



TABS

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ENTERED

May 24, 2006

Mr. David Cobrain
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Hazardous Waste Bureau
2905 Rodeo Park Drive East
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Santa Fe, New Mexico 87505-6303



Reference: Work Assignment No. 06110.270; State of New Mexico Environment Department, Santa Fe, New Mexico; Support for the LANL Order of Consent; Review of Response to Comments on the Middle Mortandad/Ten Site Canyon Aggregate Investigation Report, Los Alamos National Laboratory, New Mexico, Task 3 Deliverable.

Dear Mr. Cobrain:

Attached please find a draft deliverable for the above-referenced work assignment. The deliverable addresses the review of the response to comments on the "Middle Mortandad/Ten Site Canyon Aggregate Investigation Report," Los Alamos National Laboratory, New Mexico.

As noted in the attached deliverable, most of the responses to comments appear adequate. There are some responses that were not evaluated, and the evaluation indicates that the evaluation is left for NMED. The reasoning for this was that most of these comments dealt with deviations from agreements and/or standard operating procedures.

The primary concern with this site is the fact that only non-intrusive industrial use and recreational use were considered and addressed in the risk assessment. As such, all chemicals and radionuclides detected in soil at a depth of greater than one foot were excluded from analysis and evaluation in the risk assessment. Land use controls and a site tracking mechanism will need to be enforced to ensure exposure to subsurface soil does not occur. In the event that land use changes, or a change is proposed, for example if Ten Site Slope is used for industrial purposes, additional risk assessment will be required.

The Report does not adequately address the potential for contaminants in soil to migrate to groundwater. Because of the identified land use and restriction of use to non-intrusive industrial and recreational scenarios, contamination at depth is not being addressed. The concern is that while direct contact with subsurface soil may not occur under the identified land uses, there is a possibility that contamination could migrate to groundwater, where subsequent direct and indirect exposure to contaminants in groundwater could result. Please demonstrate that groundwater could not be adversely impacted through the migration of contaminants in soil. For

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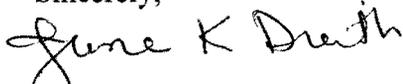


May 24, 2006

example, a comparison of maximum detected site concentrations to soil-to-groundwater migration screening levels based on a dilution attenuation factor of 20 would provide sufficient evidence to demonstrate potential impact to groundwater.

This draft deliverable was emailed to you on May 24, 2006 at David.Cobrain@state.nm.us to Ms. Neelam Dhawan at Neelam.Dhawan@state.nm.us. A formalized hard (paper) copy of this letter deliverable will be sent via mail. If you have any questions, please call me at (303) 464-6525 or Ms. Paige Walton at (801) 451-2978.

Sincerely,



June K. Dreith
Program Manager

Enclosure

cc: Neelam Dhawan, NMED
Ms. Paige Walton, TechLaw
Dallas/Techlaw Files

TASK 3 DELIVERABLE

**EVALUATION OF THE RESPONSE TO DRAFT COMMENTS
NOTICE OF DISAPPROVAL
MIDDLE MORTANDAD/TEN SITE AGGREGATE INVESTIGATION REPORT**

Support for the LANL Order of Consent

Submitted by:

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May 24, 2006

DRAFT COMMENTS
NOTICE OF DISAPPROVAL
MIDDLE MORTANDAD/TEN SITE AGGREGATE INVESTIGATION REPORT

General Comments

1. *NMED Comment:*

The Executive Summary, Introduction, and Background Sections of the risk assessment provided in Appendix F describe the dividing of Middle Mortandad/Ten Site Aggregate into the seven subareas that are to be evaluated. However, the discussions of contaminants, including identification of chemicals of potential concern (COPCs) provided in Appendix D, are based on either Technical Areas (TAs) or solid waste management units (SWMUs). The risk assessment does not provide a clear discussion of which SWMUs are identified with which TA and which TA is associated with each subarea. Therefore, it is very difficult to cross-reference and understand the history and contamination for each subarea. Revise the introductory or background section of the risk assessment to include a discussion or a table that clearly references which SWMUs and TAs are associated with each of the seven subareas.

LANL Draft Response:

Discussions of contaminants and COPCs in Appendix D are based on the seven subareas. In Appendix F, additional discussion is based on individual SWMUs where appropriate and necessary to evaluate sites and ensure that no problem areas of contamination were masked by evaluating COPCs and risk at the subarea level. This is an appropriate approach, but is necessarily complex due to the large number of sites included in the aggregate and within each subarea.

Moreover, Table 2.0-1 clearly identifies all SWMUs and AOCs included in the Report, with the subarea to which each belongs. The identifiers for each consolidated unit, SWMU, and AOC incorporate a reference to the TA to which it belongs (e.g., SWMU 35-002 incorporates the TA as the first part of its number). However, to clarify the relationship between SWMUs/AOCs, TAs, and subareas, a column will be added to Table 2.0-1 clearly identifying the TA for each included SWMU and AOC.

Evaluation of Response: The response to this comment appears adequate as presented. In looking at Table 2.0-1, the addition of a column indicating the specific TA should provide sufficient clarity for cross-referencing.

2. *NMED Comment:*

Several of the individual ecological risk assessments eliminate a chemical as a COPC due to the fact that the chemical was detected under asphalt or gravel. While present day conditions may indicate that the sample location does not represent a viable pathway, it is not clear how that assumption can be carried forward. For example, will institutional controls be used to ensure that all areas that are currently covered with asphalt be maintained in the future to ensure that no new ecological pathways are created? Sufficient justification for excluding these data has not been provided. Please provide additional lines of evidence for excluding sample data based upon the fact that the media may presently be covered in asphalt or gravel.

LANL Draft Response:

Only one ecological risk assessment (Mesa Top Subarea) included the fact that a chemical was

detected under asphalt or gravel as one reason for eliminating it as a COPEC. However, the presence of asphalt was not the only or the primary reason for eliminating several organic chemicals as COPECs. As stated, COPECs detected once or only in a couple of locations and infrequently detected COPECs at low concentrations are unlikely to impact a receptor population. The uncertainty analysis goes on to explain that Aroclor-1248, Aroclor-1254, DDT, and phenol were detected only once in 53, 53, 7, and 100 samples, respectively. Di-n-butyl phthalate was detected in two out of 100 samples. The concentrations detected were also not particularly elevated; some were less than the 95% UCLs. The presence of these chemicals at such low frequencies and low concentrations does not lend itself to affecting individuals or populations. In addition, the mesa top is an industrially developed area with little habitat and with most of the contamination under asphalt or structures. This aspect is a secondary or tertiary reason for the COPECs not to present a potential risk to ecological receptors. The reason for using the under asphalt or gravel locations was to point out that under current conditions there are not pathways and that the habitat is not suitable for ecological receptors. The TA-35 mesa top will remain industrial for the reasonably foreseeable future and the asphalt and gravel on the surface will also remain. Even if the asphalt is removed the presence of one or more of these chemicals at one location at low levels and at depth (1 ft bgs or more) would not pose a potential risk.

In addition, Dourson and Stara (1983, 73474) conducted a study of uncertainty factors incorporated in calculating ESLs for ecological receptors. Based on their study, the LOAEL to NOAEL adjustment indicates that HIs up to 10 may not adversely affect ecological receptors. To maintain conservatism, they state that HIs less than 3 do not adversely affect ecological receptors. Based on this study, the HIs in Table F-3.5-5 do not indicate potential risk to the shrew and deer mouse.

Evaluation of Response: The response to this comment appears adequate as presented.

