



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6

1445 ROSS AVENUE, SUITE 1200
DALLAS, TX 75202-2733

*3/21
needs to forward
to EPA by
8/27/97*



July 22, 1997



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

Re: Notice of Deficiency for Sampling and Analysis Plan for PRSs
48-001, 48-002(e), 48-003, 48-005, 48-007(a, b, c, d, and f)
and 48-010
Los Alamos National Laboratory (NM0890010515)

Dear Mr. Garcia:

The Environmental Protection Agency (EPA) has reviewed the
Sampling and Analysis Plan dated January 15, 1997, for 48-001,
48-002(e), 48-003, 48-005, 48-007(a, b, c, d, and f) and 48-010
at Los Alamos National Laboratory (LANL) and found it to be
deficient. EPA recommends that LANL be given sixty days to
respond to the attached 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



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List of Deficiencies
Sampling and Analysis Plan
PRSS 48-001, 48-002(e), 48-003, 48-005, 48-007(a, b, c, d and f)
and 48-010

General Comments

1. EPA requests that all maps contained in LANL documents also include topographic contours. Some elevation maps pertaining to these sites could not be found in the RFI Work Plan or in the RFI Report. These contours are crucial in determining outfall areas and preferential runoff pathways. LANL shall resubmit new figures depicting elevation contours for Figures 2.4.3-2 and 2.7.1-1.

2. EPA believes that the soil/tuff interface is not necessarily a barrier to vertical contaminant migration. The tuff may be fractured, promoting preferential flow. If a phase I investigation reveals contaminants at levels above background, it may become necessary for samples to penetrate the interface to determine vertical extent of contamination for a phase II investigation.

3. Although LANL's multiple-chemical analysis or evaluation (MCA or MCE) is used as a screening tool for determining the significance of synergistic effects of constituents above background levels, EPA guidelines require that any constituent found at significant levels above background in a phase I investigation must be carried over as a COPC into a phase II investigation. This ensures the adequate characterization of a site, as sampled locations may not exist in the areas of greatest contamination.

2.1.3 Sampling and Analysis Plan Design, PRS 48-001

4. EPA agrees with LANL that no RCRA-regulated constituents were found at this PRS. However, EPA disagrees that NFA is appropriate for PRS 48-001, as an adequate phase I investigation revealed Th-228, Th-230, and Th-232 at significant levels above background. EPA recommends further investigation of PRS 48-001 to determine nature and extent of contamination in order that a radiological risk assessment may be performed.

2.2.3 Sampling and Analysis Plan Design, PRS 48-002(e)

5. The purpose of any phase II investigation is to determine the nature and extent of any constituent of contamination (COC) found to be present at significant levels above background. PCBs and Benzo[a]pyrene were detected above SALs in samples X48-2037 and X48-2057, yet LANL claims on page 4-47 of the RFI report that

"the PRS has been characterized, and available data indicate that COCs are not present at levels that pose risk based on the future land use," satisfying a NFA criterion. For this reason, LANL has omitted full-suite analysis testing from proposed future sampling. EPA believes that this PRS has not been adequately characterized, as the vertical and horizontal extent of contamination has not been determined through a phase II sampling investigation. For example, PCBs were detected in sample X48-2037 at a depth of 0.5-1.5 ft, yet no samples at a greater depth at or around this location are proposed. Also, location X48-2057 was only sampled at a depth of 0-0.5 ft. No risk assessment for this PRS can accurately be performed until adequate data has been collected through a phase II investigation, so LANL may not make any conclusions regarding risk at this site. LANL shall conduct a full-suite analyses on the proposed samples at location 48-2135. LANL shall also collect samples at the same depth intervals from at least one more location downgradient and in the vicinity of pre-existing sample locations.

2.3.3 Sampling and Analysis Plan Design, PRS 48-003

6. Inadequate fixed-lab gamma spectroscopy data exists to conclude that no contamination exists in the backfill or the underlying tuff of the former filter bed. EPA recommends sampling in close proximity to former sampling locations 48-2012, 48-2014, and 48-2015 at intermediate depths (1-3ft bgs).

2.4.2 Problem Statement, PRS 48-005, Line 34

7. LANL wishes to determine if contaminants, if found, could "represent a potential threat to human health or the environment." However, the extent of any contamination present must first be determined before any risk screen or assessment can be performed. The proposed number of phase II samples will require subsequent testing in order to do a radiation risk assessment, as little fixed gamma spectroscopy data exists from phase I sampling. EPA recommends that LANL sample at varying depths near location 48-2022, where a gamma spectroscopy data gap exists.

