

*Stephens*



**Department of Energy**  
Field Office, Albuquerque  
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Los Alamos, New Mexico 87544

JAN 09 1995



Ms. Barbara Hoditschek, Program Manager  
RCRA Permits Program  
Hazardous and Radioactive Materials Bureau  
New Mexico Environment Department  
525 Camino de los Marquez  
Santa Fe, NM 87502

Dear Ms. Hoditschek:

Subject: Revised Closure Plan, NE & NW Surface Impoundments,  
TA-53, OU 1100

Enclosed are the attachments you requested to accompany the NOD Responses for the subject closure plan, mailed to you on December 16, 1994. The revised items include Tables 3-5, and 3-10. Also included is the referenced white paper, "Polycyclic Hydrocarbon (PCB) Guidance Draft" (November 1, 1994). We are currently developing the sampling plans for the Liquid Waste Transfer Lines as stated in our response. Please combine them with our original response.

Sincerely,

*Theodore J. Taylor*  
Theodore J. Taylor  
Program Manager

Environmental Restoration Program

LAAMEP:5ET-002

Enclosure

CC:  
See Page 2



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*TK*

JAN 09 1995

Ms. Barbara Hoditschek 2

cc w/enclosure:

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**Comment 3, Page 3-18, Table 3-5, PCBs Detected in Sludge Samples.**  
...<sup>(b)</sup> **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 <sup>(b)</sup> should be deleted.

#### Discussion

LANL agrees with the comment. The subject table has been revised, and is attached to this response.

#### Proposed Text Changes

Table 3-5 revised as noted above. See proposed text changes presented under Comment 4.

*Not a shaded*

**Comment 4, Page 3-19, paragraph 1. The total levels of PCB were above the proposed RCRA Subpart S action level based on carcinogenicity, 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.

#### Discussion

Following a presentation of the white paper "Polycyclic Hydrocarbon (PCB) Guidance Draft" (Nov. 1, 1994, see attached) and discussions conducted with the NMED on 11/9/94 it was agreed that NMED will consider using 1 ppm (1 mg/kg) as the action level (indicating the need for a risk assessment) for PCB in soil. The text in Section 3 has been modified in accordance with the comment and discussions conducted with NMED on 11/9/94.

#### Proposed Text Changes

Page 3-19, Section 3.1, paragraph 1 will be changed as follows:

~~The total levels of PCB were above the proposed RCRA Subpart S action level and 1993 SAL for soil, but were below the EPA soil cleanup level of 10 mg/kg for unrestricted access areas [40CFR 761.125(e)(4)(v)].~~ **The total levels of PCBs (0.66 mg/kg in sample 53-NE-Y-S and 0.54 mg/kg in sample 53-NE-Z-S) were below**

*W.B.  
V.L. E. 2-1-94  
1500 10 ppm*

the proposed 1994 SAL for soil (1 mg/kg). The total PCB (1.14 mg/kg) in sample 53-N3-C1-S was above the SAL.

RATSCA  
policy for  
PCB spills

*Comment 5, Page 3-19, paragraph 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 baseline risk assessment.

This paragraph should be changed to reflect the comment.

### Discussion

LANL agrees with NMED. J-flag concentrations, if detected, will be compared with SALs. J-flagged constituents 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 11/9/94.

### Proposed Text Changes

Page 3-19, Section 3.1, paragraph 1 will be changed as follows:

For the remaining two pesticides, heptachlor epoxide and toxaphene, detection limits are above action levels so, **if undetected**, it is not possible to determine whether these constituents are below action levels. **However, J-flagged concentrations, if detected, will be compared with SALs.**

Pages K-1 and K-2, Section K.1, paragraph 3 will be changed as indicated in the response to Comment 13.

See response to comment 2.

*Comment 6, Page 3-53, Section 3.3.10, paragraph 1. ... 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....

## Discussion

LANL agrees with the comment and will delete the word "acetone" on p. 3-53 and p. 3-54. In addition, the phrase "three times" on p. 3-53 will be deleted in order to be consistent with actual field practice.

## Proposed Text Changes

Page 3-53, Section 3.3.10, paragraph 1, lines 4 and 6, revise as follows:

"Methanol, ~~acetone~~, or dilute acid rinses may be used if necessary to achieve effective decontamination. Following the detergent wash, sampling equipment will be rinsed ~~three times~~ with deionized water"

Page 3-54, carryover paragraph, line 3, the word "acetone" was deleted when this paragraph was revised in response to Comment #7, p. 3-54.

***Comment 7, Page 3-54, carryover paragraph. ... 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.*

## Discussion

LANL accepts the comment and will store and collect samples of decontamination sludges and liquids. The text will be changed on the following pages to reflect this: p 3-42, p 3-44, p 3-54, p 3-55, p 3-58.

In addition, the text will be revised on the following pages to distinguish between decontamination sludges and impoundment sludges, and between decontamination liquids and impoundment liquids: p. 3-30, 3-55.

## Proposed Text Changes

Page 3-30, title of Section 3.3.4, revise as follows:

**"Impoundment Water Sampling Procedures"**

Page 3-30, Section 3.3.4, paragraph 1, line 1, revise as follows

"Grab water samples will be collected **of the impoundment water** using a ..."

Page 3-30, title of Section 3.3.5, revise as follows:

"**Impoundment** Sludge Sampling Procedures"

Page 3-30, Section 3.3.5, paragraph 1, line 1, revise as follows:

"**Impoundment** sludge sampling will be conducted in two phases..."

Page 3-42, Section 3.3.7, paragraph 1, lines 5 through 8, revise as follows:

"Decontamination **liquids and sludges** wastes will not be sampled ~~as described below unless knowledge of process is not adequate to characterize these wastes for disposal. If it is necessary to sample decontamination wastes, sampling methods will result in representative samples as described in HWMR 7, Section 261.20(e).~~"

Page 3-42, Section 3.3.7, paragraph 2, insert the following new subsection title before the second paragraph:

"**3.3.7.1 Procedure for Collection of Decontamination Liquids**"

Page 3-42, Section 3.3.7, paragraph 2, lines 1 and 2, revise as follows:

"~~If it is necessary to sample the decontamination liquids, these wastes~~ **Decontamination liquids** will be sampled using disposable composite liquid samplers (Coliwasa) or similar equipment. ~~Liquid~~ **These** samples will be collected using the following procedure:"

Page 3-44, paragraph 2, insert the following new subsection title before paragraph 2:

"**3.3.7.2 Procedure for Collection of Decontamination Sludges**"

Page 3-44, paragraph 2, lines 1 and 2, revise as follows:

"~~If it is necessary to sample~~ Solid and semisolid decontamination wastes (e.g., sludges from decontamination areas), ~~these wastes~~ will be sampled using a thief sampler..."

Page 3-54, carryover paragraph, lines 2 through 7, revise as follows:

"Decontamination liquids and sludges ~~may also be discharged to the impoundments.~~ **must be placed in appropriate containers for temporary storage until waste characterization samples are analyzed.** ~~If methanol, acetone, or dilute acids were used for decontamination, knowledge of process will be used to demonstrate that decontamination wastes do not exhibit the characteristic of ignitability or corrosivity before discharging these wastes to the impoundments.~~ Other wastes must be **placed** bagged in polyethylene-lined drums. ~~and contained on site...~~"

Page 3-55, Section 3.4.1, paragraph 1, lines 1 through 5, revise as follows:

"**Impoundment** sludge, bentonite liner, soil, and tuff samples will be analyzed for total metals, volatile organics, semivolatile organics, organochlorine pesticides and PCBs, chlorinated herbicides, and radionuclides. **Impoundment** sludge samples will also be analyzed for reactive cyanide and sulfide. **Samples of the impoundment** water samples will be analyzed for radionuclides only.

