**Response to the "Notice of Disapproval for the Investigation Work Plan for North Ancho Canyon Aggregate Area Los Alamos National Laboratory (LANL), EPA ID #NM0890010515 HWB-LANL-07-028," Dated October 30, 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. *Figures 4.7-1, 4.13-1, and 4.15-1 are included on pages 118, 120, and 122, respectively, but they are not included in the Table of Contents. The Permittees must revise the Table of Contents to include all figures referenced in the Plan. Additionally, the Permittees must ensure that all figures referenced in the text correspond to the appropriate figure. For example, Section 4.20, Extended Drainages, states that "sediment samples within the ephemeral stream drainage channel will be collected as diagramed in Figure 4.8-1. However, Figure 4.8-1 is entitled Proposed confirmation sampling locations for SWMU 39-001(b) excavation activities. The Permittees must revise the text where appropriate.*

### LANL Response

1. The table of contents has been revised and extensively checked to ensure all figures are included. The text has been reviewed to ensure that figure call-outs are consistent and correct throughout the document. In the specific example provided in the comment (section 4.20 references Figure 4.8-1), the correct reference is to Figure 4.20-1 and this has been incorporated into the text.

### NMED Comment

2. *Throughout the Plan (Sections 4.7.2, 4.8.2, 4.13.2, 4.15.2, 4.16.2, 4.18.2, and 4.20.2), the Permittees make a similar statement: "samples with radiation readings more than 2 times background levels will be submitted for alpha and gamma spectroscopy. At a minimum, 30% of field-screened samples will be sent for off-site analysis" (in some cases, mention of field screening for PCBs, metals, and HE is included). However, in all sections where the Permittees make this statement, they also maintain that all samples will be submitted for analysis of the parameters in one of three tables (4.0-1, 4.1-1, or 4.3-1). The Permittees must clarify whether it is their intention to submit a minimum of 30% of field screened samples and those samples showing detections two times 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. A footnote was added to Table 4.0-1 to clarify that 30% of field-screened samples will be submitted for off-site analysis. In addition, the text has been clarified to state that a random selection of the field-screened samples will be submitted for off-site analysis. Specific revisions where this statement has been included are found in sections 4.7.2, 4.8.2, 4.13.2, 4.15.2, 4.16.2, 4.18.2, and 4.20.

**NMED Comment**

3. *The Permittees state in several sections throughout the Plan (Sections 4.7, 4.8, 4.13, 4.14, 4.15, 4.16, 4.18, and 4.19) that the nature and extent of contamination outside the SWMU or AOC boundary "will be resolved by the South Canyons Investigation Work Plan and through sampling of the extended drainages in North Ancho Canyon." To determine whether or not the proposed South Canyons investigation sampling is sufficient to capture off-site contaminant migration from SWMUs and AOCs within the aggregate, the Permittees must provide a map of the proposed South Canyons sampling locations that depicts their proximity to the SWMUs and AOCs in the North Ancho Canyon Aggregate Area.*

**LANL Response**

3. Figure 3.1-1 presents the proposed South Canyon's sampling locations and depicts their proximity to the solid waste management units (SWMUs) and areas of concern (AOCs) in the North Ancho Canyon Aggregate Area. The figure includes all the reaches, as appropriate.

**NMED Comment**

4. *At each site undergoing investigation, the Permittees must obtain the most contaminated sample based on field screening and submit it for off-site analysis of dioxins/furans. The Permittees must also add tritium to the list of parameters in Table 4.1-1.*

**LANL Response**

4. Dioxins/furans and tritium have been added to the list of parameters in Tables 4.0-1, 4.1-1, and 4.3-1. Additionally, a footnote has been added to Table 4.0-1 to indicate that the most contaminated field-screened sample will be submitted for off-site dioxin/furan analysis. Organic field-screening samples will be used to select the most contaminated sample when available. Otherwise, the most contaminated sample that was field screened for radionuclides or metals will be submitted for dioxin/furan analysis. One sample at each depth will be submitted for dioxin/furan analysis. Tritium will be sampled for in all samples submitted for off-site analysis. This information has been incorporated into the revised document.

