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Los Alamos
NATIONAL LABORATORY
EST. 1943

Los Alamos National Laboratory/University of California
Environmental Stewardship (ENV)
Environmental Remediation & Surveillance Program (ERS), MS M992
Los Alamos, New Mexico 87545
(505) 667-0469/FAX (505) 665-4747

National Nuclear Security Administration
Los Alamos Site Office, MS A316
Environmental Restoration Program
Los Alamos, New Mexico 87544
(505) 667-7203/FAX (505) 665-4504

Date: August 1, 2005
Refer to: ER2005-0532

Mr. James Bearzi
NMED – Hazardous Waste Bureau
2905 Rodeo Park Drive East, Building 1
Santa Fe, NM 87505-6303

RECEIVED
AUG 2005
NMED Hazardous
Waste Bureau

SUBJECT: RESPONSE TO THE NOTICE OF DISAPPROVAL ON THE WORK PLAN FOR SANDIA CANYON AND CAÑADA DEL BUEY

Dear Mr. Bearzi:

Enclosed please find two hard copies with electronic files of the response to the notice of disapproval (NOD) for the Work Plan for Sandia Canyon and Cañada del Buey. The NOD was dated June 15, 2005. The response is intended to address the New Mexico Environmental Department's comments within this submittal and to fulfill requirements for the administrative record. These comments reflect discussions with Darlene Goering of your staff regarding the Laboratory's suggestion to fully address comments within the NOD response rather than submit replacement pages for an old work plan. Several of the responses to comments recommend that implementation of the scope of work proposed in this work plan will capture the required data, which would subsequently be provided in the investigation report.

If you have questions contact Danny Katzman at (505) 667-6333 (katzman@lanl.gov) or Tom Whitacre at (505) 665-5042 (twhitacre@doeal.gov).

Sincerely,

David McInroy, Deputy Program Director
Environmental Remediation & Surveillance
Los Alamos National Laboratory

Sincerely,

David Gregory, Federal Project Director
Department of Energy
Los Alamos Site Office

5783

DK/jk

Enclosures: 1) Two hard copies with electronic files - Response to the notice of disapproval on the Work Plan for Sandia and Cañada del Buey (ER2005-0537)
2) Certification by the ENV-ERS Program Technical Representatives

Cy: (w/enc)
P. Reneau, ENV-ECR, MS M992
D. Katzman, ENV-ECR, MS M992
D. Gregory, DOE LASO, MS A316
T. Whitacre, DOE LASO, MS A316
L. King, EPA Region 6
ENV-ERS File, MS M992
RPF, MS M707
S-7, MS F674

Cy: (w/o enc)
A. Dorries, ENV-ECR, MS M992
D. McInroy, ENV-ERS, MS M992
J. Dewart, ENV-GPP, MS M992
B. Rich, ADO, MS A104
D. Pepe, NMED-OB

CERTIFICATION

CERTIFICATION BY THE ENVIRONMENTAL STEWARDSHIP– ENVIRONMENTAL REMEDIATION & SURVEILLANCE PROGRAM TECHNICAL REPRESENTATIVES

Document Title: **RESPONSE TO THE NOTICE OF DISAPPROVAL ON THE WORK PLAN FOR SANDIA CANYON AND CAÑADA DEL BUEY**

I certify under penalty of law that these documents and all attachments were prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violation.

Name: _____ Date: 8/1/05

David McInroy, Deputy Program Director
Environmental Remediation & Surveillance Program
Los Alamos National Laboratory

or

_____ Date: _____

Ken Hargis, Division Leader
Environmental Stewardship Division
Los Alamos National Laboratory

_____ Date: 8-1-05

David Gregory, Federal Project Director
Environmental Restoration Program
Department of Energy/Los Alamos Site Office

or

_____ Date: _____

John Ordaz,
Assistant Area Manager of Environmental Projects
Department of Energy/Los Alamos Site Office

Response to the
Notice of Disapproval for the Work Plan for Sandia Canyon and Cañada del Buey,
Los Alamos National Laboratory, EPA ID No: NM0890010515
HWB-LANL-03-007

