nature and extent of potential contamination.

   The text, table, and figure have been revised to reflect that a total of eight (four surface and four subsurface) proposed sampling locations have been added in and around the boundary of SWMU 11-011(b) to define the nature and extent of potential contamination. In addition, 18 samples will be collected from the drainage downgradient of both SWMUs to define the nature and extent of potential contamination.

NMED Comment

5. Figure 2.1-1, K-Site Subaggregate: Historical Sampling Locations and Analytical Data, page 72:

NMED's Comment: *Sampling location 16-05904 is not depicted on the figure. HMX was detected at concentrations of 10, 8.6, and 46 mg/kg at locations 16-05902, -05900 and - 05901, respectively (Table 2.1-3). The figure reports 8.6 mg/kg as detected value for all three samples. The Permittees must revise the figure accordingly.*

LANL Response

5. Sampling location 16-05904 is not shown in Figure 2.1-1 because no organic chemicals were detected at that location. However, sampling location 16-05904 is shown in Figure 2.1-2 because inorganic chemicals were detected above background values. Figure 1.1-2 was revised and Plates 1, 2, and 3 were added to the work plan to show all the historical sampling locations for each of the subaggregates. In addition, Plate 4 provides an overview of all proposed sampling locations, including drainage samples, and shows the relationship between the drainage samples proposed in this work plan and the reaches being investigated as part of the South Canyons investigation work plan.

   The figure has been revised to reflect the appropriate concentrations of HMX (high-melting explosive [also 1,3,5,7-tetranitro-1,3,5,7-tetrazocine]) detected at sampling locations 16-05902, 16-05900, and 16-05901.

NMED Comment

6. Table 4.0-1, K -Site Subaggregate Sampling Strategy, pages 143:

NMED's Comment: *Repeated statements have been made that chemical analysis for boron does not need to be conducted because it was not detected in the previous samples. However, the Permittees*

have conducted investigations at only two sites out of eleven in the past. For example, no previous investigations have been conducted at SWMUs 11-005(a) and 11-005(b), but the Table states "No, none detected in previous samples and unlikely used during operations." The Permittees must revise the statements to accurately reflect previous investigations.

LANL Response

6. Boron has been added to the analytical suite for the K-Site Subaggregate investigation (see Table 4.1-1) and is included in Table 4.0-1 as a potential contaminant because analytical data are lacking.

P-Site Subaggregate

NMED Comment

7. Table 4.0-2, P-Site Subaggregate Sampling Strategy, page 144:

NMED's Comment: *Table 4.0-2 contains the following deficiencies the Permittees must address:*

a. Row 2:

The Permittees indicate that the sampling strategy for SWMUs 16-035 and 16-036 will not include radionuclides; the column entitled "Radionuclides" states "only uranium associated with explosives."

Section 3.1.1.2 in the Historical Investigation Report (HIR, 2007) (LA-UR-07-5620) infers that other radionuclides, not only uranium and depleted uranium, are radionuclides of potential concern. Sections 3.1.1 (HIR) and 2.2.1.1 (the Plan) indicate that Bunker 16-478, (SWMU 16-036) machined tuballoy/niobium laminates, required a remote location due in part to radioactivity. The Permittees must include radionuclides in the sampling strategy (Table 4.0-2) for SWMUS 16-035 and 16-036, particularly at SWMU 16-036, or clearly demonstrate to NMED the rationale for not sampling for radionuclides at these sites.

LANL Response

7a. Radionuclides have been added to the sampling strategy (Table 4.0-2) for SWMUs 16-035 and 16-036. The text and Tables 4.0-2 and 4.2-1 have been revised accordingly.

NMED Comment

7b. Row 3:

The Permittees indicate that the sampling strategy for SWMUs 16-029(h) and 16-003(p) will not include radionuclides; the column entitled "Radionuclides" states: "No, only uranium associated with sumps and drain lines."

The Plan identifies SWMUs 16-029(h) and 16-003(p) as a sump, drain line, and outfall (Section 2.2.3 HIR) associated with building 16-478 (SWMU 16-036). Section 3.6.1.2 (HIR) indicates that toxic, radioactive, and pyrophoric compounds were machined at 16-478 (SWMU 16-036) in order to protect building 16-260. The Permittees must include radionuclides in the sampling strategy for SWMUS 16-029(h) and 16-003(p) or clearly demonstrate the rationale for not sampling for radionuclides at these locations.

