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MAY 24 1994

William K. Honker, Chief
 RCRA Permits Branch
 U. S. Environmental Protection Agency,
 Region 6
 1445 Ross Ave., Suite 1200
 Dallas, Texas 75202-2733

Dear Mr. Honker:

Enclosed is the response to your Notice of Deficiency for Operable Unit 1157.

If any questions arise, please call me at (505) 665-7203.

Sincerely,

Theodore J. Taylor
 Program Manager
 Environmental Restoration Program

LESH:1TT-007

Enclosure

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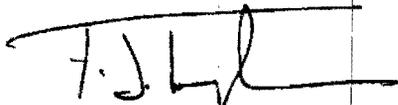
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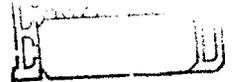
I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violation.

Document Title:

**Response to Notice of Deficiency
Concerning Operable Unit 1157
Field Investigation Work Plan**

Name:  Date: 5/23/94
Dennis J. Erickson, Director
Environment, Safety, and Health Division
Los Alamos National Laboratory

Name:  Date: 5/24/94
Joseph Vozella, Chief
Environmental Safety & Health Branch
Los Alamos Area Office - DOE



General Comments:

1. *The RFI Workplan for OU 1157 is very difficult to follow. It appears to EPA that Chapters 5 and 6 could be combined with portions of Chapter 4 to make the Workplan easier to follow. Combining these chapters so that the history of each unit or aggregate of units is followed by the sampling plan eases review greatly.*

We apologize for the difficult time it took to review this work plan. The authors decided to organize the grouping of the potential release sites (PRSs) primarily by geographical location and past/recent history in order to ease the writing of the history and the sampling and analysis plan for each PRS or group of PRSs. Because 116 PRSs was a large number of PRSs to organize, it was determined to break the history part of each PRS away from the sampling and analysis plans, which was intended to ease the sampling events for the sampling team.

2. *Several places in the Workplan LANL mentions that the sampling procedures for hand-held instruments for field screening of VOCs is in preparation. This information should have been completed when this Workplan was submitted to EPA. The revised workplan must contain this information or reference the appropriate Standard Operating Procedure.*

The LANL ER Program does not have a Standard Operating Procedure for field screening of VOCs. We currently follow the manufacturer's instrument operating procedures and LANL has an internal calibration group that calibrates the instruments following the manufacturer's guidelines. We are presently evaluating the need for any additional internal procedures.

3. *LANL needs to justify in the revised Workplan, in the appropriate chapter(s), why the piping that transports the waste from a particular SWMU to the outfalls are not leaking or have not leaked, and why they are not being sampled. LANL also needs to include a narrative describing various details of the piping; such as material composition, age of piping, how piping is connected, approximated volume of waste transported and any previous pipe leak tests performed.*

Our approach to the RFI is phased. In Phase I we are determining the presence of COCs based on background levels and SALs, and not the nature and extent of the contamination. The nature and extent would be investigated in Phase II if needed. In the case of the pipeline sampling questioned, we are sampling under Phase I at the outfalls which would be the most likely area of contamination. If COCs are found, the pipeline sampling suggested in the comment would be performed under Phase II, or the pipeline would be removed under a VCA.

As requested in our phone conversation on May 19, 1994, a listing of the SALs referenced in LANL's current Installation Work Plan is attached for your convenience and information.

4. (a) *Throughout the Workplan, LANL is under the impression that if they found contamination and it is above background, but is under the screening action levels, then no further action is needed, even though the full extent of contamination has not been demonstrated. This is not correct. LANL must find the full extent of contamination and must demonstrate that there is a "clean zone" beneath the contamination. For example, if a soil sample shows PCB contamination exists from 0-2' (and is above background but below screening action levels), but was found to be "clean" from 2-5', then LANL could demonstrate that the contamination has been delineated vertically. If the contamination in the 0-2' interval is below health based numbers for a specified use (such as industrial setting), then LANL could justify a no further action remedy.*

(b) *In addition, at many SWMUs, LANL is not taking soil samples deep enough vertically to justify a no further action determination. For example, at outfall areas, 6 inch deep soil samples may not reach sediments from the past which have been buried by younger deposited sediments. Also, volatile organics*

LANL/ER/OU-1157

C-8-019-Storage/Laboratory, TA-8-30
C-8-020-Mistaken Burial Site
C-9-002-Trimming Bldgs.
C-9-003-Pump House
C-9-004-Oven Bldg., TA-9-19
C-9-005-X-unit Chamber
C-9-006-Bldgs. TA-9-6, 11, and 16
C-9-007-Bldgs. AE-7 & 8
C-9-008-UST, same unit as PRS 9-016
C-9-009-oil stains

We will not add these sites to the HSWA permit, and will not investigate these sites any further.

11. LANL may request a Class III permit modification for the following sites:

8-003(b)-Inactive Septic Tank
8-003(c)-Inactive Septic Tank
8-006(b)-Material Disposal Area (duplicate of 8-006(a))
9-003(c)-Electrical Control Manhole serving TA-9-14
9-003(f)-Settling Tank serving Bldg. TA-9-51
9-005(b)-Inactive Septic Tank, Bldgs. TA-9-21, 28 & 29
9-005(c)-Inactive Septic Tank, Bldgs. TA-9-21, 33, 34, 37, and 38
9-005(e)-Inactive Septic Tank, Bldgs. TA-9-41, 42, 43, 45, & 46
9-005(f)-Inactive Septic Tank, Bldgs. TA-9-48
9-005(g)-Inactive Septic Tank, Bldgs. TA-9-109
9-005(h)-Inactive Septic Tank, Bldgs. TA-9-110
9-007-Basket Pit

We will request these sites be accepted for NFA in a future Class III permit modification.

Specific Comments:

1. 4.1.4 Decision Point 4, p. 4-10 -

a. Text refers to background levels for contaminants of concern (COC). Has LANL established background levels for COC's at OU 1157? If established, LANL shall include all information on background levels in the revised work plan.

Background levels have not been established for OU 1157. If constituents are found in Phase I that exceed SALs, site-specific background levels will be established for those constituents prior to continuing the investigation.

b. The discussion on threshold values is confusion. Text indicates that "A threshold level may be exceeded if one or more screening action level(s) are exceeded..., or if the cumulative effects of multiple contaminants exceed acceptable limits as defined in Appendix J of the IWP. Is the threshold level equivalent to the screening action level (SAL)? This term has not been used in the other work plans reviewed to date. Should sampling at a SWMU reveal contaminants at levels above background then the extent of the release needs to be defined prior to any comparison to SALs.

The discussion about threshold levels will be deleted in the revised work plan. Only background levels and SALs will be used for comparison. The sampling is designed to compare to both background and SALs. Background comparisons are only needed for constituents that exceed SALs. If a constituent does not exceed SALs it is not considered a health risk and no further investigation is needed. The extent of any release will be defined in a Phase II investigation for constituents that exceed both background and SALs.

2. 5.5.3 Data Needs and Data Quality Objectives, p.5-64 -

Under Boundaries, bullet 6, pertaining to bulk soils, the vertical boundary of 1 foot may not be sufficient to characterize COC's in disturbed soil (backfill) because the soil is probably not homogeneous. Each of these sites will be evaluated on a case-by-case basis and EPA may require additional sampling.

The intent of the bulk soils investigation is to find contamination within the first foot of soil. Other investigations are being conducted to find contamination deeper as a result of the underground units in this area. If COCs are found in the first 1 ft of soil, sampling would continue in a Phase II investigation to define the nature and extent of contamination as stated on p. 5-63. Depending on the results of the analysis, a baseline risk assessment may need to be conducted. We have confirmed that clean soil was not brought in when the site was remediated in the 1960's. When the site was remediated, the ground was leveled after the buildings were burned and removed and this disturbance would have caused any PCOCs in the soil in this area to be relatively homogeneously distributed. This will be clarified in the revised work plan.

3. PRS 8-004(d)-Drain

a. Page 6-7; 2nd paragraph: LANL states in this paragraph that there is no evidence that a release has occurred through the sewer system. Is LANL talking about the old piping or the new interceptor system? Please clarify. Also, LANL shall include in the revised workplan what testing/soil sampling they have to verify that the old piping has not leaked and please include a description of the old sewer piping.

The second paragraph begins the description of the old sewer line (vs. the interceptor system), although this "old" line is still in use. The interceptor system, mentioned in the first paragraph, did not replace any lines in the TA-8 area. We have not done any sampling to prove the system has not leaked until sampling for Phase I investigations started (at risk) earlier this spring. The intent is to sample the drain trap in the building and the downstream sewer line, where contamination would most likely be found. If contamination above levels of concern is found, the piping would be investigated (or a VCA would be performed) in a Phase II investigation. The only means of no evidence of a release is by visual inspection. Please refer to General Comment response 3 which our approach to investigating pipelines.

b. Page 6-7: second paragraph: Please include in the revised workplan a paragraph describing what LANL will do if the chip or wipe samples which are field screened unexpectedly indicate volatile contamination.

