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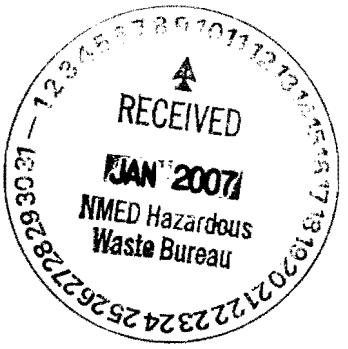

January 2, 2007

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. 06280.100; State of New Mexico Environment Department, Santa Fe, New Mexico; LANL Risk Assessment Support; Review of Investigation Report for Material Disposal Area V at Technical Area 21, Task 2 Deliverable.

Dear Mr. Cobrain:

This deliverable addresses the above-referenced work assignment and provides risk assessment review comments on Appendices H of the Investigation Report for Material Disposal Area V (MDA V) at Technical Area 21 at Los Alamos National Laboratory (dated October 2006).

Appendix H of the report was evaluated with respect to background reference values and fallout values for the inorganics and radionuclides. The ecological risk assessment clearly presents the use of background levels in identifying contaminants of potential ecological concern (COPECs), however, the human risk screening is unclear regarding how background levels were used. It is agreed based on a review of other sections of the report that a number of inorganics and radionuclides are likely to be representative of background or fallout values. In future documents, removal of specific inorganics or radionuclides as human health chemicals of potential concern (COPCs) due to background should be clearly substantiated by referencing relevant tables and appendices (i.e., Appendix B) throughout the human health screen. Two comments were drafted concerning elimination of lithium and arsenic as COPCs due to background.

The 95% upper confidence level of the mean (UCL) was used as the exposure point concentration (EPCs) in the risk assessment, where the UCLs were calculated using the United States Environmental Protection Agency's (USEPA) model ProUCL. Consistent with guidance for calculating EPCs, if a UCL could not be estimated or was deemed inappropriate, the site maximum detection concentration was used as the EPC. No comments were drafted concerning EPCs. However, in some cases if the UCL was estimated to be greater than the maximum detected site concentration, the UCL was still applied. A comment has been drafted concerning this issue.

Although the MDA V is located within an industrial area under Laboratory (institutional) control, the property may be transferred to the public and thus, the unit was appropriately evaluated under a future residential land use exposure scenario. The results of the human health risk screening assessment conclude that noncarcinogenic risks are below the New Mexico target level of 1.0 and the incremental excess cancer risks do not exceed the NMED target cancer risk level of 1×10^{-5} when background conditions are considered. In addition, the radiological dose is below the dose limit of 15 millirem per year (mrem/yr) when taking background and fall out conditions into account. Therefore, land use for the area assessed in this report does not support the need for restrictions.

Groundwater was not evaluated in the risk assessment. The rationale for concluding that migration of contaminants in site soil to groundwater was not likely to occur, were (1) the depth to groundwater (1300 feet), (2) low gravimetric water content, and (3) lack of hydrostatic pressure. Similar to other sites evaluated at LANL, groundwater likely has not been impacted by site soils. However, it is suggested that borehole data be reviewed to confirm whether there is a trend of decreasing concentration with depth to ensure that the vertical extent of contamination has been adequately identified.

MDA V was evaluated as a consolidated unit consisting of four Solid Waste Management Units (SWMUs). The ecological risk assessment appropriately evaluated the units as a single exposure area given the relatively small size of the site. The human health risk assessment, evaluated the consolidated unit as three exposure areas which appears appropriate given the historically similar waste activities, and geographical proximity and include: 1) The laundry building footprint [SWMU 21-018(b)] and the absorption beds [SWMU 21-018(a)] 2) the two debris disposal sites [SWMU 21-013(b) and AOC 21-013(g)] on the slope to the south of MDA V, and the septic system/outfall [SWMU 21-023(c)].

There were few technical issues noted with the human health and ecological risk assessments. The assessments were conducted consistent with approved methodologies. A spot check of residential screening levels and ecological toxicity equivalency factors was conducted against LANL's EcoRisk database (version 2.2) and no discrepancies were noted.

This deliverable was emailed to you on January 2, 2007 at David.Cobrain@state.nm.us to Ms. Kathryn Chamberlain at Kathryn.Chamberlain@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. Claire Marcussen at (352) 332-0669.