**Decontamination liquid and sludge samples will be analyzed for total metals, volatile organics, semivolatile organics, organochlorine pesticides and PCBs, chlorinated herbicides, and radionuclides.**

If the impoundment sludge, bentonite liner, soil or tuff must be removed from the impoundments to achieve clean closure, then additional samples of the removed waste material will be analyzed for TC constituents using the TCLP and for radiological constituents, as necessary for disposal. ~~Waste samples will be analyzed for TCLP and radiological constituents, as necessary for disposal.~~ Analytical methods to be used..."

Page 3-58, paragraph 2, line 1, revise as follows:

"As necessary for disposal characterization, samples of **impoundment sludge, bentonite liner, soil, tuff, or decontamination sludge** will be analyzed using the TCLP..."

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

*This table has 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.*

## Discussion

LANL agrees with the comment and the table has been revised to include analytical requirements for decontamination liquids and decontamination sludges. In addition, the text will be revised to distinguish between decontamination sludges and impoundment sludges, and between decontamination liquids and impoundment liquids.

### Proposed Text Changes

Page 3-56, Table 3-8, revise column headers as follows (see attached):

**"Impoundment Water"**

**"Impoundment Sludge"**

**"Bentonite Liner/Soil/Tuff"**

**"Removed Wastes (Impoundment Sludge, Bentonite Liner, Soil, Tuff)"**

Page 3-56, Table 3-8, add the following two new columns and indicate the appropriate analyses in the table as described in revisions to Section 3.4.1 (See Comment 7).

**"Decontamination Liquids"**

**"Decontamination Sludges"**

***Comment 9, Page 3-57, carry-over paragraph. ...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.*

## Discussion

LANL agrees with NMED. J-flag concentrations, if detected, will be compared with SALs. J-flagged constituents 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 11/9/94.

### Proposed Text Changes

Page 3-57, Section 3.4.1, carry-over paragraph will be changed as follows:

This action level is below the EQLs of current analytical methods. **However, J-flagged concentrations, if detected, will be compared with SALs.**

Pages K-1 and K-2, Section K.1, paragraph 3 will be changed as presented in the response to Comment 13.

**Comment 10, Page 3-57, carry-over paragraph.**

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.*

Discussion

Agree. Paragraph will be added as requested.

ok

**Comment 11, Page 4-5, paragraph 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/remediation) will be undertaken.

Discussion

LANL agrees with the comment and will insert additional information as requested.

Proposed Text Changes

Page 4-5, Section 4.2.2, paragraph 2, insert the following after the last sentence in paragraph 2:

**"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."**

ok

Comment 12, Page 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? etc.**

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? etc.**

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% of total risk?**

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

This table should be amended to reflect these comments.

### Discussion

The text and Figure 5-1 in Section 5 concerning frequency of detection is based upon a discussion presented in Appendix K, page K-1, Section K.1, para 2: "Therefore, data that meet QA/QC requirements will be eliminated from the quantitative risk assessment if the constituent is detected infrequently within the exposure unit (i.e., in less than 5% of the samples [EPA, 1989; LANL, 1994a]). Infrequently detected constituents considered for further evaluation include those constituents detected at high concentrations (i.e., at least one detection at a concentration greater than or equal to five times the limit of detection (LOD) (LANL, 1994a; EPA, 1989) or Group A carcinogens with at least one detection, regardless of concentration (EPA, 1989)."

Based on discussions conducted between LANL and NMED on 11/9/94, LANL agrees to change the text in the body of the document and in Figures 5-1 and K-1 to reflect the discussion in Appendix K.

Following discussion with the NMED on 11/9/94, it was agreed that the SALs would be used as comparison criteria in place of the

Subpart S values derived in 1989. Screening action levels (SALs) presented in the Installation Workplan (IWP) are based on the methodology presented in RCRA Subpart S using the most current toxicological data available prior to publication. In addition, a modification of the Subpart S methodology was introduced to account for exposure to organic compounds volatilizing from the media of concern. The SALs calculated for volatile organics using this modified methodology are more conservative than those calculated using the unmodified Subpart S method. Figures 5-1 and K-1 and the text in Section 5 have been modified in accordance with discussions conducted with NMED on 11/9/94.

LANL agrees with the NMED's comment concerning constituents that do not have EPA-approved health criteria. Figures 5-1 and K-1 and the text in Section 5 and Appendix K have been modified in accordance with the comment and discussions conducted with NMED on 11/9/94.

Based on discussions between LANL and NMED on 11/9/94, it was agreed that this EPA methodology for focusing the risk on those constituents contributing greater than 99% of the C-T screening risk could remain. However Figure 5-1 and the text in Section 5 have been modified for clarity.

#### Proposed Text Changes

Pages 5-2 through 5-5, Section 5.1.1.2, Figure 5-1 and page K-1, Section K.1, Figure K-1 have been substantially revised to reflect this comment (comment 12) as well as comments 2, 13, 14, 15, 16, 17, 18, 19, 26, 28, 30 and 31. Section 5.1.1.2 has been replaced. Figure 5-1 and the identical Figure K-1 have been replaced. See response to comment 2, page 4 of this response, paragraphs 4 and 5.

Page K-3, Section K.1, paragraph 2 will be changed as follows:

The most conservative toxicity criteria (i.e., inhalation or oral) for each constituent will be used (EPA, 1989). Toxicity criteria used will be EPA-approved (i.e., IRIS, HEAST, ECAO). **The most current sources of EPA-approved toxicity criteria will be consulted. The Integrated Risk Information System (IRIS) is updated monthly and supersedes all other sources of appropriate toxicity criteria (EPA, 1989). Information in the Health Effects Assessment Summary Tables (HEAST) is the second most current source of toxicity information and will be consulted only for those constituents not listed in IRIS. EPA's Environmental Criteria and Assessment Office (ECAO) will be consulted for those constituents with no toxicity criteria listed in IRIS or HEAST. Health criteria will be developed for those constituents with no EPA-approved toxicity criteria (i.e., IRIS, HEAST, ECAO) using a similar constituent which has toxicological data.**

Page K-10, Section K.3, paragraph 1 will be changed as follows:

The most current sources of EPA-approved toxicity criteria (i.e., IRIS, HEAST, ECAO) will be used. Should no toxicity criteria be available from the primary source of information (i.e., IRIS) for a specific route of exposure (i.e., inhalation or oral), the other two sources (HEAST and ECAO) will be consulted. ~~Should route-specific toxicity criteria be unavailable for a specific constituent, the route of exposure for that particular constituent will be eliminated from the quantitative risk assessment (EPA, 1989). The implications of the absence of this potential contribution to risk from this constituent through this route of exposure will be qualitatively addressed in the uncertainty section of the risk assessment (EPA, 1989).~~ Should toxicity criteria be available for only one route of exposure (i.e., either inhalation or oral), the missing toxicity criteria will be derived from the available route-specific toxicity criteria for that constituent. The implications of this conversion (inhalation to oral, or oral to inhalation) on the overall potential risk or health hazard will be qualitatively addressed in the uncertainty section of the risk assessment (EPA, 1989).