LANL Response

7b. Radionuclides have been added to the sampling strategy for SWMUs 16-029(h) and 16-003(p). The text and Tables 4.0-2 and 4.2-1 have been revised accordingly.

NMED Comment

7c. Row 4:

The Permittees indicate that the sampling strategy for SWMU 16-031(h) will not include radionuclides; the column entitled "Radionuclides" states "not expected in sanitary outfall or with HE processing." ection 3.7.1 (HIR) also states "Interviews with site workers familiar with the historical configuration of the building indicate that the utility room was located adjacent to the control room [Building 16-478 (a portion of SWMU 16-036)]... employees were careful not to contaminate it."

Neither the Plan nor the HIR provide NMED with enough information to make a determination of whether radionuclides need to be included in the Permittees sampling strategy for SWMU 16-031(h). Furthermore, NMED questions whether the above excerpt refers to radionuclide contamination considering these are the only compounds the Permittees propose not to include in the sampling strategy. Therefore, the Permittees must clearly demonstrate the rationale for omitting sampling for radionuclides at this site and provide the proper documentation to support the argument.

LANL Response

7c. Radionuclides have been added to the sampling strategy for SWMU 16-031(h). The text and Tables 4.0-2 and 4.2-1 have been revised accordingly.

NMED Comment

7d. Row 5:

The Permittees indicate that the sampling strategy for SWMUs 16-004(a), 16-004(b), 16-004(c), 16-004(d), 16-004(e), and 16-004(f) will not include uranium because they were "No, not associated with sanitary sewer."

Because Section 3.3.1.2, "Chemicals of Potential Concern", page 24 in the HIR identifies that "potential contaminants of concern at the WWTP SWMUs are HE, organic chemicals, inorganic chemicals, and radionuclides (uranium, DU...)", the Permittees must include uranium and DU in the sampling strategy in Table 4.0-2.

LANL Response

7d. The sampling strategies for SWMUs 16-004(a), 16-004(b), 16-004(c), 16-004(d), 16-004(e), and 16-004(f) have been revised to include uranium and depleted uranium. The text and Tables 4.0-2 and 4.2-1 have been revised accordingly.

NMED Comment

7e. Row 6:

The sampling strategies for SWMUs 13-001, 16-029(h), 16-031(h), and AOC 16-003(p) have already been addressed (see rows 1, 3, and 4). The Permittees must revise the Plan to delete this row from Table 4.0-2 or provide an explanation why these sites are included twice.

LANL Response

7e. The repeated row (Row 6) has been deleted.

NMED Comment

7f. Rows 8 and 9:

The Permittees indicate that the sampling strategy for SWMUs 16-024(a) and 16-024(u) will not include radionuclides, uranium, or volatile organic compounds/semivolatile compounds (VOCs/SVOCs); the columns entitled "Radionuclides", "Uranium", "VOCs", and "SVOCs" state "not associated with HE components storage." Section 3.4.1.2 (HIR) states that, "P-Site was used for initiator testing and later for a variety of experiments. Initiators contained beryllium and polonium, the latter of which will no longer be found to be present because of its short half-life. The miscellaneous experiments may have involved uranium..."

Column 1 in Table 4.0-2 indicates that radionuclide sampling will be conducted at SWMUs 13-001 and 13-002 because polonium was a component of the initiator assembly. Because initiator testing was conducted at SWMUs 16-024(a) and 16-024(u) and polonium was a component of these initiators, the Permittees must revise the sampling strategy for these SWMUs to include radionuclides. The Permittees must also include testing for uranium in the sampling strategy, because Section 3.4.1.2 in the HIR clearly states that miscellaneous experiments "may have involved uranium." The Permittees must either provide documentation regarding the miscellaneous experiments conducted at these locations in order for NMED to make an informed decision as to whether VOCs and SVOCs should be included in the sampling strategies for these two SWMUs or include VOCs and SVOCs in the proposed analytical suite.

LANL Response

7f. The sampling strategies for SWMUs 16-024(a) and 16-024(u) have been revised to include radionuclides, uranium, volatile organic compounds (VOCs) and semivolatile organic compounds (SVOCs). Tables 4.0-2 and 4.2-1 have been revised accordingly.