As the text in the third paragraph on p. 6-7 indicates, the samples will be screened primarily to provide worker safety. Historical information indicates that no volatile compounds were used in the building where this piping originates. However, the revised work plan will include a statement that if volatiles are found via field screening, samples will be analyzed for the Chapter 4 Extended Analyte List of VOCs.

c. 6-8; second paragraph: LANL must meet PQL detection levels for the chip or swipe samples. Detection levels equal to the screening action level is unacceptable.

Detection levels equal to or lower than the screening action levels would be acceptable to meet our decision criteria. If every sample for every analyte were analyzed at PQL detection limits, we would be analyzing at unnecessarily low detection limits.

4. PRS 8-009(c)- Floor Drain Outfall

a. Page 6-12; 1st paragraph: Please clarify in the workplan whether the 1 pint PCB spill is the only hazardous constituents that were ever transported through the floor drain in its entire time of use.

The text on page 5-8 describes the use of this drain. There is no historical information to indicate any other hazardous materials were transported through this drain. If there had been, the text would indicate as such, and sampling would be conducted as appropriate. The revised work plan will clarify this information.

b. Page 6-12: Sampling Activity: If visual or olfactory contamination is evident in a specific section of the 6 inch sample then that zone should be sampled and not homogenized with the other soil. Also, LANL should take samples at deeper intervals, to verify that vertical contamination has been delineated and that surface contamination has not migrated downward, and that sediments from the past have not been buried by younger deposited sediments.

If visual or olfactory contamination is evident then that zone would be sampled and not homogenized. Because water could have been a driving force at this site, samples will be taken at greater depths as described in the response to General Comment 4.

5. PRS 8-009(d)-Process Waste Water Outfall

a. Page 6-15; Analysis of Results: If the bottommost sample still contains PCB's above background levels, then LANL must take deeper samples, regardless of the screening action levels for PCB's.

NOTE: Assume this comment is part of the previous subset of comments for PRS 8-009(c).

Please see the response to General Comment 4. It is not necessary to continue sampling at sites where no health risk exists.

b. Page 6-15; 3rd paragraph: Please include in the revised workplan what hazardous constituent or other parameters are sampled at the outfall.

Page 6-15, 2nd paragraph indicates silver salts, chromium and pentachlorophenol will be used as indicator parameters. Also, Table 6-2, Group 1 Indicator Parameters, lists these same parameters for this outfall.

c. Page 6-15; last paragraph: Please justify why the piping that goes from the building to the discharge point is not being investigated for a possible release.

The text on page 5-9, section 5.1.1.9 indicates that this is an active drain and outfall and is not being sampled under Phase 1 investigation. Also, refer to the response to General Comment 3.

d. Page 6-15; 3rd paragraph: Please include in the revised workplan a paragraph describing what LANL will do if field screened samples unexpectedly indicate volatile contamination.

It is possible to detect volatiles at this site based on the history of the site. The samples are being analyzed for pentachlorophenol, a VOC, which we are using as an indicator of any other VOCs. If VOCs are detected in the field, we would still run the analysis for pentachlorophenol.

e. Page 6-16: Please include in the revised workplan all hazardous constituents that could have been in the photo-processing wastes for this unit. EPA may require more constituents to be analyzed in the soil samples.

The only use for this drain has been for photo-processing. Any other hazardous constituents would be similar to those we have selected as indicator parameters. However, we will analyze for the Chapter 4 Extended Analyte List VOCs and SVOCs, as requested in our telephone conversation of May 19, 1994.

f. Page 6-16: Sampling Activity: If visual or olfactory contamination is evident in a specific section of the 6 inch sample, then that zone should be sampled and not homogenized with the other soil. Mixing of soil samples are not allowed if volatile organics are present. Also, LANL should take samples at deeper intervals (4-5 feet), to verify that vertical contamination has been delineated, and that sediments from the past have not been buried by younger deposited sediments.

If visual or olfactory contamination is evident then that zone would be sampled and not homogenized. Because water could have been a driving force at this site, samples will be taken at greater depths as described in the response to General Comment 4.

g. Page 6-16: Analysis of Results: If the bottommost sample still contains contaminants above background levels, then LANL must take deeper samples, regardless of the screening action levels.

Please see the response to General Comment 4. It is not necessary to continue sampling at sites where no health risk exists.

6. PRS 8-009(e)-Process Waste Water Outfall

a. Page 6-17: Sampling and Analysis Strategy: Please include in the revised workplan all hazardous constituents in the photo-processing wastes for this unit. EPA may require more constituents to be analyzed.

The uses for this drain have been for photo-processing, discharge from a metallography laboratory and also from a radioactive fuel element polishing facility. Any other hazardous constituents related to the photo-processing wastes would be similar to those we have selected as indicator parameters. However, we will analyze for the Chapter 4 Extended Analyte List VOCs and SVOCs, as requested in our telephone conversation of May 19, 1994.

b. Page 6-18: 2nd paragraph: Please include in the revised workplan what hazardous constituents or other parameters which are sampled at the permitted outfall. Also, include some historical sampling results.

The constituents and results of the NPDES sampling from January, 1989 to April, 1994 are attached.

c. Page 6-18; 2nd paragraph: Please include in the revised workplan a paragraph describing what LANL will do if field screened samples unexpectedly indicate volatile contamination.

It is possible to detect volatiles at this site based on the history of the site. The samples are being analyzed for pentachlorophenol, a VOC, which we are using as an indicator of any other VOCs. If VOCs are detected in the field, we would still run the analysis for pentachlorophenol.

d. Page 6-18: Sampling Activity: If visual or olfactory contamination is evident in a specific section of the 6 inch sample, then that zone should be sampled and not homogenized with the other soil. Also, LANL should take samples at deeper intervals (4-5 feet), to verify that vertical contamination has been delineated, and that sediments from the past have not been buried by younger deposited sediments.

If visual or olfactory contamination is evident then that zone would be sampled and not homogenized. Because water could have been a driving force at this site, samples will be taken at greater depths as described in the response to General Comment 4.

e. Page 6-21; Analysis of results: If the bottommost sample still contains contaminants above background levels, then LANL must take deeper samples, regardless of the screening action levels.

Please see the response to General Comment 4. It is not necessary to continue sampling at sites where no health risk exists.

8. PRS 8-002-Experimental Firing Site

a. Page 6-23; Sampling Strategy: Please include in the revised workplan all hazardous constituents possible at the Gun Firing site.

The hazardous constituents that may be found at this site are those that are listed on p. 6-24, Section 6.2.3, and in Table 6-7. It is unlikely that any other hazardous constituents would be found in this area.

b. Page 6-28; 1st paragraph: LANL should take samples at deeper intervals (4-5 feet), to verify that vertical contamination has been delineated. If the most vertical sample indicates contamination above background, then deeper samples will need to be taken.

Because no driving force is present at this site, LANL does not feel it is necessary to take samples 4-5 feet deep in this area, at least not during Phase 1 characterization. The soil in this area has remained undisturbed and therefore, the top 6 inches is reasonable in finding PCOCs. If COCs are found in the top 6 in, a Phase II investigation will be initiated to delineate the vertical extent of the contamination. A baseline risk assessment or a VCA may also be appropriate. Please see the response to General Comment 4. It is not necessary to continue sampling at sites where no health risk exists.

9. PRS 8-006(a), MDA Q

a. Page 6-33; Sampling and Analysis for MDA Q: Please justify in the revised RFI workplan why sampling of the deeper waste is not occurring. If wastes are buried deeper in this unit, as the last paragraph on this page describes, then deeper sampling will be required by EPA.

Text on page 6-33, last paragraph and continuing to page 6-34 justifies why sampling is not being conducted for the deeper waste.

b. Page 6-37; Phase II sampling: If the bottommost sample still contains contaminants above background levels, then LANL must take deeper samples, regardless of the screening action levels.

Because no driving force is present at this site, LANL does not feel it is necessary to take deeper samples in this area, at least not during Phase 1 characterization. Please see the response to General Comment 4. It is not necessary to continue sampling at sites where no health risk exists.

10. PRSs 8-004(a), (b) and (c) - Building Drains

Page 6-41; 3rd paragraph: EPA disagrees with waiting to sample SWMUs 8-004(a), 8-004(b), and 8-004(c). These SWMU's need to be sampled before the D&D process. Please include sampling requirements in the revised RFI workplan.

