**Response to the Notice of Disapproval for the
Investigation Report for Lower Sandia Canyon Aggregate Area,
Los Alamos National Laboratory, EPA ID No: NM0890010515, HWB-LANL-11-019,
Dated July 15, 2011**

INTRODUCTION

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

NMED Comment

1. ***Section 3.2.4, Surface and Shallow Subsurface Soil Investigations, page 9:***

   Permittees Statement: Table 3.2-1 shows the proposed sampling locations as listed in the approved investigation work plan, with the corresponding actual location identifiers as sampled.

   The sampling locations reported under the column heading "Location ID" in the Table 3.2-1 correspond to sampling locations identified in figures and tables in the investigation report, but not those proposed in the investigation work plan. The Permittees must revise the Table 3.2-1 to add a column that includes corresponding locations proposed in the IWP. The crosswalk of proposed and actual sampling locations will facilitate review of the document.

LANL Response

1. A column has been added to Table 3.2-1 that crosswalks the investigation work plan proposed location identifiers with the actual sampling location identifiers.

NMED Comment

2. ***Section 6.3.3.4, Site Contamination, Soil and Rock Sampling, page 28:***

   Four fill and eight tuff samples were collected from four locations at Area of Concern (AOC) 20-003(c) at depths down to 11 ft below ground surface (bgs). The approved IWP stated that soil samples would be collected from intervals of 0 to 1.0 ft bgs and 0 to 1 ft above the soil/tuff interface and tuff samples will be collected 2 to 3 ft below the soil/tuff interface at each location to ensure that native material is sampled (page 26). Table 6.3-9 indicates that fill samples were collected at all four locations only from 0 to 1 ft bgs. Proposed soil samples from 0-1 ft above the soil/tuff interface were not collected. Instead tuff samples from two depths were collected at each location. Provide an explanation for deviating from the approved IWP.

LANL Response

2. At sampling locations 20-612496, 20-612497, 20-612498, and 20-612499, three depths were sampled, corresponding to the intervals specified in the approved investigation work plan. At each location, the surface material was identified as soil/fill and collected from 0–1 ft below ground surface (bgs) as proposed. The second sampling interval was specified as 0–1 ft above the soil-tuff interface and consisted of a mixture of soil and tuff. The soil-tuff interface was generally interpreted as the depth at which the soil was not intermixed with tuff. Each sample was identified as tuff because the soil-tuff mixture sampled consisted of a greater portion of tuff than soil (75% to 85% tuff as stated in the sample collection logs). Despite the medium being identified as tuff, samples were collected in the zone above the soil-tuff interface. A sample from the third sampling interval at each location was collected in tuff below the soil-tuff interface. As shown in Table 6.3-9, the top of the third sampling intervals ranged from 1–2 ft below the bottom of the second sampling intervals at each location. Given the variability in identifying the exact depth of the soil-tuff interface, the samples collected from the third interval are also consistent with the proposed sampling depths in the approved work plan. Therefore, no deviations occurred, and no revisions to the investigation report are necessary.

NMED Comment

3. Section 6.4.1.4, Site Contamination, Soil and Rock Sampling, page 32:

Thirty tuff samples were collected from ten locations at Solid Waste Management Unit (SWMU) 20-001(c) at depths ranging from 5-15 ft bgs. The approved IWP proposed that if tuff is encountered before the proposed sampling intervals, soil samples would be collected above the soil/tuff interface and tuff samples would be collected from 2 to 3 ft below the soil/tuff interface (page 19). However, no soil samples were collected from above the soil/tuff interface, Table 6.4-1 indicates that only tuff samples were collected at the site. Provide an explanation for deviating from the approved work plan.