3. *NMED Comment:*

The description of the land use for several of the subareas includes both industrial and recreational. However, in most cases, the risk assessment screening only evaluated risks to a recreational trail user (adult and child). The discussions on the screening levels indicate that an industrial land use scenario, assuming an industrial worker scenario (8 hours per day) is not realistic given current conditions. However, it is not clear that an industrial scenario may not be plausible at some time in the future. Unless land use controls are to be placed on these sites limiting occupational use of the site, the assessments should include an evaluation of an industrial worker exposure scenario. Please provide additional lines of evidence for exclusion of an evaluation of the industrial land use scenario in the risk screen.

LANL Draft Response:

The Ten Site Slope, Mortandad Slope, and Pratt Canyon Subareas are classified as industrial use areas because they border or flank the industrially developed mesa top at TA-35. The subareas are also the locations of outfalls and drainages from the industrial mesa top of TA-35. However, there are no industrial facilities actually present in the subareas and none of the subareas is suitable for industrial activity. Ten Site Slope and Mortandad Slope consist of extremely steep slopes that prevent any structures from being constructed and workers from performing work activities. Pratt Canyon receives runoff from the mesa top but has no past or present industrial operations. Ten Site Canyon at one time had an active sanitary wastewater treatment facility, including three lagoons, a sand filter treatment unit, and an effluent outfall. This facility has long been out of service and no other industrial activity is planned. Many of these areas are used by Laboratory personnel as hiking, jogging, or walking areas only.

The current land use designation for Sigma Mesa is industrial and is expected to remain so for the next 30 yr or more (LANL 1994, 57224). Because most of TA-60 consists of undeveloped mesa top

and is not actively used for industrial purposes, a recreational assessment was conducted. However, because industrial use may occur, Sigma Mesa Subarea will be re-evaluated for risk to an industrial worker.

The intent of the "complete with controls" recommendation made for the subareas where no additional corrective action is warranted is designed to indicate that final disposition of the sites has not been achieved but current and reasonably foreseeable future land use can occur. In the recommendation section of the main report, the Laboratory requests that the sites be considered "complete with controls," and that NMED issue a Certificate of Completion pursuant to Section VII.E.6.b of the Consent Order. The control for the SWMUs and AOCs is the maintenance of the land use (industrial or recreational), which is the basis for the completion of activity. The Laboratory requests that this Certificate of Completion state that "Corrective Action is Complete with Controls." NMED issuance of the Certificate of Completion will stipulate what the controls are and that any change to the controls, i.e., land use, may warrant further investigation.

Evaluation of Response: The response addressing the Sigma Mesa and re-evaluation of the industrial scenario is adequate. However, evaluation of the request for a Certification of Completion was not conducted, and is left for evaluation by NMED. It appears that several sites meet the criterion of "complete with controls" and designation as such is acceptable. However, sufficient tracking of these sites will be necessary to ensure land use is consistent with the land use identified by the risk assessments.

4. NMED Comment:

Uncertainty Analysis sections for each of the subareas list several constituents that were not evaluated in the ecological screening assessment due to the lack of an ecological screening level (ESL). However, in reviewing the list of chemicals, it is not clear why some of them were excluded. For example, there are available toxicity data for aldrin to calculate an ESL (Sample, *et al*, 1996). Because a chemical is not listed (e.g. aldrin) in LANL's EcoRisk database is not an adequate reason for excluding a chemical. Please review the list of chemicals, and where toxicity data are available, an ESL should be calculated and the chemical evaluated.

LANL Draft Response:

The Sample et al. 1996 paper has been reviewed and the toxicity information presented for aldrin and some other chemicals is useable for calculating ESLs. However, these chemicals, aldrin, diethylphthalate, 2-methylphenol, and 4-methyl-2-pentanone, were not considered priorities because they are rarely detected, are present at low or trace levels when detected, and in some cases have surrogates that can be used (e.g., dimethyl phthalate for diethylphthalate; phenol for 2-methylphenol). In addition, the rationale for eliminating these chemicals (i.e., low frequency of detection, low/trace levels detected, and/or use of surrogates or human health screening levels to indicate no potential risk to receptors) is sound

The chemicals in Sample et al. 1996 that have been detected will be placed on the list to calculate ESLs for the next version of the ECORISK Database. No revisions to the ecological assessments are necessary.

Evaluation of Response: The response to this comment is adequate. EPA guidance does not support elimination of a chemical as a constituent of concern based upon low detection frequency if there is site history to suggest that the chemical may be present due to site activities. However, given the extremely low frequency of detection, they would most likely not contribute significantly to the overall risk. Furthermore, the human health risk assessment did not show these chemicals to be drivers. Therefore, it seems reasonable to agree that the exclusion of these chemicals would impact the conclusions of the risk assessment.

5. *NMED Comment:*

Risk assessments were conducted at each of the subareas identified in the report. The results of these assessments indicate that this site only meets the risk-based criteria for a non-intrusive industrial worker and a recreational user. As such, the report should clearly indicate that the site does not meet the criteria for No Further Action (unrestricted use), as residential risk levels could not be met. In addition, the report should clearly indicate in the conclusions portion of the document that both current and future use of the site will be limited to non-intrusive industrial use and recreational use and that if at any time in the future land use changes (e.g., construction of a building or excavation or regarding of an area), additional risk analysis will be conducted. Please revise the report accordingly.

LANL Draft Response:

The recommendations in the main report states:

“For the SWMUs and AOCs identified in Table 12.0-3 as “complete with controls,” the Laboratory requests that NMED issue a Certificate of Completion pursuant to Section VII.E.6.b of the Consent Order. The control for the SWMUs and AOCs is the maintenance of the land use (industrial or recreational), which is the basis for the completion of activity. The Laboratory requests that this Certificate of Completion state that “Corrective Action is Complete with Controls.” The Laboratory will submit a request for permit modification to place these sites on the “Complete with Controls” list in the permit. However, this permit modification request will be contingent on approval of the Class 3 permit modification request concerning corrective action requirements in Module VIII, submitted by LANL to NMED on August 5, 2005.”

No revisions are warranted.

Evaluation of Response: While stronger language is preferred to address this comment, the excerpt from the report does indicate that the land use is industrial and/or recreational. Therefore, the response to this comment is adequate.

6. *NMED Comment:*

The exposure assessment included an analysis of evaluating the dose as a result of exposure to contamination in surface soil only (top one foot). As such there was no evaluation of exposure to contaminants in soil at depth. For example, in Figure F-3.2-15, sample locations 35-02440 and 35-02437 clearly show in increasing trend in Strontium-90 with depth. However, as the land use for this site will be limited to non-intrusive land use only, the exposure to these areas has not been addressed. The concern is that leaving radioactive sources goes against the principle of As Low As Reasonably Achievable (ALARA). It is not clear that the principle of ALARA was taken into consideration in the evaluation of remedial alternatives and closure for the site. Please provide a discussion on how the site meets ALARA and provide justification for leaving “pockets” of delineated contamination in place.

LANL Draft Response:

Leaving radionuclides in place does not go against ALARA. Leaving radionuclides that are not contributing to exposures does not warrant any additional actions or investigation. Strontium-90, which is a beta emitter, is present in the subsurface at elevated levels but the one to several feet of soil and tuff plus the asphalt acts as a shield to a nonintrusive industrial worker and prevents any substantial exposure that exceeds 15 mrem/yr. The 15 mrem/yr target dose satisfies the ALARA principle because DOE's basic dose limit to a member of the public is 100 mrem/yr and to a worker is 500 mrem/yr. In addition, the 15 mrem/yr dose limit is reasonably achievable at most sites. By meeting this target dose limit ALARA is satisfied and no additional assessments or investigations are

warranted unless intrusive activities occur.