**Comment 13, Page 5-4, paragraph 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.*

#### Discussion

Based on discussions between LANL and NMED on 11/9/94, it was agreed that LANL would clarify this statement and revise Figure 5-1, and text in Section 5 and Appendix K.

Pages 5-2 through 5-5, Section 5.1.1.2, Figure 5-1 and page K-1, Section K.1, Figure K-1 have been substantially revised to clarify this comment (comment 13) as well as comments 2, 12, 14, 15, 16, 17, 18, 19, 26, 28, 30 and 31. Section 5.1.1.2 has been replaced. Figure 5-1 and the identical Figure K-1 have been replaced. See response to comment 2.

#### Proposed Text Changes

Pages 5-2 through 5-5, see response to comment 2.

Pages K-1, Section K.1, paragraph 1 will be changed as follows:

~~Data that do not meet the QA/QC criteria will be flagged and eliminated from the quantitative risk assessment. The rationale for the elimination of specific data will be provided in the Summary and Analysis Report. The level of uncertainty associated with estimated (e.g., J-flagged data) values and the potential effect this may have on the decision making process will be discussed. Those data that do not meet the QA/QC criteria will be~~

rejected. If the rejection of the data results in less than the minimum number of 3 samples within the selected exposure unit(s), additional sample(s) will be analyzed. Three samples minimum are needed to develop an upper confidence limit of the mean (95% UCL of the mean) which is used in estimating exposure and potential risk. Although a risk assessment could be conducted using one or two sample concentrations, the uncertainty associated with that analysis is greatly reduced by using at least 3 samples.

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

See comment number 12 above.

This sentence should be deleted.

#### Discussion

See response to comment number 2.

#### Proposed Text Changes

See response to comment number 2.

**Comment 15, Page 5-4, paragraph 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.

#### Discussion

See response to comments 2, 4, and 12.

### Proposed Text Changes

See response to comments 2, 4, and 12.

**Comment 16, Page 5-4, paragraph 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.

### Discussion

During discussions with the NMED on 11/9/94, concern was expressed that substituting individual SALs as clean-up standards when multiple constituents were present would not address the additive effect of those constituents. Following further discussion, it was agreed that LANL would amend the text to include comparison with SALs when multiple constituents are present. Pages 5-2 through 5-5, Section 5.1.1.2, Figure 5-1 and page K-1, Section K.1, Figure K-1 have been substantially revised to clarify this comment (comment 16) as well as comments 2, 12, 13, 14, 15, 16, 17, 18, 19, 26, 28, 30 and 31. Section 5.1.1.2 has been replaced. Figure 5-1 and the identical Figure K-1 have been replaced. See response to comment 2.

### Proposed Text Changes

See response to comment number 2.

**Comment 17, Page 5-4, paragraph 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.

### Discussion

See response to comment numbers 2 and 12.

### Proposed Text Changes

See response to comment numbers 2 and 12.

**Comment 18, Page 5-5, paragraph 1. Constituents that 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.

### Discussion

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.

### Proposed Text Changes

Pages 5-2 through 5-5, Section 5.1.1.2 has been substantially revised to reflect this comment. See response to comment 2, second paragraph of new text.

**Comment 19, Page 5-5, paragraph 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.

### Discussion

See response to comment numbers 2 and 12.

Proposed Text Changes

See response to comment numbers 2 and 12.

**Comment 20, Page 5-5, paragraph 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.

Discussion

LANL accepts the comment and will revise the text to state that NMED must approve the closure approach prior to implementation. In order to ensure that both the pre-removal sampling plan and the post-removal confirmatory sampling and analysis plans are adequate, we are proposing to submit these plans separately to NMED for approval prior to implementation (Comment #22, Page 5-14 (seventh bullet) and Pages 6-1 through 6-4 (Section 6.2)).

Proposed Text Changes

Page 5-5, paragraph 2, lines 7 and 8, revise as follows:

"If not, a plan will be prepared **which presents the approach** for removal or decontamination that will reduce the risk to these target levels. **This approach must be approved by NMED before it is implemented.** Alternatively, the impoundments may be closed as landfills." OK

As required by Comment #20, Section 6.0 was revised to require NMED approval of the approach prior to implementation (see response to Comment #22 below (Sections 6.1.13, 6.2.2, and 6.2.6)).

As required by Comment #20, the post-removal confirmatory sampling and analysis plan must be adequate. This is addressed in the Discussion section above.

**Comment 21, Page 5-23, first complete paragraph. ... 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.

### Discussion

LANL agrees with the comment and will revise the text to ensure that decontamination liquids and sludges will not be returned to the impoundments unless the analytical results indicate that these wastes do not contain hazardous constituents and are not mixed wastes. In addition, because Section 5.3.2 discusses how wastes will be disposed, it was not necessary to add text to Section 5.3.1 describing the disposal of decontamination wastes.

### Proposed Text Changes

Page 5-23, first complete paragraph, lines 2-5, revise as follows:

"Decontamination wastes (i.e., liquids and sludges) will be collected in open tubs or buckets and ~~disposed of to the impoundments~~ **placed in appropriate containers** at the end of each day **or more frequently as necessary**. ~~If the decontamination liquids and sludges must be sampled before disposal, these wastes will be stored in polyethylene lined drums. Polyethylene~~ **The container will be lined with material that is compatible with the dilute detergent and any contaminants expected to be present in the decontamination wastes (e.g., polyethylene). These wastes may be returned to the impoundments if the analytical results show them to be below detection limits for hazardous constituents. Mixed wastes must not be returned to the impoundments.**"

Page 5-23, third complete paragraph, revise as follows:

"...Decontamination liquids and sludges will be **placed in appropriate containers described above**. ~~collected within the bermed area and disposed of to the impoundments. If the decontamination liquids and sludges must be sampled before disposal, these wastes will be stored in polyethylene lined drums.~~"

Page 5-23, fourth complete paragraph, revise as follows:

"...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..."

Page 5-24, Section 5.3.2, paragraph 2, line 5, insert the following after the second sentence:

"Any **waste materials** that must be disposed of, and that could exceed TCLP regulatory levels, will be resampled and analyzed using the TCLP. **In addition, any waste that must be disposed of will be resampled and analyzed using the TCLP as necessary to meet the requirements of the treatment, storage, or disposal facility.**"

Page 5-24, Section 5.3.2, paragraph 2, line 9 and 10, revise as follows:

"Based on existing waste characterization data (see Section 3.1), these wastes are expected to be designated as nonhazardous, low-level radioactive wastes. **Decontamination** liquid wastes and sludges ~~that sampling shows to be below cleanup levels will be returned to the impoundments.~~ **may be returned to the impoundments if the analytical results show them to be below detection limits for hazardous constituents. Mixed wastes must not be returned to the impoundments.** All other wastes that cannot be shown..."

**Comment 22, Pages 6-1 through 6-4, entire section on Closure Reports.**

One report may be feasible, if it includes:

*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.*

### Discussion

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.