LANL Response

3. The text of the first bullet in section 6.4.1.4 of the investigation report has been revised to clarify the results of the geophysical survey, which did not identify any landfill boundaries or buried waste at Solid Waste Management Unit (SWMU) 20-001(c). This site is believed to have been used to dispose of a number of 3- to 5-in. bore guns cut into sections and buried in a trench. Because tuff was encountered at a very shallow depth (less than 1–2 ft bgs), it was decided that samples above the soil-tuff interface would not provide meaningful characterization data for the site. For this reason, the depths sampled (5–6 ft, 10–11 ft, and 14–15 ft bgs) were adjusted from the intervals proposed in the approved investigation work plan. This deviation has been added to the text of section B-8.0 in Appendix B.

NMED Comment

4. Section 6.8.1.4, Site Contamination, Soil and Rock Sampling, page 54:

The text states that 12 samples were collected from six locations at SWMU 20-005 from depths ranging between 0-10 ft bgs. The approved IWP proposed four samples would be collected from two sampling locations beneath the drainline (from the former location of building 20-01 to the septic tank) from depths of 0-1 ft and 3-4 ft bgs beneath the bottom of the inlet drainline, if this depth could be determined. If the depth could not be determined, the samples were to be collected at depths of 3-4 ft and 6-7 ft bgs. The drainline was assumed to be at 3 ft bgs. Table 6.8-1 indicates that four fill

samples were collected from two locations beneath the drainline (i.e., 20-612618 and 20-612619) from depths of 0-1 and 3-4 ft bgs. The text does not clarify if fill samples collected from the 0-1 ft depth were from under the drainline or from the ground surface. If samples were collected from the 0-1 ft interval, then the samples were likely collected from clean fill and not from potentially contaminated media. The Permittees must clarify if the approved IWP was followed and whether the samples were collected from appropriate depths.

LANL Response

4. The samples collected at locations 20-612618 and 20-612619 were collected from 0–1 ft and 3–4 ft bgs. Because the depth of the inlet drainline could not be determined, the sampling depths should have been 3–4 ft and 6–7 ft bgs. This deviation has been added to section B-8.0 in Appendix B and to sections 6.8.4.1, 6.8.4.4, and 9.1.1 of the investigation report. Additional sampling from 6–7 ft bgs at locations 20-612618 and 20-612619 will be proposed in the Phase II investigation work plan.

NMED Comment

5. Section 7.2.4.4, Nature and Extent of Soil and Rock Contamination, Organic Chemicals, page 60:

SWMU 53-001(a) was used as a drum storage area for building 53-2. This area was also formerly used as a satellite accumulation area. Total Petroleum Hydrocarbons (TPH) were detected in three soil samples collected during investigations conducted in 1995. TPH analyses were not proposed in the approved IWP. The Permittees state that because there are potential sources for TPH contamination other than the wastes stored at SWMU 53-001(a), the approved work plan did not propose analysis of samples for TPH. The text further states that the 2010 analytical suites that included metals, polychlorinated biphenyls (PCBs), semi volatile organic compounds (SVOCs), and volatile organic compounds (VOCs) were deemed to be better indicators of contaminant releases from SWMU 53-001(a). NMED does not agree with these statements, although the approved work plan did not propose TPH analysis, no discussion on exclusion of TPH analysis from the analytical suite were included in the IWP. Regardless, the results of analysis for organic chemicals for samples collected during the 2010 investigations and the detected concentrations of TPH in 1995 indicate further investigations of TPH contamination are not necessary at this site. No response Required.

LANL Response

5. Comment noted. See response to Comment 12.

NMED Comment

6. Section 7.3.4.3, Soil and Rock Sample Analytical Results, page 63:

The discussions of inorganic chemicals and organic chemicals both state that because the extent of contamination is not defined for the site, inorganic/organic contaminants of potential concern (COPCs) have not been defined. Yet, COPCs were identified for the site and risk determinations made. Resolve the discrepancy and revise the text accordingly.