**SPECIFIC COMMENTS**

**NMED Comment**

1. *Section 2.2.1.4, Conceptual Site Model, page 12, bullet 7:*

   *Permittees' Statement: "Evaluation of contaminant transport in erosion and run-off was limited to only four samples, but any contamination from the landfill would be difficult to discern from contamination originating upstream."*

*NMED Comments: Thirteen sample locations within the SWMU boundaries are identified in Figures 2.2-2, 2.2-3, and 2.2-4. However, the four samples referenced in the statement above are not included in the above-referenced figures. The Permittees must revise the Plan so that each figure depicts all previous sampling locations.*

**LANL Response**

1. The text in section 2.2.1.4 has been revised to state that two downstream samples were deemed to be screening-level data and are therefore not included in Figures 2.2-2 to 2.2-4. The reference to four samples has been removed from the revised section.

**NMED Comment**

*2. Section 4.2, SWMU 39-004(a), Firing Site, page 34:*

*Permittees' Statement: "SWMU 39-004(d) is a firing site and an active RCRA operating unit that is subject to RCRA closure requirements and not Consent Order requirements. SWMU 39-004(d) is not proposed for investigation under this work plan."*

*NMED Comment: SWMU 39-004(d) is listed on Table IV-1, Non-Deferred Sites Within Testing Hazard Zones, of the March 1, 2005 Order on Consent (Order). Therefore, the Permittees must revise the Plan to include proposed investigation activities at SWMU 39-004(d).*

**LANL Response**

2. Section 4.2 has been revised to include new sections 4.2.1 and 4.2.2. Section 4.2.1 includes the following text, “Although determining the nature and extent of contamination at this site before the close of firing activities can be conducted, the continued explosives testing at this firing site makes any determination of nature and extent obsolete as soon as the next activity occurs. Therefore, it is proposed that full characterization of this nondeferred, active OD-RCRA regulated firing site be delayed until firing operations cease. At that time, the collection of a definitive data set is possible and will allow for the selection of the most appropriate remedial action for this site.

   In the interim, samples will be taken at SWMU 39-004(d) to investigate the migration of contaminants downgradient of this SWMU and to confirm that active firing activities are dispersing the same contaminants as those dispersed by historical firing activities.”

**NMED Comment**

*3. Section 4.3, AOC 39-002(d), Storage Area, page 34:*

*Permittees' Statement: "AOC 39-002(d) is a former SAA regulated under 40 CFR 262 and 20.4.1 NMAC. As such, it is appropriate for NFA. A statement of basis describing the rationale for NFA and a request for a certificate of completion for this AOC will be submitted with the investigation report associated with this investigation work plan."*

*NMED Comment: According to Section 2.2.2 of the Historical Investigation Report (HIR), only two surface samples were collected from within the footprint of the storage area. The Permittees go on to state that the data are only screening level data and is therefore not discussed or reported. Based on the lack of information provided in Section 2.2.2 of the HM and Section 4.3 of the Plan and that no reliable data exists for this site, the Permittees must revise the Plan to include proposed investigation activities for AOC 39-002(d) or provide sufficient information which suggests that no further*

*investigation is necessary at the site (e.g., period of use, documentation indicating there were no releases, additional sampling data, or final closure reports).*

**LANL Response**

3. The text in section 4.3 has been revised to read, “SAAs [satellite accumulation areas] are regulated under 40 CFR 262, Standards Applicable to Generators of Hazardous Waste and 20.4.1 NMAC, Hazardous Waste Management Regulations. The Laboratory conducts training classes for the operation of these areas, inspects these areas, and has institutional controls governing the closure of these units. NMED also performs annual inspections.

   If a release occurs at an SAA, it must be cleaned up immediately in accordance with the Laboratory’s Spill Prevention Countermeasures and Control Plan and/or Administrative Requirements. Because any release is cleaned up immediately, an SAA has no potential for becoming a historical release site. Therefore, SAAs are regulated under 3004(a) of RCRA, and not 3004(u) of the Hazardous and Solid Waste Amendments.