INTRODUCTION

This is Los Alamos National Laboratory's (the Laboratory's or LANL's) response to the notice of disapproval (NOD) for the "Response to Request for Supplemental Information [RSI], Work Plan for Sandia Canyon and Cañada del Buey" (LANL 2003, 81597) from the New Mexico Environment Department (NMED) (NMED 2005, 89312). The RSI pertained to the "Work Plan for Sandia Canyon and Cañada del Buey" (hereafter, the work plan) (LANL 1999, 64617). To facilitate review of this response, NMED's comments are included verbatim and are organized into general and specific categories as presented in the letter from NMED. The numbers refer to NMED's comment numbers in the original RSI. The Laboratory's responses follow each NMED comment. The responses to the NOD reflect discussions with NMED staff and are intended to fulfill the requirements for a complete administrative record. In several of the responses to comments, it is proposed that the requested information will not affect the scope of work to be conducted under the work plan. The requested information would instead be included in the investigation report for Pajarito Canyon.

This response contains discussions regarding radioactive materials, including source, special nuclear, and by-product material. The management of these materials is regulated under the Atomic Energy Act and is specifically excluded from regulation under the Resource Conservation and Recovery Act (RCRA) and the New Mexico Hazardous Waste Act. 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 Permittees' response did not address NMED's comment. The Permittees state that "[g]roundwater samples will be collected from perched zones during drilling." However, considering the unpredictable and discontinuous nature of perched zones, the Permittees must use opportunities such as those in this investigation to characterize and monitor possible contamination through the installation of monitoring wells whenever such zones are encountered. If perched groundwater is encountered during drilling, NMED may require the submittal of a monitoring well design plan and the installation of monitoring wells that target perched saturated zones.*

LANL Response

1. If perched groundwater is encountered while drilling an intermediate-depth or regional groundwater well or borehole in Sandia Canyon or Cañada del Buey, the Laboratory will collect screening samples to obtain data that can be used by the Laboratory and NMED to evaluate the need to install a monitoring well.

NMED Comment

2. *The Permittees' response did not address NMED's comment. The list of potential release sites in Appendix B of this work plan does not include all of the SWMUs and AOCs in the watershed. The following SWMUs/AOCs should have been included on the table:*

   - *03-037*
   - *04-003(b)*
   - *53-006(f)*
   - *53-007(a)*
   - *53-012(e)*
   - *61-007*
   - *C-03-012*

   The Permittees must update this table and the text to reflect the additional information (e.g., site descriptions, COPCs,) for these sites.

LANL Response

2. The specified solid waste management units (SWMUs) or areas of concern (AOCs) were inadvertently left out of Tables B-1 and B-2 and the text, except for 04-003(b), 61-007, and C-03-012, which the Laboratory's maps indicate are not located in the Sandia or Cañada del Buey watersheds. However, the proposed work scope in the work plan will address potential contamination from all the SWMUs or AOCs within the watershed, including those that were omitted from the table, using an approach that utilizes full-suite analyses to identify contaminants, Therefore, the Laboratory proposes that the table not be modified at this time since modification to the original document will not affect the nature or scope of this investigation. The Laboratory also proposes that the investigation results be used to identify which SWMUs and AOCs have contributed contamination to the canyons. Specific discussions of those sites will be included in the Sandia Canyon and Cañada del Buey investigation reports.

NMED Comment

3. *The Permittees state that Appendices D and E "provide all of the well construction and geologic information requested by NMED." LANL did not provide the requested information for all of the wells listed in the RSI. The tables only include wells in the Cañada del Buey watershed. None of the tables include Sandia Canyon wells. Table D-3 presents well construction information for "selected" wells in Cañada del Buey. The Permittees must submit all of the information as requested in the RSI.*

LANL Response

3. The information on the remaining wells is contained in Purtymun (1995, 45344, pp. 116-118, 122-124, 142, 143, 260-264) and in the "Characterization Well R-12 Completion Report" (LANL 2001, 71252, p. 7 and Appendix B). If additional information on well completion is requested, the Laboratory proposes that it be included in the investigation reports.