### Proposed Text Changes

Page 5-5, paragraph 3, lines 1 and 2, revise as follows:

"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**.

Page 5-13, Section 5.2.2, paragraph 1, lines 3-7, revise as follows:

"Clean closure of the impoundments will be performed through several activities. These activities include: 1) sampling of the water and sludge in the impoundments; 2) removal of the water from the impoundments by evaporation; 3) **site characterization** sampling of the sludge, bentonite liner, and soils/tuff; 4) **pre-removal sampling and analysis, if necessary to better define the areas requiring removal/decontamination**; 5) removal/decontamination and disposal of contaminated materials, if necessary based on the results of **site characterization** sampling and analysis and **risk assessment**; 6) sampling and analysis to confirm removal or decontamination; and 7) stabilization of the site. The initial ~~or confirmatory~~ sampling activities are discussed ~~in detail~~ in Sections 3.3 and ~~5.3.4~~, respectively. **Pre-removal sampling activities are discussed in Section 5.2.2. Confirmatory sampling activities are discussed in Section 5.2.2 and 5.3.4.** Removal activities are discussed...."

Page 5-14, first bullet, revise as follows:

"Evaluate results based on methodology described in **Section 5.1.1.2 and Appendix K** to determine approach for demonstrating clean closure. **Identify approach needed to meet clean closure requirements (i.e., no action or removal). Submit proposed approach to NMED.** ~~Prepare summary report containing results of sampling and analysis and proposed approach. Submit report to NMED.~~"

Page 5-14, fourth bullet, revise as follows:

"If results indicate that risk assessment is needed, conduct risk assessment as described in **Section 5.1.1.2 and Appendix K.** **Evaluate risk assessment results and identify approach needed** ~~Prepare risk assessment report presenting results of risk assessment and identifying actions needed to meet clean closure requirements (i.e., no action or removal). Submit proposed approach to NMED.~~ ~~Submit risk assessment report to NMED.~~" OK

Page 5-14, fifth bullet, revise as follows:

"NMED review and approve ~~risk assessment report~~ **proposed approach.**"

Page 5-14, seventh bullet, revise as follows: OK

If risk assessment specifies removal:

- **prepare pre-removal sampling and analysis plan if necessary, and submit to NMED for approval prior to implementation;**
- ~~perform pre-removal characterization sampling if necessary, and submit results to NMED;~~
- **prepare post-removal confirmatory sampling and analysis plan if necessary and submit to NMED for approval prior to implementation;**
- perform removal and confirmatory sampling and analysis;

- ~~prepare summary report documenting removal actions and confirmatory sample results;~~
- ~~submit report to NMED;~~
- ~~NMED review and approve report; and~~
- identify approach for completing closure based on the results of the confirmatory sampling and analysis and risk assessment. Submit proposed approach to NMED for approval prior to implementation.
- NMED review and approve proposed approach;
- prepare and submit Final Closure Report.

Pages 6-1 through 6-4, delete entire Section 6.0 on Closure Reports and replace with the following:

**"Upon completion of closure activities, a Final Closure Report will be submitted to the Secretary of the New Mexico Environment Department. Copies of all analytical reports will be appended to the Final Closure Report. The Final Closure Report will include specific information as described below depending on whether waste removal is necessary or not.**

**6.1 Final Closure Report Requirements for Closure That Does Not Involve Waste Removal**

**The Final Closure Report will include the following information if it is not necessary to remove wastes from the impoundments:**

- 1) the certifications described in Section 5.1.4;
- 2) any variance from the activities described in the approved closure plan and the reason for the variance, any nonconformance reports for field and/or laboratory procedures that affect data quality, and documentation of corrective action implementation for nonconformances of field and laboratory procedures;
- 3) a tabular summary of site characterization analytical results, showing:
  - a. sample identification,
  - b. sampling location,
  - c. the datum reported,
  - d. detection limit for each datum,
  - e. a measure of analytical precision,

- f. identification of analytical method, and
  - g. identification of analytical laboratory;
- 4) laboratory data analytical reports;
  - 5) a QA/QC statement on the adequacy of the analyses and the decontamination demonstration;
  - 6) the location of supporting documentation, including:
    - a. field log books,
    - b. QA/QC documentation,
    - c. chain-of-custody records, and
    - d. complete laboratory data packages
  - 7) disposition and disposal location of all regulated and nonregulated residuals;
  - 8) a certification of the accuracy of the report;
  - 9) a demonstration of equivalency with closure requirements under 20 NMAC 4.1, Part 264.228 in accordance with 20 NMAC 4.1, Part 270.1(c)(5)(ii); and
  - 10) a demonstration that groundwater contamination has not occurred and that EPA policy guidance requirements have been met as described in Section 4.1;
  - 11) an evaluation of the site characterization analytical results based on comparison with SALs described in Sections 3.1 and 5.1.1.2 to determine whether a risk assessment is necessary, including:
    - a. comparison with QA/QC criteria,
    - b. comparison with SALs, and
    - c. for those constituents without SALs, comparison with calculated SALs based on health criteria, and
    - d. comparison with background, if applicable;

- 12) the approach and results of the risk assessment, if the evaluation described in Section 6.1.11 and Appendix K indicated that a risk assessment was necessary, including:
  - a. health criteria (e.g., RfDs and CPFs) and references for these criteria,
  - b. a concentration-toxicity screening analysis,
  - c. an exposure assessment,
  - d. a toxicity assessment,
  - e. a risk characterization evaluating total cancer risk and noncancer health hazard, and
  - f. an uncertainty analysis;
- 13) the approach for completing closure based on the evaluation of the analytical results of the site characterization (Section 6.1.11) and the results of the risk assessment if a risk assessment was performed (Section 6.1.12);

The approach for completing closure could consist of certifying clean closure based on comparison with SALs or based on the results of the risk assessment, or amending the closure plan for landfill closure. The approach for completing closure must be approved by NMED prior to its implementation.

## 6.2 Final Closure Report Requirements for Closure That Involves Waste Removal

If the risk assessment indicates that removal or decontamination is needed to meet clean closure requirements, additional sampling and analysis may be performed before removal/decontamination. This pre-removal sampling and analysis would be performed to better define the areas requiring removal/decontamination. After the removal or decontamination has been completed, additional confirmatory sampling and analysis must be performed to ensure that the clean closure requirements have been met. The pre-removal and post-removal sampling and analysis plans must be submitted to NMED for approval prior to implementation. If possible, these plans will be submitted together for review by NMED. The Final Closure Report will include the following

information if it is necessary to remove wastes from the impoundments:

- 1) all the information identified in Sections 6.1.1 through 6.1.12;
- 2) the approach for completing closure based on the evaluation of the analytical results of the site characterization (Section 6.1.11) and the results of the risk assessment (Section 6.1.12);

The approach for completing closure will consist of removal of the waste above target clean-up levels and certifying clean closure based on comparison with target clean-up levels. The approach for completing closure must be approved by NMED prior to its implementation.