LANL Response

6. The second paragraph of section 7.3.4.3 incorrectly stated the extent of contamination is not defined and chemicals of potential concern (COPCs) were not identified. The text has been revised to state the extent of contamination is defined and inorganic COPCs are identified in this section. Similarly, in the first paragraph under "Organic Chemicals," the text has been revised to state the extent of contamination is defined and organic COPCs are identified in this section. Section 7.3.4.3 has been revised to include the identification of inorganic and organic COPCs, and section 7.3.4.4 has been revised to delete the discussion of extent for barium and silver, which are not COPCs for the site.

NMED Comment

7. Section 7.3.4.4, Nature and Extent of Soil and Rock Contamination, Organic Chemicals, page 64:

NMED does not agree with the Permittees' statements regarding TPH evaluation at SWMU 53-001(b) (See Comment #5). However, the detected concentrations of TPH do not warrant additional investigations. No response required.

LANL Response

7. Comment noted. See response to Comment 12.

NMED Comment

8. Section 7.4.4, Site Contamination, Soil and Rock Sampling, page 66:

During 2010 investigations, ten samples were collected from four locations at SWMU 53-005 in accordance with the approved IWP. Table 7.4-1 indicates that two samples were collected from depths intervals of 0-1 and 4-5 ft at sampling location 53-612486. The IWP proposed that samples would be collected from 0-1 ft and 3-4 ft beneath the waste line. It is not clear if these sampling depth intervals indicate depths beneath the waste line or from the ground surface. The Permittees must clarify the locations of these samples in relation to the waste line.

LANL Response

8. At location 53-612486, samples were collected from 0–1 ft and 4–5 ft bgs rather than from 0–1 ft and 2–3 ft below the waste line, as proposed in the approved investigation work plan. Because the waste line could not be located, the sampling depths could not be determined relative to the depth of the waste line. This deviation has been added to section B-8.0 in Appendix B and to sections 7.4.4.1, 7.4.4.4, and 9.1.2 of the investigation report. Additional sampling from 7–8 ft bgs at location 53-612486 will be proposed in the Phase II investigation work plan.

NMED Comment

9. Section 7.7.4, Site Contamination, Soil and Rock Sampling, page 74:

The text states that sampling at the location of underground tanks will be delayed until building 53-1 is reactivated and the tank removed. Sampling is delayed at SWMU 53-006(f) until building 53-1 is deactivated, rather than reactivated. Correct the typographical error and revise the text accordingly.

LANL Response

9. In the text in section 7.7.4.1 “reactivated” has been changed to “deactivated.”

NMED Comment

10. Section 7.9.4.4, Nature and Extent of Soil and Rock Contamination, pages 81-84:

The text references the Investigation and Remediation Report for Consolidated SWMU 53-002(a)-99, Inactive Wastewater Impoundments, and AOC 53-008, Storage Area at Technical Area 53 (January 2004) to indicate that the nature and extent of contamination in the main drainage downstream from the site has been defined by the sampling performed during cleanup of the adjacent surface impoundments. However, a notice of disapproval for the report was issued on June 2, 2005. The revised report was submitted in September 2005, and approved on July 25, 2006. The Permittees must reference the 2005 revised report rather than the 2004 version.

The recommendations section of the revised report states that because of the current industrial nature of AOC 53-008, which is expected to remain industrial in the foreseeable future (under institutional control of the Laboratory), no additional corrective action or characterization is warranted at the site. The estimated total radionuclide dose for the drainage was at 6.6 mrem/yr, which is equivalent to a total risk of 3 x 10^{-5}. Because the risk level exceeds the 1 x 10^{-5}, the site does not qualify for corrective action complete status.

LANL Response

10. The text in section 7.9.4.4 has been revised to include the reference to the September 2005 revision (LANL 2005, 091498) rather than the 2004 investigation and remediation report. The reference has also been corrected in section 11.1, References, of the investigation report.

