TA-5

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*Date:* April 14, 2003
*Refer to:* ER2003-0282

APR 2003

Mr. John Young, Corrective Action Project Leader
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**SUBJECT: SUBMITTAL OF RESPONSE TO REQUEST FOR SUPPLEMENTAL INFORMATION (RSI) FOR THE SAMPLING AND ANALYSIS PLAN (SAP) FOR THE MIDDLE MORTANDAD / TEN SITE AGGREGATE**

Dear Mr. Young:

Enclosed are two copies of the Los Alamos National Laboratory (LANL) Environmental Restoration Project's Response to your RSI on the SAP for the Middle Mortandad / Ten Site Aggregate. The RSI was received at the ER Project Office on March 13, 2003.

If you have any questions, please call Gabriela Lopez Escobedo at (505) 665-7352 or David Gregory at (505) 667-5808.

Sincerely,

David McInroy, Acting Program Manager
Remediation Program
Los Alamos National Laboratory

Sincerely,

David Gregory, Project Manager
Department of Energy
Los Alamos Site Operations

DM/ET/GLE/dv

Enclosure: RSI response

APR 2003

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## RESPONSE TO REQUEST FOR SUPPLEMENTAL INFORMATION (RSI) FOR THE SAMPLING AND ANALYSIS PLAN FOR THE MIDDLE MORTANDAD / TEN SITE AGGREGATE

This document responds to a letter regarding "Request for Supplemental Information for the Sampling And Analysis Plan for The Middle Mortandad/Ten Site Aggregate dated March 10, 2003, from the New Mexico Environment Department (NMED) Hazardous Waste Bureau (HWB) to the Los Alamos National Laboratory (LANL) Environmental Restoration (ER) Project. Data on radionuclide sampling, analysis and analytical results is included in this document for informational purposes only. To facilitate review of this response, NMED's comments are included verbatim below. LANL's responses follow each NMED comment.

### COMMENTS

**NMED Comment**

1. **Section 1.0, Introduction, Page 6;**
   **LANL STATEMENT:** "The ER Project has evaluated existing data, assessed potential impacts, and defined additional data needs for all PRSs at TA-35."
   **NMED COMMENT:** All PRSs are not included in this sampling and analysis plan (SAP). Table1.0-1 lists some of the solid waste management units (SWMUS) and areas of concern (AOCs) not included in this SAP. Please revise the statement to state it is a partial list. Additionally, Table 1.0-2 lists 32 potential release sites (PRSs) that have been approved for no further action (NFA), out of 32 sites only 5 were approved by NMED. The remaining 27 AOC sites were either approved or are pending approval by DOE that is not recognized by NMED as a valid "NFA". NMED has not reviewed these sites to determine if any RCRA concerns exist at these sites and if they should be included in the investigation. If any of these sites are determined to have RCRA concerns, the sites will have to be evaluated to determine if samples proposed in the SAP will cover investigation of these sites or if new sampling locations need to be added to the SAP. Alternatively, the Permittees may submit documentation that demonstrates to NMED's satisfaction that these sites do not pose unacceptable risk to human health and the environment and do not need to be included in the SAP.

**LANL Response**

Section 1.0, Introduction, Page 6, statement is revised to state: "The ER Project has evaluated existing data, assessed potential impacts, and identified additional data needs for all PRSs at TA-35 that are currently included in the HSWA Permit." With respect to the 27 sites identified in NMED's comment, LANL received NFA determinations from U.S. EPA for those sites, indicating that RCRA concerns had been addressed. NMED was copied on the required workplans and on EPA's responses and approvals. All the relevant documents are included in NMED's administrative record. Any further concerns NMED may have with EPA's decisions should be addressed through the provisions of the

Hazardous Waste Management Regulations that provide for agency-initiated permit modification.

**NMED Comment**

2. **Table 2.1-1, Page 18-19;**
   **NMED COMMENT:** The 'Comments' column of Table 2.1-1 for PRSs 35-003(a)-99 and 35-003(j)-99 states repeatedly that no human health and ecological risk exists for these sites, the statement seems premature because the RFI Reports for these sites were either never submitted or never reviewed or approved by NMED. In addition, for some of these sites, confirmatory samples were not collected by the Environmental Restoration (ER) Project. Some of the data included in the SAP is being submitted to NMED for the first time and has not undergone any review. Additionally, Table 2.4-2 on page 114 indicates that vertical extent has not been defined for these sites and additional samples need to be collected. Revise the comment to state that available data indicates that there is no potential human health or ecological risk but further investigation may be necessary.

**LANL Response**

The statement in Table 2.1-1 is, "No ecological or human health risks present, considering depth of remaining contamination." Available data indicates that there is no apparent ecological or human health risk associated with these particular PRS sites because they have all been cleaned up. Therefore there is no risk because the surface soil is clean fill. However, these sites will be further evaluated as stated in Section 3.2.1.3, as additional samples are being collected to determine extent of subsurface contamination.

**NMED Comment**

3. **Section 2.2.4.2, Comparison of Inorganic Chemicals with Background Values for the Pratt Canyon Subarea, Page 80;**
   **LANL STATEMENT:.** "For the soil samples, four TAL metals (copper, lead, mercury and zinc) were detected above their background values in at least one sample." "For sediment, cadmium, copper, mercury and nickel were detected above their background values in at least one sample".

   **NMED COMMENT:** Cadmium was also detected above its background value in two of the samples as reported in the Table 2.2-20. Strontium was also reported as detected in 6 out of 10 samples, although no background value was reported for strontium in Table 2.2-20. Revise the statement.

   According to Table 2.2-20 for sediments, cadmium was not detected above its background value. Additionally, the detection limit for cadmium was not above its background value as reported in Table 2.2-20. Explain the discrepancy between the text and table.

**LANL Response -**

The statement on Page 86 of Section 2.2 shall be revised as follows: "For the soil samples, five TAL metals (cadmium, copper, lead, mercury and zinc) were detected above their background values in at least one sample (however, the reporting values for cadmium were higher than background values.) Strontium was also detected, however, it has no background value for comparison."

The LANL correction(s) to NMED comment #3 is incorporated in the revised Tables 2.2-20 and 2.2-21 included in Appendix A to this comment response.

**NMED Comment**

4. **Section 2.3.3.3.1, Pratt Canyon Setting, Page 107;**
   **LANL STATEMENT**: "The available data support the model element of infiltration into fill material and the underlying tuff and indicate that fracture flow may not be a significant transport mechanism beneath the bench in upper Pratt Canyon."

   **NMED COMMENT**: Provide data that supports this statement. Samples collected at depth (133.5 to 134.5 ft) in the Pratt Canyon indicated presence of elevated uranium isotopes. Provide references of any studies that demonstrated that fracture flow is not a significant pathway for transport of contaminants in the Pratt Canyon. This statement may not be true for all types of historic releases into the environment.

**LANL Response**

Page 107, Section 2.3.3.3.1 text shall be revised as follows, "The available data support the model element of infiltration into fill material and the underlying tuff and indicate that fracture flow may not be a significant transport mechanism beneath the bench in upper Pratt Canyon. The data is derived from mid-1990's ER Project sample results from 9 100-ft boreholes (Location ID # 35-02004 though 35-02011 and 35-02013) and 1 300-ft borehole (Location ID 335-02028) drilled in the Pratt Canyon bench."

**NMED Comment**

5. **Section 2.4.1, Page, 109;**
   **NMED COMMENT**: Fix the typographical error in third paragraph, it should be HPT not HTP.

**LANL Response**

The text on Page 109, in Section 2.4.1, third paragraph, second sentence, shall be revised as follows; "...data assessment tools were implemented. The HPT agreed..."

**NMED Comment**

6. **Table 2.4-2, Page 113-115;**
   **NMED COMMENTS**: For PRS 35-011(d), revise the 'Data Gap Conclusions' column, remove the check marks for alpha spectroscopy, gamma spectroscopy, strontium and tritium. Samples do not need to be analyzed for these contaminants based on the process knowledge.

   For PRS 35-004(a), Appendix B states that four samples were taken but Table 2.4-2 and Table C-1.1-1 report that only two samples were analyzed for alpha spectroscopy. Explain the discrepancy.

   For PRS 35-009(a), operations at TA-35-2, the building associated with the septic system, included use of lanthanum-140, plutonium and lithium tritide. Add tritium to analyses because lithium tritide was used at the associated laboratory. The samples to be taken from the toe of the slope should also be analyzed for tritium to define extent.

   For PRS 35-003(j)-99, plutonium-239 was not detected in the deepest sample (6ft), but was detected at 6.6 pCi/g at 5ft. Additional samples may be needed to define the vertical extent.

   For PRS 35-004(h), metals should have been included in the analysis because previous results were from XRF analyses. Revise the column, the number of samples under the column for 'Number of fixed laboratory samples for Inorganics', should be zero not four. Table C-1.1-1 also indicates that samples were not analyzed for fixed laboratory analysis for metals.

**LANL Response**

For PRS 35-011(d), Table 2.4-2 shall be revised as follows; the check marks for alpha spectroscopy, gamma spectroscopy, strontium and tritium in the column "Data Gap Conclusions" will be removed.

For PRS 35-004(a), the text shall be revised on page B-7 of Appendix B; the last sentence of the paragraph describing PRS 35-004(a) shall be deleted. The sentence should have been part of the following paragraph for PRS 35-004(h).

For PRS 35-009(a), Table 2.4-2 and Table 2.4-3 shall be revised as follows, a check mark for tritium shall be added to the "Data Gap Conclusions" column. Table 3.2-2 shall have tritium analyses added to transect(s) TR 18 and TR 19 (although lithium tritide, a hydroxyl scavenger, releases mostly tritium gas).

Note: Many metals are commonly used for gettering (chemically combining with) tritium; little information on their metabolic properties is available. Some of these compounds (such as uranium tritide and lithium tritide) are unstable in air. For these, exposure to air produces different results. Uranium tritide, being pyrophoric, releases

large quantities of tritiated water; lithium tritide, a hydroxyl scavenger, releases mostly tritium gas. Ref: DOE HANDBOOK (DOE-HDBK-1079-94), December 1994, Primer on Tritium Safe Handling Practices.

For PRS 35-003(j)-99, Table 2.4-2 shall be revised as follows, a check mark for alpha spectroscopy shall be added to the "Data Gap Conclusions" column. Table 3.2-1 shall have alpha spectroscopy analyses added to Borehole BH3.

For PRS 35-004(h), Table 2.4-2 shall be revised as follows, a check mark for metals shall be added to the "Data Gap Conclusions" column and the number of fixed laboratory samples collected in the "Inorganics" column shall be change from 4 to 0. For Table 3.2-1, PRS 35-004(h) shall have a sample location added. A borehole (BH8) shall be drilled to a depth of 20 ft with 4 samples collected, one every 5 ft, for TAL metals analyses.

The LANL correction(s) to NMED comment #6 is incorporated in the revised Tables 2.4-2, 2.4-3, 3.2-1 and 3.2-2 and the revised Figure 3.2-2 included in Appendix A to this comment response.

**NMED Comment**

7. **Table 2.4-3, Page 116;**
   **NMED COMMENT**: For PRSs 35-004(m) and 35-016(n), since Cs-137 and Eu-152 were detected in the surface samples, gamma spectroscopy should be added to the analyses for samples to be taken at the toe of the slope to define the extent of contamination.

**LANL Response**

For PRS 35-014(g)-00, Table 2.1-2 shall be revised as follows, PRS 35-004(m) will be deleted from the rows comprising PRS 35-004(g)-00 and added to the rows comprising PRS 35-014(g)-00. Table 2.4-3 shall be revised as follows, consolidated unit number PRS 35-014(g)-00 designator, will be added to the row for PRSs 35-014(n), 35-004(m), 35-014(g1) and 35-014(g2). In addition, a check mark for gamma spectroscopy shall be added to the "Data Gap Conclusions" column. Table 3.2-2 shall be revised as follows, consolidated unit number PRS 35-014(g)-00 designator, will be added to the row for PRSs 35-014(n), 35-004(m), 35-014(g1) and 35-014(g2). In addition, alpha spectroscopy analyses shall be added to Transect TR8. The LANL correction(s) to NMED comment #7 is incorporated in the revised Tables 2.1-2, 2.4-3 and 3.2-2 included in Appendix A to this comment response.

**NMED Comment**

8. **Table 2.4-4, Page 119-120;**
   **NMED COMMENTS:** For PRS 35-016(f), Appendix B states that PCBs were detected but the table reports that PCBs were not detected. Explain the discrepancy and revise the text to indicate the accurate statement.

   For PRS 35-016(o), add alpha spectroscopy, gamma spectroscopy and tritium analyses to the samples to be taken at the alluvial fan because these contaminants were detected in the surface samples taken at the outfall. The extent of the contamination must be defined.

**LANL Response**

For PRS 35-016(f), Appendix B, page B-14 text states "...areas had detectable concentration of PCBs (LANL 1990, 75110)," the reference cited is that of the SWMU Report. The 4 samples collected by the ER Project for PCBs did not detect PCBs. The text shall be revised as follows. "The SWMU Report states that soil samples were collected from the stained areas prior to 1990 and had detectable concentration of PCBs (LANL 1990, 7511). However because the data was not included in the SWMU Report and is unavailable for verification, the ER Project recollected soil samples for PCB analyses in 1995, no PCBs were detected."

For PRS 35-016(o), Table 2.4-4 shall be revised as follows, check marks for alpha and gamma spectroscopy and tritium shall be added to the "Data Gap Conclusions" column. Table 3.2-3 shall have alpha and gamma spectroscopy and tritium analyses added to Transects TR22, TR23, TR24 and TR25. The LANL correction(s) to NMED comment #8 is incorporated in the revised Tables 2.4-4 and 3.2-3 included in Appendix A to this comment response

**NMED Comment**

9. **Table 2.4-5, Page 121;**
   **NMED COMMENT:** For PRS 35-016(k)-00, gamma activity was detected in the catch basin at PRS 35-016(l) in 1988. Change the 'n' to 'y' in the column for 'COPCs Expected at the PRS' for gamma spectroscopy.

**LANL Response**

For PRS 35-016(k)-00, Table 2.4-5 shall be revised as follows, the "n" will be changed to "y" in the column for "COPCs Expected at the PRS" for gamma spectroscopy. The LANL correction(s) to NMED comment #9 is incorporated in the revised Table 2.4-5 included in Appendix A to this comment response

**NMED Comment**

10. **Table 2.4-6, Page 124;**
    **NMED COMMENT:** For PRS 35-010(e), metals and SVOCs were detected in the sand filter beds that were the source of the discharge, 'n' in the column labeled 'COPCs Expected at the PRS' should be changed to 'y' for metals and SVOCs.

Additional samples are not required because the SVOCs and metals were detected at very low levels in the filter beds.

**LANL Response**

For PRS 35-010(e), Table 2.4-6 shall be revised as follows, in the column for "COPCs Expected at the PRS," the "n" shall be changed to "y" for metals and SVOCs. The text in the following row shall be revised to say, "Additional samples are not required because the SVOCs and metals were detected at very low levels in the filter beds." The LANL correction(s) to NMED comment #10 is incorporated in the revised Table 2.4-6 included in Appendix A to this comment response

**NMED Comment**

11. **Section 3.1.2, Risk Assessment and Exposure Models, Page 130;**
    **LANL STATEMENT:** "The TA-35 mesa top will be evaluated as continuing industrial land (LANL 1998, 57224)."
    **NMED COMMENT:** Currently this approach is acceptable for interim measures, but SWMUs and AOCs being proposed for NFA must meet residential risk criteria.

**LANL Response**

The original statement is accurate and appropriate in light of the fact that future land use at TA-35 will remain industrial.

**NMED Comment**

12. **Section 3.1.2.2, Ecological Receptors and Exposures, Page 131;**
    **NMED COMMENT:** The sampling results will presumably be screened against the LANL ecological screening action levels (ESLs) for the appropriate terrestrial receptors. The table of potential pathways includes a number of exposure pathways for ecological receptors that are not considered in the development of the screening levels that will be used to screen the site. The LANL ESLs, like NMED ecological screening guidelines, consider only soil ingestion and ingestion of material incorporated into food items (plus external radiation for radionuclides). In the SAP ecological risk is not being considered for the mesa top because >90% of the area is developed (covered by buildings, parking lots, or gravel). Hillside, canyon, and mesa top sampling results should all be compared to ecological screening levels, except for: samples at greater than five feet below ground surface, samples under existing buildings, and samples under existing pavement. Any hazard quotients greater than one can then be discussed with NMED to determine if they warrant any type of action at the site. This comment does not require a response at this time but should be considered when risk assessment is conducted for the site.

**LANL Response**

Per NMED this comment does not require a response.

**NMED Comment**

13. **Section 3.2.1.3, Sample Collection and Analysis, Page 134;**
    **NMED COMMENT:** Fix the typographical error 'PRS 35-009(a)-99' is indicated; however, it should read 'PRS 35-003(a)-99'.
    For PRS 35-002, additional borehole is needed. Samples taken at borehole BH-5 will help in defining the extent, but will not be sufficient to evaluate the residual contamination at this site. Confirmatory samples taken at MDA X were not ER samples but taken by HSE-8. The samples should be analyzed for metals, radionuclides and tritium.

**LANL Response**

The last paragraph on page 134 shall be revised as follows, "PRS 35-002 is the former site of the LAPRE experiments, later designated MDA X. Because this PRS is collocated with part of PRS 35-003(a)-99, 1996 ER Project data will be used from PRS 35-003(a)-99 (location IDs 35-02272, 35-02275, 35-02276) to help assess the site. An additional borehole (BH9) will be added to the sample set and be located near the former excavation for MDA X."

The text in Table 3.2-1, under column "Description of Sample Locations" for PRS 35-002 shall be deleted. The revised text shall state, "Drill a borehole (BH9) to 30 ft. Collect three samples from the following intervals; 0-5 ft, 10-15 ft, and 25-30 ft." Samples will be collected for TAL metals, alpha and gamma spectroscopy and tritium analyses.

The LANL correction(s) to NMED comment #13 is incorporated in the revised Tables, 3.2-1 and Figure 3.2-2 included in Appendix A to this comment response.

**NMED Comment**

14. **Table 3.2-1, Page 136;**
    **NMED COMMENT:** Fix the typographical error 'PRS 35-009(a)-99' is indicated; however, it should read 'PRS 35-003(a)-99'.

**LANL Response**

See response to NMED comment #13. The LANL correction(s) to NMED comment #14 is incorporated in the revised Table 3.2-1, included in Appendix A to this comment response

**NMED Comment**

15. **Table 3.2-1, Page 136;**
    **NMED COMMENT:** Include gamma spectroscopy analyses to the samples to be taken from TR-8 to define the extent of contamination. Eu-152 and Cs-137 were detected in the samples taken at the mesa top. See comment 10.

