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LANL  
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State of New Mexico  
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Hazardous & Radioactive Materials Bureau  
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**CERTIFIED MAIL**  
**RETURN RECEIPT REQUESTED**

March 22, 1996

Mr. Joseph C. Vozella, Chief  
Environment, Safety and Health  
Los Alamos Area Office  
Department of Energy  
Los Alamos, NM 87544

**RE: Notice of Deficiency**  
**RFI Report for Technical Area 48**  
**Los Alamos National Laboratory (NM0890010515)**

Dear Mr. Vozella:

The Hazardous and Radioactive Materials Bureau (HRMB) of the New Mexico Environment Department (NMED) has reviewed Los Alamos National Laboratory's (LANL) RFI Report for Technical Area 48 received November 6, 1995, and determined it to be deficient.

LANL shall provide a response to the enclosed list of deficiencies within forty-five (45) days from the receipt of this letter. Please address one copy of your response to me and one to each of the individuals listed below.



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Mr. Joseph C. Vozella  
March 22, 1996  
Page 2

Should you have any questions concerning this Notice of Deficiency, please contact either Mr. Robert Dinwiddie at 505/827-1561 or Ms. Teri Davis at 505/827-1558 concerning permitting or technical issues, respectively.

Sincerely,



Benito Garcia, Chief  
Hazardous and Radioactive Materials Bureau

enclosures

cc: David Neleigh, Chief, US EPA Region 6  
Ronald Kern, Technical Compliance Program Manager, NMED-HRMB  
Barbara Hoditschek, RCRA Permits Program Manager, NMED-HRMB  
Jim Piatt, Chief, NMED-SWQB

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**List of Deficiencies**  
**RFI Report for Technical Area 48**  
**Los Alamos National Laboratory**

Below are comments on the Los Alamos National Laboratory RCRA Facility Investigation (RFI) Report for Potential Release Sites 48-001, 48-002, 48-003, 48-005, 48-007(a), 48-007(b), 48-007(c), 48-007(d), 48-007(f), and 48-010 located in Operable Unit 1129 at former Technical Area 48.

1. **3.1.1 Inorganic Analyses, p. 3-2** -The report indicates that holding times for various soil and water samples were exceeded by as much as two months. Were the holding time errors due to laboratory oversights or backlog, or other circumstances? Is any additional sampling anticipated to corroborate the results of those analyses which are "regarded as estimated"?
2. **3.1.1.2 Comparison of SW-846 and EDXRF Sample Results, p. 3-3** -The comparison of EDXRF and SW-846 ICPES methods indicates that the EDXRF results were significantly higher for barium, calcium, chromium, copper, iron, lead, manganese, and potassium. LANL shall present an explanation as to how this discrepancy will impact the risk assessment process.
3. **3.1.1.3 Evaluation of Quality Control Data for SW-846 and EDXRF Analyses, p. 3-5** -The report indicates that the EDXRF data quality for arsenic is insufficient for screening assessment purposes. Will LANL be collecting additional samples for arsenic analyses?
4. **3.1.2.2 Semivolatile Organic Compound Analysis, p. 3-11** -Numerous SVOC samples were extracted without the required method blank being concurrently extracted. Reported dates of sample extraction do not agree with the dates of method blank extraction and in one instance, no method blank extraction was performed. Although review of the data does not indicate the samples had contamination introduced during sample preparation, other than possibly phalates, the lax quality control practices in conjunction with previously mentioned exceedances in holding times tends to taint the entire data package. How does LANL propose to address these problems?
5. **3.1.2.3 Polychlorinated Biphenyl Compound Analysis, p. 3-11** -PCB holding time for one sample was exceeded by one month. This sample should be identified in the text and compared to other samples which met holding times to validate the statement that "the usability of the data is not affected", as the report suggests.
6. **3.1.4 High Explosives Analyses, p. 3-14** -The report indicates that "no explosives analyses were performed at

this site".The rationale for not conducting explosives analyses, such as no historical use or presence of explosives in the area, should be stated.

7. **3.1.5 Field Quality Control Activities, p. 3-14** -The presence of lead above 5 ppb in 17 of 24 field QC water samples and the fact that all regular water samples analyzed contained less than 5 ppb lead, indicates that lead contamination was introduced into the QC samples through the sample preparation process. A complete audit of the QC sample preparation process should be conducted to identify at which point the contamination is being introduced.
8. **3.2.1 Background Comparison, p. 3-19** -The statement, "At the discretion of the project statistician, additional analysis of a background value may be performed before carrying a COPC forward to the SAL comparison.", needs clarification. Which background values required "additional analysis" ? What form of "correction" was applied before performing the background screening ?
9. **3.2.3 Ecotoxicological Screening Assessment Methodology, p.3-21** -The process of identifying PRSs that may be excluded from further ecological risk evaluation based on an assigned "minimum habitat quality criteria" is flawed by the fact that no "habitat" could ever receive a biological activity score of zero. A potential for access by receptors is always present from birds and/or mammals.
10. **Table ES-1, p. 4-1** -Based on the above mentioned analytical problems, the NFA recommendations for all PRSs within this RFI seems premature pending further investigation or an adequate explanation that the sampling and analysis errors have no impact on the decision making process.
11. **4.1 Aggregate K, p. 4-2** -The report indicates that TA-48 contains nine stacks which release VOCs and perchloric acid. The fume hoods are reported to contain scrubbers designed to scrub contaminated exhaust air before it is released to the stacks, however, no explanation is given as to the ultimate disposition of the scrubber waters. Please clarify.
12. **4.1.1 Previous Investigations for Aggregate K, p. 4-2** -A table should be included presenting the results of the five surface and five subsurface soil samples which were collected north of TA-48 as part of the April 1991, ER Interim Action reconnaissance survey.
13. **4.1.2 Field Investigations for Aggregate K, p. 4-4** -The use of an organic vapor analyzer (OVA) is an inadequate technique to locate surface soil contamination. Any VOCs which may have been present most likely volatilized long ago. Generally, surface soils contaminated with organics will be visible to the naked eye long before they are

detected with the OVA instrument, unless the soil is disturbed, thereby releasing the VOCs which may be just under the surface. A surface soil sample analyzed using methods described in SW-846 is the most reliable way of locating surface soil contamination.