At location 35-02437 there is a definite decreasing trend in strontium-90 concentrations from 1 to 5 ft bgs (904 pCi/g to 372 pCi/g). At location 35-02440 there is an increasing trend of Sr-90 concentrations from 5 to 9 ft bgs (368 pCi/g to 768 pCi/g). The 904 pCi/g concentration was included in the UCL calculations for deriving the exposure concentration for the mesa top subarea industrial worker; the dose was 4 mrem/yr. In no case does the strontium-90 concentration exceed the target dose of 15 mrem/yr for an industrial worker. This concentration is less than the industrial SAL for strontium-90 (1900 pCi/g) and would result in a dose of 7.1 mrem/yr and a total dose for the mesa top of approximately 8.7 mrem/yr. In addition, Consolidated Unit 35-003(a)-99, which includes this sample value, was evaluated individually for the mesa top and had a total dose of 11 mrem/yr using 904 pCi/g (7.1 mrem/yr contributed by strontium-90) as the exposure concentration.

Evaluation of Response: The response to this comment is adequate.

7. *NMED Comment:*

In reviewing the tables summarizing the hazard quotients (HQs) for the human health risk assessment, it is noted that a HQ was calculated for lead and that this HQ was incorporated into the hazard index (HI). This is not correct. Lead is evaluated by relating soil lead intake to blood level concentrations. As such, lead should be evaluated individually and a HQ should not be calculated for this constituent. Please revise the risk table to remove the calculation of a HQ for lead and revise all subsequent HIs.

Response:

Lead has soil screening levels for both NMED and EPA Region 6, which are based on the blood lead level of 10 µg/dL for residential, industrial worker, and construction worker exposures using the IEUBK model. In addition, the recreational soil screening level for lead is based on the blood lead level and was calculated using the IEUBK model. These values were calculated in order to compare soil concentrations to a screening level that would not result in a blood lead level of 10 µg/dL or greater. Therefore, the ratio or hazard quotient approach of comparing the soil concentrations to the screening levels is appropriate and the ratio is an indicator of whether the blood lead level criterion is exceeded for a scenario. As long as the ratio is less than one, no additional evaluation is necessary and the blood lead level of 10 µg/dL is not exceeded. No revision to the tables is necessary.

Evaluation of Response: This comment can be identified as an "agree to disagree." While it is technically not correct to include a hazard quotient for lead, it only adds conservativeness to the assessment and would not impact the overall conclusions of the risk assessment. Therefore, the response, while not necessary agreed with, is adequate.

8. *NMED Comment:*

In Appendix F, Interpretation sections for each subarea provide the total dose and equivalent total risk for radionuclides for industrial or recreational use only. For comparison purposes, provide the total risk for radionuclides for residential use also. Revise and include this information in tables that provide screening evaluation for radionuclides for each subarea, e.g. Table F-3.4-6 for Mesa Top.

Response:

The letter on providing radionuclide data to NMED states that "DOE intends to provide voluntarily to NMED the total dose for radionuclides of potential concern and the equivalent total radionuclide risk level for each site that is the subject of an environmental investigation. DOE intends to provide such information voluntarily to NMED at the same time it submits the investigation reports and associated

risk assessment reports for hazardous waste or hazardous constituents, which are reports called for under the orders on consent." There is no specific reference to scenarios for which this information will be provided.

The residential scenario was evaluated for each subarea for comparison purposes only. The residential scenario is not a decision scenario and therefore no conclusions or recommendations about a site are based on this assessment. The Laboratory has not been providing the equivalent total risk for scenarios that are not used to conclude whether there is a potential risk or to recommend that corrective actions are complete (with or without controls). The information on dose presented in the Middle Mortandad/Ten Site aggregate report is consistent with other reports submitted to NMED under the Consent Order.

Evaluation of Response: The response to this comment is adequate. As LANL is not requesting residential closure for any of the sites, the inclusion of residential risk is not required.

Specific Comments

1. Section 3.0, Scope of Activities, Page 5:

NMED Comment:

The RFI Work Plan for OU 1114 (June 1993) should have been included in the chronological summary of investigation and remediation activities for sites in the aggregate. Initial evaluation of TA-60 sites was reported in this document. The U.S. Environmental Protection Agency (EPA) approved the plan in 1994. Revise the text to include these documents.

Response:

The OU 1114 RFI Work Plan will be added to the chronological summary in Section 3.0.

Evaluation of Response: The response to this comment is adequate.

2. Section 3.0, Scope of Activities, Page 6:

NMED Comment:

The text states that the policy for using legacy data was formalized by the Permittees after the approval of the Sampling and Analysis Plan for the Middle Mortandad/Ten Site Aggregate (SAP) and the Addendum to Sampling and Analysis Plan for the Middle Mortandad/Ten Site Aggregate (Addendum), and the data used in the investigation report is not identical to data used in the approved SAP and Addendum. NMED is concerned that exclusion of data that was utilized in determination of data gaps, could have resulted in additional data gaps. Provide tables and figures depicting data that has been excluded because of the implementation of new policy for each subarea.

Response:

The evaluation of nature and extent was based on all usable data, independent of the evaluation of data gaps in the SAP; the fact that some data previously included was rejected at this stage does not invalidate the current evaluation. The current data set is validated to EPA standards and is of higher quality than the SAP data set. Nonetheless, a review of the Report will be performed to ensure that additional data gaps did not arise as a result of excluding the screening-level data.

Evaluation of Response: The evaluation of this response has been left for review by NMED.

3. Section 3.0, Scope of Activities, Page 6:

NMED Comment:

At the time the report was written, investigation derived waste (i.e. mixed waste) was being managed at TA-35 in a satellite accumulation area. Provide information on the ultimate disposal of the waste at a permitted facility.

Response:

Details of the final disposition of investigation derived waste will be added to Section 3.0.

Evaluation of Response: LANL has indicated that this information will be provided. As specific details were not provided, the response appears to be adequate but will require review of the revised document.

4. Table 4.0-1, Noncarcinogenic SSLs, Page, 156:

NMED Comment:

There is a discrepancy between the Table 4.0-1 and footnote f. According to Table 4.0-1, pyrene was used as a surrogate for acenaphthylene, but the footnote states that pyrene was used as a surrogate for acenaphthene. Clarify for which of these two chemicals pyrene was used as a surrogate.

Response:

Pyrene was used as a surrogate for acenaphthylene; the footnote is incorrect and will be revised accordingly.

Evaluation of Response: The response to this comment is adequate.

5. Figures 5.0-2 to 5.0-6, Mesa Top Area Sampling Locations, Page, 175-179:

NMED Comment:

The SAP used different nomenclature for proposed boreholes and auger holes than what is provided in the Investigation Report (Report). To facilitate review of the Report, provide a crosswalk between sampling locations proposed in the SAP and the Addendum and the location IDs provided in the Report.

Response:

The different nomenclature was used to provide a unique identifier for each borehole, auger hole, and transect, thus minimizing the chance of misidentification during field implementation. A table will be added to the report providing a crosswalk between SAP and Addendum locations and the location identifiers used in the Report.

Evaluation of Response: The response to this comment is adequate.

6. Figures 5.0-2, Mesa Top Area A Sampling Locations, Page, 175:

NMED Comment:

The sampling location of borehole (location ID 35-02364) appears to have been changed. According to the Figure 3.2-1 of the SAP, location for AH2 should be to the right of building 35-188. Provide an explanation for deviating from the approved SAP.