**LANL Response**

LANL believes NMED is referring to comment #7. See response to NMED Comment #7. The LANL correction(s) to NMED comment #15 is incorporated in the revised Table 3.2-2, included in Appendix A to this comment response.

**NMED Comment**

16. **Table 3.2-2, Page 145;**
    **NMED COMMENT:** For PRSs 35-009(b) and 35-004(g), fix the typographical error. AH-11 in the column of 'Description of Sample Locations' should indicate AH-1.

    PRSs 35-016(c) and 35-016(d) are part of a consolidated unit 35-016(c)-00; add a side bar to the table depicting it as a consolidated unit.

**LANL Response**

The LANL correction(s) to NMED comment #16 is incorporated in the revised Table 3.2-2, included in Appendix A to this comment response.

**NMED Comment**

17. **Figure 3.2-4, Page 149;**
    **NMED COMMENT:** Show the location of proposed auger hole AH-1 and label TR-10 on the Figure 3.2-4.

**LANL Response**

The LANL correction(s) to NMED comment # 17 is incorporated in the revised Figure 3.2-4, included in Appendix A to this comment response.

**NMED Comment**

18. **Table 3.2-3, Page 156;**
    **NMED COMMENT:** For PRS 35-016(o) (outfalls 2 and 3), tritium should be added to the analytical suite for TR-22, TR-23, and TR-25. Tritium was detected in previous samples and could have migrated down the slope/down canyon.

**LANL Response**

See response to NMED comment # 8. The LANL correction(s) to NMED comment #18 is incorporated in the revised Table 3.2-3, included in Appendix A to this comment response.

**NMED Comment**

19. **Section 4.1, Geomorphic and Topographic Mapping, Page 172;**
    **LANL STATEMENT**: "Laboratory-derived contaminants are expected to occur in the active depositions but not in the inactive depositions."
    **NMED COMMENT:** The contamination from active depositions could have migrated down to inactive depositions over the years. Based on field observations, the Permittees, should investigate inactive depositions at selected locations to ensure that the assumption made in above statement is accurate.

**LANL Response**

The initial conceptual model for the expected distribution of contaminants in the valley floor sediments is that the vertical and horizontal extent of contamination will be limited to young, post-laboratory aged sediments that typically overly older, pre-laboratory aged sediments. Although the initial releases of contaminants into the canyons within this aggregate were liquid discharges, the contaminants are expected to quickly sorb onto soil and sediment that is subsequently redistributed by stormwater runoff. Thus, contaminants are expected to be limited to young deposits. However, it is our practice to confirm this conceptual model with a representative number of samples collected from older deposits that underlie or are adjacent to the young deposits to confirm definition of extent of contamination. Therefore, the NMED comment is being addressed because we will be sampling inactive deposits from each transect, which would be the deepest sample depth.

**NMED Comment**

20. **Section 5.1, Project Scheduling and reporting Requirements, Page 180;**
    **LANL STATEMENT**: "Implementation of this SAP will be directed by the industrial sites (IS) Team of the Remedial Actions Focus Area (RAFA) of the LANL ER Project. No date has been determined for beginning implementation of this SAP, and no schedule for the work is provided here."
    **NMED COMMENT:** The project schedule should be included in the SAP. The Addendum to the SAP should be submitted to NMED by 9/30/03 and Investigation Report should be submitted to NMED by 2/28/05.

**LANL Response**

See Appendix B for Sampling and Analysis Plan implementation schedule. Please note that the schedule may change depending on available funding.

**NMED Comment**

21. **Appendix A, Page A-6;**
    **NMED COMMENT:** Explain why two separate definitions are provided for AOCs in the SAP and indicate which one will be utilized in this document.

**LANL Response**

Page A-6 definitions for AOC are both correct; however, the Laboratory will utilize only the first definition in this document: "Areas at the Laboratory that might warrant further investigation for releases based on past facility waste-management activities."

**NMED Comment**

22. **Appendix B, Site Descriptions, pages B-5 and B-6;**
    **NMED COMMENT:** Fix the typographical error, 'PRS 35-009(e)-99' should instead indicate 'PRS 35-003(a)-99', please note that there are several references to PRS 35-009(e)-99 throughout the document.

**LANL Response**

All occurrences of "PRS 35-009(e)-99" within this document shall be changed to "PRS 35-003(a)-00."

**NMED Comment**

23. **Appendix B, Site Descriptions, pages B-7;**
    **NMED COMMENT:** Correct the typographical error; 'lithium titride' is spelled as 'lithium tritide'.

**LANL Response**

The text "lithium titride" on page B-7, in Appendix B shall be revised to "lithium tritide."

**NMED Comment**

24. **Appendix C, Existing Data, Page C-8;**
    **NMED COMMENT:** For PRS 35-009(a), correct the depths for samples with ID numbers 0435-96-0051 and -0052. Table C-1.1-1 indicates that these samples were taken at the depth of 0-8 feet (pages, C-8, C-18 and C-24).

**LANL Response**

In Appendix C, Existing Data, Pages C-8, C-18 and C-24 for samples 0435-96-0051 and -0052, all reported "0-8 ft" sample depth shall be revised to "8 – 8.5 ft." Tables C-1.1-1 and C-1.1-2 shall be revised accordingly.

**NMED Comment**

25. **Appendix D, Ecological Scoping Checklists;**
    **NMED COMMENT:** Appendix D contains the four ecological checklists for the site. The checklist for the mesa top does not address the potential for contaminants at edge of mesa to impact hillside ecological receptors or erode into canyons impacting canyon receptors. The checklist for the slope/canyon notes heavy erosion on the upper slopes that might result in contaminant transport. This checklist indicates that the SAP will address the distribution of contaminants potentially migrating down the slope. The checklist for the Mortandad Canyon subarea indicates that the canyon bottom is riparian and contains flowing water most of the year. Therefore, aquatic ecological receptor screening levels should be used in addition to the terrestrial ones if aquatic receptors are present in this subarea (the checklist indicates aquatic insects such as caddis flies are present). The Pratt Canyon subarea checklist indicates a small area of cattails in the canyon; this area should be evaluated to determine if Pratt Canyon should be assessed for aquatic receptors.

**LANL Response**

The checklist is designed to provide a description of the area, whether receptors are present, whether complete exposure pathways are present, and ultimately to construct a conceptual exposure model for ecological receptors. It is not a physical transport model; this is part of the overall conceptual model described in the main text of the sampling and analysis plan (pages 100- 108). Because the mesa edge is also a transition point between the mesa top and the slope/canyon, erosion of this area is acknowledged as a potential release and transport mechanism in several checklists.

The mesa top checklist states that the mesa edge has a high potential for erosion in the surface water erosion potential box on the bottom of the first page. It later states on page 2 under contaminant transport information that surface water runoff is the dominant transport pathway and reiterates that the mesa edges are highly susceptible to erosion and in several places gullies have cut several meters into the edge. Some erosion control practices have been employed at several points along the mesa edges. On page 4, the checklist states that sampling will focus on canyon slopes to address data gaps in the

transport rates and patterns. The slope/canyon checklists also mention that the mesa edges are sources of contaminants due to the high erosion potential of these areas.

The bottom of Mortandad Canyon, including the stream channel, will be investigated in connection with the Mortandad Canyon surface aggregate report, which will present the results of the canyons team investigations. As part of that investigation, ecological risk will be evaluated for terrestrial and aquatic receptors. This approach is the same one used for the Los Alamos/Pueblo watershed.

The cattail area in Pratt Canyon is no longer wet due to changes in the runoff flow and hydrology from the mesa top. As a result, it does not currently support an aquatic community and is shrinking as the cattails die back from lack of water. However, the cattail area will be evaluated to determine whether it stills represents an aquatic ecosystem and whether ecological risk should be assessed.

**NMED Comment**

26. **Appendix E, Spoke Plots;**
    **NMED COMMENT:** The spoke plot for inorganics for PRS 35-016(m) does not show sampling locations for samples 35-02093 and 35-02094. Add these sampling locations to the spoke plot.

**LANL Response**

The Pratt Canyon spoke plot for inorganics has been revised to include location IDs 35-02093 and 35-02094 (included in Appendix A.) Four samples were collected in total at these two locations for fixed laboratory mercury analysis. Nothing was detected. All other inorganic data from these two locations is from XRF data. This type of data (XRF) was included in the data packet of the SAP (on CD); however, it was not used for spoke plots.

RESPONSE TO REQUEST FOR SUPPLEMENTAL INFORMATION (RSI)
FOR THE SAMPLING AND ANALYSIS PLAN FOR THE MIDDLE MORTANDAD /
TEN SITE AGGREGATE

# Appendix A

## TABLE 2.1-2 - REVISED
## TEN SITE SLOPE PRSs AND CURRENT DAY STATUS

| PRS | | PRS Description | Current Ground Cover | Description of Source Term Removal | ER Project Confirmatory Sampling Performed? | Comments? |
|---|---|---|---|---|---|---|
| 35-004(g)-00 | 35-004 (g) | Container storage area, south of TA-35-67 | Asphalt to soil | None | No | For ER Project RFI data, see table of samples collected (section2.2) |
| 35-004(g)-00 | 35-009(b) | Abandoned, inactive sanitary septic system, south of TA-35-67 | > 3 ft of clean soil over PRS | Site cleaned up during a 1996 ER Project VCA; 1350 gal. of liquid/sludge removed. Septic tank, dosing chamber, manhole, and distribution box filled with concrete (LANL 1996, 55071). | Yes, see table of samples collected in section 2.2 | Properly abandoned an inactive septic system and eliminate potential for leaks or contaminant migration. |
| 35-009(a) | | Abandoned, inactive septic system, southwest of TA-35-34 | > 3 ft of clean soil over PRS | Site cleaned up during a 1996 ER Project VCA; 3 $yd^3$ of solid waste, and 1800 gal. of liquid/sludge removed; septic tank and dosing chamber filled with concrete, cleanout structure and distribution box removed (LANL 1996, 55071). | Yes, see table of samples collected in section 2.2 | Properly abandoned an inactive septic system and eliminate potential for leaks or contaminant migration. |
| 35-009(e) | | Inactive floor drainline inside building TA-35-25 | Daylights to slope | None | No | For ER Project RFI data, see table of samples collected (section2.2) |
| 35-014(g)-00 | 35-004(m) | Former container storage area, south of TA-35-86 | Asphalt to soil | None | No | For ER Project RFI data, see table of samples collected (section2.2) |
| 35-014(g)-00 | 35-016(n) | Active stormwater outfall and daylight channel, south of TA-35-86 | Outfall to Soil/tuff | None | No | For ER Project RFI data, see table of samples collected (section2.2) |
| 35-014(g)-00 | 35-014($g_1$) | Former oil-stained asphalt, south of TA-35-207at outfall PRS 35-016(n) | Asphalt to soil | Area partially cleaned up in 1988/1989 (LANL 1996, 54763). | No | Removed stained soil and asphalt; for ER Project RFI data, see table of samples collected (section2.2) |
| 35-014(g)-00 | 35-014($g_2$) | Former oil-stained asphalt area within PRS 35-004(m) at TA-35-86 | Asphalt to soil | Area partially cleaned up in 1988/1989 (LANL 1996, 54763). | No | Removed stained soil and asphalt; for ER Project RFI data, see table of samples collected (section2.2) |
| 35-014($g_3$) | | Site of former dielectric oil spill at PRS 35-015(a), west of TA-35-86 | Asphalt to soil | Area partially cleaned up in 1988/1989 (Roberson 1991, 21576). | No | For ER Project RFI data, see table of samples collected (section2.2). |

## Table 2.2-20 - Revised

| Analyte | Media | Number of Analyses | Number of Detects | Concentration Range (mg/kg) | Background Value (mg/kg)[a] | Frequency of Detects or Detects Above Background Value[b] | Frequency of Nondetects Above Background Value[c] |
|---|---|---|---|---|---|---|---|
| Aluminum | Soil | 23 | 23 | 520 to 12200 | 29200 | 0/23 | 0/0 |
| Antimony | | 23 | 1 | [0.25 to 5.7] | 0.83 | 0/23 | 19/22 |
| Arsenic | | 23 | 15 | 0.41 to 4.8 | 8.17 | 0/23 | 0/8 |
| Barium | | 23 | 17 | 7.3 to 92 | 295 | 0/23 | 0/6 |
| Beryllium | | 23 | 13 | 0.17 to 1.2 | 1.83 | 0/23 | 0/10 |
| Boron | | 8 | 4 | [0.37] to 2.4 | NA | 4/8 | NA |
| Cadmium | | 23 | 2 | [0.31] to 2.1 | 0.4 | 2/23 | 11/21 |
| Calcium | | 23 | 18 | [130] to 2370 | 6120 | 0/23 | 0/5 |
| Chromium | | 23 | 20 | [1] to 10.6 | 19.3 | 0/23 | 0/3 |
| Cobalt | | 23 | 12 | 0.66 to 4.2 | 8.64 | 0/23 | 0/11 |
| Copper | | 23 | 17 | 0.93 to 54.1 | 14.7 | 1/23 | 0/6 |
| Iron | | 23 | 23 | 1500 to 8980 | 21500 | 0/23 | 0/0 |
| Lead | | 23 | 22 | 0.84 to 29.2 | 22.3 | 1/23 | 0/1 |
| Lithium | | 10 | 6 | [1.5] to 9.6 | NA | 6/10 | NA |
| Magnesium | | 23 | 16 | 110 to 2020 | 4610 | 0/23 | 0/7 |
| Manganese | | 23 | 23 | 51.3 to 344 | 671 | 0/23 | 0/0 |
| Mercury | | 16 | 2 | [0.044] to 1 | 0.1 | 1/16 | 2/14 |
| Molybdenum | | 10 | 0 | [0.62 to 6.3] | NA | 0/10 | NA |
| Nickel | | 23 | 13 | [1.2] to 8.7 | 15.4 | 0/23 | 0/10 |
| Potassium | | 23 | 15 | [287] to 1200 | 3460 | 0/23 | 0/8 |
| Selenium | | 23 | 0 | [0.13 to 7.1] | 1.52 | 0/23 | 3/23 |
| Silver | | 23 | 2 | [0.37 to 1.1] | 1 | 0/23 | 1/21 |
| Sodium | | 23 | 13 | [42.2 to 760] | 915 | 0/23 | 0/10 |
| Strontium | | 10 | 6 | [1.2] to 20.1 | NA | 6/10 | NA |
| Thallium | | 23 | 3 | [0.1 to 25.2] | 0.73 | 0/23 | 4/20 |
| Titanium | | 8 | 8 | 43.4 to 158 | NA | 8/8 | NA |
| Vanadium | | 23 | 15 | [0.5] to 16.4 | 39.6 | 0/23 | 0/8 |
| Zinc | | 16 | 16 | 9.3 to 573 | 48.8 | 3/16 | 0/0 |

a Values in square brackets indicate nondetected results.
b Value is the ratio of the number of detected values exceeding the background value to the number of detects, if no background value exists, the number is simply the number of detects to the number of analyses.
c Value is the ratio of the number of not-detected values exceeding the background value to the number of not-detected analyses.

**Table 2.2-21 - Revised**

| | Comparison to Background Values for Soil | | | Comparison to Background Values for Sediment | | | Comparison to Background Values for Tuff | | |
|---|---|---|---|---|---|---|---|---|---|
| **Analyte** | Not detected above | Reporting limits above | Detected above backgroun | Not detected above | Reporting limits above | Detected above backgroun | Not detected above | Reporting limits above | Detected above backgroun |
| Aluminum | ▪ | | | ▪ | | | | | ▪ |
| Antimony | | ▪ | | | ▪ | | | ▪ | |
| Arsenic | ▪ | | | ▪ | | | | ▪ | |
| Barium | ▪ | | | ▪ | | | | | ▪ |
| Beryllium | ▪ | | | ▪ | | | ▪ | | |
| Cadmium | | | ▪ | ▪ | | | | ▪ | |
| Calcium | ▪ | | | ▪ | | | ▪ | | |
| Chromium | ▪ | | | ▪ | | | | | ▪ |
| Cobalt | ▪ | | | ▪ | | | ▪ | | |
| Copper | | | ▪ | | | ▪ | | | ▪ |
| Iron | ▪ | | | ▪ | | | ▪ | | |
| Lead | | | ▪ | ▪ | | | | | ▪ |
| Magnesium | ▪ | | | ▪ | | | | | ▪ |
| Manganese | ▪ | | | ▪ | | | ▪ | | |
| Mercury | | ▪ | | | | ▪ | | ▪ | |
| Nickel | ▪ | | | | | ▪ | | | ▪ |
| Potassium | ▪ | | | ▪ | | | ▪ | | |
| Selenium | ▪ | | | | ▪ | | | ▪ | |
| Silver | ▪ | | | ▪ | | | | ▪ | |
| Sodium | ▪ | | | ▪ | | | ▪ | | |
| Thallium | | ▪ | | | ▪ | | | | ▪ |
| Vanadium | ▪ | | | ▪ | | | ▪ | | |
| Zinc | | | ▪ | ▪ | | | | | ▪ |