The drainlines are beneath buildings which are abandoned and unsafe to enter. There is no mobilizing force to allow any potential contamination to migrate. LANL does not feel any contamination could be migrating from these buildings and believes that the risk of waiting until the D&D process is acceptable.

11. PRS 8-003(a)-Septic Tank

a. Page 6-46; 2nd paragraph: Where the piping connects to and from the septic tank are also points where a release might occur from this SWMU.

The sampling strategy is designed to detect contamination at the most likely area, which is inside the tank. The tank and associated piping, including the connections, are likely to be removed under a VCA. Verification sampling would be conducted to confirm that no COCs remain.

b. Page 6-47; last sentence: Please justify why the piping that goes from the building to the septic tank and from the septic tank to the discharge point is not being investigated for a possible release.

This tank is expected to have COCs. The sampling strategy is designed to confirm this. The tank and associated piping, up to the abandoned bunkers are likely to be removed under a VCA. If the sampling results do not show COCs, the tank and its associated piping would likely be removed when the abandoned bunkers are decommissioned.

12. PRS 8-009(a)-Outfall

a. Page 6-48; Selection of Sampling Sites: Also, LANL should take samples at deeper intervals (4-5 feet), to verify that vertical contamination has been delineated, and that outfall sediments from the past have not been buried by younger deposited sediments.

Because no driving force is present at this site, LANL does not feel it is necessary to take samples 4-5 feet deep in this area, at least not during Phase 1 characterization. The soil in this area has remained undisturbed and therefore, the top 6 inches is reasonable in finding PCOCs. If COCs are found in the top 6 in, a Phase II investigation will be initiated to delineate the vertical extent of the contamination. A baseline risk assessment or a VCA may also be appropriate. Please see the response to General Comment 4. It is not necessary to continue sampling at sites where no health risk exists.

b. Page 6-51; last paragraph: If the bottommost sample taken still contains contaminants above background levels, then LANL must take deeper samples, regardless of the screening action levels.

Please see the response to General Comment 4. It is not necessary to continue sampling at sites where no health risk exists.

13. PRS 8-005-Waste Storage Vessel

a. Page 6-53; 1st paragraph: LANL states that soil samples will be taken underneath the vessel if evidence of a release is found. LANL shall clarify what constitutes evidence of a release.

When the vessel is removed, through a VCA, the soil under the vessel will be visually inspected as well as inspected using hand held instruments to detect organics. The bottom of the vessel will be inspected for holes and cracks in the metal, and the vegetation under the vessel will also be investigated for stress.

b. Page 6-53; last paragraph: If visual or olfactory contamination is evident in a specific section of the 6 inch sample, then that zone should be sampled and not homogenized with the other soil. Also, LANL should take samples at deeper intervals (4-5 feet), to verify that vertical contamination has been delineated.

The sample discussed in the text on page 6-53 is being collected from within the tank. There is not a total depth of 6 inches available. The substance in the vessel is, at most, 3 inches thick and covers an area of about 16 square inches. It is not possible to take a sample from within the vessel at a depth of 4-5 feet.

c. Page 6-54; 1st paragraph: Mixing of soil samples are not allowed if volatile organics are present.

The samples will not be homogenized if VOCs are detected using hand-held instruments.

d. Page 6-54; Selection of Sampling Sites: LANL should take samples at deeper intervals (4-5 feet), to verify that vertical contamination has been delineated.

It is unlikely that any sample will be taken from the soil underneath the vessel because the vessel appears to be intact and there appears to be no evidence of a release from around the vessel. If sampling is required, it is highly unlikely for any contamination to have migrated to a depth of 4-5 ft. because no driving force is present at this site. LANL does not feel it is necessary to take samples 4-5 feet deep in this area, at least not during Phase 1 characterization.

e. Page 6-56; 2nd paragraph: If the bottommost sample still contains contaminants above background levels, then LANL must take deeper samples, regardless of the screening action levels.

Please see the response to General Comment 4. It is not necessary to continue sampling at sites where no health risk exists.

14. PRS 9-009-Lagoon and Sand Filters

a. Page 6-59; 5th paragraph: LANL mentions that PRS 9-009 may have received hazardous materials such as Strontium-90. What are the other hazardous materials that this SWMU may have received? LANL shall clarify this statement in the revised workplan.

The text on p. 6-59 says that PRS 9-009 was used "to treat sanitary waste waters from TA-8 and TA-9 but may have received hazardous materials from a Strontium-90 spill." The sentence may be misleading in the way it is worded. The only hazardous material expected is Strontium-90 and the text will be revised in the final work plan.

b. Page 6-61; 2nd paragraph: Please justify why the piping that goes from the building to the septic tank and from the septic tank to the discharge point is not being investigated for a possible release.

The 2nd paragraph on p. 6-61 describes the sampling activity at the lagoon, not a septic tank. We assume the comment refers to the lagoon. The piping originates at Building 24 in TA-8. The drain in this building and the downstream sewer line are being sampled, as well as a septic tank and oxidation pond that were part of this piping. All of these areas, and the lagoon discussed in this comment, would be likely places to find the Strontium-90 if it is present. If Strontium-90 is detected, the drain, septic tank and associated piping is likely to be removed as part of a VCA.

c. Page 6-61: 3rd paragraph: *Mixing of soil samples are not allowed if volatile organics are present. Also, the workplan doesn't mention what constituents will be analyzed from soil/waste samples if field screening and radioactive screening indicate contamination.*

Volatile contamination is not expected at this site based on historical use. However, if field screening detects VOCs the samples would not be homogenized. The text indicates that only PCOC is Sr-90. If rad screening indicates contamination, Sr-90 would still be the only rad constituent to be analyzed. If field screening indicates VOCs, the sample would be analyzed for the Chapter 4 Extended Analyte List for VOCs.

d. Page 6-64: *The workplan doesn't mention what constituents will be analyzed from soil/sludge samples for Phase II if Sr is found in Phase I.*

Again, Sr-90 is the only PCOC expected. If a Phase II investigation is conducted, the intent would be to define the extent of the Sr-90 contamination.

15. PRSs 9-010(a), (b) and (c)-Storage Racks

Page 6-67: *last paragraph: If the bottommost sample taken still contains contaminants above background levels, then LANL must take deeper samples, regardless of the screening action levels. LANL should take samples at deeper intervals (4-5 feet), to verify that vertical contamination has been delineated.*

Because no driving force is present at this site, LANL does not feel it is necessary to take samples 4-5 feet deep in this area, at least not during Phase 1 characterization. The soil in this area has remained undisturbed and therefore, the top 6 inches is reasonable in finding PCOCs. If COCs are found in the top 6 in, a Phase II investigation will be initiated to delineate the vertical extent of the contamination. A baseline risk assessment or a VCA may also be appropriate. Please see the response to General Comment 4. It is not necessary to continue sampling at sites where no health risk exists.

16. PRS 9-011(b)-Storage Area

a. Page 6-69; 1st paragraph: *Please clarify in the revised workplan what LANL means by the statement if HE contamination is found, then soil removal will occur. Does this mean that any detectable concentration of a HE found in the soil will initiate removal?*

The final work plan text will be revised to indicate that if HE contamination is found in levels exceeding health risk based standards, then soil removal will occur.

b. Page 6-71; 2nd paragraph: *If the bottommost sample taken still contains contaminants above background levels, then LANL must take deeper samples, regardless of the screening action levels.*

Please see the response to General Comment 4. It is not necessary to continue sampling at sites where no health risk exists.

17. PRSs 9-003(a), (b), (d), and (e)

a. Page 6-80; 3rd paragraph: *LANL should take samples at least four to five feet vertically from the original bottoms of the settling tanks.*

Table 6-22 on p. 6-84 indicates the total depth of the boreholes. As indicated, each borehole will be drilled to the approximate depth of the PRS and soil gas samples will be obtained. The holes will then be drilled another 8 feet.

b. Page 6-80; 1st paragraph: LANL should have aerial photographs which may further help in locating this SWMU.

We do have aerial photos which we have used to help locate the sampling locations. However, as the text indicates, the area has been decommissioned and the nearest existing landmarks are about 100-150 ft away.

c. Page 6-86; If the bottommost sample taken still contains contaminants above background levels, then LANL must take deeper samples, regardless of the screening action levels.

Please see the response to General Comment 4. It is not necessary to continue sampling at sites where no health risk exists.

18. PRS 9-008(b)-Oxidation Pond

a. Page 6-91; 1st paragraph: EPA will require that one sample be taken in the stream bed during Phase I. Please include this in the revised workplan.

