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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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AUG 9 1995

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Mr. Theodore J. Taylor
Program Manager
Department of Energy
Los Alamos Area Office
Los Alamos, NM 87544

Re: Class 3 Permit Modification, Six Expedited Cleanups
Los Alamos National Laboratory, NM0890010515

Dear Mr. Taylor:

The Environmental Protection Agency has reviewed the work plans for six Expedited Cleanups submitted on June 2, 1995 and has the enclosed list of deficiencies which need to be addressed by Los Alamos National Laboratory prior to work being initiated at these sites.

Should you have any questions, please contact Ms. Barbara Driscoll at (214) 665-7441.

Sincerely,

David Neleigh
Mr. David Neleigh, Chief
NM/FF Section

Enclosure

cc: Mr. Benito Garcia
New Mexico Environment Department
Mr. Jorg Jansen
Los Alamos National Laboratory, MS M992



Tk

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**List of Deficiencies
Los Alamos National Laboratory
Class 3 Permit Modification
Six Expedited Cleanups June 1995**

General Comments

- 1) Future land use is discussed in terms of the "foreseeable future". If an industrial future land use scenario is used for any site, that area will be required to have an "industrial use only" put in a deed restriction. A residential scenario should be evaluated for future land use if a deed restriction is not appropriate under New Mexico law.
- 2) For several of these sites it may be appropriate to calculate risk due to background at a site. Following are example scenarios for how and when this may be appropriate, and how this information can be used in the risk management decision for setting cleanup levels:
 - a) If sample concentrations (SC) are greater than risk-based concentrations (RBC), and RBC are greater than background (BG), then cleanup to RBC.
 - b) If SC are greater than RBC and RBC are less than BG, then calculate risk due to BG. In this case LANL would cleanup to BG, however, a risk management decision will need to be made as to what constitutes BG concentrations, and further deed restrictions may have to be placed on future land use if BG concentrations pose significant risk. Risk management decisions on cleanup levels of other contaminants at the site will take into account additive risk which may be present due to BG concentrations.
 - c) If SC are less than RBC no cleanup is required. This assumes RBC are calculated based on a hazard index of 0.1 and a cancer risk of 1E-06 to account for additive risk.
- 3) For any sites for which the proposed soil lead cleanup level was derived from the California Department of Toxic Substances Control computer spreadsheet, this approach should not be used. Although this method does calculate levels protective of adult humans, it does not take into account fetal effects. Until these effects can be evaluated, EPA recommends an industrial soil cleanup level of 1000 ppm for all these sites.
- 4) In some of the workplans, Annex 6.0 part 6.2 Quality Assurance Plan, refers to the February 1995 revision which has not been approved by EPA, and does not have the details necessary for a QAPP.
- 5) LANL should provide the oral chronic reference dose, inhalation chronic reference dose, volatilization factor for volatiles, oral cancer slope factor, inhalation cancer slope factor used for each

risk assessment calculation.

6) Cleanup levels should be calculated based on a risk of $10E-06$. They may also be calculated for a risk of $10E-05$ and $10E-04$, however, cleanup levels are a risk management decision to be made by the state and EPA, not dictated by the facility.

Specific Comments Related to Individual SWMUs:

SWMU 9-013, MDA M -

1) The cleanup levels for this SWMU should take ecological risk into consideration. The site description indicates surface water runoff is carried into springs located near the site. Many of the listed chemicals of concern are toxic to ecological receptors at a much lower level than to human receptors (e.g. metal toxicity to aquatic organisms). Also, for ecological receptors, there is no designation of residential versus industrial or recreational exposure. An ecological risk assessment should be conducted for this area, and should involve determining the risk to representative indicator species for each trophic level present at the site.

2) Risk due to background must be calculated at this SWMU. This information is essential in the risk management decision on establishing cleanup levels for contaminants of concern (COC). Acceptable risk from a COC may vary based on background risk which is often additive.

3) The industrial soil cleanup level for arsenic is 3.3 mg/kg, well below the proposed cleanup level of 25 mg/kg. EPA will determine the final cleanup levels for this site. It may be appropriate for LANL to consider removing soil to the tuff interface in order to address cleanup level concerns and ecological risk concerns.

4) The industrial soil cleanup level for PCB's is 0.74 mg/kg. If the proposed cleanup level is based on a specific PCB congener it should be shown that this congener is the only one present over 0.74 mg/kg and the cleanup level calculation should be presented.

5) The industrial soil cleanup level for PAH's based on benzo[a]pyrene is 0.78 mg/kg.

6) 2.1.2 Physical Setting, p. 4 - Due to the presence of multiple springs downgradient from MDA M, it is highly likely that there is a perched aquifer beneath the site. The New Mexico Environment Department recently observed (April 1995) four additional springs discharging near Charlie's and Homestead Spring south of MDA M. Sampling of these springs indicates that the unsaturated vadose zone is undergoing saturation, and possible flushing. Ground water characterization and periodic monitoring of all known ground water at MDA M is recommended. Vadose and/or ground water contamination

via fracture flow may be occurring; therefore, biased sampling of the fractures along the soil/tuff interface below MDA M is recommended, and may occur in conjunction with soil removal from the site.

