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NOTES ON REVISED CLOSURE PLAN (AUGUST 1994)
TA-53-166 NW AND TA-53-166 NE SURFACE IMPOUNDMENTS
LOS ALAMOS NATIONAL LABORATORY

Sentences in bold type are direct quotes from the submittal. Comments follow the quotes. The comments follow the order in the submittal. Paragraphs on each page are numbered starting with the first full paragraph.

1. **p. 2-19, ¶1. ...The Tschicoma Formation and the Bandelier Tuff, west of the Pajarito Plateau on the flank of the mountains, contain small, localized bodies of perched water. The Bandelier Tuff contains no perched water beneath the Pajarito Plateau.**

   It is unknown whether there are perched aquifers under this site because the hydrogeology of the area has not been characterized adequately. Additionally, perched aquifers have been found within the Bandelier Tuff in the Guaye and Puye Formations, and the Chino Mesa Basalt within the Pajarito Plateau.

   The paragraph should either be deleted or should be changed to reflect the information in the comment.

2. **p. 3-11, ¶2. ...Under both proposed RCRA Subpart S corrective action regulations and the Laboratory Environmental Restoration (ER) Project, constituents at concentrations below action levels do not present a human health risk....**

   LANL must include constituents in the baseline risk assessment if there are constituents detected at concentrations within an order of magnitude below the screening action levels.

   The text should be modified to reflect this both here and in Appendix K.

3. **p. 3-18, Table 3-5, PCBS Detected in Sludge Samples. ...([b]) Shaded values are above proposed RCRA Subpart S action levels and 1993 SALs.**

None of the values shown are shaded yet all of these values are above proposed Subpart S action levels.

Either the values should be shaded or footnote [b] should be deleted.

4. **p. 3-19, ¶1. The total levels of PCB were above the proposed RCRA Subpart S action level based on carcinoginicity, but were below the EPA soil cleanup level of 10 mg/kg for unrestricted access area....**

LANL's response (01/14/94) to the first closure plan submittal (February 1993) indicates that Teri Davis signed off on this clean-up level for PCBs on March 20, 1992. Teri has no recollection of this and there is no such record in the files.

In any case, for a clean closure where soil/sludge may be left in place, the proposed Subpart S target action level of .09 mg/kg for soil should be used, unless a better action level can be developed from later toxicological data.

5. **p. 3-19, ¶1. ...For the remaining two pesticides, heptachlor epoxide and toxaphene, detection limits are above action levels so it is not possible to determine whether these constituents are below action levels.**

If LANL cannot achieve an estimated quantitation limit below the screening action level for any analyte, then J-flag concentrations, if detected, must be included in the baselime risk assessment.

This paragraph should be changed to reflect the comment.

6. **p. 3-53, ¶3. ...Methanol, acetone, or dilute acid rinses may be used if necessary to achieve effective decontamination....**

LANL should not use acetone in decontamination because it has been previously detected in the surface impoundments.

This sentence should be changed to read: Methanol or dilute acid rinses may be used....

7. **p. 3-54, carry-over ¶. ...Decontamination liquids and sludges may also be discharged to the impoundments....**

LANL may not discharge decontamination liquids back into the surface impoundment because they must be treated as investigative derived waste and possibly a mixed waste. Therefore, the decontamination liquids should be drummed and analyzed to determine if they are mixed waste or hazardous waste subject to land-ban restrictions.

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8. **p. 3-56, Table 3-8, Summary of Analyses by Matrix.**

This table been changed from the previous version to eliminate S&A for hazardous constituents in water and wastes. The wastes referred to are presumably decontamination wastes. These wastes must be analyzed for hazardous as well as radioactive constituents. See comment to No. 7 above.

The table should be corrected accordingly.

9. **p. 3-57, carry-over ¶. ...as long as the EQLs are at or below all action levels except the proposed RCRA Subpart S action level for beryllium in water....**

If there is no analytical method to detect a constituent at a level below the Subpart S action level, then the constituent should be included in the baseline risk assessment if detected at J-flag concentrations. See comment to No. 5 above.

10. **p. 3-57, carry-over ¶.**

A paragraph, as noted in LANL/s Response to NMED Comments on the first closure plan submittal, p. 4 of 39, is supposed to be inserted here. This added paragraph reads:

> If the results of the total analyses exceed the TCLP regulatory levels and TCLP screening levels as described in Subsection 3.2, additional samples will be collected and analyzed using the TCLP procedures contained in 260.20 and 260.21.