The revised work plan will include a sampling location in the stream bed. The sample will be obtained at a downstream location that looks suitable to have captured sediments. The sample will be taken of the upper 12 inches and will be analyzed for Sr-90.

b. Page 6-91; 3rd paragraph: Please explain more about the tile field. Why are samples being taken so far from the tile field? Also, it appears that at least two more borings could be taken in the tile field. One of these boreholes should be closer to the approximate location of the removed septic tank 9-005(a). Furthermore, it appears that a backhoe trench may be more successful in finding a release along the tile and the septic tank.

One more borehole will be drilled within the tile field within 10 feet of the removed septic tank. The revised work plan will include this additional sampling location. The tile field is designed to release the waste water along its entire length, therefore all the boreholes should be successful in finding a release. LANL does not feel trenching is necessary.

c. Page 6-91; 4th paragraph: It appears that a backhoe trench may be more successful in finding a release from the removed septic tank. Also, LANL doesn't mention which soil intervals will be sampled. Please include this in a revised workplan for tank and tile field.

The suggestion of the backhoe trench is valid, however we feel the number of boreholes we have designated would also be sufficient in finding any release from the septic tank. The text indicates that soil samples will be taken in each hole of the first 5 ft beneath bottom of the original structure. As stated on p. 6-92, 4th paragraph, the borehole samples will be taken from the part of the core that is likely to have the highest constituent levels, as determined from visual inspection and field-screening instruments.

d. Page 6-93; last paragraph: If the bottom sample still contains contaminants above background levels, then LANL must take deeper samples, regardless of the screening action levels.

Please see the response to General Comment 4. It is not necessary to continue sampling at sites where no health risk exists.

19. PRSs 9-003(g), (h), and (i)-Sumps and Drains

Page 6-94; 1st paragraph: EPA is still concerned about the soil remaining beneath the sumps and pipelines. It is more likely that there are areas contaminated from underneath these SWMU's. Please justify why these areas are not being sampled.

The previous section, 6.5, describes the sampling strategy for the deep sampling beneath the settling tanks that were in this area. The intent of the bulk soils investigation is to find contamination within the first foot of soil. If COCs are found in the first 1 ft of soil, sampling would continue in a Phase II investigation to define the nature and extent of contamination as stated on p. 5-63. Depending on the results of the analysis, a baseline risk assessment may need to be conducted. The sites of the sumps are not precisely known but are known to have been shallow. Any constituents released would have been disturbed during regrading and mixed in the soil, and are not likely to have remained at their original sites. We have confirmed that clean soil was not brought in when the site was remediated in the 1960's. When the site was remediated, the ground was leveled after the buildings were burned and removed.

20. PRS 9-012-Waste Pit

a. Page 6-99: last paragraph: Besides the 1 foot sample, what additional interval in the 5 foot borehole will be sampled?

As described on page 6-100, second paragraph, the borehole samples will be taken from the part of the core that is likely to have the highest constituent levels, as determined from visual inspection and field-screening instruments.

b. Page 6-100; 3rd paragraph: If the bottommost sample still contains contaminants above background levels, then LANL must take deeper samples, regardless of the screening action levels.

Please see the response to General Comment 4. It is not necessary to continue sampling at sites where no health risk exists.

21. PRSs 9-001(a) and (b)-Firing Pads

Page 6-108; 1st paragraph: If contaminants are found in the surface, then deeper samples will need to be taken.

Because no driving force is present at this site, LANL does not feel it is necessary to take samples deeper in this area, at least not during Phase 1 characterization. The soil in this area has remained undisturbed and therefore, the top 6 inches is reasonable in finding PCOCs. If COCs are found in the top 6 in, a Phase II investigation will be initiated to delineate the vertical extent of the contamination. A baseline risk assessment or a VCA may also be appropriate. Please see the response to General Comment 4. It is not necessary to continue sampling at sites where no health risk exists.

22. PRS 9-001(c)-Recovery Pit

Page 6-109; last paragraph: Which intervals of the soil will be sampled?

As the second sentence in that paragraph states, the soil selected for laboratory analysis will be taken from the most highly contaminated part of the sampler soil column (5-ft core) as determined from direct field observation and screening methods.

23. PRS 9-002-Burn Pit

a. Page 6-113; 2nd paragraph: Soil samples should be taken to at least 4-5 feet below the bottom of the unit.

Because no driving force is present at this site, LANL does not feel it is necessary to take samples 4-5 feet deep in this area, at least not during Phase 1 characterization. The soil in this area has remained undisturbed and therefore, the top 6 inches is reasonable in finding PCOCs. If COCs are found in the top 6 in, a Phase II investigation will be initiated to delineate the vertical extent of the contamination. A baseline risk assessment or a VCA may also be appropriate. Please see the response to General Comment 4. It is not necessary to continue sampling at sites where no health risk exists.

b. Page 6-113; last paragraph: If the bottommost sample still contains contaminants above background levels, then LANL must take deeper samples, regardless of the screening action levels.

Please see the response to General Comment 4. It is not necessary to continue sampling at sites where no health risk exists.

24. PRS 9-014-Firing Site

a. Page 6-115; 3rd paragraph: It appears to EPA that more samples should be located within a 10 foot radius of the slab. Please justify in the revised workplan.

A statistical sampling approach was used to determine the sample locations selected. The weighting was biased toward the firing pad and two samples are currently located within approximately 10 ft. Based on the history of the site, the greatest concentration of debris would be within a 75-foot radius which is where the other samples are located.

b. Page 6-116; third paragraph: If the bottommost sample still contains contaminants above background levels, then LANL must take deeper samples, regardless of the screening action levels.

Please see the response to General Comment 4. It is not necessary to continue sampling at sites where no health risk exists.

25. PRS 9-013-Material Disposal Area M

a. Page 6-128; last paragraph: Please justify why LANL believes that all the waste materials are only on the surface and are not buried.

All historical information, including aerial photographs, indicate this area was only used as a surface disposal site. There is no evidence indicating the site would have been excavated prior to the initiation of disposal. Aerial photographs indicate a cleared area at this site dating back at least as early as the 1940s. Because the area was already cleared is probably the reason why it was selected for disposal in the first place.

b. Page 6-133; Figure 6-16: EPA believes two soil samples should be taken in MDA M in the SW areas of the waste concentration. Please explain/justify why sampling was omitted in this area.

The sampling strategy selected for this area was based on a semi-statistical approach whereby 15 judgmental sampling locations will be selected, in addition to the 14 randomly selected locations shown on the figure. One of the 15 judgmental samples will be taken in this area. Since the material that has been disposed here is similar throughout, it is highly likely that any PCOCs would be detected based on the 29 sampling locations selected. If any COCs are detected, the whole area would be approached in the same manner throughout. If no COCs are detected, the whole site, at a minimum would be covered.

c. Page 6-135; 2nd paragraph: LANL should take samples at deeper intervals (4-5 feet), to verify that vertical contamination has been delineated.

Because no driving force is present at this site, LANL does not feel it is necessary to take samples 4-5 feet deep in this area, at least not during Phase 1 characterization. The soil in this area has remained undisturbed and therefore, the top 12 inches is reasonable in finding PCOCs. If COCs are found in the top 12 in, a Phase II investigation will be initiated to delineate the vertical extent of the contamination. A baseline risk assessment or a VCA may also be appropriate. Please see the response to General Comment 4. It is not necessary to continue sampling at sites where no health risk exists. The results of the sediment, spring, and creek samples will also help determine whether any further actions should be taken regarding waste constituents that may have migrated from the site and contaminated local surface or subsurface water resources or canyon bottom sediments.

d. Page 6-137; last paragraph: Mixing of soil samples are not allowed if volatile organics are present.

The samples will not be homogenized if field screening instruments indicate the presence of VOCs.

e. Page 6-138; fourth paragraph: If hazardous materials are found, they should be taken to a controlled area at the Lab, not left on the surface.

This whole area is over 3 acres in size. It would be more economical and feasible for LANL to cover the site and provide long-term monitoring then remove the hazardous material to a controlled area of the Laboratory. The disposition of the hazardous materials will be determined during the corrective measures study.

f. Page 6-140 Sampling and Analysis Approach for Springs and Creek: An additional surface water and surface soil sample should be taken at the confluence of Starmer Gulch and Pajarito Canyon.

It is unclear why another surface water sample is needed at the confluence of Pajarito Canyon and Starmer Gulch in the Phase I investigation. We are presently sampling water and sediments at upstream locations and additional sites within the canyons would be further characterized in Phase II if necessary. If a soil sample is required, it is unclear where EPA suggests as the location of the soil sample. Water is in this area almost year round.