   AOC 39-002(d) has operated solely as an SAA. This AOC was not used for storage or any other operational use before its becoming an SAA. No historical release is known to have occurred at this SAA. AOC 39-002(d) has been administratively closed under Laboratory institutional controls (Laboratory implementation requirement 404-00-03, Hazardous Mixed Waste Requirements) in accordance with 40 CFR 262 and 20.4.1 NMAC. Although the rationale for not sampling AOC 39-002(d) is provided within this work plan, this site is not being proposed for NFA at this time. A statement of basis describing the rationale for NFA and a request for a certificate of completion for this AOC will be provided with the report that will be submitted following execution of this investigation work plan.”

**NMED Comment**

*4. Section 4.8, SWMU 39-001(b), Disposal Trenches, page 35, paragraph 1:*

*Permittees' Statement: "Activities will include waste and soil/fill excavation..."*

*NMED Comment: NMED acknowledges that historical investigations included the excavation and sampling of 13 test pits, 12-16 feet below ground surface (bgs). However, the waste and soil/fill excavation activities identified on page 35 do not explicitly state the depth to which the Permittees will excavate. NMED assumes that the Permittees will excavate the landfill material to an estimated depth of 16 feet or, depending on the circumstances, to refusal in native tuff. Confirmatory sampling will then be completed at the excavation limits. The Permittees must provide clarification to confirm or refute NMED's assumption.*

**LANL Response**

4. The text in sections 4.8 and 4.8.1 was revised to indicate landfill material will be excavated to 16 ft or to auger refusal in native tuff. Similar revisions have been made for SWMU 39-001(a) in section 4.16.

**NMED Comment**

*5. Section 4.8.1, Investigation Objectives, paragraph 1 and Section 4.8.2 Confirmation Sampling, paragraph 2, page 36:*

*Permittees' Statement: "Historical data are adequate to establish approximate SWMU boundaries" and "Samples will be collected at the excavated surface at depths of 0-6 inches and 6-12 inches bgs..."*

*NMED Comment: NMED agrees that the Permittees have reasonably established the vertical extent of contamination at SWMU 39-001(b) as 16 feet bgs. However, information concerning the lateral extent is unclear. The Permittees shall therefore conduct confirmatory sampling by collecting two samples at 25 foot intervals along the side walls of the excavated pit, in addition to the sampling required at the bottom of the excavation. The sidewall samples must be obtained from two intervals at each location (assuming an excavation depth of approximately 0-16 feet bgs). The Permittees must target the 5-7 foot interval and the 10-15 foot interval as well as areas of visible staining or elevated detection by field-screening. The Permittees must revise the text to reflect this change.*

**LANL Response**

5. The text in section 4.8.1 was revised to indicate that the lateral extent of contamination is not fully defined. Additional samples at 25-ft intervals along the sidewalls were added to the discussion, and samples will be targeted to the 5- to 7- and 10- to 15-ft intervals, as well as areas of visible staining or elevated detection by field screening. Similar revisions have been made for SWMU 39-001(a) in section 4.16.2.

**NMED Comment**

*6. Section 4.8.2, Confirmation Sampling, page 36, paragraph 1:*

*Permittees' Statement: "The total number of confirmation samples will be greater than or equal to 30 samples for the first confirmation sampling event to ensure adequate confidence that potentially contaminated areas are not missed during the excavation."*

*NMED Comment: NMED acknowledges the Permittees' attempt to "ensure adequate confidence that potentially contaminated areas are not missed during the excavation." However, the Permittees did not provide a rationale for selecting a minimum of 30 samples. Therefore, the Permittees must collect a minimum of one confirmation sample for every 400 ft2 from the base of the excavation or provide the rationale for collecting greater than or equal to 30 confirmation samples.*

**LANL Response**

6. The text in section 4.8.2 was revised to indicate that one confirmation sample will be collected for every 400 $ft^2$. Similar revisions have been made for SWMU 39-001(a) in section 4.16.2.