11. **p. 4-5, ¶3. ...If organic constituents were detected before closure, quarterly sampling would resume until no significant increase was detected....**

Is a vadose zone investigation planned if a constituent is detected and confirmed in the pore-gas monitoring system?

This paragraph should have additional material to indicate that monitoring will continue until closure is certified. It should also state that if the presence of hazardous constituents are indicated during this time, appropriate action (investigation/characterization/rediation) will be undertaken.

12. **p. 5-3, Figure 5-1, Process for Determining If Closure Performance Standard Is Met, and associated text (p. 5-4).**

- **Is constituent detected in more than 5% of samples?**

  All constituents that are detected at concentrations above or within an order of magnitude below the calculated action level should be included in the baseline risk assessment. Removing constituents from the risk assessment based on frequency of detection does not consider the possibility that the constituent may be present at other locations which were not on the sampling grid.

- **Does constituent have proposed RCRA Subpart S action level?**

  RCRA Subpart S action levels are only provided as examples. Each action level must be calculated based on current toxicological data.

- **Does constituent have EPA-approved health criteria?**

  If not, then the constituent must be included in the baseline risk assessment using a similar constituent which has toxicological data.

- **Does constituent contribute less than 1% to total risk?**

  Because the site is proposed for clean closure, all risk must be considered.

This table should be amended to reflect these comments.

13. **p. 5-4, ¶2. ...Only those data meeting QA/QC criteria can be used for decision making....**

If data do not meet QA/QC criteria, then the location must be resampled.

This sentence should be deleted.

14. **p. 5-4, ¶2. ...The next step is to eliminate constituents having a low frequency of detection....**

See comment to No. 12 above.

This sentence should be deleted.

15. **p. 5-4, ¶2. ...The levels to be considered...are, in order of precedence:**

Proposed RCRA Subpart S action levels or clean up levels required by other appropriate regulations, such as TSCA clean up levels for PCBs (10 mg/kg);

Laboratory ER Project screening action levels (SALs); and

Action levels developed using the methodology presented in Appendix E to proposed Subpart S.

If more current toxicological data exist for constituents which have proposed Subpart S action levels, these more current data should be used to develop better action levels. This also applies to ER Project SALs.

Regarding the TSCA clean-up level of 10 mg/kg, see the comment to No. 4 above. For a clean closure, the proposed Subpart S action level of .09 mg/kg for soil should be used.

If no toxicological data exist for a constituent, data for a similar constituent should be used.

This list should be changed to reflect the comments.

16. **p. 5-4, ¶3. If the maximum concentration is less than the action level, the clean closure performance standard will be met for that constituent.**

See proposed Subpart S, 55 FR 30814:

> ...Action levels should be distinguished from cleanup standards, which are determined later in the corrective action process....

This statement should be deleted.

17. **p. 5-4, ¶4. ...If there are no EPA-approved RfDs or CPFs, the constituent will be eliminated from consideration.**

All such constituents must be addressed. Practical alternatives for the case where a constituent does not have a proposed Subpart S action level include: use of the latest toxicological data, calculation of an action level for a similar constituent which has toxicological data, or removal of the constituent to background level.

This statement should be changed to reflect the information in the comment.

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18. **p. 5-5, ¶1. Constituents thst are present above action levels will next be compared to background. Constituents in soil, subsoil, and tuff that are within the range of background concentrations for the Laboratory will be eliminated from consideration. Constituents in sludge that are present within the Laboratory background range for soils and tuff will be included in a comparison risk analysis.**

Background levels must be site-specific. There is no mention of a sampling and analysis plan to determine background levels at this site.

The first two sentences should be taken out; alternatively, a sampling and analysis plan for the determination of background, with justification for the sites selected, should be included in the closure plan.

19. **p. 5-5, ¶2. Those constituents contributing less than 1% of the total risk will be eliminated from consideration.**

See comments to No. 12 above.

This sentence should be deleted.

20. **p. 5-5, ¶2. ...the clean closure performance standard will be met. If not, a plan will be prepared for removal or decontamination that will reduce the risk to these target levels.**

NMED approval of this plan is necessary before implementation and this should be stated here and in Section 6.0, **Closure Reports**. This plan must include an adequate confirmatory sampling and analysis plan.

This paragraph should be amended as outlined in the comment.