26. PRS 69-001-Two Mile Incinerator Pond

Page 6-149; 2nd paragraph: LANL should take deeper samples at deeper intervals (4-5 feet), to verify that vertical contamination has been delineated. Also, EPA believes that an additional sample needs to be taken in the center of the pond.

An additional sample will be obtained from the center of the pond, as suggested. Since a driving force was present in the pond area, a 3 samples will be obtained from within the range of 0-24 inches.

27. AOC C-8-010-Drum Storage Area

a. Page 6-155; 2nd paragraph: EPA considers this site a SWMU and it should be placed into the HSWA permit.

This site, C-8-010, has been added to the permit modification, effective May 19, 1994.

b. Page 6-156; 3rd paragraph: Samples must be taken deeper than 24 inches in order to make this a legitimate investigation.

Field screening instruments will be used throughout the sampling event. Since we are not positive about the depth of the sediments in this area, if the field screening instruments continue to detect PCOCs, the sampling will continue at 1 foot intervals to the surface of the tuff. The depth of 24 inches is a reasonable estimate based on visual inspection and knowledge of this site.

c. Page 6-158; 3rd paragraph: If the bottommost sample still contains contaminants above background levels, then LANL must take deeper samples, regardless of the screening action levels.

Please see the response to General Comment 4. It is not necessary to continue sampling at sites where no health risk exists.

28. AOC C-9-001-Outfall from Chemical Storage Bldg.

a. Page 6-159: EPA considers this site a SWMU and it should be placed into the HSWA permit.

This site, C-9-001, has been added to the permit modification, effective May 19, 1994.

b. Page 6-161; 1st paragraph: Does liquids from the drainpipes come from floor drains where chemicals are stored? Please explain in the revised workplan.

Chemicals were stored in this building. The drain originates in the floor of the building where the chemicals evidently spilled. This will be clarified in the revised work plan.

c. Page 6-158; 3rd paragraph: If the bottommost sample still contains contaminants above background levels, then LANL must take deeper samples, regardless of the screening action levels.

Please see the response to General Comment 4. It is not necessary to continue sampling at sites where no health risk exists.

29. Units Requested for No Further Action:

a. Page 7-7; PRS 8-007: Please explain in the revised workplan the date the outfall first was used and the date the outfall was permitted by EPA. Also, include previous monitoring results from this outfall. Furthermore, please include a narrative describing the piping that goes from the drain to the outfall and why this piping is not a potential release site.

PRS 8-007 is the past location of a silver recovery resin bed. It was a confined unit, which is no longer in place, that was used to collect silver from the photo-processing laboratory. The outfall that is mentioned in EPA's comment and is related to PRS 8-007 is discussed in Section 6.1.6 and is being investigated.

b. Page 7-32; PRS 9-016: LANL shall provide verification that this tank has been removed.

Verification of removal of this tank has been requested and will be forwarded to EPA as soon as it is obtained.

c. Page 7-51; C-9-010 Burning Pit: LANL shall provide the archival information referenced for EPA review.

The archival information requested is attached.

d. Page 7-51; C-9-011 Burn Area: LANL shall provide the archival information referenced for EPA review.

The archival information is attached.

ATTACHMENT 1
LIST OF SCREENING ACTION LEVELS

TABLE J-1

**SUMMARY OF SCREENING ACTION LEVELS FOR
POTENTIAL CHEMICALS OF CONCERN IN SOIL, WATER, AND AIR FOR
ENVIRONMENTAL CHARACTERIZATION OF
LOS ALAMOS NATIONAL LABORATORY^a**

Chemicals ^b	Soil Screening Action Level mg/kg	Water Screening Action Level µg/l	Air Screening Action Level µg/m ³	CRQL ^c mg/kg and µg/l
Inorganics				
Aluminum ^d , 7429-90-5				40, 200
Antimony, 7440-36-0	32	6 ^h		12, 60 ^e
Arsenic, 7440-38-2	0.40	50 ⁱ	0.00023	2, 10 ^e
Barium, 7440-39-3	5,600	2,000 ^h	0.49	40, 200
Beryllium, 7440-41-7	0.16	4 ^h	0.00042	1, 5 ^e
Cadmium, 7440-43-8	80	5 ^h	0.00056	1, 5
Calcium ^d , 7440-70-2				1000, 5000
Chromium III, 16065-83-1	80,000	50		2, 10
Chromium VI, 7440-47-3	400	50	0.000083	2, 10
Chromium (Total)		100 ^h		10, 50
Cobalt ^d , 7440-48-4				10, 50
Copper, 7440-50-8	3,000	1,300		5, 25
Cyanide, 57-12-5	1,600	200 ⁱ		2, 10
Iron ^d , 1543-83-10				20, 100
Lead, 7439-92-1	500 ^j	50 ^j		0.6, 3
Magnesium ^d , 7786-30-3				1000, 5000
Manganese, 7439-96-5	8,000	3,500	0.39	3, 15
Mercury, 7439-97-8	24	2 ^h	0.30	0.04, 0.2
Nickel, 7440-02-0	1,600	100 ^h	0.0042	8, 40
Nitrate	130,000	10,000 ^h		
Nitrite, 14797-65-0	8,000	1,000 ^h		
Potassium ^d , 7447-40-7				1000, 5000
Selenium, 7782-49-2	400	50 ^h		1, 5
Silver, 7440-22-4	400	170		2, 10
Sodium ^d , 7647-14-5				1000, 5000
Thallium, 7440-28-0	6.4	2 ^h		2, 10 ^e
Vanadium, 7440-62-2	560	240		10, 50
Zinc, 7440-66-6	24,000	10,000		4, 20

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Chemicals ^b	Soil Screening Action Level mg/kg	Water Screening Action Level µg/l	Air Screening Action Level µg/m ³	CRQL ^c mg/kg and µg/l
High Explosives				
2-amino-2,6-DNT (aminodinitrotoluene) ^d				
4-amino-2,6-DNT (aminodinitrotoluene) ^d , 19406-51-0				
Ammonium nitrate ^d , 6484-52-2				
Barium nitrate (soluble barium)	5,600	2,000 ^h		40, 200
CEF (tri(b-chloroethyl)-phosphate) ^d , 115-96-8				
1,3-DNB (dinitrobenzene), 99-65-0	8	3.5		
2,4-DNT (dinitrotoluene), 121-14-2	1	0.05		0.33, 10 ^g
2,6-DNT (dinitrotoluene), 606-20-2	1	0.05		0.33, 10 ^g
DPA (diphenylamine), 122-39-4	2,000	880		
HMX (cyclotetramethylenetetranitramine), 2691-41-0	4,000	1,800		
Nitrocellulose (non-toxic) ^d , 9004-70-0				
Nitromethane ^d , 75-52-5				
NP (bis(2,2-dinitropropyl) acetal/formal) ^d , 5917-61-3				
PETN (pentaerythritol tetranitrate), 78-11-5	1,600	700		
RDX (trimethylenetrinitramine), 121-82-4	64	3.2		
TATB (triaminotrinitrobenzene) ^d , 3058-38-6				
Tetryl (N-methyl-N,2,4,6- tetranitrobenzeneamine), 479-45-8	800	350		
1,3,5-TNB (trinitrobenzene), 99-35-4	4	1.8		
2,4,6-TNT (trinitrotoluene), 118-96-7	40	12		

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Chemicals ^b	Soil Screening Action Level mg/kg	Water Screening Action Level µg/l	Air Screening Action Level µg/m ³	CRQL ^c mg/kg and µg/l
Organics				
Volatile Organic Compounds				
Acetone, 67-64-1	8,000	3,500		0.01, 10
Benzene, 71-43-2	0.67	5 ^h	0.12	0.01, 10 ^e
Benzoic Acid, 65-85-0	320,000	140,000		100, —
Bromodichloromethane, 75-27-4	11	0.56		0.01, 10 ^e
Bromoform, 75-25-2	89	4.4	0.90	0.01, 10 ^e
Bromomethane, 74-83-9	0.43	49	4.9	0.01, 10
2-Butanone (Methyl ethyl ketone), 78-93-3	4,000	1,700	1,000	0.01, 10
Carbon disulfide, 75-15-0	7.4	3,500	10	0.01, 10
Carbon tetrachloride, 56-23-5	0.21	5 ^h	0.066	0.01, 10 ^e
Chlorobenzene, 108-90-7	67	100 ^h	20	0.01, 10
Chloroethane, 75-00-3	3,300		10,000	0.01, 10
Chloroform, 67-66-3	0.21	100 ^h	0.043	0.01, 10 ^e
Chloromethane, 74-87-3	6.4	27	5.6	0.01, 10
Dibromochloromethane, 124-48-1	83	4.2		0.01, 10 ^e
1,1-Dichloroethane, 75-34-3	410	3500	500	0.01, 10
1,1-Dichloroethene, 75-35-4	0.59	7 ^h	0.29	0.01, 10 ^e
1,2-Dichloroethane, 107-06-2	0.20	5 ^h	0.038	0.01, 10 ^e
cis-1,2-Dichloroethene, 156-59-2	800	70 ^h		0.01, 10
trans-1,2-Dichloroethene, 156-60-5	1600	100 ^h		0.01, 10
1,2-Dichloropropane, 78-87-5	6.5	5 ^h	4.0	0.01, 10
cis-1,3-Dichloropropene, 10061-01-5	0.17	0.19	0.027	0.01, 10 ^e
trans-1,3-Dichloropropene, 10061-02-6	0.17	0.19	0.027	0.01, 10 ^e
Ethyl benzene, 100-41-4	3,100	700 ^h	1000	0.01, 10
n-Hexane, 110-54-3	4,800	2,100		
2-Hexanone ^d , 591-78-6				0.01, 10
Methanol, 67-56-1	40,000	18,000		

