LANL [redacted] Red File - 95

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RETURN RECEIPT REQUESTED

July 24, 1995

Mr. Larry Kirkman
Acting Area Manager
US Department of Energy
Los Alamos Area Office
528 35th Street
Los Alamos, New Mexico 87545

SUBJECT: Mixed waste surface impoundments TA-53-166 NE and TA-53-166 NW

Dear Mr. Kirkman:

Permitting and Technical staff have completed review of the Los Alamos National Laboratories (LANL) Response to the Notice of Deficiency (NOD) for the Closure Plan for Surface Impoundments TA-53-155 NE and TA-53-166 NW, Technical Area 53, dated December 16, 1994. Review has also been completed for LANL's further Response dated March 10, 1995 in reply to the LANL/NMED teleconference of January 24, 1995.

In their review of these documents, staff have noted several deficiencies which must be addressed before the closure plan can be approved by the New Mexico Environment Department. These deficiencies are identified in the two enclosures to this letter. Enclosure A contains comments drafted by RCRA Permitting staff. Enclosure B comments were drafted by Technical Compliance staff.

We regret the delay in this response. The time interval between receipt of LANL's response to the NOD and receipt of the response to the teleconference comments forced us to reprioritize this reply.

4310

TC

Please respond, within thirty days of receipt of this letter, to these comments with complete information to support LANL's proposal for clean closure. These comments should be incorporated into a revised closure plan which will meet the requirements for clean closure as identified in the State's closure regulations.

Please call Stephanie Kruse of my staff at 827-4308 if you have any questions.

Sincerely,

Benito J. Garcia
Bureau Chief
Hazardous and Radioactive Materials Bureau

Enclosures

xc: Barbara Hoditschek, NMED
Ron Kern, NMED
Everett Tollinger, LANL
William K. Honker, EPA
→ SNL Red file 95
Reading file

ENCLOSURE A

RCRA PERMITTING PROGRAM COMMENTS
to
LANL RESPONSE TO NOD (DECEMBER 16, 1994)
for
TA-53 MIXED WASTE SURFACE IMPOUNDMENTS

Sentences in bold type are direct quotes from LANL's Response to the Notice of Deficiency (December 16, 1994). The identifying page refers to the page number of LANL's Response. Paragraphs are numbered starting with the first full paragraph.

LANL RESPONSE TO NOD

A-1) LANL Comment 1, Discussion, p. 1. **...In addition, the reference for the new text on p. 2-14 will be added to p. 7-4.**

This reference should also be noted in the new text for p. 2-14.

A-2) LANL Comment 2, Proposed Text Changes, p. 4, ¶1. **The approach for determining whether the closure performance standard has been met is illustrated in Figure 5-1. This approach is based on two methodologies: comparison with screening action levels (SALs) developed using the methodology outlined in the Installation Work Plan (LANL 1993) and development of a baseline risk assessment using methodology identified by the EPA (EPA 1989)....**

In addition, information on radioactive constituents detected should be used in preparing the health-based cancer risk assessment. This information is necessary to provide a better estimate of the true cancer risk at these lagoons, and thus to manage the hazardous constituents in an appropriate manner.

A-3) LANL Comment 2, Proposed Text Changes, p. 4, §3. **...Background will be defined as the 95% upper tolerance level (UTL) calculated from concentrations of inorganic constituents measured in soil and tuff similar to that present near the TA-53 lagoons. If existing data are not sufficient to provide a statistically meaningful UTL,**

then additional samples will be collected near the lagoons in locations believed to be unaffected by releases from Laboratory facilities....

Whether or not existing data are sufficient must be decided now. See Comment A-11 and Comment #2, page 4, in Enclosure B.

A-4) LANL Comment 2, Proposed Text Changes, p. 4. §4. **If the maximum concentration in soils, subsoil, and tuff is less than the SAL, then the clean closure performance standard will be met for that constituent....**

The SAL is not the clean-up level. As discussed during the meeting on November 9, 1994, the risk assessment will take into account the cumulative impact of all hazardous waste constituents. This statement should be changed accordingly.

A-5) Comment 2, Proposed Text Changes, p. 4, ¶4. **...If multiple constituents are detected and the total sum of the SAL comparison ratios (maximum concentration/SAL) is less than 1 (LANL 1993b), then clean closure will be met (see Section 3.1 for a detailed discussion of multiple constituent comparisons)....**

The document containing this Section 3.1 should be identified and noted in the References. LANL 1993b should also be identified in the References.