2.5.1 Summary of Historical Data

8. LANL claims that metals were analyzed by the toxicity characteristic leaching procedure (TCLP). However, TCLP is not among the analytical methods used for trace metal analyses listed on page 3-2 of the RFI report. Only EDXRF and the SW-846 methods were approved by EPA for metals quantitation. The purpose of TCLP is to determine if a solid waste, when disposed, is a hazardous waste, not to serve as a quantitative analytical

method. LANL should clarify which methods were used for metals analysis.

2.5.2 Problem Statement, PRS 48-005, Line 36

9. A phase I investigation is essentially being performed on this line. Therefore, the objective of this sampling scenario should simply be to determine if contaminants are present above background. If they are, then LANL should perform a phase II investigation to determine the nature and extent of any contamination before making conclusions about "a potential threat to human health or the environment." Furthermore, the proposed number of samples would not be adequate to perform a risk screen or assessment.

2.6.1 Summary of Historical Data

10. LANL claims that metals were analyzed by the toxicity characteristic leaching procedure (TCLP). However, TCLP is not among the analytical methods used for trace metal analyses listed on page 3-2 of the RFI report. Only EDXRF and the SW-846 methods were approved by EPA for metals quantitation. The purpose of TCLP is to determine if a solid waste, when disposed, is a hazardous waste, not to serve as a quantitative analytical method. LANL should clarify which methods were used for metals analysis.

11. This section does not mention that trace amounts of acetone, 2-butanone, and di-n-butyl phthalate are present in line 37. In the future, LANL should summarize all constituents which were found to be present above background. However, because these constituents are several orders of magnitude below their respective SALs, LANL may omit them from phase II investigation.

2.6.3 Sampling and Analysis Plan Design, PRS 48-005, Line 38

12. The last sentence of the second paragraph is unclear. Please clarify in the response.

2.8.2 Problem Statement, PRS 480-007(a and d) and PRS 48-010

13. LANL wishes to determine if constituents are "above background levels in soils or sediments...and could they represent a potential threat to human health or the environment." However, the proposed number of samples will not be adequate to conduct a human health risk analysis if constituents are found above background. This sampling plan should be regarded as a phase I investigation since very little previously collected data is valid. For this reason, if contaminants are found above background at PRS 48-007(a and d) and PRS 48-010 then a phase II

investigation to determine the nature and extent of contamination must be performed.

2.8.3 Sampling and Analysis Plan Design, PRS 48-007(a and d) and 48-010

14. EPA believes that LANL has not satisfactorily determined whether contamination exists at PRS 48-007(a and d), as only two surface samples were obtained and no inorganic, VOC, or SVOC analyses were performed. No new samples are proposed in this PRS. LANL shall take both surface and subsurface (at least 1ft bgs) samples at a location near 48-2038 and submit them for full-suite, fixed-lab analyses.

15. EPA believes that LANL has not satisfactorily determined whether contamination exists outside the marsh area at PRS 48-010, as only one sample was obtained and no inorganic, VOC, or SVOC analyses were performed. LANL shall take both surface and subsurface (at least 1ft bgs) samples at a location near 48-2040 and submit them for full-suite, fixed-lab analyses.

16. If this investigation suggests that samples must be taken as a phase II measure, EPA recommends also sampling deeper than the soil/tuff interface at locations 48-2159 through 48-2162 to determine depth of contamination. EPA contends that the soil/tuff interface may not be a barrier to contaminant pathway migration.

2.9.3 Sampling and Analysis Plan Design, PRS 48-007(b, c, and f)

17. As the RFI shows (pg. B-46), samples 48-2046 shows significant levels of Benzo[a]anthracene, Benzo[a]pyrene, and Benzo[b]fluoranthene. Provisions for a phase II investigation of PRS 48-007(c) to determine the extent of contamination were omitted from the sampling and analysis plan design. LANL claims that these compounds, although present at levels at or near SALs, "are unlikely to pose a risk to human health at the levels detected; therefore, they do not need further evaluation at PRS No. 48-007(c)." EPA disagrees, as LANL may not make any conclusions regarding human health risk without first adequately characterizing the extent of contamination at a site through a phase II investigation. Therefore, LANL shall conduct full-suite analyses on proposed samples obtained from location 48-2166. LANL shall also collect samples to a depth of 3ft bgs at two additional locations near 48-2166, preferably 25ft and 50ft downgrade of 48-2166. These additional samples will also be submitted for full-suite analyses. EPA also recommends that LANL conduct full-suite analyses on samples collected from 48-2166 so that the extent of contamination in the PRS 48-007(c) outfall may be determined.