NMED Comment

4. *The Permittees did not address NMED's comment. The Permittees state that "[s]ummaries of all available data as of 1999, the due date for the plan, are presented in Chapters 2 and 3." It appears that the Permittees have only provided analytical results for some PRSs. The following are some examples of analytical results not presented in Chapter 2:*

   - *PRS 3-012(b,c) lists the COPCs but not their concentrations;*
   - *PRS 3-056(c) does not report the detected VOCs and their concentrations;*
   - *TA-60 Fuel Yard lists samples analyzed for TPH and VOCs but the analytical results are not presented;*
   - *PRS 61-002 does not report the SVOC and VOC analytical results;*
   - *PRSs 53-002(a,b) list data but do not include analytical results for all constituents sampled;*
   - *PRS 20-002(d) reports radionuclides but does not present their concentrations;*
   - *PRSs 4-004 and 4-003(a) indicate that samples were collected and analyzed for SVOCs, HE, VOCs, and metals; the analytical results are not provided;*
   - *PRS 51-001 describes that sampling was conducted, no analytical results were provided;*
   - *PRSs 54-007(c, d, and e): sampling was conducted but no analytical results were provided;*
   - *PRS 46-004(a_2) and PRS 46-004(g), PAHs were detected at concentrations above SALs but not listed as COPCs.*

   At a minimum, the Permittees must provide a summary of any available results of constituents detected at concentrations above LANL background or detection limits at each PRS without eliminating any COPCs at this time.

LANL Response

4. As discussed in the Laboratory's response to general comment #2, the scope of the work plan would not change if the document were modified because full-suite analysis will be used to identify contaminants. The Laboratory also proposes that the investigation results will be used to identify which SWMUs and AOCs have contributed contamination to the canyons, and specific discussions of those sites will be included in the Sandia Canyon and Cañada del Buey investigation reports. Additionally, the SWMU- and AOC-specific data and information requested by NMED will be provided in the aggregate area work plans that the Laboratory will be preparing for the Sandia Canyon and Cañada del Buey SWMU aggregate areas.

NMED Comment

5a. *The Permittees did not address NMED's comment. The following paragraph was taken from the Permittees' Core Document for Canyons Investigation:*

   A geomorphic study completed in 1991 (Graf 1994, 55536) provides a historic perspective for evaluating the contributions of plutonium from Los Alamos Canyon to the Rio Grande. The study used historic aerial photography and hydrologic data to evaluate the movement and deposition of sediment over time. Several conclusions were made regarding the regional balance of deposited plutonium in the sediment from 1948 to 1985, accounting for both worldwide fallout and the Laboratory contribution from Los Alamos Canyon to the northern Rio Grande." (page 2-25)

The Permittees state that aerial photographs are useful tools in evaluating historic changes to the topographic features of the canyon bottom. The Permittees do not need to provide a "complete set" of aerial photographs, but must provide those that contain relevant information useful to this investigation. The Permittees shall provide a brief discussion of the changes observed, areas of sediment accumulation, and areas that have been impacted or disturbed because of construction.

LANL Response

5a. The Laboratory will provide NMED with copies of aerial photographs that are identified as useful in the investigation as the investigation proceeds. The Laboratory will also provide a brief discussion of the changes observed, areas of sediment accumulation, and areas that have been impacted or disturbed because of construction in investigation reaches in the investigation reports.

NMED Comment

6a. The Permittees may believe that the information provided in the background section of the work plan is "sufficiently comprehensive, complete, and site-specific for the purposes of this plan", but NMED does not agree, as stated clearly in its RSI. As described in NMED's general comments #2, 3, 4, 5 and specific comment #7, the information provided is incomplete. The Permittees must provide the requested information and revise the text as appropriate.

LANL Response

6a. As discussed in the Laboratory's response to general comments #2 and #4, the scope of the work plan would not change if the document were modified because full-suite analysis will be used to identify contaminants. The Laboratory also proposes that the investigation results will be used to identify which SWMUs and AOCs have contributed contamination to the canyon, and specific discussions of those sites will be included in the Sandia Canyon and Cañada del Buey investigation reports. Additionally, the SWMU- and AOC-specific data and information requested by NMED will be provided in the aggregate area work plans that the Laboratory will be preparing for the Sandia Canyon and Cañada del Buey SWMU aggregate areas.