## Table 2.4-2 - Revised
## Data Gap Determination for the Mesa Top Subarea

| Consolidated Unit Number, Individual PRS Number, and Description | Inorganics | | | | | Organics: SVOCs | | | | | Organics: VOCs | | | | | Organics: PCBs/Pesticides | | | | | Radionuclides: Alpha Spectroscopy | | | | | Radionuclides: Gamma Spectroscopy | | | | | Radionuclides: Strontium-90 | | | | | Radionuclides: Tritium | | | | | Data Gap Conclusions | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | COPCs expected at PRS?[1] | Number of fixed-laboratory samples | > Background value?[2] | Vertical extent defined?[3] | Lateral extent defined?[4] | COPCs expected at PRS? | Number of fixed-laboratory samples | Detected? | Vertical extent defined? | Lateral extent defined? | COPCs expected at PRS? | Number of fixed-laboratory samples | Detected? | Vertical extent defined? | Lateral extent defined? | COPCs expected at PRS? | Number of fixed-laboratory samples | Detected? | Vertical extent defined? | Lateral extent defined? | COPCs expected at PRS? | Number of fixed-laboratory samples | > Background value or detected?[5] | Vertical extent defined? | Lateral extent defined? | COPCs expected at PRS? | Number of fixed-laboratory samples | > Background value or detected? | Vertical extent defined? | Lateral extent defined? | COPCs expected at PRS? | Number of fixed-laboratory samples | > Background value or detected? | Vertical extent defined? | Lateral extent defined? | COPCs expected at PRS? | Number of fixed-laboratory samples | > Background value or detected? | Vertical extent defined? | Lateral extent defined? | Metals | SVOCs and /or VOCs | PCBs | Alpha spectroscopy | Gamma spectroscopy | Strontium-90 | Tritium |
| **35-015(a)**, waste oil treatment facility | Y[6] | 18 | Y | N[7] | N | Y | 20 | Y | N | N | U[8] | 6 | Y | N | N | U | 6 | N | Y | Y | N | 17 | Y | Y | Y | N | 16 | Y | Y | Y | N | 0 | — | — | — | N | 0 | — | — | — | ✔ | ✔ | | | | | |
| | Barium, cadmium, calcium, chromium, copper, lead, nickel, thorium, and zinc detected in most AAC prefix samples from 0 to 3 ft; calcium, chromium, and nickel detected in 1997 samples from 0 to 3 ft, concentrations decreasing with depth | | | | | Samples were also analyzed for DRO and LRO; the highest detects are from lubricant range TPH at locations 35-2500 and 35-2499, from 1 to 2 ft | | | | | Trace amounts of 4 VOCs (e.g., acetone, toluene and trichloroethenes) detected in samples to depths of 3 ft | | | | | Nothing detected | | | | | One sample (97-0108) contained uranium-235 just above background at 1- to 2-ft depth; 1 (97-0104) contained plutonium-239 below background in a surface sample | | | | | One sample (97-0108) contained europium-152 just above background from 1- to 2-ft depth | | | | | Based on process knowledge, no samples were collected for this chemical | | | | | Based on process knowledge, no samples were collected for this chemical | | | | | Checked categories have detected constituents whose extent has not been defined (between location 35-2499 and 35-2500 for SVOCs) | | | | | | |
| **35-011(d)**, waste oil USTs (2) | U | 0 | — | N | N | Y | 0 | — | N | N | U | 0 | — | N | N | U | 0 | — | N | N | U | 0 | — | N | N | U | 0 | — | N | N | U | 0 | — | N | N | U | 0 | — | N | N | ✔ | ✔ | ✔ | | | | |
| | No existing RFI data | | | | | No existing RFI data | | | | | No existing RFI data | | | | | No existing RFI data | | | | | No existing RFI data | | | | | No existing RFI data | | | | | No existing RFI data | | | | | No existing RFI data | | | | | ESH-18 removed tanks in 1991; TPH was detected up to 500 ppm at bottom of excavation (20 ft), no hazardous chemical data were collected | | | | | | |
| **35-014(f)**, oil spill stain | U | 0 | — | N | N | Y | 6 | Y | N | Y | U | 0 | — | N | N | Y | 6 | N | Y | Y | N | 0 | — | — | — | N | 0 | — | — | — | N | 0 | — | — | — | N | 0 | — | — | — | ✔ | ✔ | | | | | |
| | No existing RFI data | | | | | DRO only type of SVOC analyzed for at this site; DRO detected from 45 to 6500 ppm in all 6 samples from 0- to 1-ft depth below excavation | | | | | No existing RFI data | | | | | Nothing detected | | | | | Based on process knowledge, no samples were collected for this chemical | | | | | Based on process knowledge, no samples were collected for this chemical | | | | | Based on process knowledge, no samples were collected for this chemical | | | | | Based on process knowledge, no samples were collected for this chemical . | | | | | No existing RFI metals or VOC data exist, and they could be a contaminant in the oil that spilled; also, vertical extent has not been defined for TPH | | | | | | |
| **35-014(a)**, contaminated soil from stack emissions | N | 2 | Y | N | N | N | 2 | Y | Y | Y | N | 0 | — | — | — | N | 2 | N | Y | Y | Y | 27 | Y | Y | Y | Y | 20 | Y | Y | Y | Y | 18 | N | Y | Y | Y | 27 | Y | N | Y | | | | | | | ✔ |
| | Only XRF data available; several metals (10) detected in 2 surface samples at values consistent with industrial nature of entire TA | | | | | Two phthalates detected in 2 surface samples | | | | | Based on process knowledge, no samples were collected for this chemical | | | | | Nothing detected | | | | | Plutonium-239 (2 detects) and uranium-234/235 (3 detects) contain less than 3.0 pCi/g from 0- to 2-ft depth | | | | | Cesium-137 (3 detects), cobalt-60, and europium-152 (1 detect) contain ≤0.2 pCi/g from 0- to 2-ft depth | | | | | Nothing detected | | | | | Tritium detected in 12 samples, all less than 0.6 pCi/g from 0- to 3-ft depth; however, highest values are at 3-ft depth | | | | | Tritium needs to be bounded beyond 3-ft depth; however, it is already less than background values; if the concentrations do not change with depth, do not chase | | | | | | |

1From process knowledge, is class of chemical *expected* to be present as a contaminant at the site?
2Are chemicals from this class present above background concentrations?
3Is vertical extent of contaminants present defined?
4Is lateral extent of contaminants present defined?
5Is radionuclide above background value, or detected if a background value is either not applicable or not available?
6Y = yes.
7N = no.
8U = unknown if chemical might be present.

| Consolidated Unit Number, Individual PRS Number, and Description | Inorganics | | | | | Organics: SVOCs | | | | | Organics: VOCs | | | | | Organics: PCBs/Pesticides | | | | | Radionuclides: Alpha Spectroscopy | | | | | Radionuclides: Gamma Spectroscopy | | | | | Radionuclides: Strontium-90 | | | | | Radionuclides: Tritium | | | | | Data Gap Conclusions | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | COPCs expected at PRS?[1] | Number of fixed-laboratory samples | > Background value?[2] | Vertical extent defined?[3] | Lateral extent defined?[4] | COPCs expected at PRS? | Number of fixed-laboratory samples | Detected? | Vertical extent defined? | Lateral extent defined? | COPCs expected at PRS? | Number of fixed-laboratory samples | Detected? | Vertical extent defined? | Lateral extent defined? | COPCs expected at PRS? | Number of fixed-laboratory samples | Detected? | Vertical extent defined? | Lateral extent defined? | COPCs expected at PRS? | Number of fixed-laboratory samples | > Background value or detected?[5] | Vertical extent defined? | Lateral extent defined? | COPCs expected at PRS? | Number of fixed-laboratory samples | > Background value or detected? | Vertical extent defined? | Lateral extent defined? | COPCs expected at PRS? | Number of fixed-laboratory samples | > Background value or detected? | Vertical extent defined? | Lateral extent defined? | COPCs expected at PRS? | Number of fixed-laboratory samples | > Background value or detected? | Vertical extent defined? | Lateral extent defined? | Metals | SVOCs and /or VOCs | PCBs | Alpha spectroscopy | Gamma spectroscopy | Strontium-90 | Tritium |
| **35-004(a),** outdoor container storage area | U | 0 | — | — | — | Y | 0 | — | — | — | Y | 0 | — | — | — | U | 0 | — | — | — | Y | 2 | N | Y | Y | N | 0 | — | — | — | N | 0 | — | — | — | N | 0 | — | — | — | ✓ | ✓ | ✓ | | | | ✓ |
| | No existing RFI data | | | | | No existing RFI data | | | | | No existing RFI data | | | | | No existing RFI data | | | | | Nothing detected | | | | | Based on process knowledge, no samples were collected for this chemical | | | | | Based on process knowledge, no samples were collected for this chemical | | | | | Based on process knowledge, no samples were collected for this chemical | | | | | Because of no existing data for inorganics, organics, or tritium (contaminants that may be expected at this site), samples need to be collected | | | | | | |
| **35-009(a),** septic system | Y | 3 | Y | N | N | Y | 8 | Y | N | N | N | 0 | — | — | — | N | 0 | — | — | — | Y | 6 | Y | Y | Y | N | 0 | — | — | — | N | 0 | — | — | — | N | 0 | — | — | — | ✓ | ✓ | | | | | ✓ |
| | Copper, mercury, and zinc detected in at least 1 sample from fixed laboratory | | | | | Trace amounts of 2 SVOCs detected in 1 sample from alongside and below septic tank | | | | | Based on process knowledge, no samples were collected for this chemical | | | | | Based on process knowledge, no samples were collected for this chemical | | | | | Plutonium-238 was detcted in 1 sample | | | | | Based on process knowledge, no samples were collected for this chemical | | | | | Based on process knowledge, no samples were collected for this chemical | | | | | Based on process knowledge, no samples were collected for this chemical | | | | | Checked categories have detected constituents whose vertical extent has not been defined | | | | | | |
| **35-003(j)-99** **PRSs 35-003(j,k), PRSs 35-014(b,d), PRS 35-015(b)** abovegr ound oil storage tanks and releases | Y | 8 | Y | Y | Y | Y | 62 | Y | N | N | Y | 27 | Y | N | N | Y | 48 | Y | N | N | Y | 23 | Y | Y | Y | U | 8 | N | Y | Y | N | 0 | — | — | — | N | 3 | N | Y | Y | | ✓ | ✓ | ✓ | | | |
| | Calcium, copper, lead, and mercury detected in 1 surface sample, but nothing deeper | | | | | Sixty of the samples also analyzed for DRO and LRO TPH; the highest detects come from LRO TPH at locations 35-2534 and 35-2535, from 5 to 12 ft (most VOCs are there also); highest detects for DRO at location 35-02291, from 1 to 10 ft; highest detects from SVOCs in general at PRS 35-014(b) are location 35-2568, from 0.5 to 1.5 ft | | | | | Trace amounts of 15 VOCs (e.g., acetone, toluene, ethenes, and xylenes) detected in samples to depths of 12.5 ft; toluene and xylenes were detected the most at locations 35-2534 and 35-2535; also need lateral extent to the north | | | | | In all, 9 samples had detected aroclors (Aroclor-1248 and -1260), all less than 0.1 ppm except for 2.9 ppm Aroclor-1260 at 4-ft depth; the deepest depth with a detect is 12.5 ft; also need lateral extent to the north | | | | | Three uranium-235 detects, mainly in surface samples just above background; plutonium-239 detected at 6.6 pCi/g in deepest sample (5 ft) | | | | | Nothing detected | | | | | Based on process knowledge, no samples were collected for this chemical | | | | | Nothing detected | | | | | Need more organic data from deeper intervals at a location north of where existing data came from. Need deeper sample to bound plutonium | | | | | | |
| **35-018(a),** former site of leaking transformer | Y | 3 | Y | Y | Y | Y | 8 | Y | N | Y | N | 0 | — | — | — | U | 10 | N | N | Y | N | 0 | N | — | — | N | 3 | N | Y | Y | N | 0 | — | — | — | N | 0 | — | — | — | | ✓ | ✓ | | | | |
| | Cadmium, mercury, and zinc detected in 1 of the 3 samples at the 2- to 3-ft depth; other samples were surface samples at 2 other locations | | | | | SVOCs detected in 7 of 8 surface samples (0 to 1 ft) | | | | | Based on process knowledge, no samples were collected for this chemical | | | | | Ten samples contained PCBs; the deepest sample (3.5 ft) had the highest value (12 ppm) | | | | | Based on process knowledge, no samples were collected for this chemical | | | | | Nothing detected | | | | | Based on process knowledge, no samples were collected for this chemical | | | | | Based on process knowledge, no samples were collected for this chemical | | | | | Need more PCB and SVOC data from deeper intervals | | | | | | |

| Consolidated Unit Number, Individual PRS Number, and Description | Inorganics | | | | | Organics: SVOCs | | | | | Organics: VOCs | | | | | Organics: PCBs/Pesticides | | | | | Radionuclides: Alpha Spectroscopy | | | | | Radionuclides: Gamma Spectroscopy | | | | | Radionuclides: Strontium-90 | | | | | Radionuclides: Tritium | | | | | Data Gap Conclusions | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | COPCs expected at PRS?[1] | Number of fixed-laboratory samples | > Background value?[2] | Vertical extent defined?[3] | Lateral extent defined?[4] | COPCs expected at PRS? | Number of fixed-laboratory samples | Detected? | Vertical extent defined? | Lateral extent defined? | COPCs expected at PRS? | Number of fixed-laboratory samples | Detected? | Vertical extent defined? | Lateral extent defined? | COPCs expected at PRS? | Number of fixed-laboratory samples | Detected? | Vertical extent defined? | Lateral extent defined? | COPCs expected at PRS? | Number of fixed-laboratory samples | > Background value or detected?[5] | Vertical extent defined? | Lateral extent defined? | COPCs expected at PRS? | Number of fixed-laboratory samples | > Background value or detected? | Vertical extent defined? | Lateral extent defined? | COPCs expected at PRS? | Number of fixed-laboratory samples | > Background value or detected? | Vertical extent defined? | Lateral extent defined? | COPCs expected at PRS? | Number of fixed-laboratory samples | > Background value or detected? | Vertical extent defined? | Lateral extent defined? | Metals | SVOCs and /or VOCs | PCBs | Alpha spectroscopy | Gamma spectroscopy | Strontium-90 | Tritium |
| **35-003(a)-99 PRSs 35-003(a,b,c,e,f,g,h,m,misc.,n,o,p), WWTP components** | Y | 113 | Y | N | N | U | 77 | Y | N | N | U | 35 | Y | N | N | U | 49 | N | N | N | Y | 150 | Y | N | N | Y | 80 | Y | N | N | Y | 72 | Y | N | N | Y | 91 | Y | N | N | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ |
| | Antimony, barium, cadmium, chromium, copper, lead, mercury, nickel, selenium, and zinc detected; titanium high in surface samples but decreases with depth; need lateral extent to the northeast, south, southeast, and southwest | | | | | PAH-type SVOCs detected at all depths [mainly at PRS 35-003(misc.) and PRS 35-003(p)]; also need lateral extent to the northeast, south, southeast, southwest | | | | | Trace amounts of acetone, butanone, hexanone, dimethylene chloride, and trichloroethene detected at PRS 35-003(misc.) and PRS 35-003(p); also need lateral extent to the southeast and southwest | | | | | One surface sample (35-2271) had all aroclors; Aroclor-1260 detected in 8 samples up to 14 ppm at a 9.5-ft depth | | | | | Plutonium detected just over background in most samples, PRS 35-003(p) and PRS 35-003(misc.) had the most detects; location 35-2026 had 4 uranium hits with uranium-238 the highest at 55 pCi/g at the 3-ft depth, but nothing deeper | | | | | PRS 35-003(p) had the most detects of cesium-137 and the only cobalt-60 detects; cesium-137 showed a clearer decreasing trend than cobalt-60 | | | | | Strontium-90 detected in more than half the samples, no decreasing trend noted; PRS 35-003(p) had detects in 20 out of 21 samples | | | | | Tritium detected in more than half the samples; no decreasing trend noted | | | | | All categories have detected constituents whose vertical extent has not been defined | | | | | | |
| **35-004(h),** outdoor container storage area (cleaned up in 1985 D&D) | Y | 0 | — | — | — | Y | 4 | Y | Y | Y | Y | 0 | — | — | — | Y | 4 | N | Y | Y | Y | 4 | Y | Y | Y | Y | 2 | N | Y | Y | N | 0 | — | — | — | N | 0 | — | — | — | ✔ | | | | | | |
| | Only XRF data available; area was remediated during D&D for TA-35-7 | | | | | Phthalates detected in 1 sample from 1- to 2-ft depth | | | | | Based on process knowledge, no samples were collected for this chemical | | | | | Nothing detected | | | | | Nothing detected | | | | | Nothing detected | | | | | Based on process knowledge, no samples were collected for this chemical | | | | | Based on process knowledge, no samples were collected for this chemical | | | | | TAL metals neeed because only XRF data is available. Collect at previous location and depths. | | | | | | |
| **35-002,** MDA X (1991 D&D) | U | 0 | — | N | N | U | 0 | — | N | N | U | 0 | — | N | N | U | 0 | — | N | N | Y | 0 | — | N | N | Y | 0 | — | N | N | Y | 0 | — | N | N | Y | 0 | — | N | N | ✔ | | | ✔ | ✔ | | ✔ |
| | No existing RFI data | | | | | No existing RFI data | | | | | No existing RFI data | | | | | No existing RFI data | | | | | No existing RFI data | | | | | No existing RFI data | | | | | No existing RFI data | | | | | No existing RFI data | | | | | Need confirmatory ER samples on the southern side of excavation. 35-003(a)-99 data is also helpful for bounding area. | | | | | | |