Sincerely,

June K Dreith

June K. Dreith
Program Manager

Enclosure

cc: Ms. Kathryn Chamberlain, NMED
Ms. Claire Marcussen, TechLaw
TechLaw Files

TASK 2 DELIVERABLE

RISK ASSESSMENT REVIEW OF THE INVESTIGATION REPORT MATERIAL DISPOSAL AREA V AT TECHNICAL AREA 21 LOS ALAMOS NATIONAL LABORATORY OCTOBER 2006

LANL Risk Assessment Support

Submitted by:

TechLaw, Inc.
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Westminster, CO 80030

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. 06280.100.0002

January 2, 2007

RISK ASSESSMENT REVIEW OF THE
INVESTIGATION REPORT MATERIAL DISPOSAL AREA V
AT TECHNICAL AREA 21
LOS ALAMOS NATIONAL LABORATORY
OCTOBER 2006

TECHNICAL REVIEW COMMENTS

1. Section 6.0 Regulatory Criteria, page 28. This section states that the soil screening levels (SSLs) used in the human health screening assessment were obtained from New Mexico Environment Department (NMED) and Environmental Protection Agency (EPA) Region 6 and Region 9 guidance. The text further states that these levels are based on a target risk level of 10^{-5} however, only NMED SSLs are based on target risk level of 10^{-5}. EPA Region 6 and Region 9 carcinogenic-based levels are based on a target risk level of 10^{-6}. If EPA Region 6 and Region 9 carcinogenic-based levels were used, these levels should be adjusted to a target risk of level of 10^{-5} to be consistent with NMED risk assessment guidance. Please verify whether all SSLs applied are based upon a consistent risk level of 1E-05.

2. Figure H-3.1-1. Conceptual site model flow diagram for Consolidated Unit 21-018(a)-99, page H-33. The soil pore gas data indicate detections of a number of volatile organic compounds (VOCs); however, the conceptual side model does not address the presence of vapors in the subsurface as a potential source contributing to the vapor intrusion exposure pathway. Please revise the figure to include inhalation exposure from subsurface vapors and revise the text to include rationale for including/excluding this pathway from further analyses.

3. Section H-3.3. Environmental Fate and Transport, Inorganics, page H-8. This section indicates that lithium is detected at levels that are "probably naturally occurring." General statements cannot be used to exclude chemicals as representative of background; rather, specific references to background comparison tables or figures are required. While supporting information for contaminants is provided throughout the report, this information is not provided within Appendix H. Please revise the human health screening assessment to substantiate the exclusion of specific inorganics and radionuclides as constituents of potential concern (COPCs).

4. Section H-4.2.2. Exposure Assessment, Similarity to Background, page H-18. Throughout the human health risk screening assessment, arsenic is highlighted as the primary risk driver for carcinogenic risk (i.e., contributing greater than 70% of the carcinogenic risk). However, the uncertainty analysis indicates that arsenic is "similar to background." This conclusion is not substantiated by citations or referenced to relevant sections in the report demonstrating that the site arsenic concentrations are not significantly different from background. While arsenic is likely to be representative of background conditions a reference to the relevant sections in the report that substantiate this conclusion should be provided. Please revise accordingly.

5. Section H-3.1. Receptors and Exposure Pathways, page H-6. This section is incomplete as soil pore gas data were not considered in the identification of potentially completed exposure pathways. The second paragraph on this page indicates that pathways from subsurface contamination to potential human receptors are complete only if contaminated soil or tuff is excavated and brought to the surface. However, no justification is provided for excluding the vapor intrusion pathway. Several VOCs were detected in pore gas at SWMUs 21-018(a) and 21-018(b) (See Table 2.5-1 Summary of COPCs at SWMUs 21-018(a) and 21-018(b) by Media, on page B-108 and -109 of Appendix B), indicating vapor intrusion to be a potentially complete exposure pathway. It is possible to model pore gas data and evaluate the vapor intrusion pathway for the migration of VOCs from pore gas into buildings. The vapor migration into indoor air pathway should be identified as a complete exposure route and evaluated using a guidance such as USEPA's *Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils (Subsurface Soil Vapor Intrusion Guidance)* EPA 530-F-02-052, Office of Solid Waste and Emergency Response, Washington, D. C. This guidance provides default shallow and deep soil gas screening levels that are protective of indoor air. In addition, the guidance references the use of a spreadsheet model, such as the Johnson and Ettinger model that can also be used. Please provide additional lines of evidence for determining that the pore gas data are not applicable to the risk assessment as a source for indirect exposure via inhalation, otherwise the data should be used in a quantitative evaluation of this pathway.

6. Section H-5.4.6. Population Area Use Factors, page H-25-The sixth paragraph indicates that the ecological screening assessment utilized the 95% upper confidence level of the mean (UCL95) even if the UCL95 was higher than the maximum concentration. Standard risk assessment practice (USEPA, 2002) is to use the lower of the UCL95 or maximum concentration, if adequate samples have been collected to estimate a population mean. The approach taken was more conservative, however, in future risk assessments, use of the maximum should be used if the UCL95 is predicted to be higher than the maximum when adequate samples are collected to estimate a population mean.

   Reference:

   USEPA. 2002. Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. Office of Solid Waste and Emergency Response, OSWER 9285.6-10. December 2002.