NMED Comment

7g. Row 11:

The sampling strategy for SWMU 16-031(h) has already been addressed in row 4. The Permittees must revise the table to delete row 11.

LANL Response

7g. The repeated row (Row 11) has been deleted.

NMED Comment

7h. There are numerous inconsistencies between Tables 4.0-2 (p.144) and 4.2-1 (pp. 153-154) in the Plan. The Permittees must revise Table 4.2-1 to accurately reflect the Permittees proposed sampling in Table 4.0-2, including NMED's comments (a-g) above.

LANL Response

7h. Table 4.2-1 was revised to accurately reflect the revised sampling plan provided in Table 4.0-2. The revisions address NMED's comments (a–g).

NMED Comment

8. Section 4.2.2.2, SWMUs 16-025(d2) and 16-031(h) and AOCs 16-024(a), 16-024(u), C-16-050, and C-16-060, page 45:

Permittee's Statement: *"At SWMUs 16-025(d2) and 16-031(h) and AOCs 16-024(a), 16-024(u), C-16-050, and C-16-060, 10 samples (5 surface and 5 subsurface) will be collected at each SWMU or AOC to define the nature and extent of contamination (Figure 4.2-2 and Table 4.2-1).*

NMED's Comment: *The Permittees incorrectly reference Figure 4.2-2. Revise this section and reference the correct figure (Figure 4.2-1) that depicts the sampling pattern of these SWMUs and AOCs.*

LANL Response

8. Section 4.2.2.2 has been revised to reference the correct figure. Figure 4.2-1 depicts the sampling locations for SWMU 16-025(d2) and AOCs 16-024(a), 16-024(u), C-16-050, and C-16-060. Figure 4.2-2 shows the sampling locations for SWMU 16-031(h).

NMED Comment

9. Section 4.2.2.3, AOCs C-16-049, C-16-062, and C-16-063, page 45:

Permittee's Statement: *"No characterization activities are planned for AOCs C-16-049 C-16-062, and C-16-063. Archival material documents that these sites are appropriate for A. The statement of basis providing the rationale for NFA for each of these sites and associated archival materials will be submitted as part of the investigation report associated with this work plan."*

NMED's Comment: *According to Section 3.8.1 (p.30) of the HIR and Section 2.2.1.1 (p.12) of the Plan, AOC C-16-049 is "an area of potentially contaminated soil associated with the footprint of a former workshop..." The Permittees also state in Section 3.8.1.2 of the HIR (p.31) that various potential contaminants of concern are associated with this site. Based on the information provided, the Permittees must revise the Plan to include proposed investigation sampling activities for SWMU AOC C-16-049 or clearly demonstrate the rationale for not including characterization activities for this site in the Plan.*

LANL Response

9. AOC C-16-049 is appropriate for no further action (NFA) because the only release of contaminants at this site could have occurred through the darkroom sink, which was connected to a septic tank that is being addressed as part of the investigation for SWMU 13-003(a) and its associated leachfield,

AOC 13-003(b). The text has been modified to clarify why no sampling or characterization activities are proposed for AOC C-16-049.

NMED Comment

10. Section 4.2.5, SWMUs 16-004(a),16-004(b), 16-004(c), 16-004(d), 16-004(e),16-004(f): Former TA-16 Sanitary Wastewater Treatment Plant, page 46, paragraph 3:

Permittee's Statement: *"SWMU 16-004(e) was not located during a 2007 site visit. Therefore, no sampling is planned for this SWMU. However, if the SWMU is located during the field campaign, a minimum of six samples (three surface and three subsurface) will be collected to define the nature and extent of contamination below the SWMU."*

NMED's Comment: *Section 3.3.1.2 "Chemicals of Potential Concern" in the HIR. (p.24) indicates several COPCs associated with the SWMUs at former TA-16 waste water treatment plant (which contains the above-referenced SWMUs); these SWMUs include 16-004(e).*

Figures 3.0-1, 4.2-2, and 4.2-3 identify a structure and location for this site labeled as SWMU 16-004(e). NMED infers from these figures that the Permittees have information on the location of this SWMU. The Permittees must revise the Plan to include a sampling strategy for this site.

LANL Response

10. The structure located in Figures 4.2-2 and 4.2-3 has been removed (see section 2.2.5.1). Figure 4.2-3 and sections 2.2.5.1 and 4.2.5 have been revised to accurately reflect the sampling strategy for SWMU 16-004(e). Ten samples (five surface and five subsurface) will be collected from the locations shown in Figure 4.2-3.

