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February 23, 2006

Mr. David Cobrain  
State of New Mexico Environment Department  
Hazardous Waste Bureau  
2905 Rodeo Park Drive East  
Building One  
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 the Middle Mortandad/Ten Site Canyon Aggregate Investigation Report, Los Alamos National Laboratory, New Mexico, Task 3 Deliverable.

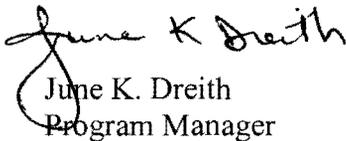
Dear Mr. Cobrain:

Attached please find a deliverable for the above-referenced work assignment. The deliverable addresses the review of the "Middle Mortandad/Ten Site Canyon Aggregate Investigation Report," Los Alamos National Laboratory, New Mexico (herein referred to as the Investigation Report).

This deliverable was previously submitted on February 16, 2006. However, based upon discussions between Ms. Neelam Dhawan (NMED) and Ms. Paige Walton (TechLaw), some additional issues were identified. In addition, Ms. Dhawan requested that Ms. Walton draft some additional general comments for use in the NMED Notice of Deficiency (NOD). In order to streamline these modifications, only the technical comments have been included in this revised deliverable.

This deliverable was emailed to you on February 23, 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) 763-7188 or Ms. Paige Walton at (801) 451-2978.

Sincerely,

  
June K. Dreith  
Program Manager

Enclosure

cc: Neelam Dhawan, NMED  
Ms. Paige Walton, TechLaw



**TASK 3 DELIVERABLE**

**REVIEW OF THE MIDDLE MORTANDAD/TEN SITE AGGREGATE  
INVESTIGATION REPORT – ADDITIONAL TECHNICAL COMMENTS**

**Support for the LANL Order of Consent**

**Submitted by:**

**TechLaw, Inc.  
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**Submitted to:**

**Mr. David Cobrain  
State of New Mexico Environment Department  
Hazardous Waste Bureau  
2905 Rodeo Park Drive East  
Building One  
Santa Fe, New Mexico 87505**

**In response to:**

**Work Assignment No. 06110.270**

**February 23, 2006**

# REVIEW OF THE MIDDLE MORTANDAD/TEN SITE AGGREGATE INVESTIGATION REPORT

## ADDITIONAL TECHNICAL COMMENTS

### GENERAL COMMENTS

1. The Executive Summary, Introduction, and Background Sections of the risk assessment provided in Appendix F describe the sectioning of the Middle Mortandad/Ten Site Aggregate into the seven subareas that are to be evaluated. However, the discussions of contaminants, including identification of constituents 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 are associated with each subarea. Therefore, it is very difficult to cross reference and understand history and the potential contamination for each subarea. Please 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 or provide a reference to Table 2.0-1.
2. Several of the individual ecological risk assessments eliminate a chemical as a constituent of potential concern (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 current asphalted 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 some additional lines of evidence for excluding sample data based upon the fact that the media may presently be covered in asphalt or gravel.
3. 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 use scenario, assuming a worker 8 hours per day is not realistic given current or present day 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 a worker. Please provide additional lines of evidence for exclusion of an evaluation of the industrial use scenario in the risk screen.
4. 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 aldrin is not listed in LANL's EcoRisk database is not reason for excluding a chemical. Please review the list of chemicals, and where toxicity data area available, an ESL should be calculated and the chemical evaluated.

5. 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 uses changes (e.g., construction of a building or excavation or regarding of an area), then additional risk analysis will be conducted. Please revise the report accordingly.
6. The exposure assessment included an analysis of evaluating the dose as a result of exposure to a 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 have not been addressed. The concern is that leaving radioactive sources goes against the principles of As Low As Reasonably Achievable (ALARA). It is not clear that the principle of ALARA has taken into consideration in the evaluation of remedial alternatives and closure for the site. Please provide discussion on how the site meets ALARA and provide justification for the leaving of “pockets” of delineated contamination in place.
7. 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 technically correct. Lead is evaluated 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.

## **SPECIFIC COMMENTS**

1. **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.** 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.

## **Minor Comments**

8. **Parameters Used to Calculate Chemical SSLs.** The tables provide the input data used to calculate the soil screening limits (SSLs) for the 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.
9. 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.