    As noted in the Lower Sandia Canyon Aggregate Area investigation report, human health and ecological risk assessments have not been performed for Area of Concern (AOC) 53-008 because vertical extent is not defined for the site. The dose and risk referred to in the September 2005 revised report pertain to SWMUs 53-002(a) and 53-002(b), the inactive wastewater impoundments, not to AOC 53-008. NMED approved the September 2005 revised report (NMED 2006, 093384), and SWMUs 53-002(a) and 53-002(b) have been granted Certificates of Completion for Corrective Action Complete with Controls (NMED 2006, 095421), the controls being that the land use at the site remains industrial. Furthermore, radionuclide contamination is not regulated under the Compliance Order on Consent (the Consent Order). Any site decision related to radionuclides is made by DOE based on dose, not risk. The total equivalent risk from radionuclides is provided per an agreement between NMED and DOE and is not used to determine no further action or corrective action complete at a site. The risk and dose in the drainage is primarily, if not exclusively, the result of discharges from the impoundments and not runoff from AOC 53-008. As a result, the risk and dose values provided in the September 2005 revised report are not related to AOC 53-008. Once vertical extent is defined at AOC 53-008, the potential chemical risk and radionuclide dose will be evaluated and presented in the Phase II investigation report.

NMED Comment

11. Section 7.12.4, Site Contamination, Soil and Rock Sampling, page 93:

As proposed in the IWP, twelve samples were collected from six locations during 2010 investigations at AOC 53-012(e). Two of the twelve samples were proposed to be collected at the turn (elbow) in the drainline at depth intervals of 0-1 and 2-3 ft below the bottom of the line. Figure 7.12-2 indicates that the sampling location 53-612539 is approximately 25 ft southwest of the elbow in the drainline and samples were collected from 0-3 ft. The text did not discuss why the proposed sampling location was moved and the samples were not collected from potentially contaminated location. Provide an explanation for deviating from the approved IWP.

LANL Response

11. Location 53-612539 was not placed at the drainline elbow as required by the approved work plan; therefore, the samples collected at that location are probably not suitable for characterizing potential releases below the drainline. The actual location must be determined either by trenching or by potholing to physically locate the drainline and follow it to the elbow. The samples collected at location 53-612539 constitute a deviation from the approved work plan, and this deviation has been added to section B-8.0 in Appendix B and to sections 7.12.4.1, 7.12.4.4, and 9.1.2 of the investigation report. Additional samples will be proposed in the Phase II investigation work plan, with the requirement to trench, pothole, or use another suitable method to identify the physical location of the drainline elbow.

NMED Comment

12. Section 7.12.4.4, Nature and Extent of Soil and Rock Contamination, Organic Chemicals, pages 96-97:

During the 1995 investigations, three surface soil samples collected at AOC 53-012(e) were analyzed for TPH. The detected concentrations of TPH ranged from 1150 to 2090 mg/kg and were above the NMED TPH screening guidelines for unknown oil (i.e., 200 mg/kg). The approved IWP did not include TPH in the analytical suite and the extent of TPH contamination was not evaluated at the site. The Permittees state that the 2010 analytical suites that included metals, radionuclides, PCBs, SVOCs, and VOCs were better indicator of releases from the site. The Permittees further state that because there are potential sources for TPH contamination other than the wastes stored at AOC 53-012(e), the approved work plan did not propose analysis of samples for TPH. As stated earlier, NMED does not agree with the statement (See Comment # 5). The Permittees must propose to collect and analyze samples for diesel range organics (DRO-extended) to determine the extent of contamination during the Phase II Investigations.