NMED Comment

11. Section 4.2.5, SWMUs 16-004(a),16-004(b),16-004(c),16-004(d),16-004(e),16-004(f): Former TA-16 Sanitary Wastewater Treatment Plant, page 46, paragraph 4:

Permittee's Statement: *"Twenty-four samples...will be collected down-gradient of the WWTP to define the nature and extent of contamination in the drainage below the outfall (Figure 4.2-3 and Table 4.2-1)."*

NMED's Comment: *The number of sampling locations (12) identified in Section 4.2.5 is inconsistent with the number (18) identified on Figure 4.2-3 (page 96). Figure 4.2-3 also does not indicate the outfall of this drainage area, nor does it identify additional sampling locations along this drainage to the outfall. The Permittees must revise Figure 4.2-3 to incorporate the entire drainage area including additional sample collection locations. Section 4.2.5 must be revised to accurately reflect the final number of samples to be collected.*

LANL Response

11. LANL agrees that the number of sampling locations discussed in section 4.2.5 is inconsistent with those shown in Figure 4.2-3. The sampling locations along this drainage were removed from the figure and were added to Figure 4.5-1. The text in sections 4.2.3 and 4.5 has been revised to be consistent with the sampling locations shown in Figure 4.2-3. Although Figure 4.2-3 does not show the outfall in this drainage area, this outfall (National Pollutant Discharge Elimination System–

permitted outfall, EPA-SSS03S) is shown in Figure 4.5-1. Table 4.2-1 has also been revised to be consistent with the text and Figure 4.5-1.

The discussion of the number and locations of proposed sampling locations in the drainages downgradient of the wastewater treatment plant has been moved from section 4.2.5 to section 4.5, Extended Drainages.

In addition, Plate 4 has been added to provide an overview of all proposed sampling locations, including drainage samples, and shows the relationship between the drainage samples proposed in this work plan and the reaches being investigated as part of the approved South Canyons investigation work plan.

NMED Comment

12. Section 4.2.1, SWMUs 13-001 and 13-002: Firing Site and Landfill, page 45, paragraph 1:

Permittee's Statement: *"The bullseye grid was chosen to define the nature and extent of contamination and was based on the radial dispersion of potential contaminants from the firing point. It includes 74 sampling locations."*

NMED's Comment: *Figure 4.2-2 (page 95) identifies drainages to the southeast of the firing range. However, the sampling strategy for this SWMU does not include sampling locations along some of these drainages. The Permittees must revise Section 4.2.1 to include additional sample collection locations along all drainages at this site and revise the appropriate figures to depict these sampling locations.*

LANL Response

12. Figure 4.2-2 has been modified so that existing sampling locations now target drainages. In addition, section 4.2.1 has been revised to reflect that some sampling locations within the bullseye grid have been biased toward the drainages.

NMED Comment

13. Figure 4.5-1, Extended Drainages: Proposed Sampling Locations, page 100:

NMED's Comment: *Sample locations must be selected for the Martin Spring drainage (SW of P-Site Subaggregate) based on geomorphic relationships and sedimentary packages following canyon investigation procedures. Samples must be collected along the entire length of the drainage and to the toe of the colluvium because contamination may have migrated to the canyon bottom over time.*

Also, although the figure denotes three sampling locations in a drainage but the drainage is not depicted on the figure. Revise the Figure to include this drainage.

LANL Response

13. Figure 4.5-1 has been revised to show the drainage and the additional samples that have been added along the drainage between reaches MS-1 and SS-2. The text has been modified, and a revised sampling strategy is provided in section 4.5.

300s Line Subaggregate

NMED Comment

14. Section 2.3, 300s Line Subaggregate, page 16:

Permittee's Statement: *"The effluent flowed along the waste trunk line into a well-defined drainage discharging through an NPDES-permitted outfall (EPA-05A058) across the road and southwest of building 16-306."*

NMED's Comment: *At several places in the text, it is mentioned that NPDES-permitted outfall, EPA-05A058, is located southwest of building 16-306. It is in fact located southeast of building 16-306. Revise the text accordingly.*

LANL Response

14. The text has been revised to indicate that the National Pollutant Discharge Elimination System–permitted outfall (EPA-05A058) is situated southeast of building 16-306.