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Chemicals ^b	Soil Screening Action Level mg/kg	Water Screening Action Level µg/l	Air Screening Action Level µg/m ³	CRQLC mg/kg and µg/l
4-Methyl-2-pentanone (MIBK), 108-10-1	510	1,700	80	0.01, 10 ^c
Methylene Chloride, 75-09-2	5.6	5 ^h	2.2	0.01, 10 ^e
Styrene, 100-42-5	16,000	100 ^h		0.01, 10 ^e
1,1,2,2-Tetrachloroethane, 79-34-5	3.9	1.8	0.18	0.01, 10 ^e
Tetrachloroethene, 127-18-4	5.9	5 ^h	1.8	0.01, 10 ^e
Toluene, 108-88-3	890	1000 ^h	380	0.01, 10
1,1,1-Trichloroethane, 71-55-6	1,000	200 ^h	1,000	0.01, 10
1,1,2-Trichloroethane, 79-00-5	6.3	5 ^h	0.63	0.01, 10 ^e
Trichloroethene, 79-01-6	3.2	5 ^h	0.58	0.01, 10 ^e
Vinyl Chloride, 75-01-4	0.013	2 ^h	0.012	0.01, 10 ^e
Xylene (Total), 1330-20-7	160,000	10,000 ^h		0.01, 10
<u>Semi-Volatile Organic Compounds</u>				
Acenaphthene, 83-32-9	4,800	2,100		0.33, 10
Acenaphthylene ^d , 208-96-8				0.33, 10
Anthracene, 120-12-7	24,000	10,000		0.33, 10
Benzo[a]anthracene, 56-55-3	0.64	0.1 ⁱ		0.33, 10
Benzo[b]fluoranthene, 205-99-2	0.7	0.2 ⁱ		0.33, 10
Benzo[k]fluoranthene, 207-08-9	1.5	0.2 ⁱ		0.33, 10
Benzo[ghi]perylene ^d , 191-24-2	44			0.33, 10
Benzo[a]pyrene, 50-32-8	0.10	0.2 ^h	0.00057	0.33, 10 ^e
alpha-BHC, 319-84-6	0.1	0.0056		
beta-BHC, 319-85-7	4	0.19		
Bis-(2-chloroethoxy)methane ^d , 111-91-1				0.33, 10
Bis-(2-chloroethyl)ether, 111-44-4	0.13	0.032	0.0032	0.33, 10 ^e
Bis-(2-ethylhexyl)phthalate, 117-81-7	50	4 ⁱ		0.33, 10 ^e
4-Bromophenyl-phenylether ^d , 101-55-3				0.33, 10
Butyl benzyl phthalate, 85-68-7	16,000	100 ⁱ		0.33, 10

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Chemicals ^b	Soil Screening Action Level mg/kg	Water Screening Action Level µg/l	Air Screening Action Level µg/m ³	CRQL ^c mg/kg and µg/l
Carbazole, 86-74-8	35	1.8		0.33, 10
Chlordane, 57-74-9	0.54	0.2 ^h		0.017, 0.05
4-Chloroaniline, 106-47-8	320	140		0.33, 10
4-Chloro-3-methylphenol ^g (p-chloro-m-cresol), 59-50-7	16,000	7,000		0.33, 10
2-Chloronaphthalene, 91-58-7	6,400	2,800		0.33, 10
2-Chlorophenol, 95-57-8	400	170		0.33, 10
4-Chlorophenyl phenyl ether ^d , 7005-72-3				0.33, 10
Chrysene, 218-01-9	22	0.2 ⁱ		0.33, 10
DDD, 72-54-8	2.9	0.15		0.03, 0.1
DDT, 50-29-3	2.1	0.1		0.03, 0.1
Dibenzo[a,h]anthracene, 53-70-3	0.086	0.3 ⁱ		0.33, 10
Dibenzofuran ^d , 132-64-9				0.33, 10
Di-n-butylphthalate, 84-74-2	8,000	3,500		0.33, 10
1,2-Dichlorobenzene, 95-50-1	1,600	600 ^h	200	0.33, 10
1,3-Dichlorobenzene, 541-73-1	7,200	600 ^h		0.33, 10
1,4-Dichlorobenzene, 106-46-7	290	75 ^h	700	0.33, 10
3,3'-Dichlorobenzidine, 91-94-1	1.6	0.078		0.33, 10 ^e
2,4-Dichlorophenol, 120-83-2	240	100		0.33, 10
Diethylphthalate, 84-66-2	64,000	5,000 ⁱ		0.33, 10
Dimethylformamide, 68-12-2	8,000	3,500		
2,4-Dimethylphenol, 105-67-9	1,600	700		0.33, 10
Dimethyl phthalate, 131-11-3	80,000	35,000		0.33, 10
4,6-Dinitro-2-methylphenol ^d (4,6-dinitro-o-cresol), 534-52-1				0.8, 25
2,4-Dinitrophenol, 51-28-5	160	70		0.8, 25
Di-n-octyl phthalate, 117-84-0	1,600	700		0.33, 10
Endosulfan, 115-29-7	4	1.8		
Ethyl acetate, 141-78-6	72,000	32,000		
Ethylene glycol, 107-21-1	160,000	70,000		

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Chemicals ^b	Soil Screening Action Level mg/kg	Water Screening Action Level µg/l	Air Screening Action Level µg/m ³	CRQLC ^c mg/kg and µg/l
Fluoranthene, 206-44-0	3,200	1,400		0.33, 10
Fluorene, 86-73-7	3,200	1,400		0.33, 10
Hexachlorobenzene, 118-74-1	0.44	1 ^h	0.0022	0.33, 10 ^e
Hexachlorobutadiene, 87-68-3	90	4.5	0.45	0.33, 10 ^e
Hexachlorocyclopentadiene, 77-47-4	560	50 ^h	0.07	0.33, 10
Hexachloroethane, 67-72-1	80	25	2.5	0.33, 10
Indeno[1,2,3-cd]pyrene, 193-39-5	0.41	0.4 ⁱ		0.33, 10
Isophorone, 78-59-1	7,400	370		0.33, 10
2-Methylnaphthalene ^d , 91-57-6				0.33, 10
2-Methylphenol (o-cresol), 95-48-7	4,000	1,700		0.33, 10
4-Methylphenol (p-cresol), 106-44-5	4,000	1,700		0.33, 10
Naphthalene, 91-20-3	3,200	1400		0.33, 10
2-Nitroaniline, (o-nitroaniline) 88-74-4	4.8	2.1	0.20	0.8, 25 ^e
3-Nitroaniline(m-nitroaniline) ^d , 99-09-2				0.8, 25
4-Nitroaniline(p-nitroaniline) ^d , 100-01-6				0.8, 25
Nitrobenzene, 98-95-3	5.3	18	2.0	0.33, 10
2-Nitrophenol ^d , 88-75-5				0.33, 10
4-Nitrophenol ^d , 100-02-7				0.8, 25
N-Nitrosodiphenylamine, 86-30-6	140	7.1		0.33, 10 ^e
N-Nitrosodi-N-propylamine, 621-64-7	0.10	0.0050		0.33, 10 ^e
2,2-Oxybis(1-chloropropane) (bis(2-chloroisopropyl)ether), 108-60-1	100	0.50	1.0	0.33, 10
PCB (Aroclors), 1336-36-3	0.09	0.50 ^h		0.033, 1
Pentachlorophenol, 87-86-5	5.8	1 ^h		0.8, 25 ^e
Phenanthrene ^d , 85-01-8				0.33, 10
Phenol, 108-95-2	48,000	21,000		0.33, 10
Pyrene, 129-00-0	2,400	1,000		0.33, 10
1,2,4-Trichlorobenzene, 120-82-1	160	70 ^h	9.0	0.33, 10
2,4,5-Trichlorophenol, 95-95-4	8,000	3,500		0.8, 25
2,4,6-Trichlorophenol, 88-06-2	64	3.2	0.32	0.33, 10 ^e