**NMED Comment**

*7. Section 4.9, SWMU 39-008, Firing Site, page 36:*

*Permittees' Statement: "Aboveground, airborne releases of contaminants from the active firing site may continually disperse contamination across the aerial extent of this S. Therefore, due to the ongoing use of the firing site which limits access to conduct a sampling investigation and provides*

*significant health and safety concerns to the investigation team, the investigation at SWMU 39-008 is proposed to be delayed until such time as the operations at the firing site have ceased."*

*NMED Comment: SWMU 39-008 is listed on Table IV-I, Non-Deferred Sites Within Testing Hazard Zones, of the Order. Therefore, the Permittees must revise the Plan to include proposed investigation activities at SWMU 39-008.*

**LANL Response**

7. Section 4.9 has been revised to read, “Although determining the nature and extent of contamination at this site before the close of firing activities can be conducted at this time, the continued explosives testing at this site makes any determination of nature and extent obsolete as soon as the next activity occurs. Therefore, it is proposed that full characterization of this nondeferred, active OD-RCRA-regulated firing site be delayed until firing operations cease. At that time, the collection of a definitive data set is possible and will allow for the selection of the most appropriate remedial action for this site.

   In the interim, samples will be taken at SWMU 39-008 to determine the potential for contaminants migrating downgradient of this SWMU and to confirm that active firing activities are dispersing the same contaminants as those dispersed by historical firing activities.”

**NMED Comment**

*8. Section 4.11, SWMU 39-004(c), Firing Site, page 37:*

*Permittees' Statement: SWMU 39-004(c) is an active firing site and active operating RCRA OD site (structure 39-06) subject to RCRA closure requirements and not Consent Order requirements. SWMU 39-004(c) is not proposed for investigation under this work plan."*

*NMED Comment: SWMU 39-004(c) is listed on Table 1V-I, Non-Deferred Sites Within Testing Hazard Zones, of the Order. Therefore, the Permittees must revise the Plan to include proposed investigation activities at SWMU 39-004(c).*

**LANL Response**

8. Section 4.11 has been revised to read, “Although determining the nature and extent of contamination at this site before the close of firing activities can be conducted at this time, the continued explosives testing at this site makes any determination of nature and extent obsolete as soon as the next activity occurs. Therefore, it is proposed that full characterization of this nondeferred, active OD-RCRA-regulated firing site be delayed until firing operations cease. At that time, the collection of a definitive data set is possible and will allow for the selection of the most appropriate remedial action for this site.

   In the interim, samples will be collected at SWMU 39-004(c) to investigate the migration of contaminants downgradient and to confirm that active firing activities are dispersing the same contaminants as those dispersed by historical firing activities.”

**NMED Comment**

*9. Section 4.12, AOC 39-002(b), Storage Area, page 37:*

*Permittees' Statement: "AOC 39-002(b) will continue to be affected by the ongoing firing activities: potential contaminants from the blasting activities will continue to be dispersed periodically over the aerial extent of this AOC. The active firing site may release contaminants that are similar to those suspected to be present at the AOC. Therefore, investigation of this AOC is proposed to be delayed until operations at the active firing point have ceased."*

*NMED Comment: SWMU 39-002(b) is listed on Table IV-1, Non-Deferred Sites Within Testing Hazard Zones, of the Order. Therefore, the Permittees must revise the Plan to include proposed investigation activities at SWMU 39-002(b)*

**LANL Response**

9. The text in section 4.12 has been revised to discuss proposed investigation activities to address contamination related to storage activities at AOC 39-002(b). Similar investigation activities have been added for AOCs 39-002(c) and 39-002(f) in sections 4.10 and 4.5. For AOC 39-002(b), five samples will be taken. Each location will be sampled from two depths: 0.5–1 and 1–2 ft bgs.