## Table 2.4-3 - Revised
## Data Gap Determination for the Ten Site Slope Subarea

| Consolidated Unit Number, Individual PRS Number, and Description | Inorganics | | | | | Organics: SVOCs | | | | | Organics: VOCs | | | | | Organics: PCBs/Pesticides | | | | | Radionuclides: Alpha Spectroscopy | | | | | Radionuclides: Gamma Spectroscopy | | | | | Radionuclides: Strontium-90 | | | | | Radionuclides: Tritium | | | | | Data Gap Conclusions | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | COPCs expected at PRS?[1] | Number of fixed-laboratory samples | > Background value?[2] | Vertical extent defined?[3] | Lateral extent defined?[4] | COPCs expected at PRS? | Number of fixed-laboratory samples | Detected? | Vertical extent defined? | Lateral extent defined? | COPCs expected at PRS? | Number of fixed-laboratory samples | Detected? | Vertical extent defined? | Lateral extent defined? | COPCs expected at PRS? | Number of fixed-laboratory samples | Detected? | Vertical extent defined? | Lateral extent defined? | COPCs expected at PRS? | Number of fixed-laboratory samples | > Background value or detected?[5] | Vertical extent defined? | Lateral extent defined? | COPCs expected at PRS? | Number of fixed-laboratory samples | > Background value or detected? | Vertical extent defined? | Lateral extent defined? | COPCs expected at PRS? | Number of fixed-laboratory samples | > Background value or detected? | Vertical extent defined? | Lateral extent defined? | COPCs expected at PRS? | Number of fixed-laboratory samples | > Background value or detected? | Vertical extent defined? | Lateral extent defined? | Metals | SVOCs and /or VOCs | PCBs | Alpha spectroscopy | Gamma spectroscopy | Strontium-90 | Tritium |
| **35-016(j),** roof drains and fire-protection outfall water | N[6] | 1 | N | N | N | N | 1 | Y[7] | N | N | N | 1 | N | N | N | N | 0 | — | — | — | N | 3 | N | N | N | N | 2 | N | N | Y | N | 0 | — | — | — | N | 0 | — | — | — | ✔ | ✔ | | ✔ | ✔ | | |
| | Nothing detected; however, no data exist for slope toe | | | | | Detected PAHs are found in asphalt or tar roofing material through which the water traveled before discharging to outfall; no samples collected near slope toe | | | | | Nothing detected; however, no data exist for slope toe | | | | | Based on process knowledge, no samples were collected for this chemical | | | | | Detected plutonium-239 in 1 sample just over background; no data exist for slope toe | | | | | Nothing detected; however, no data exist for slope toe | | | | | Based on process knowledge, no samples were collected for this chemical | | | | | Based on process knowledge, no samples were collected for this chemical | | | | | Checked categories have detected constituents whose extent has not been defined; more data needed for metals, SVOCs, and alpha and gamma spectroscopy analysis, especially at slope toe | | | | | | |
| 35-014(g3), oil spill | U[8] | 2 | N | N | N | Y | 16 | Y | N | N | U | 10 | Y | N | N | U | 2 | N | Y | Y | N | 2 | N | Y | Y | N | 14 | Y | Y | Y | N | 0 | — | — | — | N | 0 | — | — | — | ✔ | ✔ | | | | | |
| | Samples collected at top of slope from 0- to 12-in. depth, nothing detected; no data from 3 alluvial fans at toe of slope | | | | | SVOCs, including DRO and LRO, are present in soils; no data from 1 of 3 fans at toe of slope | | | | | Samples collected for VOCs near top of slope; analyses indicate chlorinated organic chemicals are in the spilled oil; no data from 1 of 3 fans at toe of slope | | | | | Two samples collected for pesticides/PCBs near top of slope, nothing detected; no data from 3 fans at toe of slope but, if no PCBs are detected at origin of oil spill, extent is defined | | | | | Two samples collected for isotopic uranium and isotopic plutonium; 1 plutonium-239 was detected < background; no data from 3 fans at toe of slope, but OK because nothing detected > background | | | | | Europium-152 detected and cesium-137 detected (1- to 2-ft depth), below background level; no data from 1 of 3 fans at toe of slope | | | | | Based on process knowledge, no samples were collected for this chemical | | | | | Based on process knowledge, no samples were collected for this chemical | | | | | More data needed for metals at toe of slope; only SVOCs and VOCs needed in middle channel and to define vertical extent in other fans; because PCBs were not detected at the source, no further sampling needed; radionuclides detected were all < background | | | | | | |
| 35-014(g)-00: **35-016(n)* 35-004(m)* 35-014(g1) 35-014(g2),** outfall and oil spill/stained areas | U | 11 | Y | N | N | Y | 10 | Y | N | N | N | 2 | N | Y | Y | N | 10 | N | Y | Y | U | 33 | Y | N | N | U | 33 | Y | Y | Y | N | 0 | — | — | — | N | 0 | — | — | — | ✔ | ✔ | | ✔ | ✔ | | |
| | Only 1 surface sample detected antimony, cadmium, chromium, cobalt, copper, lead, and zinc; 2 other surface samples detected zinc; no data from toe of slope | | | | | SVOCs detected in 4 of the 10 samples at PRS 35-016(n); no data from toe of slope | | | | | Nothing detected; no data from toe of slope but, if no VOCs are detected at origin of oil spill, extent is defined | | | | | Nothing detected; no data from toe of slope but, if no PCBs are detected at origin of oil spill, extent is defined | | | | | Thirty-three isotopic uranium and 14 isotopic plutonium samples collected; PRS 35-016(n) had 5 plutonium-239 hits in surface samples; PRS 35-004(m) had 1 hit of plutonium-239 and uranium-234/235 in 2 surface samples | | | | | PRS 35-004(m) had europium-152 in 1 sample; PRS 35-016(n) surface sample had cesium-137 > sediment background | | | | | Based on process knowledge, no samples were collected for this chemical | | | | | Based on process knowledge, no samples were collected for this chemical | | | | | More data needed for metals, SVOCs, and alpha spectroscopy in alluvial fan at toe of slope, for both vertical and lateral extents | | | | | | |

1From process knowledge, is class of chemical *expected* to be present as a contaminant at the site?
2Are chemicals from this class present above background concentrations?
3Is vertical extent of contaminants present defined?
4Is lateral extent of contaminants present defined?
5Is radionuclide above background value, or detected if a background value is either not applicable or not available?
6N = no.
7Y = yes.
8U = unknown if chemical should be present.

| Consolidated Unit Number, Individual PRS Number, and Description | Inorganics | | | | | Organics: SVOCs | | | | | Organics: VOCs | | | | | Organics: PCBs/Pesticides | | | | | Radionuclides: Alpha Spectroscopy | | | | | Radionuclides: Gamma Spectroscopy | | | | | Radionuclides: Strontium-90 | | | | | Radionuclides: Tritium | | | | | Data Gap Conclusions | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | COPCs expected at PRS?[1] | Number of fixed-laboratory samples | > Background value?[2] | Vertical extent defined?[3] | Lateral extent defined?[4] | COPCs expected at PRS? | Number of fixed-laboratory samples | Detected? | Vertical extent defined? | Lateral extent defined? | COPCs expected at PRS? | Number of fixed-laboratory samples | Detected? | Vertical extent defined? | Lateral extent defined? | COPCs expected at PRS? | Number of fixed-laboratory samples | Detected? | Vertical extent defined? | Lateral extent defined? | COPCs expected at PRS? | Number of fixed-laboratory samples | > Background value or detected?[5] | Vertical extent defined? | Lateral extent defined? | COPCs expected at PRS? | Number of fixed-laboratory samples | > Background value or detected? | Vertical extent defined? | Lateral extent defined? | COPCs expected at PRS? | Number of fixed-laboratory samples | > Background value or detected? | Vertical extent defined? | Lateral extent defined? | COPCs expected at PRS? | Number of fixed-laboratory samples | > Background value or detected? | Vertical extent defined? | Lateral extent defined? | Metals | SVOCs and /or VOCs | PCBs | Alpha spectroscopy | Gamma spectroscopy | Strontium-90 | Tritium |
| **35-004(g)-00** **35-009(b)** septic system; **35-004(g)** outdoor storage area | U | 2 | Y | N | N | Y | 9 | N | N | N | U | 1 | N | N | N | U | 6 | Y | N | N | Y | 24 | Y | N | N | Y | 14 | N | N | Y | N | 0 | — | — | — | N | 0 | — | — | — | ✔ | ✔ | ✔ | ✔ | ✔ | | |
| | Only 1 metal (zinc) detected at PRS 35-004(g); only 1 sample from 6- to 7-ft depth at PRS 35-009(b), nothing detected; could use more samples at south end of leach field | | | | | Nothing detected in top portion of leach field to a 20-ft depth; however, could use more samples from south end of leach field | | | | | One surface sample at PRS 35-004(g), nothing detected from 0 to 6 in.; nothing collected at PRS 35-009(b) because VOCs are not expected | | | | | Aroclor-1254 and Aroclor-1260 were detected in 2 of 5 samples from 35-004(g); no detects from 1 sample at PRS 35-009(b); need data from toe of slope and leachfield at depth | | | | | Plutonium-238 detected in 2 samples; uranium-234/235/238 detected in 2 samples; no data from toe of slope or leach field at depth | | | | | No data from toe of slope or leach field at depth | | | | | Based on process knowledge, no samples were collected for this chemical | | | | | Based on process knowledge, no samples were collected for this chemical | | | | | More data needed for metals, SVOCs, VOCs, PCBs, and alpha and gamma spectroscopy at toe of slope and within old leach field, to define vertical and lateral extent | | | | | | |
| **35-016(b),** photo-processing effluent outfall | Y | 1 | Y | N | Y | N | 1 | N | N | Y | N | 1 | N | Y | Y | N | 0 | — | — | — | U | 10 | Y | N | Y | U | 6 | N | N | Y | N | 0 | — | — | — | N | 0 | — | — | — | ✔ | ✔ | | ✔ | ✔ | | |
| | Lead detected in sample at 2- to 3-ft depth; no data from toe of slope | | | | | Nothing detected; no data from toe of slope | | | | | Nothing detected; no data exist from toe of slope, screening at toe should be sufficient | | | | | Based on process knowledge, no samples were collected for this chemical | | | | | Uranium-234/238 detected in 1 sample at 1- to 2-ft depth; no data from toe of slope | | | | | Nothing detected; no data from toe of slope | | | | | Based on process knowledge, no samples were collected for this chemical | | | | | Based on process knowledge, no samples were collected for this chemical | | | | | More data needed for metals, SVOCs, and alpha and gamma spectroscopy at toe of slope to define extent; cyanide data also need to be collected; screening for VOCs should be adequate as conceptual model and knowledge of process (KOP) do not anticipate VOCs | | | | | | |
| **35-016(c)-00** **35-016(c), 35-016(d),** noncontact cooling water outfall | Y | 13 | Y | N | N | U | 13 | Y | N | N | N | 1 | N | U | N | N | 0 | — | — | — | U | 14 | Y | N | N | Y | 13 | Y | N | N | N | 0 | — | — | — | N | 0 | — | — | — | ✔ | ✔ | | ✔ | ✔ | | |
| | Antimony, barium, chromium, cobalt, lead, mercury, nickel, silver, and zinc detected in least 1 of 10 samples; no data exist from alluvial fan of outfall channel | | | | | SVOCs (PAHs) detected in 5 samples, probably from stormwater runoff over asphalt surfaces; no data exist from alluvial fan of outfall channel | | | | | Nothing detected; no data exist from toe of slope, screening at toe should be sufficient | | | | | Based on process knowledge, no samples were collected for this chemical | | | | | Plutonium-238 detected in 1 sample and uranium-235 detected in 1 sample; no data exist from alluvial fan of outfall channel | | | | | Europium-152 detected in 1 surface sample and cesium-137 detected in 2 surface samples; no data exist from alluvial fan of outfall channel | | | | | Based on process knowledge, no samples were collected for this chemical | | | | | Based on process knowledge, no samples were collected for this chemical | | | | | More data needed for metals, SVOCs, and alpha and gamma spectroscopy at toe of slope; screening for VOCs should be adequate as conceptual model and KOP do not anticipate VOCs | | | | | | |
| **35-009(e),** septic system | U | 1 | N | N | N | U | 1 | N | N | N | N | 1 | N | N | N | N | 1 | N | N | N | U | 5 | Y | N | N | U | 4 | Y | N | N | N | 3 | N | Y | Y | N | 3 | Y | Y | Y | ✔ | ✔ | ✔ | ✔ | ✔ | | ✔ |
| | Vertical and lateral extents have not been defined with only 1 sample; no data exist from alluvial fan below outfall | | | | | Vertical and lateral extents have not been defined with only 1 sample; no data exist from alluvial fan below outfall | | | | | Vertical and lateral extents have not been defined with only 1 sample; no data exist from alluvial fan below outfall; because VOCs are not expected at this site, screening for them should be sufficient | | | | | Vertical and lateral extents have not been defined with only 1 sample; no data exist from alluvial fan below outfall | | | | | Plutonium-239 detected in 2 samples; uranium-234/235/238 detected in 1 sample; vertical and lateral extents have not been defined; no data exist from alluvial fan below outfall | | | | | One detect < background; vertical and lateral extents have not been defined; no data exist from alluvial fan below outfall | | | | | Nothing detected | | | | | Three detects < background | | | | | More data needed for metals, SVOCs, PCBs, tritium and alpha and gamma spectroscopy at toe of slope; screening for VOCs should be adequate as conceptual model and KOP do not anticipate VOCs | | | | | | |
| **35-009(a),** sanitary septic system | U | 26 | Y | N | N | U | 32 | Y | N | N | N | 0 | — | — | — | N | 0 | — | — | — | U | 41 | Y | N | N | U | 37 | N | N | N | U | 34 | N | Y | Y | U | 28 | Y | Y | Y | ✔ | ✔ | ✔ | ✔ | ✔ | | ✔ |
| | Metals beryllium, cadmium, copper, lead, mercury, silver, and zinc detected in up to 3 samples; extent not complete for alluvial fan or leach field | | | | | SVOCs (PAHs) detected in 4 samples; extent not complete for alluvial fan or leach field | | | | | Based on PRS use, no samples were collected for this chemical | | | | | Based on PRS use, no samples were collected for this chemical | | | | | Plutonium-238 detected in 2 samples and plutonium-239 detected in 6 samples > background; extent not complete for alluvial fan or leach field | | | | | Nothing detected; however, extent not complete for alluvial fan or leach field | | | | | 2 detects < background | | | | | Two tritium samples have detected values just > background, and 20 samples < background values; values do not increase or decrease with depth | | | | | More data needed for metals, SVOCs, PCBs, tritium and alpha and gamma spectroscopy at toe of slope and additional areas in leach field; screening for VOCs should be adequate as conceptual model and KOP do not anticipate VOCs | | | | | | |

| Consolidated Unit Number, Individual PRS Number, and Description | Inorganics | | | | | Organics | | | | | | | | | | | | | | | Radionuclides | | | | | | | | | | | | | | | | | Data Gap Conclusions | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | SVOCs | | | | | VOCs | | | | | PCBs/Pesticides | | | | | Alpha Spectroscopy | | | | | Gamma Spectroscopy | | | | | Strontium-90 | | | | | Tritium | | | | | | | | |
| | COPCs expected at PRS?[1] | Number of fixed-laboratory samples | > Background value?[2] | Vertical extent defined?[3] | Lateral extent defined?[4] | COPCs expected at PRS? | Number of fixed-laboratory samples | Detected? | Vertical extent defined? | Lateral extent defined? | COPCs expected at PRS? | Number of fixed-laboratory samples | Detected? | Vertical extent defined? | Lateral extent defined? | COPCs expected at PRS? | Number of fixed-laboratory samples | Detected? | Vertical extent defined? | Lateral extent defined? | COPCs expected at PRS? | Number of fixed-laboratory samples | > Background value or detected?[5] | Vertical extent defined? | Lateral extent defined? | COPCs expected at PRS? | Number of fixed-laboratory samples | > Background value or detected? | Vertical extent defined? | Lateral extent defined? | COPCs expected at PRS? | Number of fixed-laboratory samples | > Background value or detected? | Vertical extent defined? | Lateral extent defined? | COPCs expected at PRS? | Number of fixed-laboratory samples | > Background value or detected? | Vertical extent defined? | Lateral extent defined? | Metals | SVOCs and /or VOCs | PCBs | Alpha spectroscopy | Gamma spectroscopy | Strontium-90 | Tritium |
| 35-016(a)-00 **35-016(a),** noncontact cooling water | Y | 5 | Y | N | N | N | 8 | Y | Y | Y | N | 1 | N | Y | Y | N | 0 | — | Y | Y | U | 8 | Y | N | N | U | 7 | N | Y | Y | U | 3 | N | Y | Y | U | 3 | Y | Y | Y | ✔ | | | ✔ | | | |
| | Metals chromium, copper, nickel, and zinc detected in up to 3 samples | | | | | SVOCs (PAHs) detected in 6 of 7 samples (as expected from asphalt road runoff adjacent to site) | | | | | Although no VOCs detected, no data exist from alluvial fan below outfall | | | | | Based on process knowledge, no samples were collected for this chemical | | | | | Plutonium-239 detected in 1 sample; uranium-235 detected in 2 samples | | | | | Nothing detected | | | | | Nothing detected | | | | | Tritium detected in 2 samples < background, from 0 to 2 ft | | | | | More data needed for metals and alpha spectroscopy; screening for VOCs should be adequate as conceptual model and KOP do not anticipate VOCs | | | | | | |
| **35-016(q),** stormwater outfall | N | 0 | — | N | N | Y | 6 | Y | N | N | N | 1 | N | N | N | N | 6 | Y | N | N | N | 6 | Y | N | N | N | 8 | N | N | N | N | 0 | — | — | — | N | 0 | — | — | — | ✔ | ✔ | ✔ | ✔ | ✔ | | |
| | No metals data exist | | | | | SVOCs (PAHs) detected in 4 of 5 samples; no data exist from alluvial fan below outfall | | | | | Nothing detected, but no data exist from alluvial fan below outfall | | | | | Aroclor-1260 detected in 2 of 6 samples; no data exist from alluvial fan below outfall | | | | | Plutonium-238/239 detected in 2 samples; no data exist from alluvial fan below outfall | | | | | Nothing detected; however, no data exist from alluvial fan below outfall | | | | | Based on process knowledge, no samples were collected for this chemical | | | | | Based on process knowledge, no samples were collected for this chemical | | | | | More data needed for metals, SVOCs, PCBs, alpha and gamma spectroscopy at toe of slope; screening for VOCs should be adequate as conceptual model and KOP do not anticipate VOCs | | | | | | |
| **35-017,** steam vent outfall | N | 0 | — | — | — | N | 0 | — | — | — | N | 0 | — | — | — | N | 0 | — | — | — | N | 0 | — | N | N | N | 0 | — | N | N | N | 0 | — | — | — | N | 0 | — | — | — | | | | ✔ | ✔ | | |
| | No RFI sample data | | | | | No RFI sample data | | | | | No RFI sample data | | | | | No RFI sample data | | | | | Only D&D screening data exist from pipe removal, but no screening from where pipe daylighted | | | | | Only D&D screening data exist from pipe removal, but no screening from where pipe daylighted | | | | | No RFI sample data | | | | | No RFI sample data | | | | | Need additional screening data for alpha and gamma spectroscopy at outfall where pipe daylighted | | | | | | |

*Note:* Some PRSs in a sample aggregate do not have data to report, the PRSs starred within the aggregate are the ones that have data reported in this table.