- a. SALs based on methodologies given by EPA 1990 (0432) and EPA (1991, 0302). SALs are rounded to two significant figures. Water SALs are used for both groundwater and surface water.
- b. Target Analyte List (TAL), Target Compound List (TCL), High-Explosive List, with associated Chemical Abstract Services numbers, as given by EPA (1991, 0814; 1991, 0779; 1991, 1074)
- c. Contract Laboratory Program (CLP) and Contract-Required Quantitation Limits (CRQLs) for soil (mg/kg) and water ($\mu\text{g/l}$), respectively. CRQLs are provided as an indicator of the analytical method detection limit, and are not to be viewed in an absolute sense as a standard of performance for a given sample representing a given matrix and a given analyte. CRQLs are not available for air.
- d. Toxicity data (e.g., RfDs and/or slope factors) were not available; therefore, SALs were not calculated.
- e. The SAL is less than the CRQL; therefore, special analytical services may be required.
- f. Soil SAL based on EPA guidance on establishing lead cleanup levels (EPA 1989, 0987).
- g. Based on subchronic RfD divided by 10; chronic RfD not available.
- h. Safe drinking water regulations (EPA 1993, 1071) MCL water SALs were not calculated for compounds with MCLs in accordance with proposed EPA guidance (EPA 1990, 0432)
- i. MCL is not final. Number presented is a draft or proposed MCL from EPA (1993, 1071)
- j. No MCL or toxicity information appropriate for SAL derivation is available for lead. The SAL presented is based on Federal ambient water quality criteria for the protection of human health based on water and fish consumption (EPA 1993, 0830).

ATTACHMENT 2
RFI SCHEDULE

1157 RFI Field Work

ID	Name	Scheduled Start	Scheduled Finish
1	Geophysical Survey	12/7/93 8:00am	12/20/93 5:00pm
2	MDA M Grid and Inventory	5/2/94 8:00am	5/27/94 5:00pm
3	Springs Sampling	4/4/94 8:00am	10/12/94 5:00pm
4	April Sampling Event	4/4/94 8:00am	4/5/94 5:00pm
5	July Sampling Event	7/11/94 8:00am	7/12/94 5:00pm
6	October Sampling Event	10/11/94 8:00am	10/12/94 5:00pm
7	Surface/Near Surface Intrusive	4/18/94 8:00am	7/15/94 5:00pm
8	Soil Sampling	4/18/94 8:00am	5/27/94 5:00pm
9	Tank/Drain Sampling	4/18/94 8:00am	5/27/94 5:00pm
10	MDA M Springs/Surface Soil/Sediment/Containers	5/31/94 8:00am	7/15/94 5:00pm
11	Outfalls	4/18/94 8:00am	5/27/94 5:00pm
12	Sample Analysis	4/18/94 8:00am	1/18/95 5:00pm
13	MDA M Springs	6/30/94 8:00am	12/22/94 5:00pm
14	Surface/Near Surface Soil	4/18/94 8:00am	10/20/94 5:00pm
15	Tanks/Drains	6/7/94 8:00am	11/29/94 5:00pm
16	MDA M S. Soil/Sediment/Containers	7/25/94 8:00am	1/18/95 5:00pm
17	Outfalls	6/7/94 8:00am	11/29/94 5:00pm
18	Data Assessment	12/22/93 8:00am	3/3/95 5:00pm
19	Geophysics	12/22/93 8:00am	2/7/94 5:00pm
20	Surface/Near Surface Soil	4/18/94 8:00am	12/6/94 5:00pm
21	Tanks	6/7/94 8:00am	1/13/95 5:00pm
22	Outfalls	6/7/94 8:00am	1/13/95 5:00pm
23	MDA M Springs/Other sampling	7/25/94 8:00am	3/3/95 5:00pm
24	Ecological Risk Assessment	10/11/93 8:00am	9/30/94 5:00pm
25	Deep Drilling	3/28/95 8:00am	12/20/95 5:00pm
26	Deep Drilling Field Sampling	3/28/95 8:00am	5/8/95 5:00pm
27	Deep Drilling Analysis	5/16/95 8:00am	11/3/95 5:00pm
28	Deep Drilling Assessment	5/16/95 8:00am	12/20/95 5:00pm
29	Geophysics/Surface Soil/Tanks/Outfalls Phase I Report	1/13/95 8:00am	10/6/95 5:00pm
30	MDA M Springs/Other Phase I Report	3/6/95 5:00pm	12/1/95 5:00pm
31	Deep Drilling Phase I Report	12/21/95 8:00am	9/17/96 5:00pm
32	Phase II RFI	11/5/96 8:00am	10/30/97 5:00pm
33	Phase II Preparation	11/5/96 8:00am	3/14/97 5:00pm
34	Phase II Field Work	3/17/97 8:00am	5/16/97 5:00pm
35	Phase II Sample Analysis	3/31/97 8:00am	9/17/97 5:00pm
36	Phase II Data Assessment	3/31/97 8:00am	10/30/97 5:00pm
37	RFI Report	1/13/95 8:00am	9/28/98 5:00pm

PRSS

Surface/Near Surface Intrusive:

Soil: 8-002, 8-003(a), 8-006(a), 9-001(a)(b)(d), 9-002, 9-003(g)(h)(i), 9-008(b), 9-009, 9-010(a)(b), 9-011(b)(c), 9-012, 9-014, c-8-010, c-9-001

Tank/Drains/Vessels: 8-003(a), 8-004(d), 8-005, 9-005(d)

Outfalls: 8-009(a)(c)(d)(e)(f)

MDA M Springs, Surface Soil, Sediments, Contents: 9-013

Deep Drilling: 8-003(a), 9-001(c), 9-003(a)(b)(d)(e), 9-005(a)(d), 9-006, 9-012

ATTACHMENT 3

**NPDES SAMPLING RESULTS
EPA OUTFALL 06A-075**

TA	BLDG	DATE_SAMP	EPA	OUT	ANALYS	RESULT	RES	METHO
08	0021	17-JAN-89	075	06A	Ag	.13	MGL	272.1
08	0021	17-JAN-89	075	06A	CN	0	MGL	335.3
08	0021	17-JAN-89	075	06A	pH	7.82	SU	150.1
08	0021	19-APR-89	075	06A	Ag	.003	MGL	272.1
08	0021	19-APR-89	075	06A	CN	0	MGL	335.3
08	0021	19-APR-89	075	06A	pH	7.96	SU	150.1
08	0021	19-JUL-89	075	06A	Ag	.36	MGL	272.1
08	0021	19-JUL-89	075	06A	CN	0	MGL	335.3
08	0021	19-JUL-89	075	06A	pH	7.82	SU	150.1
08	0021	16-OCT-89	075	06A	Ag	.007	MGL	272.1
08	0021	16-OCT-89	075	06A	CN	0	MGL	335.3
08	0021	16-OCT-89	075	06A	pH	7.9	SU	150.1
08	0021	17-JAN-90	075	06A	Ag	.034	MGL	272.1
08	0021	17-JAN-90	075	06A	CN	0	MGL	335.3
08	0021	17-JAN-90	075	06A	pH	8.4	SU	150.1
08	0021	20-APR-90	075	06A	Ag	.01	MGL	272.1
08	0021	20-APR-90	075	06A	CN	0	MGL	335.3
08	0021	20-APR-90	075	06A	pH	7.9	SU	150.1
08	0021	16-JUL-90	075	06A	Ag	.01	MGL	272.1
08	0021	16-JUL-90	075	06A	CN	.018	MGL	335.3
08	0021	16-JUL-90	075	06A	pH	7.1	SU	150.1
08	0021	15-OCT-90	075	06A	Ag	.01	MGL	272.1
08	0021	15-OCT-90	075	06A	CN	0	MGL	335.3
08	0021	15-OCT-90	075	06A	pH	8.1	SU	150.1
08	0021	16-JAN-91	075	06A	Ag	.013	MGL	272.1
08	0021	16-JAN-91	075	06A	CN	0	MGL	335.3
08	0021	16-JAN-91	075	06A	pH	8.22	SU	150.1
08	0021	18-APR-91	075	06A	Ag	.15	MGL	272.1
08	0021	18-APR-91	075	06A	CN	0	MGL	335.3
08	0021	18-APR-91	075	06A	pH	7.1	SU	150.1
08	0021	16-JUL-91	075	06A	Ag	.01	MGL	272.1
08	0021	16-JUL-91	075	06A	CN	0	MGL	335.3
08	0021	16-JUL-91	075	06A	pH	7.62	SU	150.1
08	0021	16-OCT-91	075	06A	Ag	.051	MGL	272.1
08	0021	16-OCT-91	075	06A	CN	0	MGL	335.3
08	0021	16-OCT-91	075	06A	pH	7.8	SU	150.1
08	0021	06-JAN-92	075	06A	Ag	.024	MGL	272.1
08	0021	06-JAN-92	075	06A	CN	0	MGL	335.3
08	0021	06-JAN-92	075	06A	pH	8	SU	150.1
08	0021	21-FEB-92	075	06A	Ag	.195	MGL	272.1
08	0021	21-FEB-92	075	06A	CN	0	MGL	335.3
08	0021	21-FEB-92	075	06A	pH	7.4	SU	150.1
08	0021	15-APR-92	075	06A	Ag	.01	MGL	272.1
08	0021	15-APR-92	075	06A	CN	0	MGL	335.3
08	0021	15-APR-92	075	06A	pH	7.15	SU	150.1
08	0021	19-JUN-92	075	06A	Ag	.01	MGL	272.1
08	0021	19-JUN-92	075	06A	CN	0	MGL	335.3
08	0021	19-JUN-92	075	06A	pH	7.5	SU	150.1
08	0021	13-JUL-92	075	06A	Ag	.01	MGL	272.1
08	0021	13-JUL-92	075	06A	CN	.02	MGL	335.3
08	0021	13-JUL-92	075	06A	pH	7.86	SU	150.1
08	0021	04-SEP-92	075	06A	Ag	.01	MGL	272.1
08	0021	04-SEP-92	075	06A	CN	0	MGL	335.3
08	0021	04-SEP-92	075	06A	pH	7.24	SU	150.1
08	0021	15-OCT-92	075	06A	Ag	.011	MGL	272.1
08	0021	15-OCT-92	075	06A	CN	0	MGL	335.3