Response:

Table 3.2-1 in the SAP specifies collection of 2 samples at location ID 35-2364 for AH2. The coordinates of that location place it as shown in Figure 5.0-2 of the IR. Figure 3.2-1 in the SAP erroneously shows AH2 east of building 35-188. The samples were collected in 2004 as specified in Table 3.2-1 of the SAP. No revision to the Report is necessary.

Evaluation of Response: The evaluation of this response has been left for review by NMED.

7. Figure 5.0-4, Page 177:

NMED Comment:

The sampling location depicted by a black triangle on the southeast corner of the figure has not been identified. Revise the figure to include the sampling location ID.

Response:

The sampling location (35-22941) will be labeled in the revised Figure 5.0-4. Note that location 35-22941 is included in Mesa Top Area E (not Mesa Top Area C), and therefore is labeled in Figure 5.0-6.

Evaluation of Response: The response to this comment is adequate.

8. Appendix A, Field Methods, Page A-1:

NMED Comment:

The information provided by the Permittees in Appendix A to satisfy the requirements of Section IX.A of the March 1, 2005 Consent Order (Order) is inadequate. The information included in the 'summary' column states what the standard operating procedure (SOP) is and what it encompasses. There is no description of investigation, sampling or analytical methods and procedures in sufficient detail to evaluate the quality of acquired data, which is specifically stated in Section IX.A, Standard Operating Procedures, of the Order. The Permittees must revise Appendix A to include descriptions of field and laboratory methods and procedures used during investigations. Any deviations from the SOP should also be documented here. Provide SOP number for all the procedures listed in the Appendix.

Response:

The level of detail included in Appendix A is consistent with what was being submitted at the time this report was delivered to NMED. However, we will update the methods table and other methods information to reflect what is currently being delivered. This will include text presenting SOP numbers and any significant deviations from SOPs and/or the SAP.

The analytical laboratory methods used are standard, approved methods, and are governed by the Laboratory's statement of work for analytical services. These methods are described in Appendix C, Sections C-2.0, C-3.0, and C-4.0. The presentation of laboratory methods is outside the scope of Appendix A, which presents field methods.

Evaluation of Response: The evaluation of this response has been left for review by NMED.

9. Appendix D, Data Review, Page D-4 to D-46:

NMED Comment:

The Permittees have repeatedly made statements during data review that rejected results did not adversely affect the Permittee's ability to evaluate subareas but have not provided the basis for these statements. Data gaps may exist because of the rejected data, investigation may not have met the objectives of the SAP and the Addendum, and additional samples may be required. Because the tables do not include rejected data, it is difficult to assess if the data available is sufficient to make an evaluation. Revise tables to include rejected data and indicate in the parenthesis if it was qualified as "R".

Response:

To illustrate the relative magnitude of rejected records, the Mesa Top Subarea included the most data of all the subareas, with 23,071 usable data records; rejected results for the Mesa Top Subarea numbered only 343 (1.5% of the total), 289 of which (84%) would have been qualified as non-detects (based on qualifiers provided by the analytical laboratories) had they not been rejected. For all subareas combined (103,555 records), rejected results totaled 5,086 results (4.9%), of which 4,431 (87%) would have been qualified as non-detects.

Data were qualified according to EPA standards and appropriate LANL procedures. A review of the impact of rejected results found that where results for specific analytes or suites were rejected, sufficient usable data remained to evaluate the nature and extent of contamination for specific analytes and suites. No required analytical suites or specific analytes were omitted as a result of the rejection of data.

Summary statements of the relative numbers of rejected results for each subarea, and, in some cases, discussions of rejected results for specific analytes, are included in Appendix D (e.g., Section D-2.1, paragraphs 1 and 2). Rejected data are also included as part of the data CD provided and therefore are available for use in an independent review of the issue. It is not appropriate to include rejected results the tables of decision-level data presented in Appendix D. No revision is necessary.

Evaluation of Response: The evaluation of this response has been left for review by NMED.

10. Section D-2.1, Inorganic Chemicals in Soil and Fill, Page D-5:

NMED Comment:

Lead should also have been retained as a chemical of potential concern (COPC) for the same reasons as chromium, copper, mercury, nickel and zinc were retained as COPCs. Lead was detected in concentrations above the background value (BV) in 5/60 samples. Revise the text accordingly.

Response:

Lead was eliminated based on weight of evidence (all statistical results highly non-significant, only 4 results greater than range of background data set, with 3 of those less than approximately 2X the BV). However, zinc was retained as a COPC with distribution similar to that of lead (maximum detected value approximately 4x the BV); therefore lead will be added as a retained COPC in soil and fill for the Mesa Top Subarea. Text and tables will be revised accordingly.

Evaluation of Response: The response to this comment is adequate.

11. Section D-6.1, Inorganic Chemicals in Soil and Fill, Page D-30:

NMED Comment:

Cadmium, calcium, mercury, potassium, and silver were detected above background values (BVs), contrary to what the text states in bullet one. Cadmium and silver were retained as COPCs as stated in the bullets 4 and 5. Revise the text accordingly.

Response:

The text in the first bullet will be revised, removing cadmium, calcium, lithium, mercury, potassium, and silver. A bullet will also be added to indicate that calcium, mercury, and potassium were not retained.

Evaluation of Response: The response to this comment is adequate.

12. Section D-6.6, Radionuclides in Tuff, Page D-33:

NMED Comment:

According to Table D-6.6-2, uranium-235 was detected in 14 of 23 samples not 16 of 23 samples as stated in the text, plutonium-238 and plutonium-239 were detected in 6 of 22 samples not 10 of 22 as stated in the text. Resolve the discrepancy and revise the text accordingly.

Response:

The text in Section D-6.6 will be revised to indicate "14 of 23" for Uranium-235, "6 of 22" for Plutonium-238 and Plutonium-239, and "1 of 19" rather than "1 of 18" for ruthenium-106.

Evaluation of Response: The response to this comment is adequate.

13. Table D-1.1-1, Page D-54:

NMED Comment:

Tritium value for media code ALLH is reported as not available under column "Background Value"; under column "Background Data?" it is indicated that data is available. Additionally, for some radionuclides (i.e., Th-228, Th-230, Th-232, U-234, U-235, and U-238) values are provided under column "Background Value", while under the column "Background Data?" it is indicated that data is not available. Resolve the discrepancy and revise the table.

Response:

There is a tritium fallout value for soil in LANL 1998, 59730. However, the fallout value is in pCi/mL and requires using the sample percent moisture to calculate the pCi/g fallout concentration. Instead, tritium was conservatively evaluated based on detect status, even in the 0 to 0.5 ft bgs interval. A footnote will be added to the table for clarification.

For isotopic thorium and uranium, the ALLH BVs are adopted from the sediment BVs, per LANL 1998, 59730. Therefore, there is no background data set for directly analyzed isotopes of uranium and thorium in soil.

Evaluation of Response: The response to this comment is adequate.

14. Appendix D, Table D-1.1-1, Background/Fallout Values and Background Data for Inorganic Chemicals and Radionuclides Detected in the Mortandad/Ten Site Aggregate, Page D-47 to D-55:

NMED Comment:

For several of the radionuclides, the table indicates that background data were not available. This was identified for Am-241, Cs-137, Pu-238, Pu-239, and H-3 for the media "Qbt 2,3,4", "Qbt 1v", and "Qbt 1g/Qct/Qbo". However, in reviewing the referenced 1998 LANL background document, in particular Table 6.0-2, a background value for these media for the above-listed radionuclides was provided. It is noted that the Table 6.0-2 indicates that the values provided are based upon nominal detected activity. However, it is not clear why the background values were not applied. Please clarify whether the background values for radionuclides that were based upon nominal detectable activity were not applied as a measure of conservatism, or provide additional rationale for why these data were not used.