## Table 2.4-4 - Revised
## Data Gap Determination for the Mortandad Slope Subarea

| Consolidated Unit Number, Individual PRS Number, and Description | Inorganics | | | | | Organics: SVOCs | | | | | Organics: VOCs | | | | | Organics: PCBs/Pesticides | | | | | Radionuclides: Alpha Spectroscopy | | | | | Radionuclides: Gamma Spectroscopy | | | | | Radionuclides: Strontium-90 | | | | | Radionuclides: Tritium | | | | | Data Gap Conclusions | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | COPCs expected at PRS?[1] | Number of fixed-laboratory samples | > Background value?[2] | Vertical extent defined?[3] | Lateral extent defined?[4] | COPCs expected at PRS? | Number of fixed-laboratory samples | Detected? | Vertical extent defined? | Lateral extent defined? | COPCs expected at PRS? | Number of fixed-laboratory samples | Detected? | Vertical extent defined? | Lateral extent defined? | COPCs expected at PRS? | Number of fixed-laboratory samples | Detected? | Vertical extent defined? | Lateral extent defined? | COPCs expected at PRS? | Number of fixed-laboratory samples | > Background value or detected?[5] | Vertical extent defined? | Lateral extent defined? | COPCs expected at PRS? | Number of fixed-laboratory samples | > Background value or detected? | Vertical extent defined? | Lateral extent defined? | COPCs expected at PRS? | Number of fixed-laboratory samples | > Background value or detected? | Vertical extent defined? | Lateral extent defined? | COPCs expected at PRS? | Number of fixed-laboratory samples | > Background value or detected? | Vertical extent defined? | Lateral extent defined? | Metals | SVOCs and /or VOCs | PCBs | Alpha spectroscopy | Gamma spectroscopy | Strontium-90 | Tritium |
| **35-016(f),** stormwater drain north of TA-35-85 | U[6] | 1 | N[7] | N | N | Y[8] | 2 | Y | N | N | U | 1 | N | Y | Y | U | 4 | N | N | Y | N | 0 | — | — | — | N | 0 | — | — | — | N | 0 | — | — | — | N | 0 | — | — | — | ✔ | ✔ | ✔ | | | | |
| | Nothing detected in the one surface sample | | | | | PAH-type SVOCs detected in 1 of 2 samples from 0- to 1-ft depth | | | | | Nothing detected in the 1 surface sample | | | | | Nothing detected from 0 to 3 ft | | | | | Based on process knowledge, no samples collected for alpha radionuclides | | | | | Based on process knowledge, no samples collected | | | | | Based on process knowledge, no samples collected | | | | | Based on process knowledge, no samples collected | | | | | More data needed for checked categories to define extent; PCBs may have moved downstream with sediment to alluvial fan | | | | | | |
| 35-008-00 **35-014(e1),** dielectric oil spill north of TA-35-85 | U | 0 | — | — | — | Y | 4 | Y | N | N | U | 4 | N | Y | Y | U | 27 | N | Y | Y | N | 0 | — | — | — | N | 0 | — | — | — | N | 0 | — | — | — | N | 0 | — | — | — | ✔ | ✔ | | | | | |
| | No RFI samples exist | | | | | TPHs detected in 2 samples from 0 to 1 ft, for LRO up to 7100 ppm | | | | | Nothing detected; samples collected from 0- to 3-ft depths | | | | | Nothing detected; samples collected from 0- to 3-ft depths | | | | | Based on process knowledge, no samples collected | | | | | Based on process knowledge, no samples collected | | | | | Based on process knowledge, no samples collected | | | | | Based on process knowledge, no samples collected | | | | | More data needed for checked categories to define extent, especially in alluvial fan of outfall channel, which is collocated with PRSs 35-008 and 35-016(e) | | | | | | |
| 35-008-00 **35-008,** canyon-side disposal area north of TA-35-85 | U | 15 | 4 | N | N | Y | 36 | Y | N | Y | U | 20 | Y | Y | Y | U | 10 | N | Y | Y | U | 18 | Y | N | N | U | 16 | Y | Y | Y | N | 0 | — | — | — | N | 0 | — | — | — | ✔ | ✔ | | ✔ | | | |
| | Six samples contained at least 1 of the following metals: antimony, beryllium, cadmium, chromium, copper, mercury, Mg, nickel, lead, thallium from 0- to 3.5-ft sampled intervals; chromium was in the 3-ft interval of location ID 35-2456 | | | | | TPH-type SVOCs were detected in 19 samples from 0-3 ft sampled intervals. LRO up to 48,000 ppm, decreasing trend not established. Location IDs 35-2282, -2283, -2458, -2259 have highest TPH levels | | | | | Eight samples contain trace (ppb) amounts of VOCs (hits do not correlate with SVOC location IDs) | | | | | Nothing detected; samples collected from 0-3 ft depths | | | | | One sample contains Pu-239 <background, three samples contain one of each of U-234, -235, -238 just >background levels; samples collected from 0-3 ft depths. Decreasing trend in most samples | | | | | Cs-137 and Ru-106 each detected in one sample at <0.6 pCi/g | | | | | No samples were collected based on process knowledge | | | | | No samples were collected based on process knowledge | | | | | More data needed for the categories checked above to define extent, especially in the alluvial fan of the outfall channel (which is collocated with PRSs 35-008 and 35-016(e) | | | | | | |
| **35-016(e),** non-contact cooling water outfall from TA-35-85 | Y | 0 | — | — | — | N | 0 | — | — | — | N | 1 | N | Y | Y | N | 4 | N | Y | Y | U | 0 | — | — | — | U | 0 | — | — | — | N | 0 | — | — | — | N | 0 | — | — | — | ✔ | ✔ | | | | | |
| | No RFI samples exist | | | | | No samples were collected for this chemical based on process knowledge | | | | | Nothing detected; samples collected from 2-3 ft depth | | | | | Nothing detected; samples collected from 0 to 3-ft depths | | | | | No RFI samples exist | | | | | No RFI samples exist | | | | | No samples were collected based on process knowledge | | | | | No samples were collected based on process knowledge | | | | | More data needed for checked categories to define extent, especially in the alluvial fan of the outfall channel (which is collocated with PRSs 35-008 and 35-016(e) | | | | | | |
| **35-004(b),** chemical storage area outside TA-35-85 | U | 1 | N | N | Y | U | 1 | N | N | Y | U | 0 | — | — | — | U | 1 | N | Y | Y | N | 0 | — | — | — | N | 0 | — | — | — | N | 0 | — | — | — | N | 0 | — | — | — | ✔ | ✔ | | | | | |
| | Nothing detected; sample collected at 0-1 ft depth | | | | | Nothing detected; sample collected at 2-3 ft depth | | | | | No RFI data exist | | | | | Nothing detected; samples collected at 2-3 ft depth | | | | | No samples were collected based on process knowledge | | | | | No samples were collected based on process knowledge | | | | | No samples were collected based on process knowledge | | | | | No samples were collected based on process knowledge | | | | | More data could be used for checked categories to better define vertical extent | | | | | | |

1From process knowledge, is class of chemical *expected* to be present as a contaminant at the site?
2Are chemicals from this class present above background concentrations?
3Is vertical extent of contaminants present defined?
4Is lateral extent of contaminants present defined?
5Is radionuclide above background value, or detected if a background value is either not applicable or not available?
6U = unknown if chemical should be present.
7N = no.
8Y = yes.

| Consolidated Unit Number, Individual PRS Number, and Description | Inorganics | | | | | Organics: SVOCs | | | | | Organics: VOCs | | | | | Organics: PCBs/Pesticides | | | | | Radionuclides: Alpha Spectroscopy | | | | | Radionuclides: Gamma Spectroscopy | | | | | Radionuclides: Strontium-90 | | | | | Radionuclides: Tritium | | | | | Data Gap Conclusions | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | COPCs expected at PRS?[1] | Number of fixed-laboratory samples | > Background value?[2] | Vertical extent defined?[3] | Lateral extent defined?[4] | COPCs expected at PRS? | Number of fixed-laboratory samples | Detected? | Vertical extent defined? | Lateral extent defined? | COPCs expected at PRS? | Number of fixed-laboratory samples | Detected? | Vertical extent defined? | Lateral extent defined? | COPCs expected at PRS? | Number of fixed-laboratory samples | Detected? | Vertical extent defined? | Lateral extent defined? | COPCs expected at PRS? | Number of fixed-laboratory samples | > Background value or detected?[5] | Vertical extent defined? | Lateral extent defined? | COPCs expected at PRS? | Number of fixed-laboratory samples | > Background value or detected? | Vertical extent defined? | Lateral extent defined? | COPCs expected at PRS? | Number of fixed-laboratory samples | > Background value or detected? | Vertical extent defined? | Lateral extent defined? | COPCs expected at PRS? | Number of fixed-laboratory samples | > Background value or detected? | Vertical extent defined? | Lateral extent defined? | Metals | SVOCs and /or VOCs | PCBs | Alpha spectroscopy | Gamma spectroscopy | Strontium-90 | Tritium |
| 35-016(i)-00: **35-014(e2)**, oil spill in impoundment area northeast of TA-35-85 | U | 0 | — | — | — | Y | 1 | N | N | N | U | 1 | N | Y | Y | U | 1 | Y | N | N | N | 0 | — | — | — | N | 0 | — | — | — | N | 0 | — | — | — | N | 0 | — | — | — | ✔ | ✔ | ✔ | | | | |
| | No RFI data exist | | | | | Nothing detected from the 0-1 ft depth. | | | | | Nothing detected from the 2-3 ft depth | | | | | Aroclor-1260 was detected at less than 0.06 ppm from 0-1 ft depth | | | | | No samples were collected based on process knowledge | | | | | No samples were collected based on process knowledge | | | | | No samples were collected based on process knowledge | | | | | No samples were collected based on process knowledge | | | | | More data needed for categories checked above to define extent, especially in alluvial fan of outfall channel; PRS is collocated with PRS 35-016(i) | | | | | | |
| 35-016(i)-00: **35-016(i)**, open-air, surface, stormwater channel from a parking lot | U | 0 | — | — | — | U | 0 | — | — | — | U | 0 | — | — | — | U | 1 | N | Y | Y | N | 0 | — | — | — | N | 0 | — | — | — | N | 0 | — | — | — | N | 0 | — | — | — | ✔ | ✔ | ✔ | | | | |
| | No RFI data exist | | | | | No RFI data exist | | | | | No RFI data exist | | | | | Nothing detected from surface soil. | | | | | No samples were collected based on process knowledge | | | | | No samples were collected based on process knowledge | | | | | No samples were collected based on process knowledge | | | | | No samples were collected based on process knowledge | | | | | More data needed for categories checked above to define extent, especially in alluvial fan of outfall channel. This PRS is collocated with PRS 35-014(e2) | | | | | | |
| **35-009(c)**, abandoned, inactive septic system north of TA-35-2 | U | 4 | Y | Y | Y | U | 30 | Y | N | Y | U | 30 | Y | N | N | U | 2 | Y | N | N | U | 30 | Y | N | N | U | 21 | N | Y | Y | U | 17 | N | Y | Y | U | 12 | Y | N | N | ✔ | ✔ | ✔ | ✔ | | | ✔ |
| | Nothing detected; samples collected to 20-ft depths | | | | | Diethylphthalate detected in 1 sample from 19-20 ft depth (deepest interval of location ID 35-2049) | | | | | 27 samples contained acetone (lab contaminant) Trace amounts of trichloropropane at location ID 35-2051, -2052 (3.5 – 20 ft depth) and 3 other VOCs at location ID 35-2053 at 14-15 ft depth | | | | | 1 sample contained Aroclor-1254 and mixed Aroclors at <0.94 ppm from 4-5 ft depth | | | | | Pu-238 was detected in 3 samples (2 were <background), Pu-239 in 4 samples (3 were <background). All <0.2 pCi/g from 4-20 ft | | | | | Nothing detected; samples collected to 20-ft depths | | | | | Nothing detected; samples collected to 20-ft depths | | | | | Tritium was detected in 11 of 12 samples, all <background from 1 – 12 ft | | | | | More data needed for the categories checked above to define extent, especially in the alluvial fan of outfall channel. This area is collocated with PRS 35-016(o) | | | | | | |
| **35-016(o)**, stormwater drains north of TA-35-261 | U | 20 | Y | N | N | U | 33 | Y | N | N | N | 0 | — | — | — | U | 27 | Y | N | N | U | 24 | Y | N | N | U | 21 | Y | Y | Y | U | 18 | N | Y | Y | U | 18 | Y | N | N | ✔ | ✔ | ✔ | ✔ | ✔ | | ✔ |
| | Nine samples contained at least one of the following: chromium, copper, lead, mercury, nickel, and zinc from the 0-2 ft depth. Decreasing trend not established | | | | | SVOCs were detected in 20 samples. DRO and LRO showed a decreasing trend except at two locations: 35-2506 and ~2511 from 0- to 2-ft depth | | | | | No samples were collected for this chemical based on process knowledge | | | | | Aroclor-1254 was detected in 8 samples, Aroclor-1260 in 3 samples and mixed Aroclors in 8 samples from 0-3 ft depth. Most <0.1 ppm, 4 are between 1-2 ppm | | | | | Pu-238 and –239 was detected in 4 samples (2 were <background) at <0.09 pCi/g from 0-3 ft depth | | | | | Cs-137 was detected in 3 samples at <background from 0-3 ft depth | | | | | No further samples needed based on data set and process knowledge | | | | | Tritium was detected in 16 samples (4 >background and 12 <background) at very low levels (5 down to 0.06 pCi/g) all in shallow samples (0-2 ft) | | | | | More data needed for the categories checked above to define extent, especially in the alluvial fan of outfall channel. This area is collocated with PRS 35-009(c) | | | | | | |
| **35-016(p)**, cooling water outfall north of TA-35-27 | Y | 0 | — | — | — | U | 4 | Y | N | N | N | 0 | — | — | — | N | 0 | — | — | — | U | 3 | Y | N | Y | U | 2 | N | Y | Y | N | 0 | — | — | — | N | 0 | — | — | — | ✔ | ✔ | | | | | |
| | No RFI data exist | | | | | PAHs were detected in 1 sample from the 2-3 ft depth | | | | | No samples were collected based on process knowledge | | | | | No samples were collected based on process knowledge | | | | | Pu-239 was detected in 1 sample at 0.06 pCi/g (just greater than background) from 0-0.5 ft depth (surface sample) | | | | | Cs-137 was detected in 1 sample at <background from 0-1 ft depth | | | | | No samples were collected based on process knowledge | | | | | No samples were collected based on process knowledge | | | | | More data needed for categories checked above to define extent | | | | | | |

## Table 2.4-5 - Revised
## Data Gap Determination for the Pratt Canyon Subarea

| | Consolidated Unit Number, Individual PRS Number, and Description | Inorganics | | | | | Organics | | | | | | | | | | | | | | | Radionuclides | | | | | | | | | | | | | | | | | Data Gap Conclusions | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | SVOCs | | | | | VOCs | | | | | PCBs/Pesticides | | | | | Alpha Spectroscopy | | | | | Gamma Spectroscopy | | | | | Strontium-90 | | | | | Tritium | | | | | | | | | |
| | | COPCs expected at PRS?[1] | Number of fixed-laboratory samples | > Background value?[2] | Vertical extent defined?[3] | Lateral extent defined?[4] | COPCs expected at PRS? | Number of fixed-laboratory samples | Detected? | Vertical extent defined? | Lateral extent defined? | COPCs expected at PRS? | Number of fixed-laboratory samples | Detected? | Vertical extent defined? | Lateral extent defined? | COPCs expected at PRS? | Number of fixed-laboratory samples | Detected? | Vertical extent defined? | Lateral extent defined? | COPCs expected at PRS? | Number of fixed-laboratory samples | > Background value or detected?[5] | Vertical extent defined? | Lateral extent defined? | COPCs expected at PRS? | Number of fixed-laboratory samples | > Background value or detected? | Vertical extent defined? | Lateral extent defined? | COPCs expected at PRS? | Number of fixed-laboratory samples | > Background value or detected? | Vertical extent defined? | Lateral extent defined? | COPCs expected at PRS? | Number of fixed-laboratory samples | > Background value or detected? | Vertical extent defined? | Lateral extent defined? | Metals | SVOCs and /or VOCs | Pesticides/PCBs | Alpha spectroscopy | Gamma spectroscopy | Strontium-90 | Tritium |
| | **35-003(e),** former WWTP[6]storage tank | U[7] | 1 | N[8] | Y[9] | Y | U | 8 | Y | Y | Y | N | 0 | — | — | — | U | 8 | N | Y | Y | Y | 8 | Y | Y | Y | Y | 1 | N | Y | Y | N | 0 | — | — | — | N | 0 | — | — | — | | | | | | | |
| | | Nothing detected in the one confirmatory sample collected at 30-ft depth below the former tank | | | | | Pyrene was only SVOC detected | | | | | No samples were collected for this chemical based on process knowledge | | | | | Nothing detected | | | | | Pu-239 was detected in 2 samples < background values | | | | | Nothing detected in the one confirmatory sample collected at 30 ft depth below the former tank | | | | | No samples were collected for this chemical based on process knowledge | | | | | No samples were collected for this chemical based on process knowledge | | | | | No additional data required for risk or screening assessments | | | | | | |
| 35-003(d)-00 | **35-003(d, l, q),** former WWTP holding tank bldg, pump pit and trench | U | 29 | Y | N | N | U | 39 | Y | N | Y | N | 0 | — | — | — | U | 45 | Y | Y | Y | Y | 70 | Y | N | Y | Y | 32 | Y | Y | Y | N | 24 | Y | N | N | N | 41 | Y | Y | Y | ✓ | ✓ | | ✓ | | ✓ | |
| | | Only thallium detected in 1 sample from 34-35 ft depth; however, several metals had detection limits greater than background values, so better data needed for risk or screening assessment purposes | | | | | 14 samples contained PAH type SVOCs. More samples are needed in the diversion channel | | | | | No samples were collected for this chemical based on process knowledge | | | | | Only one detect of Aroclor-1254 in 1 sample 1-2 ft deep | | | | | Pu-239 was detected in 17 samples (8 > background values); Pu-238 was detected in 17 samples (3 > background values). Pu seems to slightly increase with depth | | | | | Cs-137 was detected in 3 samples, all < background. Co-60 and Eu-152 were detected in one sample | | | | | Sr-90 was detected in 9 samples. Values increase with depth at location ID 35-2311. Also need more data from diversion ditch | | | | | Tritium was detected in all samples, only 11 were > background values. Decreasing trend. | | | | | The categories checked above have detected constituents that do not have extent defined | | | | | | |
| | **35-003(r),** former WWTP effluent receiving canyon | Y | 23 | Y | N | N | Y | 18 | Y | N | N | N | 0 | — | — | — | N | 18 | Y | N | N | Y | 47 | Y | N | N | Y | 17 | Y | N | N | Y | 14 | Y | N | N | Y | 16 | N | Y | Y | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |
| | | Analysis detected 1 aluminum, 1 cadmium, 1 copper, 8 mercury, and 1 nickel hit(s) in the samples. 9 cyanide samples were collected; none detected. Need geomorphic mapping near road | | | | | SVOCs (PAHs) detected in 8 samples; need geomorphic mapping near road | | | | | No samples collected for this chemical based on process knowledge | | | | | Aroclor-1260 detected in 9 samples; pesticides dieldrin and endosulfan-II detected in 1 sample; need geomorphic mapping near road | | | | | Analysis detected 6 plutonium-238 (5 < background); 31 plutonium-239 (8 < background), and 1 uranium-234/-235/-238 hit(s) 2 samples; need geomorphic mapping near road | | | | | Analysis detected 10 Cs-137 (8 in sediment samples), and 3 colbalt-60 hits in the samples. Need geomorphic mapping near road. Nine samples were analyzed for americium-241, 7 samples had detected values | | | | | Ten samples contained strontium-90 in the sediment samples (up to 63 pCi/g) that spanned 0-3 ft depths, 2 detected samples in soil.; need geomorphic mapping near road | | | | | Nothing detected | | | | | Categories checked above have detected constituents that do not have extent defined; more data needed for metals (concentrate on mercury in sediments), SVOCs, Aroclor-1260, Pu-239, Cs-137, Am241, and Sr-90 (again, sediments show highest values from Canyons Focus Area data) | | | | | | |

1From process knowledge, is class of chemical *expected* to be present as a contaminant at the site?
2Are chemicals from this class present above background concentrations?
3Is vertical extent of contaminants present defined?
4Is lateral extent of contaminants present defined?
5Is radionuclide above background value, or detected if a background value is either not applicable or not available?
6WWTP = waste water treatment plant.
7U = unknown if chemical might be present.
8N = no.
9Y = yes.