A-6) LANL Comment 2, Proposed Text Changes, p. 5, §1. **...If many TICs are present, or the TIC concentrations appear high, an effort will be taken to positively identify and reliably measure the concentrations (EPA 1990)....**

"many" and "high" are imprecise terms. This protocol should be more specific.

A-7) LANL Comment 5, Discussion, p. 8. **...J-flagged concentrations will not be eliminated from consideration in the baseline risk assessment based on comparisons with screening action levels. The text in Section 3 and Appendix K (see response to Comment 2) has been modified in accordance with the comment and discussions conducted with NMED on 11/5/94.**

This change has not been made in Section 3. Section 3 should be revised accordingly.

A-8) LANL Comment 6, Discussion, p. 9, ¶2. **...In addition, the phrase "three times"...will be deleted in order to be consistent with actual field practice.**

Actual field practice should be defined.

A-9) LANL Comment 11, Proposed Text Changes, p. 13. **In addition, if hazardous constituents are detected and confirmed before closure is certified, appropriate action will be taken to address the presence of these constituents.**

"appropriate action" is vague. Possible appropriate actions, e.g., vadose zone investigation/characterization /remediation should be specified.

A-10) LANL Comment 12, Discussion, p. 14, ¶1. **...(LANL, 1994a; EPA, 1989)....**
EPA 1989 and LANL 1994a should be identified in the References.

A-11) LANL Comment 18, Discussion, p. 19, ¶1. **LANL proposes to identify a subset of the Laboratory background data that applies to soils and tuff similar to that present in the vicinity of the TA-53 lagoons. These data will be used to establish background concentrations for comparison with measured metals or radioactive constituents in the soils and tuff underlying the lagoons. If existing applicable data are not sufficient to provide a meaningful statistical analysis of the background concentrations, additional samples will be collected at locations near the lagoons that are believed to be unaffected by releases from the TA-53 facilities.**

This needs to be more specific. Data sufficiency, statistical methodology, and, if necessary, a sampling and analysis plan to determine background need to be decided now and included in the closure plan. If existing data are to be used, they must be presented in the closure plan, along with a justification for their use, before the closure plan can be approved. See HRMB Comment No. A-3.

A-12) LANL Comment 21, Proposed Text Changes, p. 21, ¶3. **...the liner will be decontaminated by steam cleaning followed by rinsing with clean water. ~~The wash and rinse water will be disposed of to the impoundments.~~ The liner will be field screened....**

The rinse water also must be tested. Provision for proper disposal of the rinse water, if it is found to be hazardous, should be noted in the closure plan.

A-13) LANL Comment 22, Discussion, p. 22. **LANL agrees with the comment and will submit one Final Closure Report instead of a series of reports. Section 6.0 and Appendix K will be completely revised and all descriptions and references to the series of reports will be revised.**

The report referred to in this comment is an interim report, and should contain the information listed in NMED comments (Comment No. 22) dated October 27, 1994. It should be submitted after characterization sampling has been completed and before implementation of closure starts. NMED approval of risk management and consequent implementation activities, based on the sampling results and risk assessment, will be required. If a sampling and analysis plan for delineation of hot spots, removal of contaminated material, and confirmatory sampling is necessary, NMED must approve prior to implementation.

A-14) LANL Comment 22, Proposed Text Changes, p. 22, ¶1. ... **Application of the above process to demonstrate clean closure will be documented in ~~a series of reports~~ *the Final Closure Report* to be submitted to NMED, as described in Section ~~5.2.2~~ *6.0*.**

See HRMB Comment No. A-13 above.

A-15) Comment 30, Discussion, p. 32. **See response to Comments 2 and 18.**

There is nothing in the responses to Comments 2 and 18 that indicate that changes will be made as requested to p. K-3.

ENCLOSURE B

1) Responses to Technical review of the NOD comments for the TA 53 surface impoundments closure plan dated December 16, 1994:

LANL's COMMENT:	RESPONSE:
# 2	(page 3) A minimum of 10 samples per exposure unit is necessary to give a 95% UCL of the mean. Please provide plots of observations versus concentration to indicate distribution and show how the 95% UCL of the mean was calculated. If LANL is unable to demonstrate this, LANL must either take more samples per exposure unit or use the highest measured value for the concentration term in order to calculate the reasonable maximum exposure. If LANL use the highest measured value and cannot demonstrate a 95% UCL, they must state this. Reference :EPA publication 9285.7-081, May 1992 "Supplemental Guidance to RAGS: Calculating the Concentration Term." (page 4) LANL must assure that determination of background concentrations for naturally occurring metals is conducted by using samples from same strata and soil types found at the site. LANL may compare their site specific values to the facility-wide background study to assure that the results are within facility-wide range. Also, LANL must provide a site specific sampling and analysis plan to determine background concentrations for naturally occurring metals. This plan may incorporate relevant facility-wide background study results. (page 5) If LANL cannot adequately indicate 95% UCL of the mean then the highest concentrations should be used including those detected at greater than or equal to five times the limit of detection (see comment #2 (page 3) above). (pages 4 & 5) If LANL uses the Tolerance Interval for determining the background upper (tolerance) critical limit, and the Confidence Interval to average the verification sample results from a closure/remediation activity, the resulting comparison would involve comparing totally different single parameters (comparing a mean to a maximum with an unknown sample distribution). This is not how the statistical methods were intended to be used. LANL must propose a consistent and acceptable method for comparing background results with sample results.