Response:

Fallout values for fallout radionuclides in tuff are not applicable because they are nominal detection limits, not measured concentrations in the tuff. It has been the program approach for several years to evaluate fallout radionuclides in tuff based on detection status and not use the nominal detection limit FVs presented in LANL 1998, 59730. This is a more realistic and conservative approach. The use of fallout values is mentioned in text on page D-1 of Appendix D and states "...FVs apply only to surface samples, generally from depths of 0 to 0.5 ft; fallout radionuclides are tritium, cesium-137, americium-241, plutonium-238, plutonium-239, and strontium-90..." The tables containing the detected concentrations of radionuclides per subarea also have a footnote indicating where the FVs do not apply for soil/fill "Detected and the FV does not apply (subsurface samples)." No revision is necessary.

Evaluation of Response: The response to this comment is adequate.

15. Table D-2.1-1, Page D-57:

NMED Comment:

Four samples should have been collected for TAL metal analysis at location ID 35-24415 (for SWMU 35-004(h)), as agreed to by the Permittees in the response to comment #6 of the request for supplemental information (RSI) dated April 14, 2003. Tables, D-2.1-1 and D-2.2-1 list only three samples taken at this location. Borehole at location 35-22958 (for SWMU 35-002) should have been drilled and sampled to 30 feet, but the last depth sampled is at 15 feet. Additionally, samples collected at location 35-22958 should have been analyzed for tritium, alpha and gamma spectroscopy as indicated in the approved SAP. Extent of radiological contamination has not been defined for SWMU 35-002. Provide an explanation for not following the approved SAP.

Response:

At location 35-24415, four samples were collected (see 2004_2005 borehole logs.pdf in Appendix B), however one of the four was collected as a duplicate (4-5 ft depth). Also depth was extended to 30 ft rather than the required 20 ft. The requirements for BH2 specified in Table 3.2-1 of the SAP are for a borehole to 15 ft, with three intervals sampled and analyzed for metals and SVOCs only. The samples collected at location 35-24415 meet or exceed the requirements. The sample collection logs (SCLs) indicate the samples were collected for SWMU 35-002.

The SCLs for samples at location 35-22958 indicate they were collected for SWMU 35-004(h), not 35-002. These samples (4 depths, with TD of 20 ft) were analyzed for metals; these samples represent the required samples for SWMU 35-004(h) as specified in the referenced RSI comment response.

Table 3.2-1 of the SAP states for SWMU 35-002: "See 35-009(a)-99; BH2 will provide data for this PRS." Specifications for BH2 in Table 3.2-1 are for a borehole to 15 ft, with samples analyzed for Metals and SVOCs. However, BH2 is listed with SWMU 35-009(a), not 35-009(a)-99. If the quoted statement was intended to correspond to the 2nd borehole listed with SWMU 35-009(a)-99, it would correspond to BH5. BH5 from the SAP corresponds to location 35-22941. At that location, samples were collected at three depths (4-5, 14-15, and 29-30 ft) and were analyzed for metals, radionuclides (including alpha spec, gamma spec, and tritium), and organics.

Evaluation of Response: The evaluation of the response is left for review by NMED.

16. Table D-3.5-2, Page D-120:

NMED Comment:

Maximum detected value for strontium-90 (for media code ALLH) is 1.25 pCi/g, which is less than the background/fallout value of 1.31 pCi/g. The table indicates that 1 of 9 samples was detected above background value. Resolve the discrepancy.

Response:

The maximum detected value of Sr-90 was in a sample collected from a depth of 0-1 ft; because fallout values only apply to samples from 0- 0.5 ft, the FV does not apply to this sample. Therefore, Sr-90 in this sample is evaluated based on detection status, included in the above background column, and listed as 1 of 9. This approach has been used in reports for many years for fallout radionuclides. A footnote will be added to the table to clarify this approach.

Evaluation of Response: The response to this comment is adequate.

17. Table D-4.5-2, Page D-120:

NMED Comment:

Maximum detected value for cesium-137 (for media code ALLH) is 0.8 pCi/g, which is less than the background/fallout value of 1.65 pCi/g. The table indicates that 4 of 18 samples were detected above background/fallout value. Resolve the discrepancy.

Response:

The four samples listed as "above background" are not surface (0-0.5 ft) samples, therefore the FV does not apply to them and they are evaluated based on detection status. A footnote will be added to the table to clarify this approach.

Evaluation of Response: The response to this comment is adequate.

18. Table D-8.5-2, Page D-333:

NMED Comment:

Maximum detected value for cesium-137 (for media code ALLH) is 0.257 pCi/g, which is less than the background/fallout value of 1.65 pCi/g. The table indicates that 5 of 24 samples were detected above background/fallout value. Resolve the discrepancy.

Response:

None of the five samples listed as above background are surface (0-0.5 ft) samples, therefore the FV does not apply to them and they are evaluated based on detection status. A footnote will be added to the table to clarify this approach.

Evaluation of Response: The response to this comment is adequate.

19. Figures D-2.1-2 to D-8.5-4, Pages D-345 to D-479:

NMED Comment:

These figures do not provide information on what is denoted by crosses and open circles. Provide legends for the figures. Figures for uranium-234, -235 and -238 for soil/fill for Mesa Top Subarea have not been included in the Report. Revise figures accordingly and provide missing figures.

Response:

Explanation for the symbols is given in the text where the box plots are discussed, p. D-2, second paragraph of Section D-1.2, indicating that Xs are detected concentrations and Os are non-detected concentrations.

Box plots are used to provide a comparison of site data to the background data for specific analytes. There are no background data sets for the uranium isotopes in soil or fill; therefore boxplots could not be produced.

Evaluation of Response: The evaluation of the response is left for review by NMED.

20. Appendix F, Section F-3.2.3, Nature and Extent, Page F-22:

NMED Comment:

The text for SWMU 35-009(a) states that no inorganic chemicals were detected at concentrations greater than BV, but mercury was detected at location 35-22960 at 0.136 mg/kg at depth of 6-7 feet as depicted in figure F-3.2-9. Revise the statement or resolve the discrepancy.

Response:

Text on page F-22 will be revised to reflect single detection of mercury as noted.

Evaluation of Response: The response to this comment is adequate.

21. Appendix F, Section F-4.2.1, Summary of Results, Page F-44:

NMED Comment:

At consolidated unit 35-014(g)-00, zinc was detected at concentrations greater than BV at locations 35-02596 and 35-02170, 35-02169 and 35-22975. Zinc was detected at the concentration of 752 mg/kg in a surface sample at location 35-02170, at 163 mg/kg in a surface sample at location 35-02169; no samples were collected at greater depth at these locations. Zinc was detected at 586 mg/kg at 0.00-0.36 ft and at 214 mg/kg at 0.36-0.85 ft at location 35-22975. Explain how the extent of zinc contamination is considered defined. Revise the statement.

Response:

At locations 35-02169 and 35-02170 only one depth was sampled, as noted. However, at locations within approximately 12 ft upslope (35-02596) and downslope (35-22975 and co-located 35-02287) of these locations, vertical extent is defined by concentrations below the BV in the deepest samples.

At location 35-02596, zinc was detected above the BV only in the surface sample (four depths were sampled); all but the surface sample were below the BV, and the concentration decreased in each successive depth interval (83 to 43 to 37 to 35 mg/kg).