NMED Comment

15. Section 2.3.3.1, Site Descriptions and Potential Contaminants, page 20:

NMED's Comment: *Although historical samples collected for SWMU 16-026(e) are not discussed in this section, conclusions based on historical analytical data are reported. The second paragraph discusses SWMU 16-026(d) instead of SWMU 16-026(e). Make the appropriate corrections and revise the text to include a discussion of previous investigations.*

LANL Response

15. Additional information has been included in the text regarding the historical analytical data reported and represented for SWMU 16-026(e) in Figures 2.3-1 through 2.3-8. The SWMU referenced in the second paragraph has been revised to read SWMU 16-026(e), not SWMU 16-026(d).

NMED Comment

16. Section 4.3.4, Shared Drainages, page 48:

Permittee's Statement: *"In 1989, three water and three sediment samples were collected as part of the NPDES permit for the outfall (EPA 05A058) associated with building 16-300 (LANL 2007, 097685, Appendix E).*

NMED's Comment: *Outfall EPA 05A058 is associated with building 16-306, not 16-300 as stated. Correct the typographical error.*

LANL Response

16. The typographical error has been corrected to reflect the proper building, 16-306.

NMED Comment

17. Figure 1.1-4, page 70:

NMED's Comment: *The extent of soil contamination associated with SWMU 16-026(z) is not depicted on the figure. Revise the figure to depict the extent of suspected soil contamination.*

LANL Response

17. The text has been revised to explain that the spatial extent of this SWMU is relatively small, and therefore, it is not readily visible on the figure because of the scale.

NMED Comment

18. Table 4.0-3, 300s Line Subaggregate Sampling Strategy, pages 146:

NMED's Comments:

SWMU 16-026(z): Cyanide is not considered a COPC, but the HIR (p. 40) states that toluene di-isocyanate above permissible levels was detected in building 16-306. This building is associated with SWMU 16-026(z). Although cyanide was not detected in the previous samples, the detection limits were above background values, the Permittees must include cyanide in the analytical suite.

SWMU 16-001(e): The Permittees have not provided details about the T-pipe that exits the dry well or the structures, or drain lines to which it connects. The Permittees must investigate the T-pipe and the associated ancillary features. It is not clear if the proposed sampling locations will include samples from beneath the T-pipe and the associated drain lines. Since the depth of the dry well is not known, the Permittees must ensure that samples are collected from the native soil/tuff directly beneath the fill at and 5 ft. below the total depth of the well.

SWMU 16-003(d), 16-026(e), and 16-029(d): Since these SWMUs were associated with building 16-300 where cyanuric acid was used extensively (OU Work Plan 1082, 1993, p 5-24), cyanide must be included in the analytical suite. Although cyanide was not detected in the previous samples, the detection limits were above background values.

SWMUs 16-003(fl and SWMU 16-026(b): Radionuclide screening results reported in Table D-1.2-2 of the HIR indicates that radionuclides were detected at SWMU 16-003(f). However, in the table it is stated that the presence of radionuclides is not likely. At SWMU 16-026(b), the Permittees state that radionuclides were not detected above background and will not be included in the analysis. However, on page 19 of the Plan it is stated that radionuclides were detected in all seven screening samples.

Most of the sites included in 300s Line Subaggregate were not screened for radionuclides during previous investigations, even though radionuclides were detected at sites that were screened for radionuclides. The Permittees must conduct radionuclide screening in shared drainages and liquid waste trunk lines that received effluent from all associated structures. If the results of field screening indicate presence of radionuclides, then radionuclide analysis must be included for all samples. Additionally, samples must be collected along the entire length of the drainage and to the toe of the colluvium because contamination may have migrated to the canyon bottom over time. Sample locations must be selected based on geomorphic relationships and sedimentary packages following canyon investigation procedures.

LANL Response

18. Cyanide has been added to the analytical suite for SWMUs 16-026(z), 16-003(d), 16-026(e), and 16-029(d) in Table 4.0-3.

    Ten samples (four surface and six subsurface) will be collected at five locations to investigate the dry well and its associated T-pipe. Eight samples (three surface, five subsurface) will be collected from the sides of the dry well and beneath the T-pipe, and two (one surface, one subsurface) will be collected from the center of the dry well's footprint. Because the total depth of the dry well is unknown, an assumed depth of 5 ft was used to estimate the depth of samples in Table 4.3-1. Therefore, samples will be collected at 5.5 ft from the native soil/tuff directly beneath the fill material associated with the dry well and 11.0 ft.