7) **Figure 2.2** - It would have been much better if LANL would have split this figure so that actual sampling points were clearer, and easily definable. LANL should also provide a figure(s) with the grid locations marked showing cells locations.

8) **Section 2.2.2, p. 8** - LANL needs to collect additional samples to determine the extent of contamination from runoff at the site.

9) **2.2.3 Evaluation of the RFI Results, p. 10** - Based on results of the Spring and creek samples, LANL should resample both these areas and analyze for high explosives using SW 846 Method 8330. What method was used in the original sampling event?

LANL should also provide a map indicating the location of the spring which was used for background information purposes.

10) **2.4.1.1** - Contaminant transport via ground water needs to be added to the list because of the lack of sufficient ground water data, and the probable presence of a shallow aquifer beneath the site.

11) **3.3.1 Phase I** - LANL needs to provide additional details about excavation, how much soil will be removed with each lift (1 foot?, 0.5 feet?), will the entire cell be lifted or only a portion. There has been no sampling to depth at this site.

12) **3.3.2 Phase II** - LANL makes the following statement: If the EC Phase I data differ from the data contained in Annex 6.9, new cleanup levels will be established and the remediation plans reevaluated. LANL should state the procedure or method by which new cleanup levels will be developed and indicate EPA approval will be required.

13) **3.5 Verification Plan, p. 16** - a. Due to the random distribution of contaminants as a result of materials being dumped in piles, it does not seem reasonable for LANL to pick one primary constituent, lead, to determine if cleanup has occurred for an area of the SWMU. Rather several constituents may need to be evaluated, especially based on the ecological risk assessment for the site.

b. In addition, it is not appropriate for LANL to use an XRF to screen the required 7 random samples used for confirmation of cleanup, in order to determine which two samples will be sent to a field laboratory for more thorough analysis. All seven samples should be sent to the field laboratory for analysis with 10% be sent for off-site laboratory analysis.

c. The field lab should be using the same SW 846 methods as the fixed analytical laboratory.

d. LANL should provide a figure with the exposure units (500 m²) indicated.

e. Phase II - What is the grid size from which the composite sample will be collected for verification of cleanup?

SWMU 22-015(c) - plating outfall

14) Risk due to background must be calculated at this SWMU. This information is essential in the risk management decision on establishing cleanup levels for Chemicals of Potential Concern (COPC). Acceptable risk from a COC may vary based on background risk which is often additive.

15) The cleanup levels for this SWMU should take ecological risk into consideration. This site description indicates surface water runoff is carried into an ephemeral stream in Pajarito Canyon. A number of the listed chemicals of concern are toxic to ecological receptors at a much lower level than to human receptors. For example, the draft Region 5 Ecological Data Quality Levels, EDQLs, for copper in soils and sediments are 0.014 and 16.0 mg/Kg, respectively. In addition, aquatic ambient water quality criteria values for arsenic, lead, chromium, copper, nickel and silver are orders of magnitude lower than the recommended cleanup levels. An ecological risk assessment should be conducted for this area, and would involve determining the risk to representative indicator species for each trophic level present at the site. This ecological risk assessment should address all constituents found above background concentrations since COPC were selected based on human health SALs.

16) Results of soil samples found at the U4 and S3 areas indicate concentrations of metals exist at levels which may pose ecological hazards (e.g. copper in the most distant sample location of area S3 at 2,350 mg/Kg). This is evidence that the extent of contamination has not been determined for ecological receptors. Extent of contamination appears to continue into the ephemeral stream in Pajarito Canyon. If the stream has been sampled, the results need to be submitted as part of this cleanup plan. If stream sediment samples have not been taken, this data needs to be collected.

17) Discussions of chromium values under the section entitled "Cleanup Levels" (page 11) suggests that samples for chromium were analyzed as total chromium. Unless samples were speciated to chromium III and chromium VI, analyses for total chromium should be considered as chromium VI. Therefore, chromium levels exceed the proposed SAL and should be included as a COC.

18) As discussed in the workplan for this area, if contamination is found in the outfall then the piping leading to the outfall shall be checked for leakage.

19) Background Data - LANL should indicate on a figure the location of the three site-specific background samples taken, and

the location of any SWMUs near the background samples.

20) **2.2.2.2 Results of the Investigation - Under S1 Sample Data**, LANL indicates that composite samples tend to be half the maximum concentrations in the grab samples for most metals, except lead and mercury. EPA's evaluation of the arsenic data which was determined to be a primary driver for cleanup levels does not substantiate this conclusion. A comparison between grab samples and composite samples for similar locations indicates composites are approximately a third of grab sample results.