LANL Response

12. As noted in section 7.12.4.4 of the investigation report, the analytical suites proposed by the Laboratory in the revised investigation work plan (LANL 2009, 106660.14) and approved by NMED (2009, 106703) were selected to characterize contaminant releases from AOC 53-012(e). Use of these analytical suites is also consistent with the guidance provided in NMED's total petroleum hydrocarbons (TPH) screening guidelines (NMED 2006, 094614). Specifically, NMED's guidance states, "sites with oil from unknown sources must be tested for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), metals, and polychlorinated biphenyls (PCBs)" because

the TPH screening guidelines “are not designed to be protective of exposure to these constituents.” The TPH screening guidelines are based on the assumed composition of various petroleum products and the toxicity of various hydrocarbon fractions. These screening guidelines are intended to be conservative screening values for cases where site cleanup can be based solely on results of TPH sampling. In such cases, TPH sampling can be used in lieu of other more detailed analyses for specific petroleum-related contaminants. Use of TPH data and TPH screening guidelines to direct cleanup of AOC 53-012(e) is not appropriate because the source, age, and degree of weathering of the detected petroleum contamination are not known. Data characterizing concentrations of VOCs, SVOCs, metals, PCBs, and other potential site contaminants (e.g., radionuclides) are better suited to make informed decisions about potential site cleanup than TPH–diesel range organics (DRO) data. Additionally, the samples collected during 1995 Resource Conservation and Recovery Act facility investigation (RFI) were analyzed for total recoverable TPH using U.S. Environmental Protection Agency Method 418.1. This method differs from the TPH-DRO method proposed by NMED, and the results from this method are not comparable with the 1995 RFI results.

As noted in section 7.12.4.4 of the investigation report, lateral and vertical extent of all inorganic chemicals, organic chemicals, and radionuclides are defined for AOC 53-012(e), except for the vertical extent of cesium-137 and uranium-235/236. A Phase II investigation will be proposed to define vertical extent of cesium-137 and uranium-235/236. However, as stated above, Phase II sampling for TPH-DRO is not necessary or appropriate. Therefore, no revision to the investigation report is necessary.

NMED Comment

13. Section 7.13.4.1, Soil and Rock Sampling, page 98:

The text indicates that X-ray Fluorescence (XRF) survey conducted at AOC 53-013 during 2010 investigations identified eight locations with elevated concentrations of lead. However, Appendix C, where the results of the XRF survey are summarized, indicates that lead was detected at concentrations greater than the industrial soil screening levels in surface soil samples collected from 14 locations. The Permittees must resolve the discrepancy.

It is not clear if the shaded areas in figures provided in Attachment C-2 are supposed to indicate areas where soil was removed during the investigations. Additionally, clarify the significance of sampling locations denoted by grey and black circles. Revise the figures to provide legends.

LANL Response

13. The text in the first bullet in section 7.13.4.1 incorrectly stated that eight locations had elevated concentrations of lead based on the x-ray fluorescence (XRF) survey conducted at AOC 53-013. The text has been revised to state elevated concentrations of lead were detected at 14 locations.

    The shaded areas in the two figures of Attachment C-2 indicate areas excavated following the XRF survey. In the second figure, two shaded patterns are used to indicate (1) areas excavated based on XRF sampling results and (2) areas excavated based on the presence of visible lead-shot contamination. The black circles in both figures indicate the originally planned XRF sampling locations, spaced at 20-ft intervals. The grey circles in the first figure indicate XRF sampling locations added near original locations with elevated lead concentrations (spaced 10 ft from each location with elevated concentrations). A legend has been added to each figure in Attachment C-2 to clarify these

details. The text of the first bullet in section 7.13.4.1 has also been revised to state soil was excavated at eight areas as shown in the figures of Attachment C-2.

NMED Comment

14. Section 7.13.4.3, Soil and Rock Sample Analytical Results, page 99:

The text indicates that arsenic is not identified as a chemical of potential concern (COPC) at AOC 53-013 because it was detected above the Qbt 3 background value in one sample and the detected concentration was below the maximum Qbt 3 background concentration. However, the results of the quantile test indicated that concentrations of arsenic at AOC 53-013 are different from background. Arsenic must be retained as a COPC. The Permittees must revise the risk screening to include arsenic.