- 3) target cleanup levels for clean closure, if the total cancer risk and/or noncancer health hazard index calculated during the risk assessment are above levels for clean closure;
- 4) the pre-removal sampling and analysis plan and the results of the pre-removal sampling and analysis, if pre-removal sampling is necessary, including:
  - a. a description of the sampling strategy, sampling activities, and sample collection techniques,
  - b. a description of and a figure showing sampling locations,
  - c. a tabular summary of the pre-removal analytical results including the information in Sections 6.1.3(a) through (g), and
  - d. figures delineating the areas requiring removal or decontamination based on the pre-removal analytical results;
- 5) the post-removal confirmatory sampling and analysis plan and the results of the post-removal confirmatory sampling and analysis, including:
  - a. a description of the sampling strategy, sampling activities, and sample collection techniques,

- b. a description of and a figure showing sampling locations,
  - c. a tabular summary of the post-removal confirmatory analytical results including the information in Sections 6.1.3(a) through (g), and
  - d. figures delineating the areas actually removed or decontaminated.
- 6) the approach for completing closure based on the evaluation of the target clean-up levels (Section 6.2.3) and the post-removal confirmatory analytical results (Section 6.2.5).

The approach for completing closure could consist of certifying clean closure based on comparison with the target clean-up levels or amending the closure plan for landfill closure. The approach for completing closure must be approved by NMED prior to its implementation."

Appendix K, page K-3, first complete paragraph, revise as follows:

"However, a comparison risk analysis related to Laboratory background concentrations will also be developed (EPA, 1989) to help the reviewer evaluate whether allowing the sludge to remain would result in an increase in human health risk. ~~The results of the background comparison will be presented in the Summary Sampling and Analysis Report.~~"

Appendix K, page K-4, last sentence on page, revise as follows:

~~"The results of the C T screening will be presented in the Risk Assessment Report."~~

**Comment 23, Page 6-1, paragraph 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.*

#### Discussion

LANL agrees with the comment and will revise text to state that NMED must approve the closure approach prior to implementation. We are proposing the NMED approve the closure approach instead of the

summary sampling and analysis report because NMED implied in Comment #22 that it was not necessary to submit this summary sampling and analysis report if the Final Closure Report included certain information.

#### Proposed Text Changes

The revised Section 6.0. above addresses the requirement that NMED must approve the approach offered before LANL proceeds to implement the closure activities (see Comment 22, pages 6-1 through 6-4, Sections 6.1.13, 6.2.2, and 6.2.6).

#### **Comment 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.*

#### Discussion

LANL agrees with NMED. J-flag concentrations, if detected, will be compared with SALs. J-flagged constituents 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 11/9/94.

#### Proposed Text Changes

See response to comments number 2, 5, and 9.

#### **Comment 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.*

#### Discussion

LANL agrees with the comment and will revise the text to require that liquid and solid samples be analyzed for total cyanide.

#### Proposed Text Changes

Page 3-57, carryover paragraph, line 1, revise as follows:

"...digestion of water samples, and Method 3050 for digestion of sludge and soil samples, **except for samples collected for total and amenable cyanide analyses.**

Page 3-57, carryover paragraph, insert the following at the end of the carryover paragraph:

"EPA Method 9011 will be used for the digestion of sludge and soil samples collected for total cyanide analyses. EPA Method 9010 or 9012 will be used to determine the total concentrations of inorganic cyanide in liquid or solid samples."

Page 3-57, last paragraph, line 1, revise as follows:

"**Impoundment** sludge samples will be analyzed for total releasable cyanide and sulfide using the test..."

Appendix I, Table I-6, page I-48, revise as follows:

Add new row below "copper" for "cyanide". The following information will be added to the "cyanide" row:

CAS No. for cyanide is "none", the SW-846 Method for cyanide is 9010 or 9012, the EQL for cyanide in soil or sludge is 50 micrograms/kilogram, the 1993 SAL for cyanide in soil or sludge is 1,600,000 micrograms/kilogram, the EQL for cyanide in water is 10 micrograms/liter, there is no 1993 SAL for cyanide in water, and cyanide will be indicated as being an Appendix VIII constituent.

**Comment 26, Page K-1, paragraph 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.

### Discussion

See response to comment numbers 2 and 12.

### Proposed Text Changes

See response to comment numbers 2 and 12.

**Comment 27, K-1, paragraph 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, than 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.

## Discussion

LANL agrees with the comment. Constituents will not be eliminated from the risk assessment on the basis of comparison with SALs.

## Proposed Text Changes

See response to comment number 2.

**Comment 28, Page K-1, paragraph 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.

## Discussion

See response to comment numbers 2 and 12.

## Proposed Text Changes

See response to comment numbers 2 and 12.

**Comment 29, Page 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.

## Discussion

See response to comment number 2.

## Proposed Text Changes

See response to comment number 2.

**Comment 30, Page K-3, paragraph 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.

#### Discussion

See response to Comments 2 and 18

#### Proposed Text Changes

Section K-1, page K-3, 2nd para revised as shown below.

Remaining constituents detected below background concentration in soil, subsoil, and tuff are not considered to be related to TA-53 surface impoundment activities. For purposes of this comparison, background will be defined as the 95% upper tolerance level (UTL) calculated from concentrations of inorganic and radioactive 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.

**Comment 31, Page K-3, paragraph 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.

#### Discussion

See response to comment numbers 2 and 12.

#### Proposed Text Changes

See response to comment numbers 2 and 12.

Page K-3, Section K.1, paragraph 3 will be changed as follows:

Those constituents within each exposure unit that contribute less than 1% of the total C-T cancer risk and overall chronic . . .

**Comment 32, Page K-5, paragraph 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.

### Discussion

The dimensions of the exposure units (i.e., 500 square meters) are default criteria identified by the EPA (EPA, 1989) and are meant to represent the average size of a lot upon which a home may be built. The text in Section K.2 has been modified in accordance with the comment and discussions conducted with NMED on 11/9/94.

### Proposed Text Changes

Page K-5, paragraph 2 is changed as follows:

~~The exposure unit will be 500 square meters (EPA, 1989; LANL, 1994a) 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. Should the C T screen show that one exposure unit has the highest potential for cancer effects and another unit has the highest potential for noncancer effects, a quantitative risk assessment will be conducted for both exposure units. Seventeen exposure units are possible within each surface impoundment, for a total of 34. For each surface impoundment: one exposure unit would encompass 5 samples, 8 exposure units would encompass 4 samples, 4 exposure units would encompass 3 samples, and 4 exposure units would encompass only 2 samples (see Figure K-2).~~

**An exposure unit is defined to be 500 square meters in area. There are a total of 36 possible exposure units which encompass at least 3 sample locations within the lagoons, 18 within each surface impoundment (see Figure K-2). The dimensions of the exposure unit (i.e., 500 square meters) are default criteria identified by the EPA (EPA 1989) and are meant to represent the approximate size of a residential lot. Three samples have been selected as the minimum number needed to develop an upper confidence limit of the mean (95% UCL of the mean) which is used in estimating exposure and potential risk. Although a risk assessment could be conducted using one or two sample concentrations, the uncertainty associated with that analysis is greatly reduced by using at least 3 samples. Of the 18 exposure units within each surface impoundment, 1 exposure unit encompasses 5 samples, 8 exposure units encompass 4 samples, and 9 exposure units encompass 3 samples.**

One or 2 exposure units of the total 36 will be selected for the quantitative risk assessment. The selection will be based on the exposure unit(s) that have the greatest potential health risk and or health hazard based on the C-T screening process. Should the C-T screen show that one exposure unit has the highest potential for cancer effects and a separate exposure unit has the highest

potential for noncancer effects, a quantitative risk assessment will be conducted for both exposure units.