    Radionuclides have been added to the analytical suite for all 300s Line Subaggregate SWMUs and AOCs. The text in section 4.5 and Figure 4.5-1 have been revised to include additional sampling locations in the extended drainages.

V-Site Subaggregate

NMED Comment

19. Section 2.4.1.1, Site Description and Potential Contaminants, SWMU 16-017(q)-99, page 24:

Permittee's Statement: *"No sampling investigations have been conducted at this SWMU (LANL 2007, 097685); based on the operational history, the potential contaminants of concern are HE, uranium, organic chemicals, inorganic chemicals (e.g., silver), cyanide, nitrate, and perchlorate."*

NMED's Comment: *Although the COPCs are HE, uranium, organic chemicals, inorganic chemicals, cyanide, nitrate, and perchlorate, the Permittees are not proposing to sample for VOCs, HE, or perchlorate according to Table 4.4-1 (page 157). Based on the operational history at SWMU 16-017(q)-99, the Permittees must include sampling and analyses for VOCs, HE, and perchlorate at SWMU 16-017(q)-99. The Permittees must revise the text and Table 4.4-1 to reflect this change.*

LANL Response

19. VOCs, HE, and perchlorate have been added to the analytical suite for SWMU 16-017(q)-99. The text and Tables 4.4-1 and 4.0-4 have been revised to reflect this change.

NMED Comment

20. Section 2.4.1.1, SWMU 16-029(w), page 25:

Permittee's Statement: *"The building, sump, and line were removed in 1960. In 1997, the drain line and sump from building 16-100 were removed."*

NMED's Comment: *The Permittees must revise this statement to clarify which date is correct or include which building, sump, and line are linked to the 1960 removal action.*

LANL Response

20. The text in Section 2.4.1.1 was revised to read as follows: “The building, sump, and a portion of the drainline were removed in 1960 (LANL 1994, 039440, p. 5-504; LANL 1997, 055653, p. 7). In 1997, the remainder of the drainline from former building 16-100 was removed (IT Corporation 1999, 087145, pp. 91-97).”

NMED Comment

21. Section 2.4.1.1, SWMU 16-029(x), page 25:

Per1mittee's Statement: *“In 1997, the drain line and sump from building 16-515 and 3 cubic yards of contaminated soil were removed based on field-screening results.”*

NMED's Comment: *The Permittees must provide information regarding the nature of contamination found in the soil, and soil disposal.*

LANL Response

21. The text in Section 2.4.1.1, SWMU 16-029(x), was revised to provide information on the nature of the contamination and soil disposal. The text now reads as follows: “Removal activities began in October 1998. Drainline and sump from former 16-515 and 3 yd^3 of contaminated soil were removed based on field-screening results. Field screening indicated HE contamination above cleanup levels at four locations (16-003054, 16-003064, 16-003068, and 16-003072). Radiological and organic chemical screening results were at or below background. Barium, chromium, and nickel were identified in the screening samples. The contaminated soil was placed in a roll-off container with other excavated soil. Soil from the roll-off container was sampled and the soil was disposed of (IT Corporation 1999, 087145, pp. 98-119).”

NMED Comment

22. Section 2.4.1.1 Site Descriptions and Potential Contaminants, AOC 16-024(n), page 27:

Permittees' Statement: *“No sampling investigations have been conducted at this site; however, based on the operational history of this AOC, the potential contaminants are HE, inorganic chemicals (e.g., barium, lead, and chromium), nitrate, and perchlorate.”*

NMEDs' Comment: *The proposed sampling analyses for AOC 16-024(n) in Table 4.4-1, page 159 does not include VOCs or SVOCs. The Permittees must revise the text and table to include analyses for VOCs and SVOCs.*

LANL Response

22. VOCs and SVOCs have been added to the analytical suite for AOC 16-024(n). The text and Tables 4.4-1 and 4.0-4 have been revised accordingly.