| Consolidated Unit Number, Individual PRS Number, and Description | Inorganics | | | | | Organics | | | | | | | | | | | | | | | Radionuclides | | | | | | | | | | | | | | | | | Data Gap Conclusions | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | SVOCs | | | | | VOCs | | | | | PCBs/Pesticides | | | | | Alpha Spectroscopy | | | | | Gamma Spectroscopy | | | | | Strontium-90 | | | | | Tritium | | | | | | | | | |
| | COPCs expected at PRS?[1] | Number of fixed-laboratory samples | > Background value?[2] | Vertical extent defined?[3] | Lateral extent defined?[4] | COPCs expected at PRS? | Number of fixed-laboratory samples | Detected? | Vertical extent defined? | Lateral extent defined? | COPCs expected at PRS? | Number of fixed-laboratory samples | Detected? | Vertical extent defined? | Lateral extent defined? | COPCs expected at PRS? | Number of fixed-laboratory samples | Detected? | Vertical extent defined? | Lateral extent defined? | COPCs expected at PRS? | Number of fixed-laboratory samples | > Background value or detected?[5] | Vertical extent defined? | Lateral extent defined? | COPCs expected at PRS? | Number of fixed-laboratory samples | > Background value or detected? | Vertical extent defined? | Lateral extent defined? | COPCs expected at PRS? | Number of fixed-laboratory samples | > Background value or detected? | Vertical extent defined? | Lateral extent defined? | COPCs expected at PRS? | Number of fixed-laboratory samples | > Background value or detected? | Vertical extent defined? | Lateral extent defined? | Metals | SVOCs and /or VOCs | Pesticides/PCBs | Alpha spectroscopy | Gamma spectroscopy | Strontium-90 | Tritium |
| 35-016(k)-00: **35-016(k)**, former cooling water outfall | Y | 5 | Y | N | Y | Y | 5 | Y | N | Y | U | 2 | Y | N | Y | U | 4 | Y | N | Y | N | 5 | Y | Y | Y | Y | 5 | N | Y | Y | N | 0 | — | — | — | N | 0 | — | — | — | ✔ | ✔ | ✔ | | | | |
| 35-016(k)-00: **35-016(l)**, stormwater outfall | Copper, lead, and zinc were detected in 1 sample from 0-6 in depth. Zinc was also detected in 2 more samples. Need vertical extent at location ID 35-2112 | | | | | SVOCs were detected in all 5 samples [4 samples are from 35-016(k), 1 is for 35-016(l)]. Need vertical extent beyond 2-ft depth | | | | | VOCs were detected in 1 of 2 samples from 35-016(k) from the 1-2 ft depth; Toluene, trichloro and trifluoro ethanes. Need vertical extent beyond 2-ft depth | | | | | Aroclor-1260 was detected in all 4 samples from 35-016(k). Need vertical extent beyond 2-ft depth | | | | | One Pu-239 sample < background | | | | | Nothing detected | | | | | No samples were collected for this chemical based on process knowledge | | | | | No samples were collected for this chemical based on process knowledge | | | | | Categories checked above have detected constituents that do not have extent defined; more data needed for metals, PAHs, VOCs, and Aroclor-1260 beyond a 2-ft depth | | | | | | |
| **35-016(m)**, former cooling water outfall | Y | 4 | N | N | N | Y | 4 | Y | N | N | N | 0 | — | — | — | N | 0 | — | — | — | N | 1 | N | Y | Y | N | 0 | — | — | — | N | 0 | — | — | — | N | 0 | — | — | — | ✔ | ✔ | | | | | |
| | Nothing detected, however, need data from alluvial fan at toe of slope | | | | | 2 SVOCs were detected in 2 of the 4 samples. Need data from alluvial fan at toe of slope | | | | | No samples were collected for this chemical based on process knowledge | | | | | No samples were collected for this chemical based on process knowledge | | | | | Nothing detected | | | | | No samples were collected for this chemical based on process knowledge | | | | | No samples were collected for this chemical based on process knowledge | | | | | No samples were collected for this chemical based on process knowledge | | | | | Categories checked above have detected constituents that do not have extent defined. More data needed at alluvial fan for metals and SVOCs | | | | | | |
| **35-009(d)**, abandoned septic system | U | 4 | Y | N | N | U | 26 | N | Y | Y | U | 23 | Y | N | N | N | 0 | — | — | — | Y | 25 | Y | Y | Y | Y | 16 | N | Y | Y | U | 0 | — | — | — | U | 0 | — | — | — | ✔ | ✔ | | | | ✔ | ✔ |
| | Antimony, cadmium, and silver had non-detected values which are greater than background levels. Need more data with better detection limits for screening assessment | | | | | Nothing detected | | | | | Acetone detected in 21 samples (not eliminated as lab contaminant), 2-Butanone in 2 samples, carbon disulfide in 1 sample, and 2-Hexanone in 1 sample | | | | | No samples collected for this chemical based on process knowledge | | | | | Plutonium-238 detected in 2 samples; plutonium-239 detected in 1 sample, all < background values | | | | | Nothing detected | | | | | No samples were collected for this chemical. However, samples should be collected near tank at depth and in alluvial fan | | | | | No samples were collected for this chemical. However, samples should be collected near tank at depth and in alluvial fan | | | | | Categories checked above have detected constituents that do not have extent defined; more data needed for metals, VOCs, tritium, and strontium-90 | | | | | | |

## Table 2.4-6 - Revised
## Data Gap Determination for the Ten Site Canyon Subarea

| | Consolidated Unit Number, Individual PRS Number, and Description | Inorganics | | | | | Organics: SVOCs | | | | | Organics: VOCs | | | | | Organics: PCBs/Pesticides | | | | | Radionuclides: Alpha Spectroscopy | | | | | Radionuclides: Gamma Spectroscopy | | | | | Radionuclides: Strontium-90 | | | | | Radionuclides: Tritium/Other | | | | | Data Gap Conclusions | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | COPCs expected at PRS?[1] | Number of fixed-laboratory samples | > Background value?[2] | Vertical extent defined?[3] | Lateral extent defined?[4] | COPCs expected at PRS? | Number of fixed-laboratory samples | Detected? | Vertical extent defined? | Lateral extent defined? | COPCs expected at PRS? | Number of fixed-laboratory samples | > Background value detected? | Vertical extent defined? | Lateral extent defined? | COPCs expected at PRS? | Number of fixed-laboratory samples | Detected? | Vertical extent defined? | Lateral extent defined? | COPCs expected at PRS? | Number of fixed-laboratory samples | > Background value or detected?[5] | Vertical extent defined? | Lateral extent defined? | COPCs expected at PRS? | Number of fixed-laboratory samples | > Background value or detected? | Vertical extent defined? | Lateral extent defined? | COPCs expected at PRS? | Number of fixed-laboratory samples | > Background value or detected? | Vertical extent defined? | Lateral extent defined? | COPCs expected at PRS? | Number of fixed-laboratory samples | > Background value or detected? | Vertical extent defined? | Lateral extent defined? | Metals | SVOCs and /or VOCs | Pesticides/PCBs | Alpha spectroscopy | Gamma spectroscopy | Strontium-90 | Tritium |
| 35-010(a)-00 | **35-010(a),** WWTP lagoon | Y[6] | 9 | Y | Y | N[7] | Y | 17 | Y | Y | Y | Y | 18 | Y | Y | Y | Y | 21 | Y | Y | N | Y | 12 | Y | Y | Y | Y | 9 | Y | Y | Y | U[8] | 9 | N | Y | Y | Y | 9 | Y | Y | Y | ✓ | | ✓ | | | | |
| | | Barium, cadmium, chromium, copper, lead, mercury, nickel, silver, thallium, vanadium, and zinc were detected. In most cases concentrations decrease with depth. Location ID 35-2467 at the 4-8" depth has higher values than the surface sample but lower values in tuff for most detected metals. Location ID 35-2470 has highest values but shows decreasing trend | | | | | SVOCs detected in 8 samples from 0 to 2.5 ft; most values <2 ppm except for bis(2-ethylhexyl)phthalate at 19 ppm in 6- to 12-in.interval; location ID 35-2467 at the 4- to 8-in. depth has higher values than surface sample but lower values in tuff (decreasing trend established) | | | | | Trace amounts (<0.2 ppm) of VOCs were detected in 8 samples from 0 to 2.5 ft, except for acetone where 1 of 2 detects is 2.6 ppm; location ID 35-02467 at the 4- to 8-in. depth has higher values than surface sample but lower values in tuff (decreasing trend established) | | | | | PCBs detected in 5 surface soils to 12 in.; highest value is 1.2 ppm; location ID 35-02467 at the 4-8" depth has a higher value than surface sample but lower values in tuff (decreasing trend established) | | | | | Plutonium-238/239 detected in up to 9 samples (4 < background levels) 6 samples from 0- to 1-in. depth and 3 samples in Qbt2/3 from 8-40 ft); uranium-234/-238 detected in up to 3 surface samples to 1-ft depth; decreasing trend observed | | | | | Americium-241detected in 1 surface sample; cesium-137 detected in 2 surface samples (< background levels) | | | | | Nothing detected | | | | | Tritium detected in 8 samples (1 < background) with highest level at Loc ID 35-2470 (0-4 in depth). Decreasing trend observed except at Location ID 35-02467; the 4-8" depth has a higher value than the surface sample but lower values in tuff | | | | | Additional samples needed to define extent of contamination for PCBs and metals; decreasing trend established at most locations where contaminants were detected | | | | | | |
| | **35-010(b),** WWTP lagoon | Y | 25 | Y | N | N | Y | 31 | Y | Y | Y | Y | 27 | Y | Y | Y | Y | 35 | Y | Y | Y | Y | 12 | Y | Y | Y | Y | 24 | Y | Y | Y | U | 23 | Y | N | Y | Y | 23 | Y | Y | Y | | | | | | ✓ | |
| | | Aluminum, barium, beryllium, calcium, detected in 1 sample, 0435-97-0257, at 5-6 ft depth (Qbt 3); manganese, strontium, and thallium also only detected in 1 sample (various locations and depths); cadmium, copper, lead, mercury, silver, and zinc detected in up to 11 samples (cadmium only 2 samples), values all decrease with depth (from surface soil to Qbt 3); chromium and nickel increase with depth (mostly in Qbt 3 from 1.5 to 6 ft) | | | | | SVOCs were detected in up to 15 samples from 0-3 ft depths only, nothing deeper; decreasing trend observed | | | | | Trace amounts of VOCs were detected in 8 samples from 0-1 ft, most hits in the 6-12" interval, nothing detected deeper | | | | | PCBs detected in 7 samples from the 0-8" depth. Two samples were detected from 8-12" depth, nothing deeper; decreasing trend observed | | | | | Plutonium-238/239 was detected in up to 9 samples from 0-40 ft at <3 pCi/g, nothing detected in the 50-ft sample; uranium-234/238 was detected in 1 surface sample | | | | | One Qbt 3 sample contained Ru-106 at the 3.5 – 4.5 ft depth | | | | | Strontium-90 detected in 4 Qbt 3 tuff samples from 1.5 to 6 ft; three surface samples from 0 to 1 ft also contained strontium-90; highest value of strontium-90 in 3 out of 4 samples is at deepest depth | | | | | Three 0- to 8-in. samples contained tritium; decreasing trend observed | | | | | Need more strontium-90 data at location ID 35-2471 beyond 5 ft | | | | | | |

1From process knowledge, is class of chemical *expected* to be present as a contaminant at the site?
2Are chemicals from this class present above background concentrations?
3Is vertical extent of contaminants present defined?
4Is lateral extent of contaminants present defined?
5Is radionuclide above background value, or detected if a background value is either not applicable or not available?
6Y = yes.
7N = no.
8U = unknown if chemical might be present.

| Consolidated Unit Number, Individual PRS Number, and Description | Inorganics | | | | | Organics: SVOCs | | | | | Organics: VOCs | | | | | Organics: PCBs/Pesticides | | | | | Radionuclides: Alpha Spectroscopy | | | | | Radionuclides: Gamma Spectroscopy | | | | | Radionuclides: Strontium-90 | | | | | Radionuclides: Tritium/Other | | | | | Data Gap Conclusions | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | COPCs expected at PRS?[1] | Number of fixed-laboratory samples | > Background value?[2] | Vertical extent defined?[3] | Lateral extent defined?[4] | COPCs expected at PRS? | Number of fixed-laboratory samples | Detected? | Vertical extent defined? | Lateral extent defined? | COPCs expected at PRS? | Number of fixed-laboratory samples | > Background value detected? | Vertical extent defined? | Lateral extent defined? | COPCs expected at PRS? | Number of fixed-laboratory samples | Detected? | Vertical extent defined? | Lateral extent defined? | COPCs expected at PRS? | Number of fixed-laboratory samples | > Background value or detected?[5] | Vertical extent defined? | Lateral extent defined? | COPCs expected at PRS? | Number of fixed-laboratory samples | > Background value or detected? | Vertical extent defined? | Lateral extent defined? | COPCs expected at PRS? | Number of fixed-laboratory samples | > Background value or detected? | Vertical extent defined? | Lateral extent defined? | COPCs expected at PRS? | Number of fixed-laboratory samples | > Background value or detected? | Vertical extent defined? | Lateral extent defined? | Metals | SVOCs and /or VOCs | Pesticides/PCBs | Alpha spectroscopy | Gamma spectroscopy | Strontium-90 | Tritium |
| 35-010(a)-00 **35-010(c)**, WWTP lagoon | Y | 16 | Y | N | N | Y | 19 | N | Y | Y | Y | 14 | Y | Y | Y | Y | 19 | N | Y | Y | Y | 4 | Y | N | Y | Y | 15 | Y | Y | Y | N | 15 | N | Y | Y | N | 14 | Y | N | N | ✔ | | | ✔ | | | ✔ |
| | Cadmium, cobalt, copper, lead, manganese, mercury, silver, thallium, zinc detected in up to 9 samples (0-2 ft), decreasing trend with depth; chromium and nickel increase with depth at location IDs 35-2478 (4- to 5-ft depth) and 35-2479 (1- to 2-ft depth) | | | | | Nothing detected | | | | | Four samples contained VOCs from the 3- to 6-in. depth of surface soils, nothing detected deeper | | | | | PCBs detected in 4 samples from 3- to 6-in. depth of surface soils; nothing detected deeper | | | | | Plutonium detected in all 4 samples from the 6- to 12-in. depth at location IDs 35-2065/66; no samples collected for plutonium at other locations or depths; no uranium detected | | | | | Two samples contained europium-152 at the 4- to 6-in. depth at location IDs 35-2478/80; nothing detected deeper | | | | | Nothing detected | | | | | Ten samples contained detectable tritium at depths up to 5 ft, decreasing trend established except at location ID 2478 at depths > 5 ft | | | | | Chromium and nickel need vertical extent beyond 5 ft at location ID 35-2478, and beyond 2 ft at location ID 35-2479 (highest values at deepest depths at this location); need more isotopic plutonium data for vertical extent | | | | | | |
| **35-010(d)**, sand filter beds (4) | Y | 11 | Y | Y | Y | Y | 11 | Y | Y | Y | N | 1 | N | Y | Y | N | 11 | N | Y | Y | N | 17 | N | Y | Y | N | 11 | N | Y | Y | N | 10 | N | Y | Y | N | 0 | — | — | — | | | | | | | |
| | Silver and mercury detected in one 0-to 6-in. sample | | | | | The only SVOCs detected in 3 samples to depths of 2.5 ft were bis(-2ethylhexyl) phthalate (2 hits) and di-n-butyphthalate (1 hit) | | | | | Nothing detected | | | | | Nothing detected | | | | | Nothing detected | | | | | Nothing detected | | | | | Nothing detected | | | | | Based on process knowledge, no samples collected for this chemical | | | | | No additional data needed at this PRS site | | | | | | |
| **35-010(e)**, discharge from sand filters | Y | 0 | — | — | — | Y | 0 | — | — | — | N | 0 | — | — | — | N | 0 | — | — | — | N | 5 | Y | Y | Y | N | 0 | — | — | — | N | 0 | — | — | — | N | 0/10 | N | Y | Y | | | | | | | |
| | Based on data from the sand filter beds, no additional samples were required | | | | | Based on data from the sand filter beds, no additional samples were required | | | | | Based on process knowledge, no samples collected for this chemical | | | | | Based on process knowledge, no samples collected for this chemical | | | | | Plutonium-238/239 detected in 2 surface samples from 0- to 1-ft depth, nothing detected deeper | | | | | Based on process knowledge, no samples collected for this chemical | | | | | Based on process knowledge, no samples collected for this chemical | | | | | Based on process knowledge, no samples collected for tritium; however, 10 samples were collected for thorium, nothing detected | | | | | No additional data needed at this PRS site | | | | | | |
| **C-35-007**, excavated material from sand filter beds | N | 18 | Y | N | Y | Y | 18 | Y | N | Y | N | 0 | — | — | — | Y | 18 | Y | N | Y | N | 17 | Y | N | Y | N | 11 | N | Y | Y | N | 6 | N | Y | Y | N | 6 | N | Y | Y | | | | | | | |
| | Only calcium detected in 2 surface samples from 0-to 6-in. depth; no deeper samples at these locations | | | | | The only SVOCs detected in 3 samples to depths of 1.5 ft were bis(-2ethylhexyl) phthalate (1 hit), di-n-butylphthalate (3 hits), and benzoic acid (1 hit); all <0.06 ppm | | | | | Based on process knowledge, no samples collected for this chemical | | | | | Aroclor-1254 detected in 1 surface sample (0-6 in.); no deeper samples at this location | | | | | Plutonium-238 and plutonium-239 detected in 1 surface sample (0-6 in.) up to 2.5 pCi/g; no uranium detected | | | | | Nothing detected | | | | | Nothing detected | | | | | Nothing detected | | | | | Because this sand is the same sand once used in the sand filter beds [35-010(d)] removed to a new location, number of samples collected is sufficient to determine if contaminants are present in the sand piles | | | | | | |