**Comment 33, Page 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 not explained in the legend.*

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

Discussion

The various squares represented on the map represent the various exposure unit locations as discussed on page K-5, Section K.2, paragraph 2. There is no difference between squares with solid, dashed, or dotted lines. This was drawn in this manner to help identify individual exposure units. This rationale was presented to the NMED on 11/9/94 and accepted. However, the text in this section has been changed to reflect an error and a proposed change in sampling plans.

The number of proposed samples has been increased to assure a minimum of 3 samples per exposure unit (see revised Figure K-2, attached). If the sampling plan is approved by the NMED, then the body of the text in Section 3 and accompanying figures will be changed to reflect the additional sampling locations.

Proposed Text Changes

Page K-5, paragraph 2, has been changed. See response to Comment 32.

**Comment 34, Page 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.*

Discussion

The use of a 30 year exposure duration is consistent with recent EPA publications. The EPA states that . . ."standard factors are intended to be used for calculating reasonable maximum exposure (RME) estimates for each applicable scenario at a site. Readers are reminded that the goal of RME is to combine upper-bound and mid-range exposure factors . . .so that the result represents an

exposure scenario that is both protective and reasonable; not the worst possible case." (p.2, EPA 1991 attached). In addition, the document further states that . . . "the resident is assumed to live in the same home for 30 years. In the EFH [Exposure Factors Handbook (EFH; U.S. EPA, 1990)], this value is presented as the 90th-percentile for the time spent at one residence." (p. 5, EPA 1991 attached). Thus, we suggest that 30 years be used as the exposure duration in calculating human health risk.

### References

U.S. Environmental Protection Agency. 1990. Exposure Factors Handbook. Office of Health and Environmental Assessment. EPA/600/8-89/043, March 1990.

### **Additional Revisions That Are Not Related to NMED's Comments**

Page 3-62, second complete paragraph, lines 1 through 3, revise as follows:

### Discussion

The sample volume requirements for matrix spike samples is wrong. The text needs to be changed to reflect the correct sample volume requirements.

### Proposed Text Changes

Revise as follows:

~~"Matrix spike samples will consist of samples having double the volume of normal samples. For aqueous samples, it will be necessary to collect twice as much sample volume as is normally collected. The extra sample volume will be used by the analytical laboratory to make matrix spike and matrix spike duplicate samples. For solid matrix spike samples, it will not be necessary to collect double the normal sample volume. The results of the matrix spike samples..."~~

### **Liquid Waste Transfer Lines**

Liquid wastes were delivered to the two northern lagoons by two waste lines. The closure plan does not presently address those lines. LANL understands that NMED wants to have a sampling plan developed that addresses these lines. LANL will obtain information regarding the location and design of the lines and submit a sampling plan to NMED by the end of February 1995.

**Table 3-5. PCBS Detected in Sludge Samples**

Sample Location <sup>(a)</sup>	Mixed Aroclor, mg/kg	Aroclor 1242, mg/kg	Aroclor 1254, mg/kg	Total PCB
Subpart S Action Level	0.09			
1993 SAL	0.09			
40 CFR 761	10			
April 1992 Samples				
53-NE-C1-S	0.57	0.31	0.26	1.14
53-NE-Y-S	0.33	0.17	0.16	0.66
53-NE-Z-S	0.27	0.14	0.13	0.54

Notes:

- (a) NE indicates northeast impoundment, C, Y, and Z indicate sample block locations shown in Figure 3-2, S indicates sludge sample.
- (b) Shaded values are above proposed RCRA Subpart S action levels and 1993 SALs.

Table 3-8. Summary of Analyses by Matrix

Analysis	Media					
	Impoundment Water	Impoundment Sludge	Bentonite Liner Soil/Tuff	Impoundment Sludge, Bentonite Liner, Soil, Tuff	Decontamination	
					Liquids	Sludges
Metals		X	X		X	X
Volatile Organics		X	X		X	X
Semivolatile Organics		X	X		X	X
Organochlorine Pesticides and PCBs		X	X		X	X
Chlorinated Herbicides		X	X		X	X
Reactive Cyanide and Sulfide		X				
TCLP				X		X
Gross Alpha Radioactivity <sup>(a)</sup>	X	X	X	X	X	X
Gross Beta Radioactivity <sup>(a)</sup>	X	X	X	X	X	X
Gamma Spectroscopy <sup>(a)</sup>	X	X	X	X	X	X
Isotopic Uranium <sup>(a)</sup>	X	X	(b)	(b)	(b)	(b)
Isotopic Plutonium <sup>(a)</sup>	X	X	(b)	(b)	(b)	(b)
Strontium-90 <sup>(a)</sup>	X	X	(b)	(b)	(b)	(b)
Tritium <sup>(a)</sup>	X	X	(b)	X	X	X

Note:

- (a) Radiological analyses are not being performed to support demonstration that the HWMR closure performance standard has been met. These data are being collected for health and safety planning and to support decisions regarding radiological contamination at this site that will be made as part of Environmental Restoration Project activities.
- (b) Radiological analyses in addition to gross analyses will be identified based on the results of the radiological characterization of the sludge and water.