NMED Comment

23. Section 4.4.1.3, AOC C-16-068 and SWMU 16-017(q)-99: Area of Potentially Contaminated Soil, page 51:

Permittees' Statement: *"No historical analytical data are available for SWMU 16-017(q)-99. SWMU 16-017(q)-99 is building 16-517, which is one of two structures that survived the Cerro Grande fire (LANL 2000, 066885, p. 1); however, the building has no active operations. Because the building is still inactive and contamination is not anticipated beneath it, samples will only be collected from the perimeter of SWMU 17-017(q)-99."*

NMED Comment: *The proposed sampling locations will not define the lateral extent of contamination to the south and west of building 16-517. The Permittees must collect samples to the south and west of SWMU 16-017(q)-99. The Permittees must target the 0.0 to 0.5 ft and 5.5 to 6.0 ft depth intervals at each sampling location as well as areas of contaminant detection by field screening. The Permittees must revise the text to reflect this change.*

LANL Response

23. The sampling strategy for the V-Site Subaggregate has been revised to include samples added on the south and west sides of building 16-517.

NMED Comment

24. Section 4.4.3, SWMUS 16-006(h), 16-013, 16-017(r)-99, 16-017(s)-99,16-017(t)-99, and 16-029(g2) and AOC C-16-74:Former Storage Areas, Pump and Concrete Pit, page 52:

Permittees' Statement: *"For SWMU 16-017(1)-99, an existing structure, only six surface and subsurface samples will be collected from three unique locations immediately adjacent to the structure's concrete slab. These locations will bound the SWMU on the northeast, northwest, and southwest corners."*

NMED Comment: *The proposed sampling locations will not define the lateral extent to the north and west of building 16-516. The Permittees must collect samples to the north and west of SWMU 16-017(t)-99. The Permittees must target the 0.0 to 0.5 ft and 5.5 to 6.0 ft depth intervals at each sampling location as well as areas of contaminant detection by field screening. The Permittees must revise the text to reflect this change.*

LANL Response

24. The sampling strategy for the V-Site Subaggregate has been revised to include samples added on the north and west sides of building 16-516.

NMED Comment

25. Table 4.4-1, V-Site Subaggregate Proposed Sampling Description and Analyses, page 157:

SWMU 16-029(g2) and AOC C-16-074: According to Table 4.4-1, page 158, the Permittees have not proposed collecting surface samples at SWMU 16-029(g2) and AOC C-16-074. Based on the historical information indicating previously storage activates, the Permittees must collect surface samples at all four borehole locations. The Permittees must revise the text and Table 4.4-1 to reflect this change.

SWMU 16-029(x): According to Table 4.4-1, page 158, Permittees have not proposed surface samples at SWMU 16-029(x). The Permittees must collect surface samples at all sampling locations at the outfall. The Permittees must revise the text and Table 4.4-1 to reflect this change.

LANL Response

25. Surface samples will be collected from all four borehole locations. The text and Table 4.4-1 have been revised accordingly.

    Surface samples will be collected at all sampling locations at the outfall. The text and Table 4.4-1 have been revised accordingly.

NMED Comment

26. Figure 2.4-2, V-Site Subaggregate: historical sampling locations and inorganic chemical data above BVs for the courtyard and Figure 4.4-1, V-Site Subaggregate: proposed sampling locations for the courtyard, pages 83 and 98:

NMED's Comments:

SWMU 16-006(g), Building 16-515: SWMU 16-006(g), building 16-515 is not depicted on Figures 2.4-2 and 4.4-1. The Permittees must revise these figures to depict SWMU 16-006(g), building 16-515, as well as all sampling locations.

LANL Response

Although SWMU 16-006(g) is not shown in Figures 2.4-2 and 4.4-1, it is shown in Figures 1.1-5, 2.4-5 and 2.4-6. The proposed sampling locations associated with this site are shown in Figure 4.4-2.

NMED Comment (continued)

Building 16-522: Building 16-522 is not depicted on Figures 2.4-2 and 4.4-1. The Permittees must revise these figures to depict building 16-522.

LANL Response

Figures 2.4-1 and 4.4-1 have been revised to include former building 16-522.

NMED Comment (continued)

SWMU 16-017(v)-99, Building 515: SWMU 16-017(v)-99, building 515 is not depicted on Figures 2.4-2 and 4.4-1. The Permittees must revise these figures to depict SWMU 16-017(v)-99, building 515, as well as all sampling locations.