LANL Response

14. The Laboratory reviewed the original statistical comparison of the arsenic site data set with the arsenic Qbt 2, 3, 4 background data set using the quantile test and found the incorrect quantile had been evaluated. The original comparison looked at the 50th quantile, which resulted in a statistical difference, although the two data sets are not different as illustrated by the box plot (see below). In reevaluating the data sets and comparing the upper 80th quantile as is appropriate for the quantile test, the two data sets are not statistically different (p = 0.87). The slippage test also results in a p-value >0.05 (p = 1) for these data sets. Therefore, arsenic is not a COPC for AOC 53-013. The text in section 7.13.4.3 and the statistical test results in Table H-10 in Appendix H have been revised accordingly. The discussion of extent of arsenic has been deleted from section 7.13.4.4 because arsenic is not a COPC for the site.

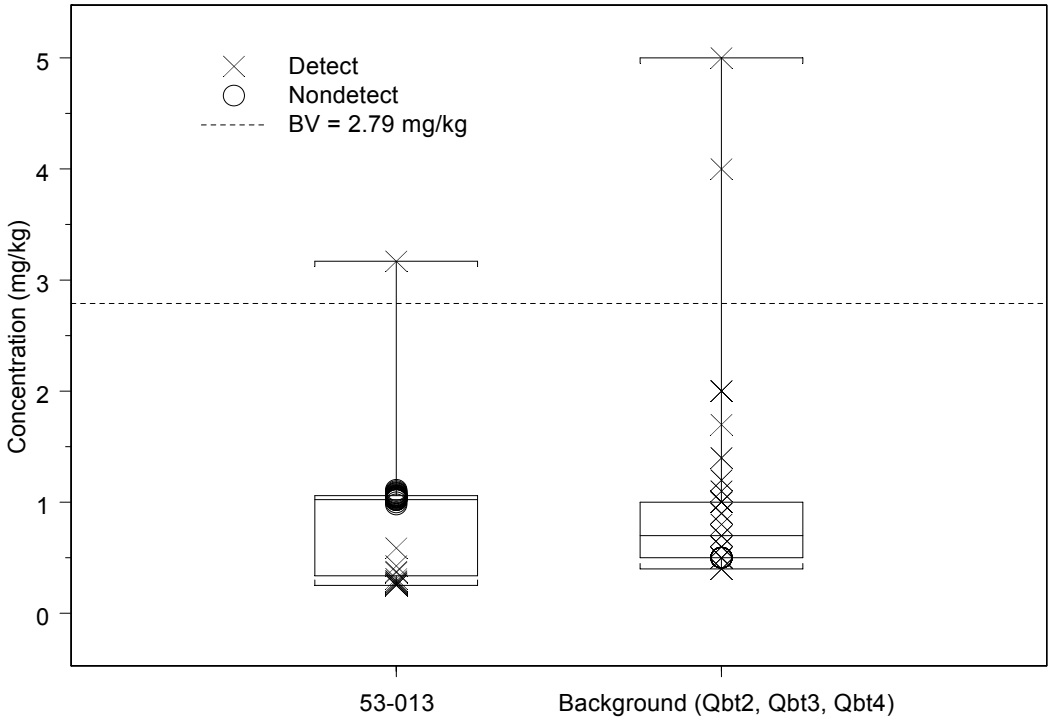

Figure H-15 Box plot for arsenic in tuff at AOC 53-013

NMED Comment

15. Section 7.13.4.4, Nature and Extent of Soil and Rock Contamination, page 100:

Permittees' Statement: Antimony was not detected above BV [background value] but had DLs [detection limits] (0.526 mg/kg to 1.1 mg/kg) above the tuff BV (0.5 mg/kg) in 31 samples. Because antimony was not detected above the BV, the lateral and vertical extent of antimony are defined.