**NMED Comment**

*10. Section 4.14.2, Determine Nature and Extent of Contamination (AOC 39-007(d)), page 38, paragraph 1:*

*Permittees' Statement: "A total of 11 samples will be taken to characterize the nature and extent of contamination at AOC 39-007(d). Eight samples will be taken 2 feet from the edge of the asphalt pad. An additional three samples will be taken downgradient of the storage pad, one at the center of an unpaved road and two on either side of the road in transect."*

*NMED Comment: The sampling locations proposed for AOC 39-007(d) are not sufficient to determine the vertical extent of contamination directly beneath the asphalt pad. The Permittees must propose additional sampling locations within the limits of the pad. The Permittees must also target areas of visible staining and cracks in the asphalt. The additional samples must be collected at the same intervals and submitted for the same analytical parameters proposed in Section 4.14.2. The Permittees must revise the text and Figure 4.14-1 to reflect this change.*

**LANL Response**

10. The text in section 4.14.2 has been revised to read, “Eight samples will be taken 2 ft from the edge of the asphalt pad. An additional three samples will be taken downgradient of the storage pad: one at the center line of an unpaved road and two on either side of the road in transect. Samples will be collected from surface to 1.0 ft bgs and from 1.0 to 2.0 ft bgs using scoops and shovels at 11 locations. In addition, eight samples will be collected from locations under the asphalt pad at two depths: 0.5–1 ft and 1–2 ft beneath the pad. These samples will be collected using an auger to cut through the asphalt into the underlying soil. Soil collected from 0.5 ft below the pad should be representative of any spills but is not contaminated with SVOCs derived from the asphalt. The actual locations of samples beneath the asphalt pad are subject to change in order to target locations with visible staining or cracks.”

**NMED Comment**

*11. Section 4.17, AOC 39-002(e), page 40:*

*Permittees' Statement: AOC 39-002(e) is a former SAA regulated under 40 CFR 262 and 20.4.1 NMAC. As such it is appropriate for NFA. A statement of basis describing the rationale for NFA and a request for a certificate of completion for this AOC will be submitted with the investigation report associated with this investigation work plan."*

*NMED Comment: The Permittees have not provided evidence that this site has ever been investigated. Therefore, the Permittees must revise the Plan to include proposed investigation activities at SWMU 39-002(e) or provide sufficient information which suggests that no further investigation is necessary at the site (e.g., period of use, sampling data, documentation indicating there were no releases, or final closure reports).*

**LANL Response**

11. The text in section 4.17 has been revised to read, “SAAs are regulated under 40 CFR 262, Standards Applicable to Generators of Hazardous Waste and 20.4.1 NMAC, Hazardous Waste Management Regulations. The Laboratory conducts training classes for the operation of these areas, inspects these areas, and has institutional controls governing the closure of these units. NMED also performs annual inspections.

    If a release occurs at an SAA, it must be cleaned up immediately in accordance with the Laboratory’s Spill Prevention Countermeasures and Control Plan and/or Administrative Requirements. Because any release is cleaned up immediately, an SAA has no potential for becoming a historical release site. Therefore, SAAs are regulated under 3004(a) of RCRA and not under 3004(u) of the Hazardous and Solid Waste Amendments.

    AOC 39-002(e) has operated solely as an SAA. This AOC was not used for storage or any other operational use before its becoming an SAA. No historical release is known to have occurred at this SAA. AOC 39-002(e) has been administratively closed under Laboratory institutional controls (LIR 404-00-03, Hazardous Mixed Waste Requirements) in accordance with 40 CFR 262 and 20.4.1 NMAC. Although the rationale for not sampling AOC 39-002(e) is provided within this work plan, this site is not being proposed for NFA concurrence at this time. As such, it is appropriate for NFA. A statement of basis describing the rationale for NFA and a request for a certificate of completion for this AOC will be provided with the report that will be submitted following execution of this investigation work plan.”