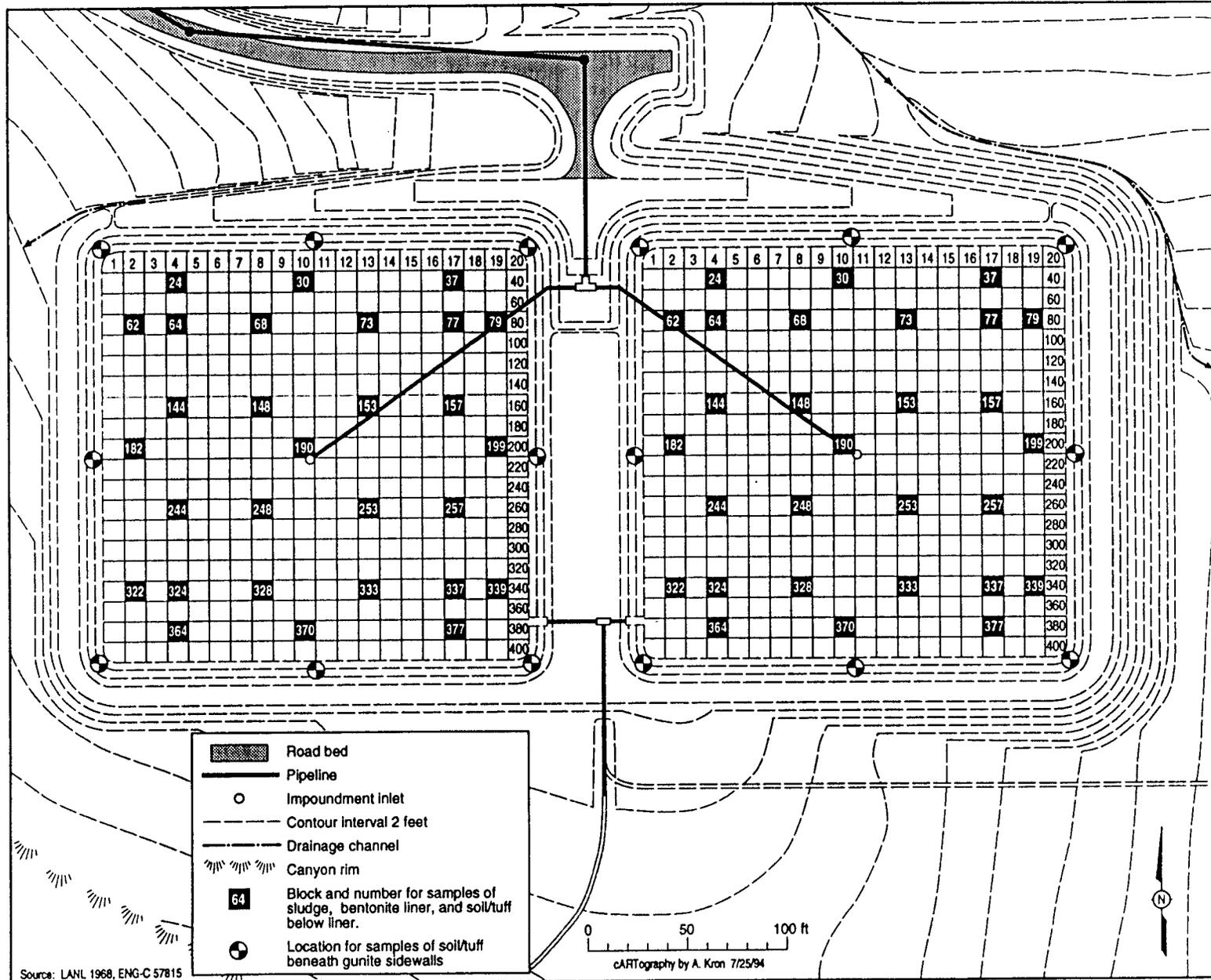


Figure 3-3. Locations of Sludge, Liner, and Soil/Tuff Samples Inside North Impoundments

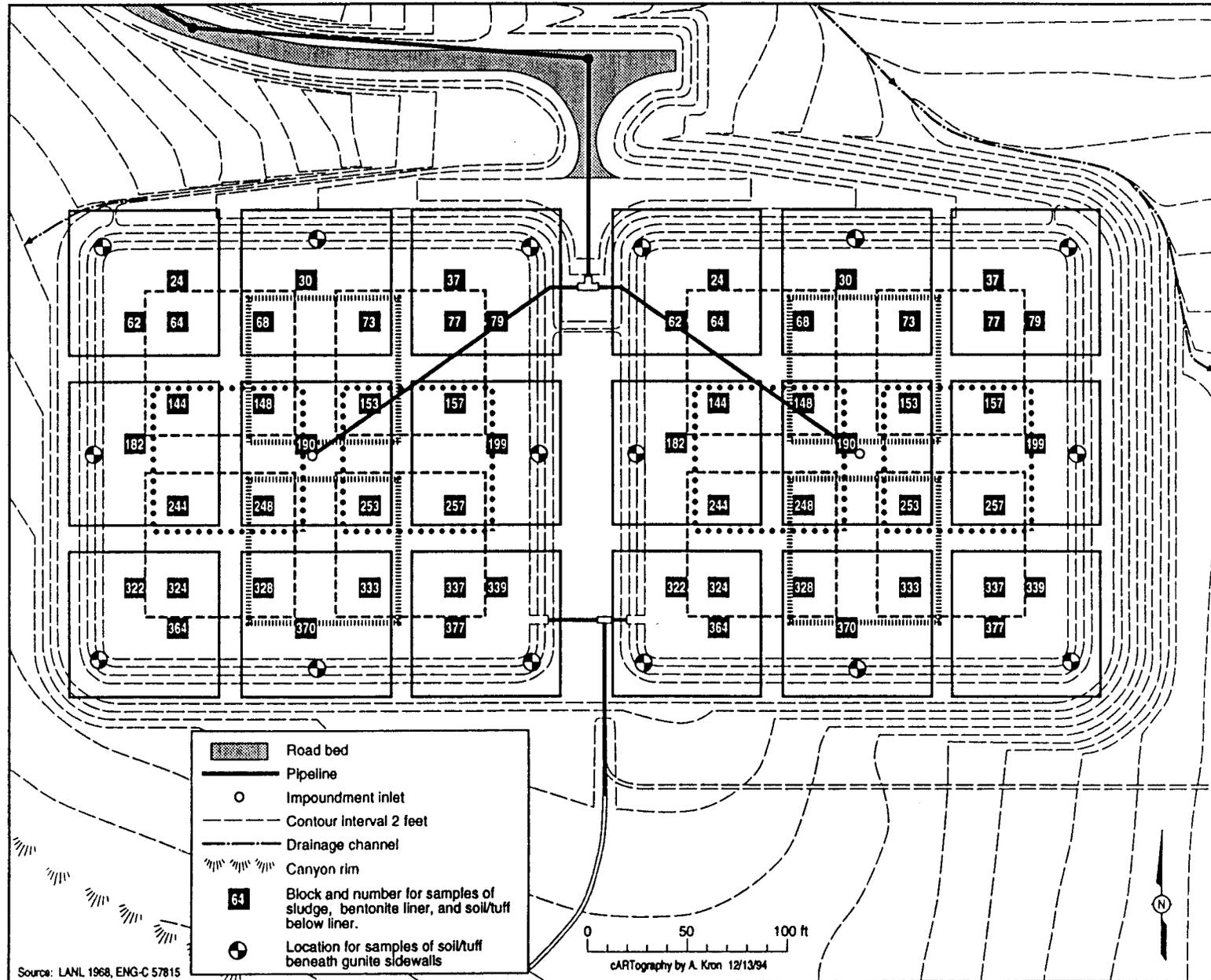


Figure K-1. Locations of Unit Risk Areas (500 m<sup>2</sup>)

ENVIRONMENTAL IMPROVEMENT BOARD  
1190 ST. FRANCIS DRIVE  
SANTA FE, NEW MEXICO 87503

EIB/HWFR-1

## HAZARDOUS WASTE FEE REGULATIONS

### Part I General Provisions

- 100. Title
- 101. Applicability
- 102. Definitions

### Part II Fee Schedules

- 200. Basic Permit
- 201. Storage Permit
- 202. Treatment Permit
- 203. Disposal Permit
- 204. Post-Closure Care Permit
- 205. Permit Renewals
- 206. Permit Modifications
- 207. Expanded Public Participation Permits
- 208. Permit Application Revisions

### List of Tables

- 2.1 Basic Permit Fees
- 2.2 Storage Unit Fees
- 2.3 Treatment Unit Fees
- 2.4 Disposal Unit Fees
- 2.5 Post-Closure Care Permit Fees
- 2.6 Permit Fee Worksheet

### Part I General Provisions

- 100. Title. The following regulations of the New Mexico Environmental Improvement Board, promulgated pursuant to the provisions of the New Mexico Hazardous Waste Act, N.M. Stat. Ann § 74-4-1 to 74-4-12 (1978) as amended, Laws 1983, Chapter 302, shall be known as the New Mexico Hazardous Waste Fee Regulations, (HWFR-1).