At location 35-02287, which is co-located with location 35-22975, zinc was detected in sample 0435-95-0201 (1-2 ft bgs) at a concentration of 30.8 mg/kg, which is below the BV. Thus at that location, the concentration of zinc decreases with depth to below background (586 to 214 to 30.8 mg/kg).

While the vertical extent of zinc contamination is not explicitly defined at each individual sample location, the results from samples at multiple closely spaced locations indicates that the extent is sufficiently defined and that zinc contamination does not extend beyond one ft. bgs. The text of Section F-4.2.1 will be revised to clarify the discussion of nature and extent accordingly.

Evaluation of Response: The evaluation of the response is left for review by NMED.

22. Appendix F, Section F-4.2.1, Summary of Results, Page F-46:

NMED Comment:

At consolidated unit 35-004(g)-00, Aroclor1254 was also detected at location 35-22937, not only at location 35-23284 as reported in the text. Revise the text accordingly or resolve the discrepancy. Fix the typographical error; location ID should have been 35-22938 not 35-2938.

Response:

Aroclor-1254 was detected (0.0021 mg/kg) once at location 35-22937; it was not detected in the deeper sample, so the statement regarding extent is still valid.

"35-2938" will be corrected to read "35-22938".

Evaluation of Response: The response to this comment appears adequate.

23. Appendix F, Section F-4.2.1, Summary of Results, Page F-47:

NMED Comment:

At consolidated unit 35-016(c)-00, according to Table D-3.3-2, cadmium was non-detect at location 35-23291. The text states that cadmium was detected at this location. Resolve the discrepancy and revise the text accordingly.

Response:

Table D-3.3-4 is correct, cadmium was not detected at that location; text in Section F-4.2-1 will be revised to reflect this.

Evaluation of Response: The response to this comment appears adequate.

24. Appendix F, Section F-5.2.3, Nature and Extent, Page F-68:

NMED Comment:

For consolidated unit 35-008-00 and AOC 35-016(e), text states that no radionuclides were detected on the slope. Plutonium-239 was detected at location 35-02250 and cesium-137 was detected at locations 35-02453 and 35-02454. Revise the text accordingly.

Response:

Plutonium-239 will be added to the text in Section F-5.2-3 and to Figure F-5.2-6. Cesium-137 will be added to the text in Section F-5.2-3 and to Figure F-5.2-6 at locations 35-02453 and 35-02454. The cesium-137 detect at location 35-02454 will be added to Table D-4.7-4.

Evaluation of Response: The response to this comment appears adequate.

25. Appendix F, Section F-5.2.3, Nature and Extent, Page F-72:

NMED Comment:

For SWMU 35-016(p), at location 35-23188, cadmium, copper, lead, mercury and zinc concentrations increased with depth. Vertical extent of contamination is not defined at this sample location. However, as recommended in the Report, contaminated soils will be removed from this location and adjacent areas to remove PAH-contaminated soils. The removal activity may consequently result in removal of soils contaminated with metals at location 35-23188. Confirmatory samples must be collected from the sidewalls and bottom of the excavation. The removal activity and subsequent sampling may result in the delineation of nature and extent. NMED requires that confirmatory samples be analyzed for organic and inorganic constituents.

Response:

Confirmation samples will be collected at the time of soil removal, and analyzed for organic and inorganic constituents.

Evaluation of Response: The response to this comment appears adequate.

26. Appendix F, Section F-6.2.3, Nature and Extent, Page F-89:

NMED Comment:

For consolidated SWMU 35-003(d)-00, vertical extent is not defined for strontium-90. Strontium-90 concentrations increase with depth at locations 35-24402, and 35-24405. Strontium-90 was detected at 34.6 pCi/g in a sample collected at location 35-24404 (0.82-1.28 ft). Revise the text accordingly.

Response:

The concentrations noted are correct, indicating that the extent of Sr-90 contamination is not defined. The text in Section F-6.2.3 will be revised accordingly, and additional sample collection will be recommended in the revised Report.

Evaluation of Response: The response to this comment appears adequate.

27. Appendix F, Section F-7.2.3, Nature and Extent, Page F-105:

NMED Comment:

Consolidated unit 35-010(a)-99 is erroneously referred to as 35-010(a)-00 throughout the text. Fix the typographical errors.

Response:

The typographical error "35-010(a)-00" will be corrected to read "35-010(a)-99" throughout document.

Evaluation of Response: The response to this comment appears adequate.

28. Appendix F, Section F-8.2.3, Nature and Extent, Page F-121:

NMED Comment:

For consolidated unit 05-001(a)-99, text states that vertical extent for inorganic COPCs is defined because samples at locations 05-02055, 55-02056, and 55-02057 had no detected inorganic chemicals. At location 05-02056, chromium was detected at 71.1 mg/kg and nickel at 493 mg/kg in the sample collected at 19-20 ft depth, the deepest depth sampled. At location 05-02060, lead concentrations increase with depth. Revise the text accordingly.

Response:

The text referred to (pg. F-121) states that the three locations mentioned were sampled to a depth of 20 ft and that no inorganic chemicals were detected at that depth. However, sample 0405-95-0078, a field duplicate, had a reported concentration of chromium of 71.1 mg/kg; the investigation sample (0405-95-0077) had a chromium concentration of 0.36 mg/kg. The same is true for nickel, where the field duplicate had a concentration of 493 mg/kg but the investigation sample had a concentration of 0.18 mg/kg. Site characterization is based solely on investigation samples, not QC samples; however, additional sampling could be conducted to resolve discrepancies between samples and their field duplicates.

Evaluation of Response: The response to this comment appears partially adequate. It is not clear whether LANL intends to conduct additional sampling to resolve these discrepancies. LANL should specifically state what will be done to correct the discrepancies between the samples and their field duplicates.

29. Appendix F, Section F-8.2.3, Nature and Extent, Page F-124:

NMED Comment:

For AOC 52-003(b), the approved Addendum proposed digging fifteen transects or auger holes (TR21-TR35). Data for these locations is not provided in Appendix E nor are these locations depicted on figures provided in the Report. Explain why approved SAP was not followed and these proposed locations not sampled.

Response:

AOC 52-003(b) was approved for NFA by EPA (EPA 2005, 88464) after the SAP Addendum was submitted and approved; therefore, samples were not collected at AOC 52-003(b). This deviation and the reason for it were inadvertently omitted from the Report. Text will be added to Sections F-8.2.3 and 10.2.1, and other locations as appropriate, to document this deviation from the SAP Addendum.

Evaluation of Response: The evaluation of the response is left for review by NMED.

30. Tables F-3.4-7 to 9, Page F-176:

NMED Comment:

Sixteen organic chemicals that were detected at SWMU 35-015(a) (see Appendix E) were not included in the screening evaluation (i.e., benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene at location 35-02285; butanone[2-] at location 35-22928; chrysene at location 35-02285; DDT[4,4], hexanone[2-], methyl-2-pentanone[4-] at location 35-22928; phenanthrene, pyrene at location 35-02285; tetrachloroethene at location 35-22928, trichloro-1,2,3 trifluorethane at 35-02497; trichloroflouromethane at 35-02496; xylene[1,2-]; xylene[1,3]+xylene[1,4] at location 35-22928 were detected at various depths but were not included in the screening evaluation). Revise the screening evaluation to include these chemicals that were detected at depths greater than 0-1 ft.

Response:

As stated on page F-26, the land use on the Mesa Top is industrial and the exposure for an industrial worker is assumed to be from 0-1 ft. The organic chemicals listed were detected only in samples below 1 ft in depth, and therefore were not included in the screening assessment for industrial workers. No revision of the Report is necessary.