(page 6) **"The additive effects of multiple constituents is similarly evaluated by adding the ratios of the SAL comparison values (maximum concentration/SAL) for each constituent with similar toxic end point (E.g., cancer, kidney effects, liver effects, etc.)"** Calculating risk assessment based on toxic endpoint organs is not acceptable. LANL must quantify exposure and calculate toxicity assessment as outlined in the Risk Assessment Guidance for Superfund (December 1989).

#4 (page 7) PCBs are identified as hazardous constituents in 40 CFR 261, Appendix VIII. PCBs are also hazardous constituents discussed in Subpart S guidance, in which a conservative health-based action level is provided as an example. Although TSCA has set "cleanup standards" for PCBs based upon land usage, HRMB is concerned about the "protectiveness of health and the environment" because the example Subpart S health-based action level is more conservative than the most conservative TSCA PCB standard. For screening purposes, HRMB recommends calculating the screening action level as described in Subpart S guidance using the most recent toxicological data for PCBs.

 # 11 (page 13) This response does not but should indicate that monitoring will continue until closure is certified.

 # 13 (page 17) Are 3 samples enough? See response to comment # 2 (page 3) above.

 # 18 (page 19) See comments for item number 2 (page 4) above. There should be a sampling and analysis plan to determine background levels for naturally occurring metals.

 # 30 (page 32) Are three samples per exposure unit enough to produce a curve to determine the 95% UCL? See response to comment number 2 (page 3) above.

 # 32 (page 33) Again, are three samples per exposure unit enough to produce a curve to determine the 95% UCL? See response to comment number 2 (page 3) above.

 # 34 The guidance default value for Exposure Frequency (EF) is 365 days not 274 for residential land use. LANL must perform a baseline risk assessment using the conservative residential risk scenario for comparison purposes. Additionally, future land use is a major consideration. Therefore, LANL should utilize a

residential land use scenario, a hazard index of 1 or less, 10^{-6} or less increase in cancer risk over background. Risk assessment calculations based on other assumptions may be presented in addition to the most conservative scenario.

Furthermore, because of this site's long history, the nature of historic activities, and the lack of complete knowledge of process, it is important to characterize all risk, including that associated with radioactive constituents, to human health and the environment. If there are radioactive constituents present, then by their very nature they are hazardous to a person's health. Because health risk is being evaluated here, it is important to look at the health risk posed by the combination of all contaminants of concern, including radioactive isotopes. Therefore, LANL should include radioactive isotope sampling and radioactive concentration terms in the risk assessment. NMED understands that the radioactive waste, if necessary, will be remediated under a different authority.

Please refer to the EPA Risk Assessment Guidance for Superfund Volume I Human Health Evaluation Manual (Part A) Interim Final, section 10.7.3 Combining Radionuclide and Chemical Cancer Risks, and other EPA Risk Assessment Guidance documents, for precautions to be taken when combining radiological and chemical risk assessments.

2) Response to Technical Area (TA 53, NE & NW Surface Impoundments (Former Operable Unit 1100), dated March 10, 1995 in which LANL responded to the Teleconference Comments of January 24, 1995 with NMED:

LANL's Comment #1 Proposed Text Changes, page 2, third complete paragraph. "Available information indicates that there is also no current risk associated with infiltration to groundwater...." Please remove this entire paragraph or provide enough hydrological data to support this assumption.

LANL's Comment #2, page 3, general comment. Notes from the telephone conference reflect that NMED suggested that LANL completely remove the abandoned piping. LANL's response describes removing only the contaminated portion of the piping. It is technically acceptable to leave the uncontaminated portion of piping in place if it has been adequately characterized and shown to pose no risk to human health and the environment. This is the strategy to be

utilized for the surface impoundments themselves. The sampling and analysis strategy described for the inactive piping appears acceptable. However, a map should be provided showing the proposed sampling locations.

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