NMED Comment

6c. See specific comment #9i. The Permittees must revise the text accordingly.

LANL Response

6c. See response to specific comment #9i.

NMED Comment

6d. NMED approves the Permittees' request to submit in the form of a memorandum brief periodic monitoring reports for data that would not otherwise be reported in the periodic monitoring reports required under the Consent Order. Such memos would not constitute the submittal of data in lieu of inclusion in the investigation report. The Permittees shall not construe the submittal of such memos as approval of work performed. The Permittees are reminded that NMED must approve any key-suite or limited-suite sampling proposed by the Permittees prior to implementation.

LANL Response

6d. As proposed in the response to the RSI, the Laboratory will submit to NMED brief memo reports that include analytical data collected during prior phases of the investigation. These data will also be included in the investigation report. The Laboratory also proposes to inform NMED of planned key-contaminant or limited-suite sampling, with the proposed analyte suites based on results of prior sampling under the work plan. The Laboratory will request approval of these analyte suites from NMED.

SPECIFIC COMMENTS

NMED Comment

1a. In its response, the Permittees explain that, because there is no background data set for surface water and groundwater, COPCs for these media will have to be determined using comparisons to data from applicable baseline sample locations or applicable standards such as NMWQCC and EPA MCLs. The Permittees will use not baseline surface water sampling locations for determining COPCs unless NMED has approved of these locations beforehand. The Permittees must use the data set contained in the Groundwater Background Investigation Report for comparison of site data.

The weight-of-evidence approach, as explained in the Permittees' response, is only applicable to statistical data (not judgmental samples as is collected by the Permittees), and can be applied after complete delineation of site contamination has been determined and all phases of the investigation have been completed. Eliminating COPCs detected above background or detection limits may only be performed after all phases of the investigation are completed. The Permittees may limit the analytical suite for subsequent consecutive investigation phases based only on the concentration of the constituent (below background or not detected) but not the other criteria listed by the Permittees in their RSI response.

LANL Response

1a. As requested by NMED, the Laboratory will use comparisons of groundwater data to the background data set contained in the Groundwater Background Investigation Report (LANL 2005, 89313) after approval by the NMED. Because there are no background values for surface water, the Laboratory proposes to use comparisons to applicable standards as a means for determining COPCs and will consult with NMED prior to implementing this comparison in the investigation reports.

The Laboratory does not propose to eliminate COPCs as part of the phased approach. The Laboratory agrees that any reductions in the analyte suite during the phased approach should be based on detections and comparisons to background.

NMED Comment

7. *The Permittees must provide a report summarizing all of the sediment and surface water investigations performed to date in upper Sandia Canyon as part of the investigation report for this work plan. The Permittees propose installing an alluvial groundwater well in the lower part of the wetland. NMED approves of this change to the work plan.*

LANL Response

7. The Laboratory will include summaries of prior sediment and surface water investigations in upper Sandia Canyon as part of the investigation report for this work plan, and will install an alluvial groundwater well in the lower part of the wetland.

NMED Comment

8. *As the Permittees state, according to the statistical theory, the uncertainty generally decreases as the number of samples increases. The Permittees also state that this uncertainty should decrease through phases of the sediment investigation because more sediment samples will be collected. However, the latter statement is incorrect. The collection of more samples through different phases does not mean the collection of statistically independent samples and, therefore, decreasing uncertainty. For example, there is a difference between 30 samples collected in one sampling event, and 30 samples collected in three different phases of an investigation. In the first case, the samples (if allocated properly) are statistically independent and may represent the true population. In the second case, the samples have to be proven to be statistically independent e.g., using random allocation, no time or seasonal trends) if no special criteria were applied to allocate them in the consecutive phases. If the location of the samples in the second and third phases were chosen based on the results from the previous phase, then these samples cannot be considered statistically independent and cannot be grouped to represent the same population. Changes in analytical methods and detection limits would also influence data. In the phased approach, the uncertainty of the data would not decrease just for having multiple phases (and, therefore, increasing the total number of samples collected). Evaluation of the uncertainty must be performed on individual bases by set forward criteria and valid statistical calculations.*

LANL Response

8. The Laboratory will evaluate uncertainty in contaminant distribution using appropriate criteria and valid statistical calculations in the investigation report.