**NMED Comment**

*12. Section 4.18, SWMU 39-002(a)) Storage Area, page 40:*

*Permittees' Statement: "SWMU 39-002(a) Area 1 is proposed for investigation, based upon the historical data-quality assessment. SWMU 39-002(a) Area 2 is not proposed for investigation because it is an indoor storage area with no potential for releases to the environment. SWMU 39-002(a) Area 3 is not proposed for investigation because it is an active RCRA-regulated SAA and holding/receiving area."*

*NMED Comment: The Order requires the Permittees to investigate the entire North Ancho Canyon Aggregate Area. SWMU 39-002(a) is included in the North Ancho Canyon Aggregate Area; therefore the Permittees are required to investigate the entire SWMU, not just a portion of the SWMU.*

*Furthermore, there is no provision in the Order which allows for partial investigation of a SWMU. The Permittees must revise the Plan to include proposed investigation activities in Areas 2 and 3 at SWMU 39-002(a).*

**LANL Response**

12. Section 4.18 was revised to include proposed investigation activities in Areas 2 and 3 at SWMU-39-002(a). For Area 2, 10 wipe samples from the concrete floor will be field screened for polychlorinated biphenyls (PCBs) using a test kit and metals using x-ray fluorescence. If the field screening of the wipes results in a detection of PCBs, a soil sample beneath the building will be collected. The concrete floor will be visually examined to identify cracks or staining. If areas of cracks or staining are identified, samples will be collected from beneath the floor at 0.5–1 and 1–2 ft bgs. If a floor drain is present to which the storage area could have drained, a sample will be collected from the drain trap. For Area 3, five samples will be collected from beneath the asphalt by coring. Samples will be taken at two depths: 0.5–1 and 1–2 ft bgs. Samples will be biased to areas of cracks or visible staining. In addition, three samples will be collected in the direction of drainage off the pad in the direction of the stream channel.

**NMED Comment**

*13. Section 4.19, SWMU 39-006(a), Septic System, Inactive Components, page 41, paragraph 1:*

*Permittees' Statement: "SWMU 39-006(a) inactive components are proposed for removal and sampling under this work plan, as discussed previously. No preliminary characterization is required based on evaluation of historical investigation results."*

*NMED Comment: See specific comment # 12. The Permittees must revise the Plan to include proposed investigation activities for the active components of SWMU 39-006(a).*

**LANL Response**

13. Section 4.19 was revised to include proposed investigation activities for the active components of SWMU 39-006(a). A grab sample will be collected at the influent and effluent lines to the septic tank. Likewise, a grab sample will be collected at each of the influent and the effluent for the sand filter. Three soil samples will be collected at the outfall, using scoops and shovels. At each location, samples will be taken from 0–1 and 1–2 ft bgs.

**NMED Comment**

*14. Section 4.19.2, Confirmation Samples (SWMU 39-006(a)), pages 41-42:*

*Permittees' Statement: "The actual location of the confirmation samples will be subject to change, and the final sample locations will be identified in the investigation report."*

*NMED Comment: The Permittees must elaborate on the circumstances, such as unforeseen field conditions, that would change the proposed sampling locations.*

**LANL Response**

14. Section 4.19.2 was revised to indicate the circumstances that would change the proposed sampling locations. These include cracks in the line, visible staining, odors, and elevated detections by field screening.

**NMED Comment**

15. *Section 4.19.2, Confirmation Samples (SWMU 39-006(a)), page 42, paragraph 2:*

    *Permittees' Statement: "Samples will be collected at the excavated surface at a depth of 0-6 M. and 6-12 in. bgs with scoops and shovels."*

    *NMED Comment: The text states that confirmatory samples will be collected at two depths (0-6 in. and 6-12 in.) at each location. However, Table 4.0-1 shows that samples will be collected at three depths, 0-1 foot, 1-2 feet, and 2-3 feet. The Permittees must clarify at what depths confirmatory samples will be collected at SWMU 39-006(a) as well as revise either the text or Table 4.0-1, whichever is appropriate.*

**LANL Response**

15. The information in Table 4.0-1 was revised to correspond with the text in section 4.19.2. Samples will be collected at two depth intervals (0–0.5 and 0.5–1.0 ft) at the base of the excavation, and two depth intervals (5–7 and 10–15 ft) from the sidewalls of the excavation.