**Table 3.2-1 - Reivised**
**Proposed Samples for the Mesa Top Subarea**

| PRS Number and Description | Description of Sample Locations (see Figure 3.2-1 or Figure 3.2-2 for map) | | Metals | SVOCs | VOCs | Pest-icides/PCBs | Alpha Spec-troscopy | Gamma Spec-troscopy | Strontium-90/ Tritium | Comments |
|---|---|---|---|---|---|---|---|---|---|---|
| **35-015(a),** waste oil treatment facility | Hand auger (AH1) to a depth of 10 ft, sample at 5-ft intervals (or most appropriate for VOCs based on screening) | AH1 | 2 | 2 | 2 | 2 | N/A[a] | N/A | N/A | — |
| **35-011(d),** two USTs | Drill borehole (BH1) to 25 ft at location ID 35-01100, sample at 10-ft intervals | BH1 | 2 | 2 + TPH analysis | 2 | 2 | N/A | N/A | N/A | Need DRO and LRO in SVOC suite |
| **35-014(f),** former oil spill | Hand auger (AH2) to a depth of 10 ft at location ID 35-2364, sample at 5-ft intervals | AH2 | 2 | 2 | 2 | N/A | N/A | N/A | N/A | Need DRO and LRO in SVOC suite |
| **35-014(a),** stack emissions | Hand auger (AH3) to a depth of 10 ft, sample at 5-ft intervals | AH3 | N/A | N/A | N/A | N/A | N/A | N/A | 2 | Tritium will be chased only if concentrations change |
| **35-004(a),** outdoor container storage areas | Hand auger (AH4) to a depth of 10 ft, sample at 5-ft intervals. | AH4 | 2 | 2 | 2 | 2 | N/A | N/A | 2 | Tritium sample is actually to bound 35-014(a) |
| **35-009(a),** septic system | Drill borehole (BH2) to 15 ft, sample at 6-, 10-, and 15-ft intervals | BH2 | 2 | 2 | N/A | N/A | N/A | N/A | N/A | — |
| **35-003(j)-99,** aboveground storage tanks and oil releases | Drill 1 borehole (BH3) to 20 ft, sample at 10-ft intervals (or most appropriate for VOCs based on screening) | BH3 | N/A | 2 + TPH analysis | 2 (screen) | 2 | 2 | N/A | N/A | Need DRO and LRO in SVOC suite |
| **35-018(a),** former oil leak | Hand auger (AH5) to a depth of 7 ft | AH5 | N/A | 1 | 1 | 1 | N/A | N/A | N/A | — |

| PRS Number and Description | Description of Sample Locations (see Figure 3.2-1 or Figure 3.2-2 for map) | | Metals | SVOCs | VOCs | Pest-icides/PCBs | Alpha Spec-troscopy | Gamma Spec-troscopy | Strontium-90/ Tritium | Comments |
|---|---|---|---|---|---|---|---|---|---|---|
| **35-003(a)-99,** WWTP components | Drill 4 boreholes (BH4–BH7) to 30 ft, collect two samples at BH4 (1 from 15- to 20-ft depth and 1 from 25- to 30-ft depth), collect 3 samples each at BH5, BH6, and BH7 (1 from 0- to 5-ft depth, 1 from 10- to 15-ft depth, and 1 from 25- to 30-ft depth) | BH4 | 2 | 2 | 2 | N/A | 2 | 2 | 2 | — |
| | | BH5 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | |
| | | BH6 | 3 | 3 | N/A | N/A | 3 | 3 | 3 | |
| | | BH7 | 3 | 3 | N/A | N/A | 3 | 3 | 3 | |
| | Dig transect[b] (TR1) to a depth of 20 ft, sample to investigate soil around lines | TR1 | 2-3 | 2-3 | N/A | N/A | 2-3 | 2-3 | 2-3 | — |
| **35-004(h),** outdoor container storage area | Drill 1 borehole (BH8) to a depth of 20 ft; collect 4 samples, one at each 5 ft interval. | BH8 | 4 | N/A | N/A | N/A | N/A | N/A | N/A | — |
| **35-002,** MDA X | Drill 1 borehole (BH9) to a depth of 30 ft, collect 3 samples, (1 from 0- to 5-ft depth, 1 from 10- to 15-ft depth, and 1 from 25- to 30-ft depth) | BH9 | 3 | N/A | N/A | N/A | 3 | 3 | 3 (tritium) | |
| **Total Minimum Number of Samples** | | | **30** | **26** | **14** | **12** | **18** | **16** | **20** | — |

a N/A indicates that a sample is not required based on existing data or process knowledge.

b Transect depth varies to include all post-Laboratory sediments/soils; does not extend into tuff but can go as deep as the soil/tuff interface.

## Table 3.2-2
## Proposed Samples for the Ten Site Slope Subarea

| PRS Number and Description | Description of Sample Locations (see Figure 3.2-3 or Figure 3.2-4 for map) | | Metals | SVOCs | VOCs | Pesticides/ PCBs | Alpha Spec-troscopy | Gamma Spec-troscopy | Tritium | Comments |
|---|---|---|---|---|---|---|---|---|---|---|
| **35-016(j),** outfall | Dig 2 transects[a] or auger holes (TR1–TR2) for geomorphic characterization (1 near top of slope [TR1] and 1 in alluvial fan at base of slope [TR2]), collect samples from 2 depths | TR1 | 2 | 2 | N/A[b] | N/A | N/A | N/A | N/A | Add cyanide to metals suite |
| | | TR2 | 2 | 2 | N/A | N/A | 2 | 2 | N/A | |
| **35-014(g3),** oil spill | Dig 4 transects or auger holes (TR3–TR6) for geomorphic characterization (1 near top of slope and 3 in alluvial fan at base of slope), collect samples from 2 depths | TR3 | 2 | 2 | 2 | N/A | N/A | N/A | N/A | Need DRO and LRO in SVOC suite |
| | | TR4 | 2 | 2 | 2 | N/A | N/A | N/A | N/A | |
| | | TR5 | 2 | 2 | 2 | N/A | N/A | N/A | N/A | |
| | | TR6 | 2 | 2 | 2 | N/A | N/A | N/A | N/A | |
| 35-014(g)-00 **35-016(n), 35-004(m), 35-014(g1,g2),** outfall area | Dig 2 transects or auger holes (TR7–TR8) for geomorphic characterization (1 near top of slope [TR7] and 1 in alluvial fan at base of slope [TR8]), collect samples from 2 depths | TR7 | 2 | 2 | N/A | N/A | N/A | N/A | N/A | Need DRO and LRO in SVOC suite |
| | | TR8 | 2 | 2 | 2 | N/A | 2 | 2 | N/A | |
| 35-004(g)-00 **35-009(b),** septic system **35-004(g),** outdoor storage area | Drill 4 boreholes (BH1–BH4) to 30 ft in leachfield, sample at 10-ft intervals; hand auger (AH1) at location ID 35-2100, collect 1 sample from 12–18 in.; dig transect (TR11) for geomorphic characterization in alluvial fan at base of slope, collect samples from 2 depths | BH1 | 3 | 1 | N/A | 3 | 3 | 3 | N/A | BH1 and BH2 need SVOCs at 30-ft depth only |
| | | BH2 | 3 | 1 | N/A | 3 | 3 | 3 | N/A | |
| | | BH3 | 3 | 3 | N/A | 3 | 3 | 3 | N/A | |
| | | BH4 | 3 | 3 | N/A | 3 | 3 | 3 | N/A | |
| | | AH1 | 1 | 1 | 1 | 1 | N/A | N/A | N/A | |
| | | TR11 | 2 | 2 | N/A | 2 | 2 | 2 | N/A | |
| **35-016(b)** | Dig 2 transects or auger holes (TR9–TR10) for geomorphic characterization (1 at mid-point from top to base of alluvial fan [TR9] and 1 in alluvial fan at base of slope [TR10]), collect samples from 2 depths at TR9 and from 3 depths at TR10 | TR9 | 2 | 2 | N/A | N/A | N/A | N/A | N/A | Add cyanide to metals suite |
| | | TR10 | 3 | 3 | N/A | N/A | 3 | 3 | N/A | |

| PRS Number and Description | Description of Sample Locations (see Figure 3.2-3 or Figure 3.2-4 for map) | | Metals | SVOCs | VOCs | Pesticides/ PCBs | Alpha Spec-troscopy | Gamma Spec-troscopy | Tritium | Comments |
|---|---|---|---|---|---|---|---|---|---|---|
| 35-016(c)-00 **35-016(c,d),** outfall | Dig 4 transects or auger holes (TR12–TR15) for geomorphic characterization (1 near top of slope at each PRS [TR12–TR13] and 2 in alluvial fan at base of slope where PRSs join [TR14–TR15]), collect samples from 2 depths | TR12 | 2 | N/A | N/A | N/A | N/A | N/A | N/A | — |
| | | TR13 | 2 | N/A | N/A | N/A | N/A | N/A | N/A | |
| | | TR14 | 2 | 2 | Screen | N/A | 2 | 2 | N/A | |
| | | TR15 | 2 | 2 | Screen | N/A | 2 | 2 | N/A | |
| **35-017,** steam line outfall | Geodetic survey will be conducted to locate steam blow-off line; geomorphic characterization and radiation screening will determine if radionuclide contamination from historical releases may be present | N/A | N/A | N/A | N/A | N/A | Screen | Screen | N/A | — |
| **35-009(e),** septic system | Dig 2 transects or auger holes (TR16–TR17) for geomorphic characterization (1 near top of slope [TR16] and 1 in alluvial fan at edge of PRS [TR17]), collect samples from 2 depths | TR16 | 2 | 2 | Screen | 2 | 2 | 2 | N/A | — |
| | | TR17 | 2 | 2 | Screen | 2 | 2 | 2 | N/A | |
| **35-009(a),** septic system | Drill 3 boreholes (BH5–BH7) to 30 ft in distribution box, sample at 10-ft intervals; dig 2 transects or auger holes (TR18–TR19) for geomorphic characterization (1 near top of slope [TR18] and 1 in alluvial fan at base of slope [TR19]), collect samples from 2 to 3 depths | BH5 | 3 | 3 | Screen | 3 | 3 | N/A | N/A | — |
| | | BH6 | 3 | 3 | Screen | 3 | 3 | N/A | 3 | |
| | | BH7 | 3 | 3 | Screen | 3 | 3 | N/A | N/A | |
| | | TR18 | 2 | 2 | Screen | 2 | 2 | 2 | 2 | |
| | | TR19 | 3 | 3 | Screen | 3 | 3 | 3 | 3 | |
| 35-016(a)-00 **35-016(a),** outfall | Dig 2 transects or auger holes (TR20–TR21) for geomorphic characterization, collect samples from 2 depths | TR20 | 2 | N/A | Screen | N/A | 2 | N/A | N/A | — |
| | | TR21 | 2 | N/A | Screen | N/A | N/A | N/A | N/A | |
| **35-016(q),** outfall | Dig transect or auger hole (TR22) for geomorphic characterization in alluvial fan at base of slope, collect samples from 3 depths | TR22 | 3 | 3 | Screen | 3 | 3 | 3 | N/A | — |
| | **Total Minimum Number of Samples** | | **69** | **57** | **11** | **36** | **48** | **37** | **8** | — |

a Transect depth varies to include all post-Laboratory sediments/soils; does not extend into tuff but can go as deep as the soil/tuff interface

b N/A indicates that a sample is not required based on existing data or process knowledge.

## Table 3.2-3
## Proposed Samples for the Mortandad Slope Subarea

| PRS Number and Description | | Description of Sample Locations (see Figure 3.2-6 or Figure 3.2-7 for map) | | Metals | SVOCs | VOCs | Pest-icides/PCBs | Alpha Spec-troscopy | Gamma Spec-troscopy | Tritium | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **35-016(f),** outfall (stormwater) | | Dig 3 transects[a] or auger holes (TR1–TR3) for geomorphic characterization, collect samples from 2 depths | TR1 | 2 | 2 | N/A[b] | 2 | N/A | N/A | N/A | PCBs could have moved down drain channel to fan |
| | | | TR2 | 2 | 2 | N/A | 2 | N/A | N/A | N/A | |
| | | | TR3 | 2 | 2 | N/A | 2 | N/A | N/A | N/A | |
| 35-008-00 | **35-014(e1),** oil spill (former) | To gather data for collocated PRSs 35-014(e1), 35-008, and 35-016(e), dig 8 transects or auger holes (TR4–TR11) for geomorphic characterization, collect samples from 2 depths | TR4 | 2 | 2 | N/A | N/A | N/A | N/A | N/A | — |
| | | | TR5 | 2 | 2 | N/A | N/A | N/A | N/A | N/A | |
| | | | TR6 | 2 | 2 | N/A | N/A | 2 | 2 | N/A | |
| | | | TR7 | 2 | 2 | N/A | N/A | N/A | N/A | N/A | |
| | | | TR8 | 2 | 2 | N/A | N/A | N/A | N/A | N/A | |
| | | | TR9 | 2 | 2 | N/A | N/A | 2 | 2 | N/A | |
| | | | TR10 | 2 | 2 | N/A | N/A | 2 | 2 | N/A | |
| | | | TR11 | 2 | 2 | N/A | N/A | 2 | 2 | N/A | |
| | **35-008,** disposal area | See PRS 35-014(e1); data gathered will include area of PRS 35-008 | | | | | | | | | — |
| **35-016(e),** outfall | | See PRS 35-014(e1); data gathered will include area of PRS 35-016(e) | | | | | | | | | — |
| **35-004(b),** outdoor storage area | | Hand auger (AH1) through asphalt, collect samples from 2 depths (1 from immediately below base course and 1 from 2 ft below base course) | AH1 | 2 | 2 | 2 | N/A | N/A | N/A | N/A | — |

| PRS Number and Description | | Description of Sample Locations (see Figure 3.2-6 or Figure 3.2-7 for map) | | Metals | SVOCs | VOCs | Pest-icides/PCBs | Alpha Spec-troscopy | Gamma Spec-troscopy | Tritium | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 35-016(i)-00 | **35-014(e2),** former oil spill | Hand auger (AH2) and sample at 3 depths (above tuff, at soil/tuff interface, and in tuff); dig 6 transects or auger holes (TR12–TR17) for geomorphic characterization, collect samples from 2 depths | AH2 | 3 | 3 | N/A | 3 | N/A | N/A | N/A | Additional TPH screen for location TR13 only |
| | | | TR12 | 2 | 2 | N/A | 2 | N/A | N/A | N/A | |
| | | | TR13 | 2 | 2 | N/A | 2 | N/A | N/A | N/A | |
| | | | TR14 | 2 | 2 | N/A | 2 | N/A | N/A | N/A | |
| | | | TR15 | 2 | 2 | N/A | 2 | N/A | N/A | N/A | |
| | | | TR16 | 2 | 2 | N/A | 2 | N/A | N/A | N/A | |
| | | | TR17 | 2 | 2 | N/A | 2 | N/A | N/A | N/A | |
| | **35-016(i),** stormwater outfall | See PRS 35-014(e2); data gathered will include area of PRS 35-016(i) | | | | | | | | | — |
| **35-009(c)** and collocated **35-016(o),** [outfall 1] | | Hand auger (AH3–AH5) 3 locations, sample at 3 depths (above tuff, at soil/tuff interface, and in tuff); dig 4 transects or auger holes (TR18–TR21) for geomorphic characterization, collect samples from 2 depths | AH 3 | 3 | N/A | N/A | 3 | N/A | N/A | N/A | — |
| | | | AH4 | 3 | N/A | N/A | 3 | N/A | N/A | N/A | |
| | | | AH5 | 3 | N/A | N/A | 3 | N/A | N/A | N/A | |
| | | | TR18 | 2 | 2 | N/A | 2 | 2 | 2 | 2 | |
| | | | TR19 | 2 | 2 | N/A | 2 | 2 | 2 | 2 | |
| | | | TR20 | 2 | 2 | N/A | 2 | 2 | 2 | 2 | |
| | | | TR21 | 2 | 2 | N/A | 2 | 2 | 2 | 2 | |
| **35-016(o),** [outfalls 2 and 3] | | Dig 4 transects or auger holes (TR22–TR25) for geomorphic characterization, collect samples from 2 depths | TR22 | 2 | 2 | N/A | 2 | 2 | 2 | 2 | |
| | | | TR23 | 2 | 2 | N/A | 2 | 2 | 2 | 2 | |
| | | | TR24 | 2 | 2 | N/A | 2 | 2 | 2 | 2 | |
| | | | TR25 | 2 | 2 | N/A | 2 | 2 | 2 | 2 | |
| **35-016(p),** outfall | | Dig 3 transects or auger holes (TR26–TR28) for geomorphic characterization, collect samples from 2 depths | TR26 | 2 | 2 | N/A | N/A | N/A | N/A | N/A | — |
| | | | TR27 | 2 | 2 | N/A | N/A | N/A | N/A | N/A | |
| | | | TR28 | 2 | 2 | N/A | N/A | N/A | N/A | N/A | |
| **Total Minimum Number of Samples** | | | | **70** | **61** | **2** | **46** | **24** | **24** | **24** | — |

a Transect depth varies to include all post-Laboratory sediments/soils; does not extend into tuff but can go as deep as the soil/tuff interface

b N/A indicates that a sample is not required based on existing data or process knowledge.