08 0021	15-OCT-92	075	06A	pH	7.69	SU	150.1
08 0021	13-JAN-93	075	06A	Ag	.068	MGL	272.1
08 0021	13-JAN-93	075	06A	CN	0	MGL	335.3
08 0021	13-JAN-93	075	06A	pH	6.9	SU	150.1
08 0021	15-APR-93	075	06A	Ag	.01	MGL	272.1
08 0021	15-APR-93	075	06A	CN	0	MGL	335.3
08 0021	15-APR-93	075	06A	pH	7.5	SU	150.1
08 0021	05-MAY-93	075	06A	Ag	.051	MGL	272.1
08 0021	05-MAY-93	075	06A	CN	0	MGL	335.3
08 0021	05-MAY-93	075	06A	pH	7.2	SU	150.1
08 0022	16-JUL-93	075	06A	Ag	.01	MGL	272.1
08 0022	16-JUL-93	075	06A	CN	0	MGL	335.3
08 0022	16-JUL-93	075	06A	pH	7	SU	150.1
08 0021	14-OCT-93	075	06A	Ag	.01	MGL	272.1
08 0021	14-OCT-93	075	06A	CN	0	MGL	335.3
08 0021	14-OCT-93	075	06A	pH	8.3	SU	150.1
08 0021	10-JAN-94	075	06A	Ag	.02	MGL	272.1
08 0021	10-JAN-94	075	06A	CN	0	MGL	335.3
08 0021	10-JAN-94	075	06A	pH	7.8	SU	150.1
08 0021	12-APR-94	075	06A	Ag	.01	MGL	272.1
08 0021	12-APR-94	075	06A	CN	0	MGL	335.3
08 0021	12-APR-94	075	06A	pH	8	SU	150.1

78 rows selected.

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ATTACHMENT 4

ARCHIVAL INFORMATION

(Reference: Weston, Roy J. September 19, 1989, "Environmental Restoration Program, Task number AL-LA-037," Los Alamos National Laboratory, Los Alamos, New Mexico)

1. Project Name : ER PROGRAM
2. Installation : LOS ALAMOS NATIONAL LABORATORY
4. Task Number : AL-LA-037
5. Phase 1 Heading : TA-9(AE)-2-CA-1-HW/RW(Burning Areas)
6. Release Site Descriptor : TA-09-17-002-0000
7. Installation Identifier : TA-9-2b
8. Alternative Identifier : Not identified
9. Site Description :
Small fire reported in pit in 1950 at Anchor Site East; location unknown(R01r).
10. Site Location:
Coordinate system and units : LANL Coordinate System / Feet
The site has not been surveyed
Coordinates : Not identified
Elevation : Not identified
11. Program Phase : NFA
12. Program Phase Rationale :
Phase 1 (R01r) and RI Scoping (R01s) activities indicate that the site should receive no further action.
13. Current Operational Status : Not Operational
Current Owner/Operating Group : Not identified
14. Site Type : Burning pit and any associated soil contamination
15. Potential Pathways : Not identified
16. Generic Waste Type : Not identified

17. EPA Waste Characteristics : Not identified

18. EPA Waste Types : Not identified

19. Contaminants of Concern: Not identified

21. Chronological Events:

Description	Date	Reference
•Small fire in burning pit	07/16/50	R02r
•ER Program Site Visit	11/21/88	R01s

22. Comments:

On July 16, 1950, it was reported that there was a small fire in the burning pit east of Anchor Ranch(R02r). Where this pit was located is not known. Activities at this pit could have led to contamination of HE and radionuclides. An attempt to locate this site was made during a November 1988 ER Program Site Visit(R01s). The attempt was unsuccessful. Due to the unlikelyhood of ever finding this site and the small chance that measurable contamination to the environment was ever released, it is suggested that this site receive no further action.

23. Information Resources

Reports

• Reference R01r

Title : CEARP Phase 1 Report

Author : DOE

Date : 10/87

Location: ER Program Document Control Files, Roy F. Weston, Albuquerque, NM

• Reference R02r

Title : H-3 Monthly Report

Author : LAML Division H-3

Date : 08/24/50

Location: ER Program Document Control Files, Roy F. Weston, Albuquerque, NM

Site Visits

• Reference R01s

Title : ER Program Site Visit

Author : Roy F. Weston

Date : 11/21/88

Location: Field Notebook Control #69, ER Program Document Control Files, Roy F. Weston, Albuquerque, NM

1. Project Name : ER PROGRAM
2. Installation : LOS ALAMOS NATIONAL LABORATORY
4. Task Number : AL-LA-037
5. Phase 1 Heading : TA-9(AE)-2-CA-1-HW/RW(Burning Areas)
6. Release Site Descriptor : TA-09-17-003-0000
7. Installation Identifier : TA-9-2c
8. Alternative Identifier : Not identified
9. Site Description :
Burn area associated with decommissioning of 9-1 at Anchor Site East; may be same as 9-2-1(R01r).
10. Site Location:
Coordinate system and units : TBD
The site has not been surveyed
Coordinates : Not identified
Elevation : Not identified
11. Program Phase : NFA
12. Program Phase Rationale :
Phase 1 (R01r) and RI Scoping (R01s) activities indicate that the site should receive no further action.
13. Current Operational Status : Not Operational
Current Owner/Operating Group : Not identified
14. Site Type : Burn area and any associated soil contamination
15. Potential Pathways : Not identified
16. Generic Waste Type : Not identified

17. EPA Waste Characteristics : Not identified

18. EPA Waste Types : Not identified

19. Contaminants of Concern: Not identified

21. Chronological Events:

Description	Date	Reference
•ER Program Site Visit	11/21/88	R01s

22. Comments:

As indicated in the description of the decommissioning of this site, old combustible parts of the site were piled up and burned in a region east of the site. Whether or not this was near the 1949 burning pit (TA-9-2A) is not known(R01r). An attempt to locate this site was made during a November 1988 ER Program Site Visit(R01s). The attempt was unsuccessful. Due to the unlikelyhood of ever finding this site and the small chance that measurable contamination to the environment was ever released, it is suggested that this site receive no further action.

23. Information Resources

Reports

- Reference R01r
 - Title : CEARP Phase 1 Report
 - Author : DOE
 - Date : 10/87
 - Location: ER Program Document Control Files, Roy F. Weston, Albuquerque, NM

Site Visits

- Reference R01s
 - Title : ER Program Site Visit
 - Author : Roy F. Weston
 - Date : 11/21/88
 - Location: Field Notebook Control #69, ER Program Document Control Files, Roy F. Weston, Albuquerque, NM