NMED Comment

9a. *The Permittees agree to sample pre-1943 sediment deposits or other geologic units in wet reaches to evaluate the potential migration of contaminants by infiltrating water and/or by groundwater migration. The Permittees must clarify which reaches are considered wet. According to Figure A-1, there is only one reach in Sandia Canyon that contains perennial surface water. The Permittees must sample pre-1943 sediment deposits in <u>all</u> reaches.*

LANL Response

9a. The Laboratory agrees to sample pre-1943 sediment deposits in all reaches as part of this investigation.

NMED Comment

9f. At other sites at the Facility, the Permittees have eliminated COPCs that should not have been eliminated. In one instance (see Response to Notice of Disapproval, Los Alamos and Pueblo Canyons Investigation Report, dated April 29, 2005), the Permittees misapplied EPA guidance and eliminated a COPC that should not have been eliminated. Therefore, the Permittees must receive NMED approval prior to determining limited-suite or key-suite contaminant analyses for all media and during any phase of this investigation.

LANL Response

9f. The Laboratory will submit proposals for limiting analyte suites in phases 2 and 3 to the NMED for approval, as specified in the response to general comment #6d.

NMED Comment

9h. The Permittees proposed changing the minimum reach length from 100-200 meters to 200-250 meters. NMED approves this change. The Permittees are reminded that watersheds can not be eliminated based on initial analytical results unless approved by NMED.

LANL Response

9h. The Laboratory will submit proposals for which parts of the watershed to investigate in later investigation phases to NMED for approval. The Laboratory anticipates that these proposals will be in the same submittals that propose analytical suites for later investigation phases that were discussed in the response to general comment #6d.

NMED Comment

9i. The Permittees did not address this comment and NMED does not agree that "the present text is sufficient for the purposes of this work plan." The Permittees will likely have different data quality requirements for field screening samples (if any is conducted) than for the off-site analytical laboratory samples. The DQOs should include some minimum QA/QC samples to be analyzed both in the field and in the lab. During the validation procedures, the results should meet QA criteria in order to be considered valid. In addition, if some DQO objectives are not met during the sampling, corrective actions should follow, and they too must be addressed in this work plan. The Permittees must revise the text accordingly.

LANL Response

9i. As part of the data quality objectives (DQOs) for the work plan, the Laboratory will collect field quality assurance (QA) duplicates and field rinsate blanks at a frequency of 1 in 10 samples. For sampling events that include VOCs, trip blanks will also be collected at a frequency of 1 in 10. Analytical data received from off-site laboratories will be evaluated as part of validation procedures to ensure that standard QA and quality control (QC) criteria are met. Data that do not meet QA/QC criteria will not be considered useable and will not be used in assessments. In cases where QA/QC deficiencies are discovered, additional samples will be collected for analysis as appropriate.

NMED Comment

9k. The Permittees discuss "potential human health risk" before extent of contamination has been determined. The Permittees' response states that certain "single analytes" may contribute more than 50% of the potential human health risk as demonstrated by the investigations in other canyons. This is interesting but is not relevant at this time. Following the initial sampling and prior to selected limited-suite and key-suite contaminants, the Permittees may propose to focus additional sampling on those "single analytes" and provide the basis for selecting the analytes (concentrations, sources, frequency of detection, etc.).

LANL Response

9k. The Laboratory will submit proposals for limiting analyte suites in phases 2 and 3 to the NMED for approval, as specified in the response to general comment #6d.

NMED Comment

9l. NMED agrees with all approaches that the Permittees described in its response to this comment. NMED also agrees with and approves of statistical (stratified) and judgmental sampling designs and the quoted EPA reference. NMED also notes that most of the Permittees' sampling designs are judgmental where the "number of samples will be determined by the technical team." However, NMED requires that the Permittees clearly state the type of sampling design to be implemented for each reach, the (approximate) number of samples that it will collect, and the basis for such sampling design. In addition, NMED will apply the quoted EPA guidance (as quoted by the Permittees). The Permittees may not use the collected data for "drawing conclusions about the target population", including risk assessment where a statistical sample set is necessary to evaluate the posed risk by the contaminants.