Because the detection levels were above background, it is possible that antimony is present at levels above background but below the detection levels. As such, the comparison of site data to background does not necessarily indicate that nature and extent are defined. However, it is agreed that there does not appear to be significant contamination from antimony and additional sampling is not warranted. No response to this comment is required.

LANL Response

15. Comment noted.

NMED Comment

16. Section 7.15.4, Delayed Investigation Rationale, page 103:

The text states that SWMU 53-015 is listed in Module VIII of the Laboratory Hazardous Waste Facility Permit for tracking purposes only and is not subject to current corrective action requirements. NMED concurs that investigations at SWMU 53-015 may be delayed until the system ceases to operate, however, the Permittees must correct the reference to Module VIII of the Permit. The Final Hazard Waste Facility Permit, became effective on December 30, 2010 does not contain a Module VIII. Revise the text in this section and Section 7.15.1 to provide correct reference.

LANL Response

16. The text in sections 7.15.1 and 7.15.4 has been revised to state SWMU 53-015 is listed in Attachment K-1 of the Laboratory's Hazardous Waste Facility Permit for tracking purposes only.

NMED Comment

17. Section 9.1.1, Conclusions, Former TA-20, page 106:

Aroclor-1254 and Aroclor-1260 were detected at low concentrations in multiple samples at SWMUs 20-002(c), 20-002(d), and 20-005. The Permittees state that there is no indication that PCBs were used at these sites and PCBs should not be considered COPCs for these sites. The Permittees further state that the detected concentrations likely reflect widespread contamination from multiple sources upgradient of these sites. NMED does not agree with these statements, PCBs were detected at these sites and must be retained as COPCs for risk evaluations. NMED concurs that additional sampling to define the lateral extent of PCBs at these sites is not warranted because PCB contamination in the drainages of Sandia Canyon is addressed as part of separate canyons investigations.

LANL Response

17. The investigation work plan originally submitted to NMED (LANL 2009, 105079) did not propose PCB analysis for any of the sites located in Technical Area 20 (TA-20) based on the operational history of these sites. NMED's notice of disapproval for the work plan (NMED 2009, 106240) required PCB analysis for all samples from AOC 20-003(b) and 20% of the samples from all other sites. The concentrations of PCBs detected at the TA-20 sites are similar to those detected in upgradient and downgradient reaches sampled during the Sandia Canyon investigation (LANL 2009, 107453; NMED 2010, 108683). These results are consistent with the statements made in section 9.1.1 of the investigation report regarding the sources of the PCBs detected at TA-20 sites. That is, the detected PCBs appear to be from upcanyon sources. The detected PCB concentrations are bounded by the concentrations evaluated for human-health and ecological risk in the approved Sandia Canyon investigation (LANL 2009, 107453; NMED 2010, 108683). The risk-screening evaluations in the Sandia Canyon investigation showed no unacceptable human health or ecological risk from PCBs in the reaches bounding the TA-20 sites. The assessment of risk at a site is related to releases from the site so any corrective action is related to site COPCs. The presence of COPCs from sources unrelated to a site does not require risk assessment because the risk contributed is not associated with the potential site risk. Therefore, it is not necessary to retain PCBs as COPCs in the risk assessments for the TA-20 sites.

NMED Comment

18. Section B-5.3, Subsurface Tuff Sampling Methods, page B-4:

Permittees' Statement: Samples retrieved from the subsurface were field screened for radioactivity and visually inspected. Samples were placed in a stainless-steel bowl, and the material was crushed, if necessary, with a decontaminated rock hammer and stainless-steel spoon to allow material to fit into the sample containers.

Samples for volatile organic compound (VOC) analysis were collected immediately to minimize the loss of subsurface VOCs during the sample-collection process. After collection of VOC samples, a stainless-steel scoop and bowl were used to transfer samples for the remaining analytical suites to sterile sample collection jars or bags for transport to the SMO. The sample collection tools were decontaminated immediately before each sample was collected (see section B-5.7) in accordance with an approved subcontractor procedure technically equivalent to SOP-5061, Field Decontamination of Equipment.

