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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS, TX 75202-2733

JUN 22 1997



Mr. Benito Garcia, Chief
Hazardous and Radioactive Materials Bureau
New Mexico Environment Department
P.O. Box 26110
Santa Fe, NM 87502

Re: Response to Additional Information to RFI Report for Potential Release Sites 50-006 (a,c), 50-007, and 50-008
Los Alamos National Laboratory (NM0890010515)

Dear Mr. Garcia:

The Environmental Protection Agency (EPA) has reviewed additional information dated February 11, 1997, sent by Los Alamos National Laboratory (LANL) to supplement the RFI Report for Potential Release Sites 50-006(a,c), 50-007, and 50-008. EPA recommends approving the report in conjunction with the Notice of Deficiency Response dated May 9, 1996. However, EPA also recommends that area of contamination, not associated with these potential release sites, be given a new designation and added to the LANL RCRA/HSWA permit for further investigation. EPA believes that LANL has neither adequately characterized the extent of contamination or demonstrated that there is no unacceptable human health risk in this area. Enclosed is a list of deficiencies.

Should you have any questions, please feel free to contact Mr. David Vanlandingham at (214) 665-2254.

Sincerely,

David W. Neleigh
David W. Neleigh, Chief

New Mexico and Federal Facilities Section

Enclosure

HSWA, LANL 5/11/97/50



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List of Deficiencies
Attachment A: TA-50 Surface Soil Issue

General Comments

EPA recommends that LANL not submit a risk assessment or risk screening analysis prior to conducting a phase II investigation. Because contaminants were found in the pipe rack area above background and SALs, the vertical and horizontal extent of contamination should first be investigated. To assure proper investigation upon discontinuation of operations, the pipe rack area shall be added to the LANL RCRA/HSWA permit. Because this risk assessment is performed prior to a phase II investigation, EPA believes that inadequate data exists to characterize site contamination and human health risk to an acceptable degree of certainty. In the future, any risk assessments performed prior to a complete phase II characterization will be deemed unsound by the EPA.

Nevertheless, EPA wishes to utilize the risk assessment performed for the TA-50 surface soil scenario to illustrate recurring shortcomings in LANL risk assessment methodology and calculation. If further, more detailed information is required regarding these issues, please contact Michael Morton at (214) 665-8329.

Risk Assessment Data and Equations: TA-50 Surface Soil Issue

1. Several footnotes are made throughout this risk screen which lack references at the end of the document. For example, citations are made to Dories (1996) on page 7 of the attachment which are relevant to industrial scenario exposure parameters, yet a copy of this reference are not supplied. EPA prefers that copies of pertinent, referenced material also be included so that LANL submittals are all-inclusive.
2. Because of the uncertainty associated with any estimate of exposure concentration, the 95 percent upper confidence limit on the arithmetic average must be used as the concentration term for intake calculation. Conservative assumptions should always be used for an initial risk screen. In the risk screen analysis performed in Attachment A, there is great variability in measured concentration values because too few samples were utilized in the analysis; the upper confidence limit on the average concentration will be high. If the upper confidence limit is above the maximum detected value, then the maximum detected value should be used to estimate exposure concentrations.
3. LANL should submit copies of the Health Effects Assessment Summary Tables (HEAST) which pertain to total chromium analysis so that EPA may determine applicability. Further, LANL should submit additional information on the 1994 reference by Miller which validates HEAST as a standard risk assessment tool. Regardless, the concentration of chromium VI must be assumed to be equal to the total chromium concentration unless the specific trivalent and hexavalent chromium ratios can be proven with laboratory analysis.

4. Although the 95% upper confidence limit on the arithmetic mean of each constituent should have been used in a risk screen analysis, LANL used the arithmetic mean. Why, then, are the arithmetic means presented in Table A-1 significantly more than the average on-site soil concentrations (which are cited as the mean chemical concentrations) in Table A-2?
5. Table A-3, "Industrial Scenario Exposure Parameters," lists both Most Likely Exposure (MLE) and Reasonable Maximum Exposure (RME) parameters. Because EPA is concerned with chronic, long-term exposure as a worst-case scenario, only the RME is necessary for initial risk screen. LANL creates a scenario of "a person spending an hour for lunch at the picnic table each working day and an hour per day working in or around the pipe rack regardless of the weather" to calculate the RME, and LANL modifies exposure parameters to reflect this scenario. EPA will not be tolerant of deviations from fixed exposure parameters which have been established to protect human health from chronic exposure. The value of FI (fraction ingested from contaminated source) should be assumed to be unity. Exposure time (ET) should be 24 hours/day. Both parameters denote acute, short-term exposure and are not used in EPA risk assessments. Intake rate (IR) should be $20\text{m}^3/\text{d}$ ($0.83\text{m}^3/\text{hr}$). The appropriate time to use site-specific modifications of exposure parameters is in the baseline risk assessment, not in the risk screen.
6. LANL's derivations of the dust loading factor ($9 \times 10^{-5} \text{ g/m}^3$) and the particulate concentration in air ($9 \times 10^{-5} \text{ mg/m}^3$) are unclear. To calculate the particulate emissions factor for inhalation exposure, LANL should be using the 1996 EPA Soil Screening Guidance Technical Background Document (OSWER Directive 9355.4-17A, PB96-963502).
7. The calculated risk, using LANL's assumed parameters and equations, are not reproducible. LANL should provide an appendix which includes all calculations. Using EPA guidelines and parameters, the calculated total RME cancer risk for the given samples is of questionable acceptability.