LANL Response

9l. The Laboratory will provide NMED with information on the proposed sample numbers and sample design for limited-suite samples in phases 2 and 3 of the investigation as part of the proposal for limiting analyte suites, as discussed in the response to general comment #6d. The data from this phased investigation are intended to define the nature and extent of contamination and then will be used to support the assessment of risk for the watershed.

NMED Comment

9m. NMED does not review or approve the Permittees standard operating procedures and the Permittees failed to provide a reference to the cited RCRA sampling guidance. The Permittees have the discretion to request that homogenization methods be used in the field instead of the laboratory. If the Permittees' request a deviation from this requirement, the Permittees must provide a description of the proposed method. The Permittees must ensure that the method used results in adequate homogenization that yields nonvariable, representative samples.

The Permittees state in their Core Document for Canyon Investigations (Core Document) that heavy metals and radionuclides discharged from the Laboratory in liquid effluent preferentially adsorb to finer-grained sediment particles. In those cases where liquid effluents are the <u>only</u> source of contamination, sieving of samples may be appropriate. The Permittees must ensure that samples collected for volatile compounds analysis or wet samples are not sieved because chemical and

physical losses may occur. The Core Document goes on to state that "[in] some cases, however, such as locations where fragments of shrapnel or depleted uranium are (or have been) dispersed from firing sites, higher concentrations of contaminants as larger, heavy particles may be present in active channel deposits." In these cases, sieving of samples is not appropriate because the large fractions may contain the bulk of the contaminant concentrations. The Permittees' claim that "any biasing imparted by sieving would be on the high side and result in a conservative estimation of potential risk" is not always accurate. The Permittees have requested that routine field sieving of samples to remove gravel and organic matter be approved by NMED as part of this work plan. NMED does not approve this request at any sampling location downgradient or immediately upgradient of any firing sites within Sandia Canyon. The NMED approves this request for all other sampling locations within Sandia Canyon and Cañada del Buey. This approval applies only to this investigation and is not meant to apply to other sites or work plans.

LANL Response

9m. The referenced U.S. Environmental Protection Agency (EPA) document is "RCRA Waste Sampling Draft Technical Guidance SW-846, Chapter Nine, Planning, Implementation, and Assessment" (EPA530-R-99-015, July 1999, pp. 125-126). The document discusses homogenization (mixing) of samples, and field procedures for homogenization implemented by the Laboratory are consistent with this guidance. Field procedures implemented by the Laboratory are also considered necessary to assure that representative samples are collected and analyzed, a stated goal in Section IX.C.4.a (p. 187) of the Consent Order.

The Laboratory will not sieve samples collected for volatile organic compound (VOC) analysis, wet samples, or samples collected downgradient or immediately upgradient of firing sites within Sandia Canyon. Firing sites in the watershed are SWMUs or AOCs 03-008(b), 20-002(a) through (d), 20-003(b) through (d), and 72-002. Because one of the firing sites is located above the head of Sandia Canyon in TA-3 (03-008[b]), this means that no samples will be sieved in the Sandia watershed.

NMED Comment

9n. NMED may require sampling beyond subreach S-5 East depending on the analytical results presented in the investigation report or based on other information.

LANL Response

9n. The Laboratory will sample downgradient of reach S-5 East if contaminants resulting from Laboratory operations are found in this reach during the course of this investigation or if NMED requires such sampling for other reasons.

NMED Comment

10c. The Permittees propose collecting surface water samples from 5 identified additional sites in Sandia Canyon during this investigation. NMED approves this change to the work plan.

LANL Response

10c. The Laboratory will collect surface water samples at the five locations specified in the RSI response.

NMED Comment

11a. See specific comment #7.

LANL Response

11a. See response to specific comment #7.

NMED Comment

11h. The Permittees must sample all alluvial and regional groundwater monitoring wells in accordance with the approved schedule in the Interim Facility-Wide Groundwater Monitoring Plan.