101. Applicability.

- A. This part applies to persons required by the New Mexico Hazardous Waste Act (the Act) to obtain a permit for the storage, treatment or disposal of hazardous wastes.
- B. A final permit will consist of a basic permit plus a permit for each operating unit of the facility for which a permit application is made. The total fee will be the sum of the fees for the basic permit plus the fees for each operating unit, plus, if appropriate, a fee for public participation. A fee worksheet is shown in Table 2.6.
- C. Fees are due and payable at the time an application for a permit is made. Fees are not refundable and do not guarantee that a permit will be issued.

102. Definitions.

- A. Unless manifestly inconsistent herewith, other words and phrases in these regulations shall have the same meaning as used in 40 CFR Section 260.10 and 40 CFR Section 270.2.
- B. "unit" means "hazardous waste management unit" as defined in 40 CFR Section 260.10.

Part II Fee Schedules

200. Basic Permit.

- A. There are numerous subjects common to all permits. They are described fully in the New Mexico Hazardous Waste Management Regulations (HWMR) and include, but are not limited to, waste analysis, security, inspections, training, contingency planning and closure. Additionally, the HWMR impose conditions, applicable to all permits, such as duties to comply and mitigate, entry of state officials and access to records. The basic permit therefore contains all these requirements.
- B. A permit for a facility which generates a regulated waste and also stores, treats or disposes of that waste will address both generation requirements and the appropriate storage, treatment or disposal requirements.
- C. The permit fees are as listed in Table 2.1.

201. Storage Permit. Any applicant who wishes to store hazardous wastes must have a storage permit. Each storage unit must be addressed in the permit. Each location, quantity of wastes stored and the impact thereof on the basic permit and the specific requirements of these regulations shall be evaluated. The permit fees are as listed in Table 2.2.

202. Treatment Permit. Any applicant who wishes to treat hazardous wastes must have a treatment permit. Each treatment unit must be addressed in the permit. Each type of treatment technology for which application is made

permit. Major modifications will therefore be charged at the basic permit fee plus the applicable unit fee from Tables 2.2 through 2.4.

- 207. Expanded Public Participation Permits. The Act requires that permit applications be evaluated with inputs solicited from the public. The 1984 amendment to the federal hazardous waste law (Public Law 94-580) requires that facility permits which have a substantial impact or generate considerable public interest, be subject to extra efforts to solicit public participation in the permit process. This additional effort requires significant staff time, without regard to the number or type of units to be permitted. Therefore a fee is based only on the designation of the permit as one of expanded public participation. The fee is additive to the other fees and shall be four thousand dollars (\$4,000).
- 208. Permit Application Revisions. Occasionally the applicant may wish to revise the application after it has been deemed administratively complete but before a draft permit has been advertised for public review. Such revisions may be due to changes in operating practices, in response to regulatory changes or for the addition or deletion of operating units for which a permit had been sought.
  - A. Revisions deemed minor by the Division may be made without charge. Minor revisions are ones which do not require detailed analysis. Examples are changes to lists of names or equipment, revision of closure and/or post-closure cost estimates, and deletion of operating units for which a permit had originally been sought.
  - B. Revisions deemed extensive by the Division shall be assessed a fee at the time the revision is presented to the Division. Fees for extensive revisions shall be twenty percent of the fee for the basic permit described in paragraph 202 above, plus the fee from tables 2.2 through 2.5 for units which are added to the application and/or 25% of the fee previously assessed for the unit(s) for which the application is revised.

shall be evaluated and specified in the permit. Dissimilar treatment technologies shall be considered as separate units in the permit. The permit fees are as listed in Table 2.3.

203. Disposal Permit. Any applicant who wishes to dispose of hazardous wastes must have a disposal permit. Each disposal unit must be addressed in the permit. Each type of disposal technology for which application is made shall be evaluated and specified in the permit. Dissimilar disposal technologies shall be considered as separate units in the permit. The permit fees are as listed in Table 2.4.

204. Post-Closure Care Permit.

A. After land disposal units are closed they will be monitored for integrity under a post-closure care permit. Not all portions of the basic permit are applicable to the post-closure care period and others are applicable in a modified manner.

B. If a facility has multiple units it is also possible that the permit may have to address operating units as well as post-closure care of closed units. The permit fees are as listed in Table 2.5.

205. Permit Renewals.

A. Facilities which wish to continue to operate under the Hazardous Waste Act must renew the permit in accordance with the HWMR. At the time of renewal the permit is reevaluated in light of technological, legal and regulatory standards in effect at the time of renewal. Therefore, permit renewals are subject to the same fees as initial applications.

B. The HWMR require that the duration of a permit may not extend longer than a period of ten (10) years. In order for facilities to proceed without an interruption to their permit it will be necessary for a facility to apply for a permit renewal in compliance with the HWMR.

206. Permit Modifications.

A. Partial Permits. Permit applications for less than an entire facility will be processed and charged in the manner described above. Subsequent permit modifications which add units will be charged as new permits.

B. Modifications of Permit Conditions

1. Permit modifications classified as minor by the Hazardous Waste Management Regulations may be accomplished with minimum file review and administrative support. Minor modifications will be subject to a fee of \$1,000.

2. Permit modifications classified as major by the Hazardous Waste Management Regulations require extensive staff time and administrative effort to review the impact of the modification on the

*Class 2?*

*Class 3?*

Table 2.1 Basic Permit Fees

Without Groundwater Monitoring	\$10,000
With Groundwater Monitoring No Escape Of Hazardous Constituents	\$13,000
With Groundwater Monitoring, Known Escape Of Hazardous Constituents	\$15,000
Additional On-site Generation Points	\$2,000

Table 2.2 Storage Unit Fees

First Storage Unit	\$5,000
Each Additional Identical Unit	\$3,500
Each Additional Dissimilar Unit	\$5,000

**Table 2.3 Treatment Unit Fees**

**Chemical Treatment**

First Unit	\$8,000
Each Additional Identical Unit	\$5,500
Each Additional Dissimilar Unit	\$8,000

**Incinerators**

First Unit	\$50,000
Each Additional Identical Unit	\$15,000
Each Additional Dissimilar Unit	\$50,000

**Open Burn/Open Detonation**

First Unit	\$5,000
Each Additional Identical Unit	\$5,000
Each Additional Dissimilar Unit	\$5,000

**Other Technology**

First Unit	\$8,000
Each Additional Identical Unit	\$6,000
Each Additional Dissimilar Unit	\$8,000

**Table 2.4 Disposal Unit Fees**

**Landfills or Surface Impoundments**

First Unit	\$11,000
Each Additional Similar Unit	\$7,000
Each Additional Dissimilar Unit	\$11,000

**Land Treatment**

First Unit	\$10,000
Each Additional Similar Unit	\$8,000
Each Additional Dissimilar Unit	\$10,000

**Table 2.5 Post-Closure Care Permit Fees**

	First Unit	Each Additional Similar Unit	Each Additional Dissimilar Unit
<b>As part of an operating facility.</b>			
With escaped hazardous constituents	\$8,000	\$5,000	\$8,000
Without escaped hazardous constituents	\$6,000	\$3,000	\$6,000
<b>Without operating units for the facility</b>			
With escaped hazardous constituents	\$50,000	\$20,000	\$50,000
Without Escaped hazardous constituents	\$35,000	\$15,000	\$35,000

Note: If post-closure care is the only permit activity the fee is independent and not in addition to the basic permit fee.