21. **p. 5-23, ¶1. Decontamination waste (i.e., liquids and sludges) will be collected in open tubs or buckets and disposed of to the impoundments at the end of each day. If the decontamination liquids and sludges must be sampled before disposal, these wastes will be stored in polyethylene-lined drums....**

These wastes can only be returned to the pond after sampling and analysis have shown them to be below method detection limits for hazardous constituents. Mixed waste may not be returned to the pond. In any case, it will not be possible to return decontamination liquids to the pond on a daily basis.

The sentences above should be changed to reflect these facts and to outline how decontamination wastes will be disposed.

22. **Section 6.0, Closure Reports.**

One report may be feasible, if it includs:

the results of the characterization sampling and analysis;

the results of the risk assessment, if necessary;

proposed closure implementation, based on the sampling results and/or risk assessment;

proposed sampling and analysis plan for delineation of "hot spots", if necessary; and

proposed sampling and analysis plan for confirmation that all hazardous waste above clean-up levels has been removed, if necessary.

23. **p. 6-1, ¶2. ...This [summary sampling and analysis] report will...recommend the approach for completing closure....**

NMED must approve the approach offered before LANL proceeds to implementation of closure activities.

A sentence should be added stating that closure activities will be implemented after NMED has approved this report.

24. **Appendix I, Tables I-2 through I-6.**

Some of the action levels in these tables are below estimated quantitation limits and many of them have no estimated quantitation limits. If LANL cannot achieve an estimated quantitation limit below action levels, J-flag concentrations, if detected, for these compounds should be included in the baseline risk assessment.

25. **Appendix I, Table I-6, Analytes and Methods for Metals Analysis.**

LANL should include cyanide on this table and analyze using EPA Method 9010.

26. **p. K-1, ¶2. Chemicals detected infrequently may be artifacts...[D]ata...will be eliminated from the quantitative**

risk assessment if the constituent is detected infrequently....

See comments to No. 12 above.

This paragraph should be rewritten or deleted.

27. **p. K-1, ¶3. ...Those detected at concentrations less than the action levels will be eliminated from the quantitative risk assessment....**

No. If none or only one constituent is above the appropriate action level, then no risk assessment is necessary. If more than one constituent is detected, even if both, some, or all are below SALs, a risk assessment should be done because of the possible cumulative effect of the constituents.

28. **p. K-1, ¶3. ...For those constituents with toxicity criteria approved by the U.S. Environmental Protection Agency (EPA) but with no proposed Subpart S action levels or SAL values, action levels will be calculated using equations in Appendix E to proposed Subpart S (EPA, 1990).**

The proposed action levels in Subpart S are only given as examples, not standards. All action levels should be calculated based on Subpart S Appendix E guidance using current toxicological data. See comment to No. 12 above.

The sentence should be changed so that it is evident that LANL will, in all cases, use the latest toxicological data available.

29. **p. K-2, Figure K-1, Summary of Data Evaluation Process.**

This is the same table as **Table 5-1**. See comments for No. 12 above.

Changes made to Table 5-1 should also be made in this table.

30. **p. K-3, ¶1. Remaining constituents detected below background concentrations in soil, subsoil, and tuff are not considered to be related to TA-53 surface impoundment activities....**

Constituents detected below background concentrations must be considered because the case for background concentrations has not been made.

If LANL wants to exclude these constituents, it must include a site specific plan to determine background concentrations for naturally-occurring metals. Otherwise, this sentence should be deleted.

31. **p. K-3, ¶3. Those constituents within each exposure unit that contribute less than 1% of the total cancer risk and overall chronic health hazard for that exposure unit will be eliminated from the quantitative risk assessment (LANL, 1994a; EPA, 1989).**

Because the site is being considered for clean closure, all risk must be considered. See comments for No. 12 above.

This sentence should be deleted.

32. **p. K-5, ¶2. The exposure unit will be 500 square meters...and will be situated to cover the area of greatest concern, i.e., exposure unit(s) with the highest C-T screen for cancer and noncancer health effects.**

How are the exposure units determined?

The development of the exposure unit should be explained.

33. **p. K-6, Figure K-2, Locations of Exposure Units in Surface Impoundments.**

What are the various squares and what is the difference, if anything, between the squares with solid, dashed, and solid lines? This is not explained in the legend.

This should be explained, either by redoing the map legend or by discussion in the text.

34. **p. K-8, Table K-1, Default Input Parameters.**

Because the site is being considered for clean closure, the most conservative risk assessment assumptions should be utilized. The exposure duration for an adult should be 70 years for all exposure routes.

This table should be amended to reflect this more conservative exposure duration.