Evaluation of Response: The response to this comment appears adequate. As the land use is being limited to non-intrusive industrial workers, exposure to chemicals below surface soil is limited. Strict land use controls will be required to ensure that no intrusive activities occur at these sites, and in the event that land use changes, a risk assessment will be required to address exposure to constituents in subsurface soil.

31. Table F-3.4-8, Page F-176:

NMED Comment:

Maximum value for bis(2-ethylhexyl)phthalate should be 3.8 mg/kg (at location 35-02286 at 2-3 feet), not 0.686 as indicated in the table. Revise the table and screening evaluation for SWMU 35-015(a) using correct value.

Response:

As stated on page F-26, the land use on the Mesa Top is industrial and the exposure for an industrial worker is assumed to be from 0-1 ft. The maximum value for bis(2-ethylhexyl)phthalate within 0-1 ft is 2.5 mg/kg. The table and the screening evaluation will be revised accordingly.

Evaluation of Response: The response to this comment appears adequate.

32. Table F-3.4-9, Page F-176:

NMED Comment:

Europium-152 was detected at 0.336 pCi/g at location 35-02497 at 1-2 ft; it should have been included in the table. Revise the table and screening evaluation for SWMU 35-015(a) using correct values.

Response:

As stated on page F-26, the land use on the Mesa Top is industrial and the exposure for an industrial worker is assumed to be from 0-1 ft. Europium-152 was detected only in a sample below 1 ft in depth,

and therefore was not included in the screening assessment for industrial workers. No revision of the Report is necessary.

Evaluation of Response: The response to this comment appears adequate.

33. Table F-3.4-12, Page F-177:

NMED Comment:

Cobalt-60 was detected at 0.1 pCi/g at location 35-02564 at 1-2 ft; it should have been included in the table. Revise the table and screening evaluation for SWMU 35-014(a) using correct value.

Response:

As stated on page F-26, the land use on the Mesa Top is industrial and the exposure for an industrial worker is assumed to be from 0-1 ft. Cobalt-60 was detected only in a sample below 1 ft in depth, and therefore was not included in the screening assessment for industrial workers. No revision of the Report is necessary.

Evaluation of Response: The response to this comment appears adequate.

34. Table F-3.4-13, Page F-178:

NMED Comment:

Fluoranthene value should have been 23 mg/kg instead of 4.6 mg/kg for the maximum value detected at 0-1 feet. Fluoranthene was detected at 23 mg/kg at location 35-02353 at 0-0.5 feet. Revise the table and screening evaluation for SWMU 35-018(a) using correct value.

Response:

Table F-3.4-13 will be revised to include fluoranthene with a maximum value of 23 mg/kg. The screening evaluation will be revised accordingly.

Evaluation of Response: The response to this comment appears adequate.

35. Table F-3.4-13 and -14, Page F-178:

NMED Comment:

Mercury was detected at 0.41 mg/kg at location 35-02268 at 2-3 feet, and bis(2-ethylhexyl)phthalate was detected at 0.066 mg/kg at location 35-02294 at 2-2.5 feet. These should have been included in the tables. Revise the table and screening evaluation for SWMU 35-018(a) using correct values.

Response:

As stated on page F-26, the land use on the Mesa Top is industrial and the exposure for an industrial worker is assumed to be from 0-1 ft. Mercury and bis(2-ethylhexyl)phthalate were detected only in samples below 1 ft in depth, and therefore were not included in the screening assessment for industrial workers. No revision of the Report is necessary.

Evaluation of Response: The response to this comment appears adequate.

36. Table F-3.4-19 and -20, Page F-180:

NMED Comment:

Fix the typographical error in the caption. The consolidated unit should be denoted as 35-003(a)-99 instead of 35-003(a)-00. Acetone was detected at 0.11 mg/kg at 0-1 ft at location 35-02300 and Aroclor 1260 at 14.2 mg/kg at location 35-02276 at 9-9.5 ft, mercury at 2.0 mg/kg at location 35-02300 at 0-1 ft, lead at 26.7 mg/kg at location 35-02441 at 0-1 ft and silver at 1.9 mg/kg at location 35-02445 at 8-9 feet. These chemicals were not included in the screening evaluation. Revise the table and screening evaluation for SWMU 35-003(a)-99 using correct values.

Response:

The caption for Table F-3.4-19 will be corrected (the caption is correct for Table F-3.4-20).

Acetone is already included in Table F-3.4-19 and should not be included in Table F-3.4-20 because it is not carcinogenic.

Aroclor-1260 is included in Table F-3.4-20 (carcinogens).

Mercury will be added to Table F-3.4-19 and included in the revised screening evaluation.

Lead was not retained as a COPC in Section D-2.1, and was not included in the SID table. Table D-2.1-4 will be revised to include lead, and text in Section D-2.1 will be revised (see response to Specific Comment #10). Also, lead was not included in the table of 95% UCLs, Table D-2.4-1. Appropriate 95% UCLs will be calculated and added to Table D-2.4-1. Lead will be included in the screening evaluation, which will be revised as appropriate.

Silver will be added to Table F-3.4-19 and included in the revised screening evaluation.

Evaluation of Response: The response to this comment appears adequate.

37. Table F-3.4-21, Page F-181:

NMED Comment:

Europium-152 was detected at 0.506 mg/kg at 4-5 ft at location 35-02437 and plutonium-239 at 0.042 mg/kg at location 35-02271 at 7-7.5 ft. These chemicals were not included in the screening evaluation. Revise the table and screening evaluation for SWMU 35-003(a)-99 using correct values.

Response:

As stated on page F-26, the land use on the Mesa Top is industrial and the exposure for an industrial worker is assumed to be from 0-1 ft. Europium-152 and plutonium-239 were detected only in samples below 1 ft in depth, and therefore were not included in the screening assessment for industrial workers. No revision of the Report is necessary.

Evaluation of Response: The response to this comment appears adequate.

38. Table F-4.4-4, Page F-189:

NMED Comment:

Frequency of detects above BV for cesium-137 is reported as 7 of 41 but the maximum detected value is reported as 0.743 pCi/g, which is less than BV of 1.65 pCi/g. Similarly, for strontium-90, the reported maximum concentration of 1.25 pCi/g is less than BV of 1.31 pCi/g but the frequency of detects above BV column reports 1 of 9. Resolve the discrepancy.

Response:

Note: Table referred to is F-4.2-4, not F-4.4-4.

All cesium-137 values listed are subsurface, so the FV of 1.65 pCi/g does not apply.

All strontium-90 values listed are subsurface, so the FV of 1.31 pCi/g does not apply.

Evaluation of Response: The response to this comment appears adequate.

39. Figure F-3.2-19, Page F-338:

NMED Comment:

Sampling location for 35-02292 is not depicted on the figure. Revise the figure to include this location on the figure.

Response:

Location 35-02292 will be added to Figure F-3.2-19; no organic chemicals were detected at this location.

Evaluation of Response: The response to this comment appears adequate.

40. Figure F-4.2-2, Page F-342:

NMED Comment:

Sampling locations of TR5 and TR7 proposed in the approved SAP (see Figure 3.2-3 of the SAP) do not correspond to the sampling locations 35-23201 and 35-22974 of Figure F-4.2-2. Provide an explanation for deviating from the approved SAP and not reporting the deviations in the Report.