LANL Response

Figures 2.4-5 and 2.4-6 have been revised to include former building 16-515. The proposed sampling locations associated with this site are shown in Figure 4.4-1.

NMED Comment (continued)

SWMU 16-025(x), building 16-100: SWMU 16-025(x), building 16-100 is not depicted on Figures 2.4-2 and 4.4-1. The Permittees must revise these figures to depict SWMU 16-025(x), and building 16-100, as well as all sampling locations.

LANL Response

Figures 2.4-5 and 2.4-6 have been revised to include former building 16-100. The proposed sampling locations associated with this site are shown in Figure 4.4-2.

NMED Comment (continued)

SWMU 16-029(x): SWMU 16-029(x) is not depicted on Figures 2.4-2 and 4.4-1. The Permittees must revise these figures to depict SWMU 16-029(x), as well as all sampling locations.

LANL Response

Although SWMU 16-029(x) is not shown in Figures 2.4-2 and 4.4-1, it is shown in Figures 1.1-5, 2.4-5, and 2.4-6. The proposed sampling locations associated with this site are shown in Figure 4.4-2.

NMED Comment (continued)

SWMU 16-031: SWMU 16-031 is not depicted on Figures 2.4-2 and 4.4-1. The Permittees must revise these figures to depict SWMU 16-031, as well as all sampling locations.

LANL Response

Although SWMU 16-031(c) is not shown in Figures 2.4-2 and 4.4-1, it is shown in Figures 1.1-5, 2.4-5, and 2.4-6. Figures 2.4-5 and 2.4-6 have been revised to include former building 16-515. The proposed sampling locations associated with this site are shown in Figure 4.4-2.

NMED Comment (continued)

SWMU 16-029(w): SWMU 16-029(w) is not depicted on Figures 2.4-2 and 4.4-1. The Permittees must revise these figures to depict SWMU 16-029(w), as well as all sampling locations.

LANL Response

Although SWMU 16-029(w) is not shown in Figures 2.4-2 and 4.4-1, it is shown in Figures 1.1-5, 2.4-5, and 2.4-6. The proposed sampling locations associated with this site are shown in Figure 4.4-2.

NMED Comment (continued)

SWMU 16-017(p)-99 and SWMU 16-017(w)-99: SWMU 16-017(c)-99 and SWMU 16-017(w)-99 are not depicted on Figures 2.4-2 and 4.4-1. The Permittees must revise these figures to depict SWMUs 16-017(p)-99 and 16-017(w)-99, as well as all sampling locations.

LANL Response

Although SWMUs 16-017(p)-99 and 16-017(w)-99 are not shown in Figures 2.4-2 and 4.4-1, they are shown in Figures 1.1-5, 2.4-3, and 2.4-4. The proposed sampling locations associated with these sites are shown in Figure 4.4-2.

NMED Comment (continued)

AOC 16-024(m): AOC 16-024(m) is not depicted on Figures 2.4-2 and 4.4-1. The Permittees must revise these figures to depict SWMU 16-024(m), as well as all sampling locations.

LANL Response

Although AOC 16-024(m) is not shown in Figures 2.4-2 and 4.4-1, it is shown in Figures 1.1-5, 2.4-3, and 2.4-4. The proposed sampling locations associated with this site are shown in Figure 4.4-2.

NMED Comment (continued)

AOC 16-024(n): AOC 16-024(n) is not depicted on Figures 2.4-2 and 4.4-1. The Permittees must revise these figures to depict SWMU 16-024(n), as well as all sampling locations.

LANL Response

Although AOC 16-024(n) is not shown in Figures 2.4-2 and 4.4-1, it is shown in Figures 1.1-5, 2.4-3, and 2.4-4. The proposed sampling locations associated with this site are shown in Figure 4.4-2.

NMED Comment (continued)

SWMU 16-034(m) and SWMU 16-034(n): SWMU 16-034(m) and SWMU 16-034(n) are not depicted on Figures 2.4-2 and 4.4-1. The Permittees must revise these figures to depict SWMUs 16-034(m)-99 and 16-017(n)-99, as well as all sampling locations.

LANL Response

Although SWMUs 16-034(m) and 16-034(n) are not shown in Figures 2.4-2 and 4.4-1, they are shown in Figures 1.1-5, 2.4-3, and 2.4-4. The proposed sampling locations associated with these sites are shown in Figure 4.4-2.