In addition, LANL's NOD Response indicated that composite sampling would not be used for determining extent of contamination. The extent of the eastern trench should probably be extended considering at least a 1:3 ratio for the arsenic results. The extent of contamination has not been determined and LANL should determine the lateral and vertical extent of contamination at the site.

21) LANL shall provide an explanation for the various depth intervals indicated in some of the composite samples. Sample depths ranged from 7" to 36" being composited into one sample. Results of these composites is questionable.

22) LANL shall provide an explanation for samples which were composited from both sides of the channels.

23) **2.2.3 Summary and Evaluation of Results -**

a. p. 9 third/fourth bullet - Due to the length of operation of this plating shop (1953-1977), LANL cannot say that the two VOCs nor the bis(2-ethylhexyl)phthalate found were not used in the plating shop. LANL's archive records have not demonstrated to be completely accurate and the presence of this chemical cannot be dismissed. Did laboratory blanks also contain these contaminants?

b. How many samples were combined to form the composite samples taken for TCLP analysis?

24) **Section 2.4.3.1 -** Have the five biased samples been collected from the sediment traps in the main drainages? This sampling should have already been implemented.

25) **3.3 Cleanup Activities -** Will soil be excavated to the tuff in the S1 and pond areas? Text is unclear on the depth of soil which will be removed.

26) **Annex 6.10**

a. **Metal Detects, Single Grab -** Sample depth and location for sample ID AAA8618 is not provided.

b. **Figure 2-2 -** The location of sampling points 2026 and 2013 appear to be missing from this figure.

SWMU 39-002(a) - Waste storage area

27) A qualitative ecological risk assessment should be conducted for this SWMU to assure there are no ecological receptors present which could drive the risk-based cleanup levels.

28) Risk due to background must be calculated at this SWMU. This information is essential in the risk management decision on establishing cleanup levels for COC. Acceptable risk from a COC may vary based on background risk which is often additive.

29) The industrial soil cleanup level for PCB's is 0.74 mg/kg. If the proposed cleanup level is based on a specific PCB congener it should be shown that this congener is the only one present over 0.74 mg/kg and the cleanup level calculation should be presented.

30) The industrial soil cleanup level for PAH's based on benzo[a]pyrene is 0.78 mg/kg.

31) 3.5 Verification Plan - What confirmation analysis will be conducted?

SWMU 36-003(a) - Septic tank

32) A qualitative ecological risk assessment should be conducted for this SWMU to assure there are no ecological receptors present which could drive the risk-based cleanup levels.

33) What is the approximate depth to the alluvial aquifer beneath this site?

34) 2.2.2. RCRA Facility Investigation - Where is the seepage pit located? It is not indicated on the figure 50.

35) Sample analysis cost appear high at \$2500 per sample. Analysis should be for only metals and VOCs.

SWMU 18-003(e) - Septic Tank

36) 4.1 Staffing and Resource Requirements - Personnel and analytical costs are high for this type of operation.

37) 4.2 Schedule - The final EC Report should be submitted within sixty days of completion of field work and the Acceptance Inspection rather than by December 1995 as indicated.

SWMU 3-056(c) - PCB Spill area

38) A qualitative ecological risk assessment should be conducted for this SWMU to assure there are no ecological receptors present which could drive the risk-based cleanup levels.

39) Vertical extent of contamination does not appear to have been determined in that no samples were collected below 18 inches at the

most contaminated spot. Given the level of tuff in the area and the depth to ground water, it should be sufficient to remediate the area and check it with confirmatory sampling, however, it may be prudent to remediate to the level of the tuff so that all remedial efforts are conducted in a one time event.

40) Risk due to background must be calculated at this SWMU. This information is essential in the risk management decision on establishing cleanup levels for COC. Acceptable risk from a COC may vary based on background risk which is often additive.

41) The industrial soil cleanup level for PCB's is 0.74 mg/kg. If the proposed cleanup level is based on a specific PCB congener it should be shown that this congener is the only one present over 0.74 mg/kg and the cleanup level calculation should be presented. Regional TSCA policy requires a cleanup level of less than 1 mg/kg for any PCB spill which may affect a drainage area or be affected by surface runoff. LANL should also probably notify the Region 6 TSCA group of this and other proposed PCB cleanups.

42) 2.2.3 Summary and Evaluation of Results - It is misleading to indicate that PCBs were detected at eight of the 18 sample locations when analysis was conducted for PCBs at only 13 of the 18 sample locations. LANL shall provide information related to the types of kits used for selection of sample collection including the detection limits and limitations.

43) 2.3 Types and Volumes of Waste Present - The length of time that this site operated (1967-1992) indicate that this soil from this site should not be considered only TSCA-regulated waste. LANL does not present valid arguments for this to be considered as TSCA waste especially in section 2.4.3 Cleanup Levels. Comments EPA has submitted to LANL dated May 8, 1995, on the position paper entitled Guidance for Evaluation and Cleanup of PCBs in Soil (LANL, 1994) indicated that PCB regulations under TSCA do not supersede other program requirements such as RCRA.