14. **Deviations from the Work Plan, p. 4-5** -Subsurface sampling using a hand auger alone is an inappropriate method for collecting VOC samples. Unless a split spoon or core barrel is driven beyond the bottom of the auger hole to collect an undisturbed sample, VOC results, if any are recorded, will not be representative of actual conditions due to the volatilization which occurs during the churning action of the soil creating by the auger.
15. **4.1.2.2 Results of Field Screening, p. 4-5** -The OVA scans resulted in, "No elevated measurements indicative of contamination..". LANL shall explain the criteria for "elevated measurements".
16. **4.1.3 Screening Assessment for Aggregate K, p. 4-6** -The text indicates that various sets of sample results cannot be compared due to differences in analytical methods (EDXRF vs. SW-846), analyses conducted at fixed and mobile labs not being comparable or large uncertainties associated with the mobile lab analyses. Typically, SW-846 methods are used to correlate XRF results and likewise, a fixed laboratory will be used as a QA for a mobile laboratory. It appears that the sample results cannot be validated due to this lack of comparison of sample results. LANL shall develop a protocol for sending at least 20% of all samples to fixed off-site laboratory to ensure proper QA for sample results.
17. **4.1.3.3 Risk Assessment, p. 4-9** -Explain why no human health or ecological risk assessment was performed for PRS 48-001.
18. **4.2.2 Field Investigations for Aggregate M, p. 4-11** -
  - a. As previously stated, an OVA should not be used to detect surface soil contamination.
  - b. As previously stated, a hand auger should not be used to collect VOC samples.
19. **Deviations from the Work Plan, p. 4-12** -Aerial photographic analysis should be utilized for determining potential sample locations.
20. **4.2.3 Screening Assessment for Aggregate M, 4-15** -Identify exactly which inorganic and organic constituents were sampled for. All data should be presented in tabular form regardless of the fact that individual sample results may not exceed "background" values.

21. **4.2.3.1 Comparison to Background and SAL Values, p. 4-19**  
-Although no evidence exists that lithium (4 ppm) is associated with the processes at TA-48, an explanation regarding the significance of this concentration at this location should be provided.
22. **4.3.2 Field Investigations for Aggregate N, p. 4-23** -As previously stated, an OVA should not be used to detect surface soil contamination. To "screen-out" potential soil sampling locations based on OVA measurements is not appropriate.
23. **4.3.3 Screening Assessment for Aggregate N, p. 4-27** -The text indicates that the analytical data quality evaluation revealed several problems that affect the screening assessment for Aggregate N. LANL shall collect additional samples at those sample locations in question.
24. **Constituents Identified as Potential COCs, p. 4-30** -The presence of contaminants has been established at depths of 6 to 7.4 feet at the site of Line 38. The report indicates the single borehole is insufficient to determine the extent of contamination. Additional borings should be conducted to define the extent of contamination. LANL shall submit a schedule for submitting additional sampling plans for this location along with a field schedule for the sampling.
25. **Constituents not Identified as Potential COCs, p. 4-31** -
  - a. Although no PAH compounds exceeded their EQL, the fact that SALs were exceeded may require an evaluation of the PAH relative potency factors, in addition to the potential cumulative effects of the benzidine and nitrosoamine concentrations.
  - b. The fact that "no evidence exists that lithium was associated with the acid waste lines" does not justify discontinuing further evaluation of this compound. Explain the significance of this concentration (7.3 ppm) at this location.
26. **4.3.4 Conclusions and Recommendations for Aggregate N, p. 4-34** -The text indicates that "...it is recommended that final disposition of PRS No. 48-005 be deferred until later when the TA-48 facilities are decommissioned." Please define "later".

27. **4.4 Aggregate X, p. 4-35 -**

a. Nearly all of the PRSS in Aggregate X are currently paved with asphalt, however no historical account of the paving is provided. Historical aerials should be reviewed to determine potential sampling locations.

b. As previously stated, an OVA should not be relied on to locate surface soil contamination.

28. **4.4.3 Screening Assessment for Aggregate X, p. 4-40 -**The text indicates that samples from locations 48-2037 and 48-2057 were "lost in analysis". Are additional samples anticipated to be collected from these locations? LANL shall provide a timeframe for the collection of additional samples.

29. **4.4.3.3. Risk Assessment, p. 4-46 -**Explain why the human health or ecological risk assessment was not performed at Aggregate X.

30. **4.4.3.2 Data Interpretation, p. 4-45 -**Radionuclides and manganese are confirmed COCs at PRS 48-007(a and d) and 48-010. The extent of contamination in the water and soil media at the outfalls and the wetland in Aggregate X have not been established. Manganese exceeds the action level (drinking water standard) in the wetlands. Have New Mexico groundwater discharge standards been considered prior to recommending NFA for these PRSS?