LANL Response

11h. The Laboratory agrees to sample all alluvial and regional groundwater monitoring wells in accordance with the schedule in the Interim Facility-Wide Groundwater Monitoring Plan (LANL 2005, 88789) after approval by the NMED.

NMED Comment

12. *The Permittees must provide a biological SAP as part of the response to this NOD.*

LANL Response

12. Specific comment #12 in the RSI from NMED requested that the Laboratory submit a biological sampling and analysis plan (SAP) for Sandia Canyon and Cañada del Buey that uses “the SAP created for the Los Alamos/Pueblo Canyon Surface Aggregate as a model.” As indicated in the Laboratory’s response, it is not possible to create a SAP as detailed and specific as contained in the referenced Los Alamos and Pueblo Canyon investigation until a data set of analytical results from sediments and surface water is available. The Laboratory proposes to submit the biota SAP at a future date. The Laboratory proposes that the format be modeled after the “Mortandad Canyon Biota Investigation Work Plan” (LANL 2005, 89308).

NMED Comment

13. *The Permittees state that TA-51 was not included in Table 7.2.1-1 as a potential source of contamination in Cañada del Buey because no COPCs have been identified in that TA. The Permittees must explain if this conclusion is based on sampling data or on acceptable knowledge. Only sampling data would reasonably rule out constituents for a particular site. Likewise, the same comment applies to thorium at TA-54.*

LANL Response

13. TA-51 was not included in Table 7.2.1-1 because no data were available to allow identification of specific COPCs, as was possible for the other TAs included in this table. Thorium was not included because no sample results from TA-54 drainage channels had thorium values above BVs. This table was not meant to be inclusive of all possible COPCs from all TAs in the watershed, but instead to summarize "known COPCs" as identified from sample data. At this stage, no constituents have been ruled out as possible contaminants from any SWMUs or AOCs, and all sampling in initial phases of the investigation will be for "full-suite" analytes to ensure that COPCs are not being overlooked in the canyon bottoms.

NMED Comment

14a. NMED does not agree with the Permittees' reason for not sampling reach CDB-3 West. This reach receives runoff from two major drainages (G-10 and G-11) from MDA G. As shown in Figure 5-1 of the RFI Report for Channel Sediment Pathways from MDAs G, H, J, and L, TA-54, plutonium-238 and plutonium-239 were detected in these drainages above their respective background values. Also, as shown in Table A-2 of this report, several metals (cadmium, mercury, and selenium) had detection limits greater than current background levels in these two drainages. CDB-3 West is the only identified reach in Cañada del Buey where contaminant input from MDA G could be detected (relative to the upstream reach CDBS-1 East) without the chance of dilution further downstream in reach CDB-3 East. The Permittees must sample this reach as part of this investigation.

NMED agrees to the Permittees proposal to add another reach east of reach CDB-2 Central if NMED determines that remediation is necessary in this area.

LANL Response

14a. The Laboratory agrees to investigate reach CDB-3 West as part of the initial phases of this work plan. Because NMED's stated concern is possible contamination derived from drainages G-10 and G-11, the investigation reach will begin immediately downgradient of the G-11 drainage and not at the confluence of Cañada del Buey and the South Fork of Cañada del Buey as indicated in Figure A-1 of the work plan.

NMED Comment

16b. As stated in the RSI, NMED does not believe the source and boundaries of the alluvial saturation in Cañada del Buey have been determined. The Permittees must install three alluvial wells upgradient of CDBO-6 to investigate the source of alluvial saturation. At a minimum, the borings must be advanced to the depth of the vapor-phase notch. The Permittees must install four alluvial wells between CDBO-6 and CDBO-7 to identify the boundaries of alluvial saturation. The Permittees must submit the proposed well locations to NMED for approval prior to well installation.

LANL Response

16b. The Laboratory will install seven alluvial wells in the areas requested by NMED. The Laboratory will submit the proposed well locations and target depths to NMED for approval prior to well installation.

NMED Comment

16d. See specific comment #16b.

LANL Response

16d. See response to specific comment #16b.

NMED Comment

17. See specific comment #12.

LANL Response

17. See response to specific comment #12.

REFERENCES

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