Response:

SAP transect TR7 (Ten Site Slope Subarea) was implemented as two transects, TR50 East and TR50 West. TR7, as specified in the SAP, was to be "near top of slope", but the location as shown on Figure 3.2-3 is on or immediately adjacent to a paved area and contains little or no accumulated sediment or soil for sampling. Instead, two locations (35-22974 and 35-22975) were chosen immediately below that, in a bifurcated drainage channel that is subject to sediment accumulation. Because the channel is bifurcated, two locations were chosen to attempt to capture any contamination that may have been deposited in either branch. This adjustment of sample locations does not represent a deviation from the intent of the SAP, but was based on geomorphic principles in order to maximize the potential for capturing any residual contamination.

SAP transect TR5 (Ten Site Slope Subarea) corresponds to TR46, sampled at location 35-23201. Again, selection of location 35-23201 was based on geomorphic identification of the most likely pathways for drainage from the upper part of the slope onto the fan below. This does not represent a deviation from the intent of the SAP. No revision of the Report is necessary.

Evaluation of Response: The evaluation of the response is left for review by NMED.

41. Figure F-4.2-3, Page F-343:

NMED Comment:

Sampling locations of TR14 and TR 15 proposed in the approved SAP (see Figure 3.2-4 of the SAP) do not correspond to the sampling locations 35-23290 and 35-023291 of Figure F-4.2-2. Provide an explanation for not following the approved SAP and not reporting the deviations in the Report.

Response:

The locations indicated were selected as representative of sediment accumulation areas most likely to have retained contaminants related to consolidated unit 35-016(c)-00, and are believed to be consistent with the intent of the samples proposed in the SAP. Nevertheless, the locations will be evaluated relative to the proposed transects, and additional sampling will be recommended if appropriate.

Evaluation of Response: The evaluation of the response is left for review by NMED.

42. Figure F-4.2-5, Page F-345:

NMED Comment:

In Figure F-4.2-5, sampling location depicted as 35-23299 should have been 35-23289. Provide a revised figure.

Response:

Figure F-4.2-5 will be corrected to show location 35-23289.

Evaluation of Response: The response to this comment appears adequate.

43. Figure F-5.2-4, Page F-353:

NMED Comment:

Chromium and nickel detected at location 35-02456 are not depicted on the figure. Location 35-23153 is erroneously marked as 35-23152. Provide a revised figure.

Response:

Figure F-5.2-4 will be revised to show location 35-02456 with detects of chromium and nickel, and to correctly show location 35-23153.

Evaluation of Response: The response to this comment appears adequate.

44. Figure F-5.2-7, Page F-356:

NMED Comment:

Two separate sampling locations are identified with the same location ID (35-02551). Provide a revised figure with corrected location IDs.

Response:

Figure F-5.2-7 will be corrected to show the western of the two locations as location ID 35-02051; no radionuclides were detected above BV/FV at this location.

Evaluation of Response: The response to this comment appears adequate.

45. Figure F-6.2-6, Page F-364:

NMED Comment:

Sampling location for 35-22927 is erroneously marked as 35-02527. Correct the typographical error and provide a revised figure.

Response:

Figure F-6.2-6 will be revised to correctly show location 35-22927; no radionuclides were detected above BV/FV at this location.

Evaluation of Response: The response to this comment appears adequate.

46. Figure F-7.2-2, Page F-369:

NMED Comment:

Sampling locations 35-22987 and 35-22993 should have been included as 2004/2005 sampling locations on the figure. Revise the figure accordingly and provide a revised figure.

Response:

These locations will be added to Figure F-7.2-2 as black triangles denoting 2004/2005 locations, and will also be added to Figure 9.0-2.

Evaluation of Response: The response to this comment appears adequate.

47. Figures F-7.2-4, -6 and -8, Page F-371, 373 and 375:

NMED Comment:

Sampling locations 35-22987 and 35-22993 should have been depicted on the figures as 2004/2005 sampling locations and denoted by black triangles. Provide revised figures depicting these locations.

Response:

The symbols for these locations will be changed to black triangles on all figures as appropriate.

Evaluation of Response: The response to this comment appears adequate.

48. Figure F-8.2-2, Page F-378:

NMED Comment:

Sampling locations for TR21 - TR35 proposed in the approved Addendum, are not depicted in the figure. Provide an explanation for not collecting samples at these locations and deviating from the approved plan.

Response:

See response to Comment #29 above.

Evaluation of Response: The evaluation of the response is left for review by NMED.

49. Figure F-8.2-3, Page F-379:

NMED Comment:

Sampling locations 04-23235, 04-23236, and 04-23239 do not correspond to the locations proposed in the Addendum. Provide an explanation for deviating from the approved Addendum.

Response:

These locations correspond to transects TR3, TR4, and TR7, respectively. The sampled locations were selected in the drainages identified for sampling in the Addendum, although they were selected approximately 100 ft upslope (south) of the transects as marked on Figure 3.2-1 of the Addendum. The proposed locations from Figure 3.2-1 were found to not contain material appropriate for sampling, as they were situated on bare rock outcrops. Therefore the samples were collected in the same drainages but at locations where appropriate material (post-1943 sediment) was available. This is consistent with the intent and practicability of the proposed sampling in the Addendum, and does not represent a deviation.

Evaluation of Response: The evaluation of the response is left for review by NMED.

50. Figure F-8.2-4, Page F-371, 380:

NMED Comment:

Sampling locations 05-02012, 05-02022, 05-02024 and 05-22893 are depicted on the figure as existing sampling locations (i.e., green circles); these locations should be depicted with black triangles indicating 2004/2005 sampling locations. Location 05-02019 is depicted as a new 2004/2005 sampling location (i.e., a black triangle), although it was an existing location and should be indicated as a green circle. Provide a revised figure.

Response:

Locations 05-02012, 05-02022, and 05-02024 are existing locations (i.e., they were resampled prior to 2004/2005), but were also sampled (at the same locations) in 2004/2005; labeling these locations as 2004/2005 would similarly not give a visual indication of the fact that they were sampled earlier. Therefore the label, in these cases, reflects the earliest existence of the location, not the most recent sample date.

Location 05-22893 is in fact labeled with a black triangle indicating only 2004/2005 samples; the density of graphical details at that location makes it difficult to see the triangle when two existing sample locations are at essentially the same point.

Location 05-02019 is incorrectly labeled as a 2004/2005 location; no samples were collected in 2004/2005 at that location. Therefore the label for location 05-02019 will be changed to a green circle in the revised report.

Evaluation of Response: The evaluation of the response is left for review by NMED.

Other Comments

1. *NMED Comment:*

Parameters Used to Calculate Chemical SSLs: The tables that provide the input data used to calculate the soil screening limits (SSLs) for recreational users indicate that the averaging time for carcinogens is 70 years times 365 days. This is correct for an adult user, but for a child, the averaging time should be 6 years times 365 days. Please ensure that these values were used for the child trail user.

Response:

The cancer risk for a child (whether residential or recreational) is not calculated separately but is calculated as part of a lifetime exposure (adult plus child). Therefore, for all carcinogenic SSLs the averaging time (AT_c) is 70 years times 365 days. The AT for noncarcinogens is 6 years times 365 days because the child is the most sensitive receptor. No correction to the table is necessary.

Evaluation of Response: The response to this comment is adequate.

2. *NMED Comment:*

Conversions of dose into risk were computed using the code RESRAD. While the conversions appear reasonable, none of the RESRAD input/output files were provided for review. Please provide additional information from the RESRAD runs to support the conversions of the dose into risk.

Response:

The RESRAD files will be voluntarily provided with the revised report.

Evaluation of Response: The response to this comment is adequate.