Placing the samples in a stainless steel bowl and crushing the material prior to containerizing samples for analysis necessarily results in the loss of VOCs. Collection of samples for VOCs analysis in such a manner is not appropriate and does not yield valid and defensible data. From the description of the sample collection method it is apparent that VOC data presented in the Report is not valid and should not have been used for site characterization. To collect samples for VOC analysis, the Permittees must use appropriate methods such as a split barrel sampler with brass sleeves or other coring devise as described in section IX.B.2.b.ii of the Consent Order. The Permittees must describe in detail the methods used for collection of samples for analysis so NMED can determine if the VOC data provided in the IR is acceptable.

LANL Response

18. Sample material for VOCs is collected immediately upon extraction of the split-spoon core barrel or hand auger from the borehole. VOC samples are not crushed before they are containerized. However, after VOC samples are collected and field screened, the remaining sample material may be broken only to the extent necessary to place the material into sample containers. All samples are collected in a manner consistent with Section IX.B.2.b.ii of the Consent Order. The text in section B-5.3 has been revised to describe the sampling process more clearly.

REFERENCES

LANL (Los Alamos National Laboratory), September 2005. "Investigation and Remediation Report for Consolidated SWMU 53-002(a)-99, Inactive Wastewater Impoundments, and AOC 53-008, Storage Area, at Technical Area 53, Revision 1," Los Alamos National Laboratory document LA-UR-05-6373, Los Alamos, New Mexico. (LANL 2005, 091498)

LANL (Los Alamos National Laboratory), April 2009. "Investigation Work Plan for Lower Sandia Canyon Aggregate Area," Los Alamos National Laboratory document LA-UR-09-2076, Los Alamos, New Mexico. (LANL 2009, 105079)

LANL (Los Alamos National Laboratory), July 2009. "Investigation Work Plan for Lower Sandia Canyon Aggregate Area, Revision 1," Los Alamos National Laboratory document LA-UR-09-4329, Los Alamos, New Mexico. (LANL 2009, 106660.14)

LANL (Los Alamos National Laboratory), October 2009. "Investigation Report for Sandia Canyon," Los Alamos National Laboratory document LA-UR-09-6450, Los Alamos, New Mexico. (LANL 2009, 107453)

NMED (New Mexico Environment Department), July 25, 2006. "Approval of the Investigation and Remediation Report for Consolidated SWMU 53-002(a)-99, Inactive Wastewater Impoundments, and AOC 53-008, Storage Area, at Technical Area 53, Revision 1," New Mexico Environment Department letter to D. Gregory (DOE-LASO) and D. McInroy (LANL) from J. Young (NMED-HWB), Santa Fe, New Mexico. (NMED 2006, 093384)

NMED (New Mexico Environment Department), September 13, 2006. "Certificates of Completion for Solid Waste Management Units 53-002(a) and 53-002(b), Technical Area 53," 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 2006, 095421)

NMED (New Mexico Environment Department), October 2006. "New Mexico Environment Department TPH Screening Guidelines," Santa Fe, New Mexico. (NMED 2006, 094614)

NMED (New Mexico Environment Department), June 23, 2009. "Notice of Disapproval for the Investigation Work Plan for Lower Sandia 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 2009, 106240)

NMED (New Mexico Environment Department), August 6, 2009. "Notice of Approval for the Response to the Notice of Disapproval for the Investigation Work Plan for Lower Sandia Canyon Aggregate Area and Revision 1," 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 2009, 106703)

NMED (New Mexico Environment Department), February 9, 2010. “Approval with Modification, Investigation Report for Sandia Canyon,” New Mexico Environment Department letter to G.J. Rael (DOE-LASO) and M.J. Graham (LANL) from J.P. Bearzi (NMED-HWB), Santa Fe, New Mexico. (NMED 2010, 108683)