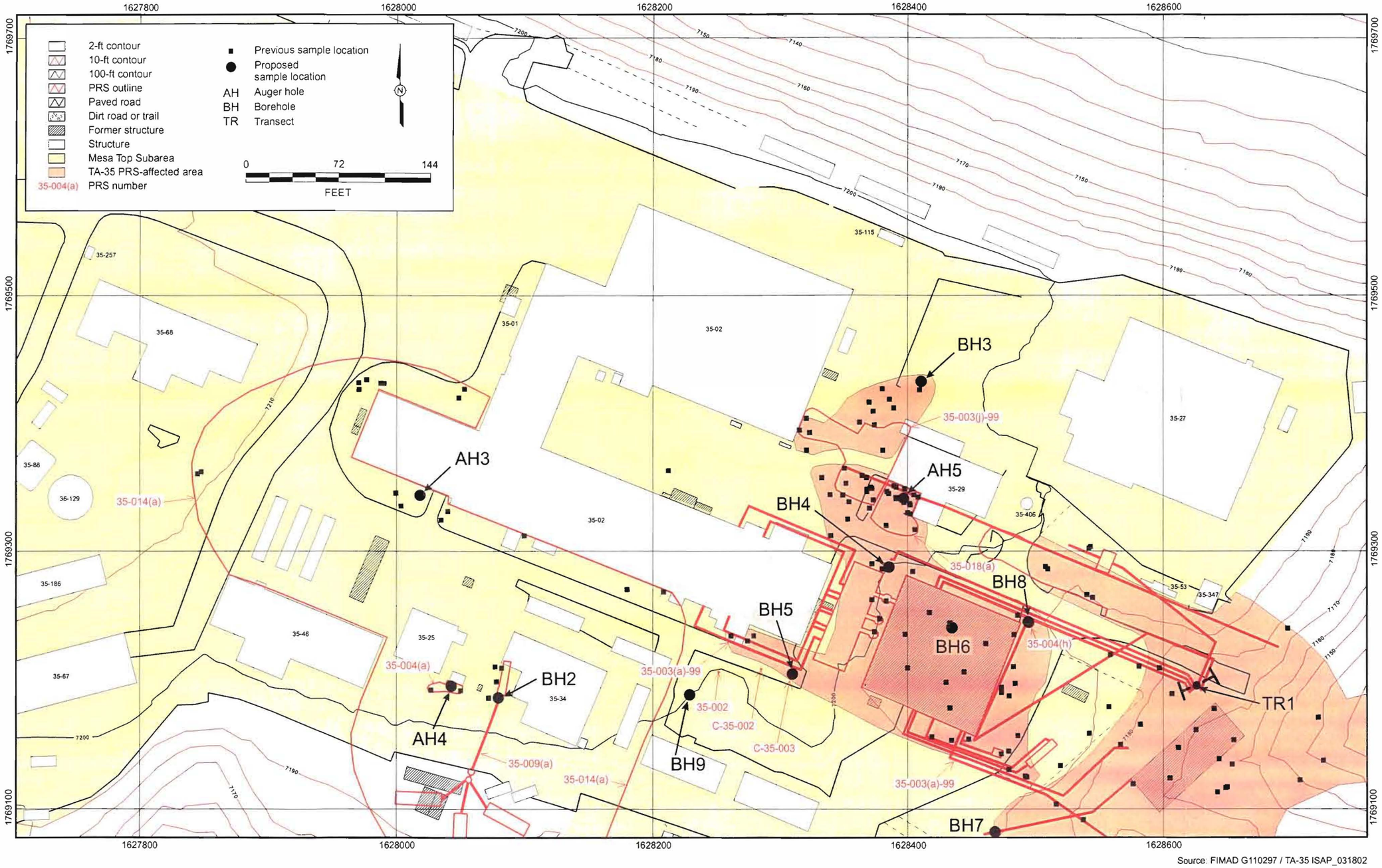
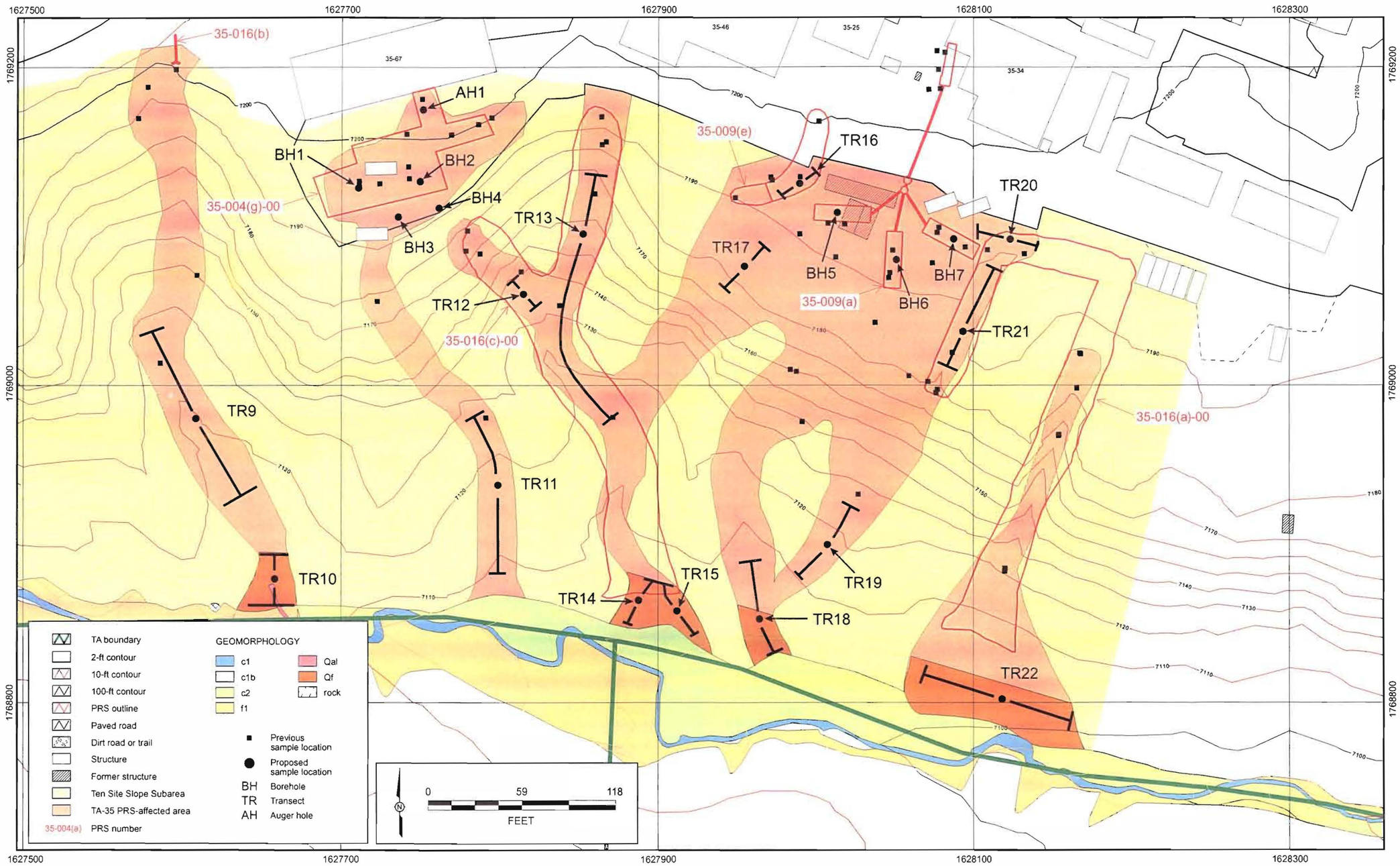
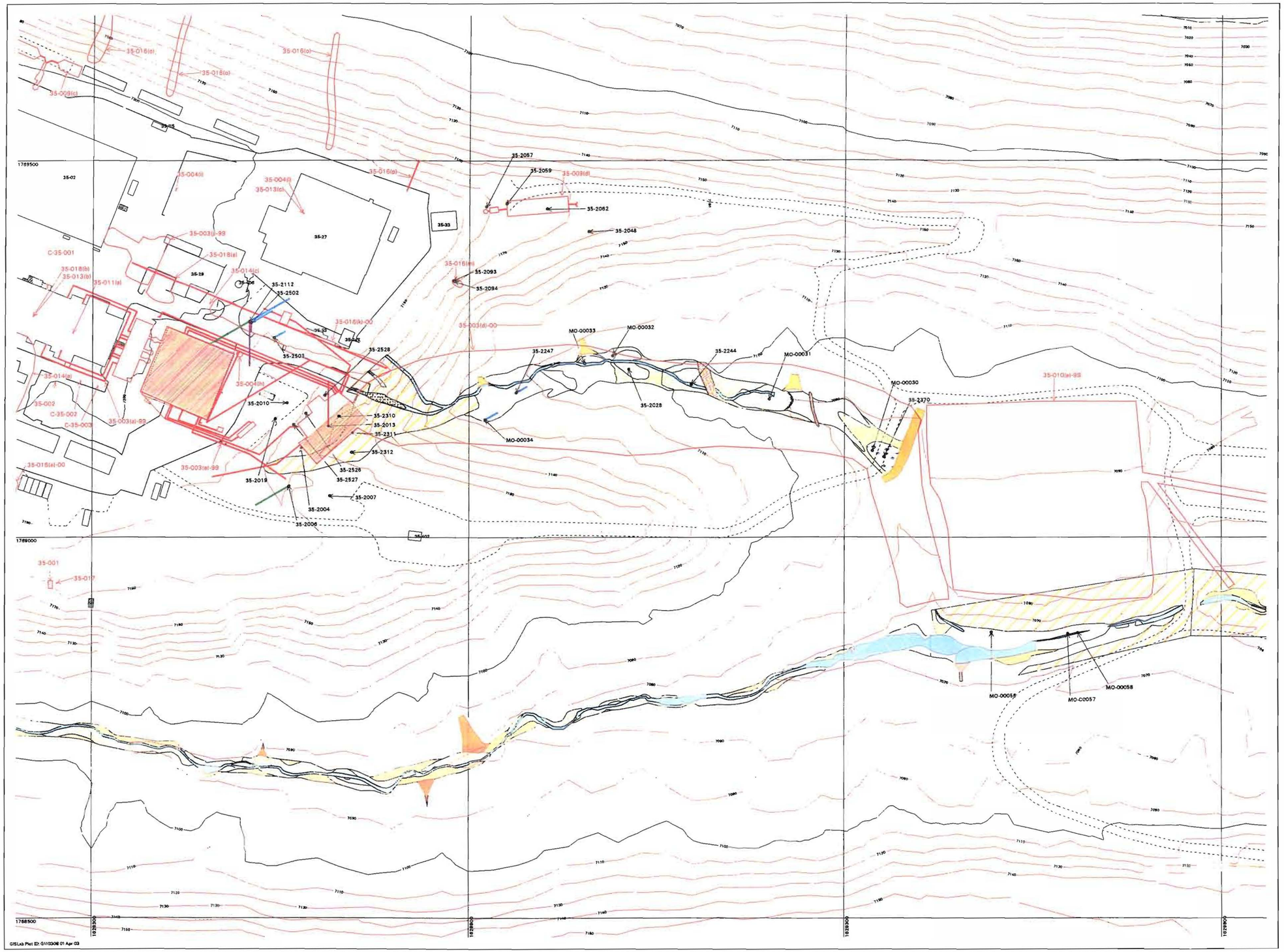



**Figure 3.2-2. Proposed sample locations for eastern portion of Mesa Top Subarea**




FIMAD Plot ID: G110254 / TA-35 ISAP 031802

**Figure 3.2-4. Proposed sample locations in eastern portion of Ten Site Slope Subarea**



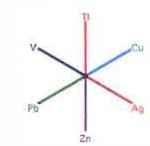

# TA-35, Pratt Canyon Subarea, Inorganic Chemicals Spoke Plot

- Contour, 2 foot
- Contour, 10 foot
- Contour, 100 foot
- PRS Outline
- Road, Paved
- Road/Trail, Dirt
- Former Structure
- Structure
- Pratt Canyon Subarea
- TA-35 PRS Affected Area
- Location of Samples Submitted for Analysis

GEOMORPHOLOGY

- c1
- c1b
- c1ct
- c2
- c2a
- c2b
- c3
- disturbed, fill, or manmade
- fan
- f1
- f2
- Qal
- Qf
- rip rap
- road
- rock
- Best Management Practice (BMP)

Representative Inorganic Chemicals for Pratt Canyon Subarea




| CHEMICAL | MAXIMUM RATIO | MAXIMUM CONCENTRATION |
|---|---|---|
| TL | 15.273 | 17.900 |
| CU | 3.680 | 54.100 |
| AG | 0.000 | 0.580 |
| ZN | 11.742 | 573.000 |
| PB | 1.309 | 29.200 |
| V | 0.000 | 16.400 |

Each value is the maximum concentration divided by the background value (BV) for that chemical. The maximum spoke length, which represents the largest maximum ratio for each chemical, is set to 1 in. All other ratios (concentration divided by BV) for each chemical are represented by spoke lengths that are proportional to 1 in.

Cartography by: Doug Walther
Date: April 01, 2003 GISLab Plot ID: G110308

N

State Plane Coordinate System, New Mexico Central Zone.
1983 North American Datum

Grid provides NM State Plane coordinates in feet.
Grid interval, in feet: 500
Feet per inch on map = 60

SCALE 1:720

0 18 36 54 72
METERS

0 60 120 180 240
FEET

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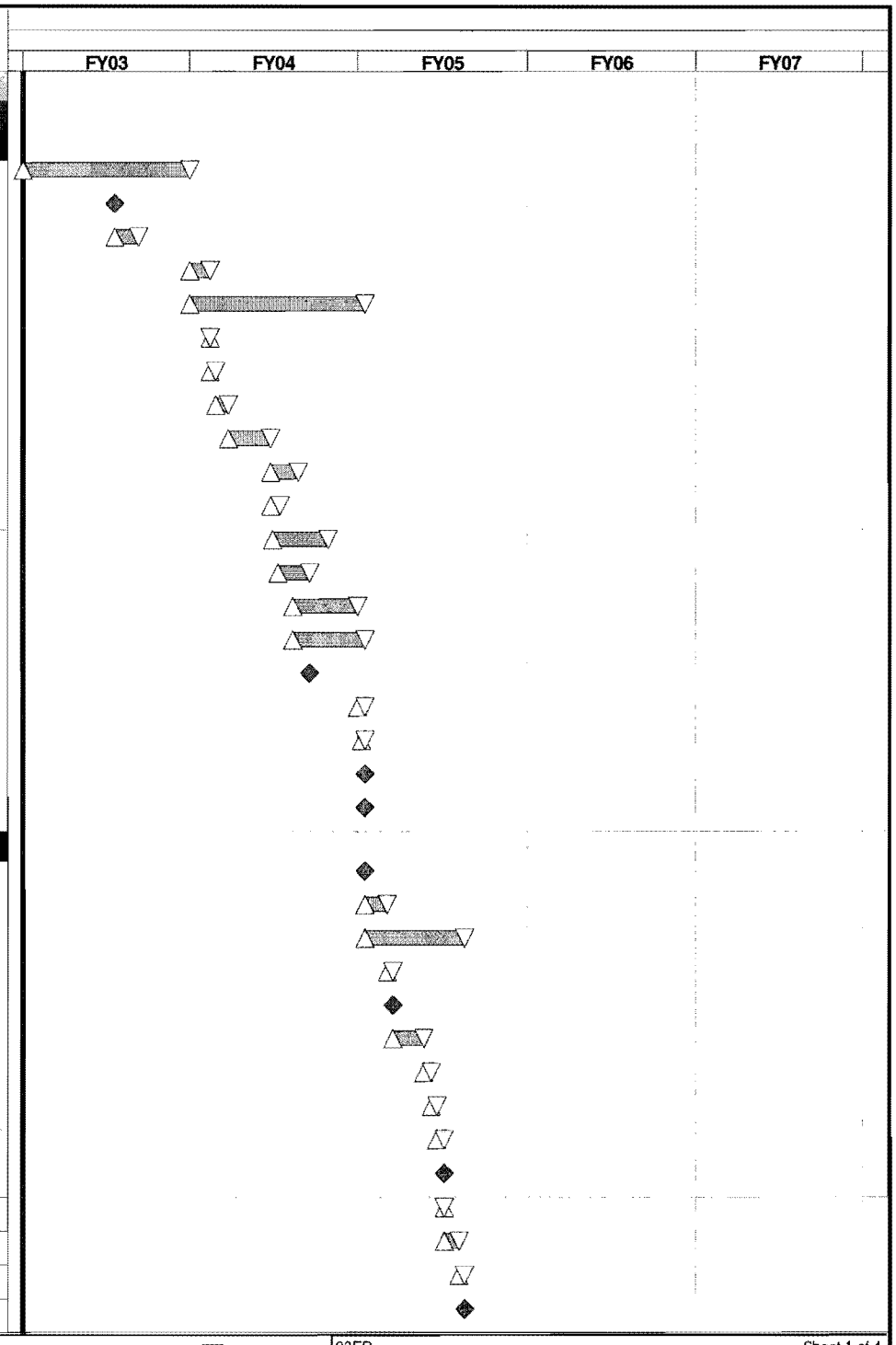
MIDDLE MORTANDAD / TEN SITE AGGREGATE SCHEDULE

# Appendix B

| Activity ID | Activity Description | Orig Dur | Early Start | Early Finish |
|---|---|---|---|---|
| 01 MORTANDAD WATERSHED | | | | |
| MIDDLE MORTANDAD/TEN SITE | | | | |
| AH TA-35 FIELD WORK | | | | |
| D311AH0400 | Project Management & Technical Oversight | 246 | 01OCT02 | 30SEP03 |
| D311AH0302 | TA35: Start RFI Field Work | 0 | 21APR03 | |
| D311AH030A | Cont. - TA 4,5,52,63: Prep. SOW & Bid Docs | 36 | 21APR03 | 10JUN03 |
| D311AH0304 | TA35: Prepare For Readiness Review | 28 | 01OCT03* | 12NOV03 |
| D311AHCA | TA35 FW & Data Analysis Contingency | 255* | 01OCT03 | 14OCT04 |
| D311AH0306 | TA35: Conduct Readiness-Review | 1 | 13NOV03 | 13NOV03 |
| D311AH0308 | TA35: Mobilize | 5 | 14NOV03 | 24NOV03 |
| D311AH0312 | TA35: Conduct Land & RAD Survey | 20 | 25NOV03 | 22DEC03 |
| D311AH0314 | TA35: Geomorphic Mapping | 60 | 23DEC03 | 25MAR04 |
| D311AH0320 | TA35: Collect & Submit Surface Samples | 42 | 26MAR04 | 24MAY04 |
| D311AH0322 | TA35: Collect & Submit Subsurface Samples | 15 | 26MAR04 | 15APR04 |
| D311AH0326 | TA35: Sample Analysis | 85 | 29MAR04 | 27JUL04 |
| D311AH0330 | TA35: Write Post Field Operations Report | 50 | 09APR04 | 18JUN04 |
| D311AH0328 | TA35: Validate & Authenticate Data (CDM) | 99 | 11MAY04 | 29SEP04 |
| D311AH0324 | TA35: Waste Management | 108 | 12MAY04 | 14OCT04 |
| D311AH0336 | TA35: Post Field Operations Report Complete | 0 | | 18JUN04 |
| D311AH0332 | TA35: Focused Validation & Assessment | 10 | 30SEP04 | 14OCT04 |
| D311AH0334 | TA35: Demobilize | 5 | 07OCT04 | 14OCT04 |
| D311AH0338 | TA35: RFI Field Work Complete | 0 | | 14OCT04 |
| D311AH0340 | TA35: All Data in FIMAD | 0 | | 14OCT04 |
| AN TA-35 RFI REPORT | | | | |
| D311AN0402 | TA35: Start NFA RFI Report | 0 | 15OCT04 | |
| D311AN0404 | TA35: Data Analysis & Assessment | 30 | 15OCT04 | 01DEC04 |
| D311ANCA | TA35 RFI Report Contingency | 143* | 15OCT04 | 19MAY05 |
| D311AN0414 | TA35: Report Decisions Peer Review | 10 | 02DEC04 | 15DEC04 |
| D311AN0410 | TA35: Start RFI Report Draft | 0 | 16DEC04 | |
| D311AN0412 | TA35: Prepare RFI Report Draft | 40 | 16DEC04 | 18FEB05 |
| D311AN0418 | TA35: Document Peer Review & Incorp. Comments | 10 | 22FEB05 | 07MAR05 |
| D311AN0422 | TA35: DOE Review RFI Draft Report | 10 | 08MAR05 | 21MAR05 |
| D311AN0424 | TA35: Incorporate DOE & LANL Comments | 10 | 22MAR05 | 04APR05 |
| D311AN0426 | TA35: Submit RFI Report To AA | 0 | | 04APR05 |
| D311AN0427 | TA35: AA Administrative Acceptance | 1 | 05APR05 | 05APR05 |
| D311AN0428 | TA35: AA Review Of RFI Report | 30 | 06APR05 | 05MAY05 |
| D311AN0430 | TA35: Incorporate AA Comments | 10 | 06MAY05 | 19MAY05 |
| D311AN0432 | TA35: Issue Final NFA RFI Report | 0 | | 19MAY05 |

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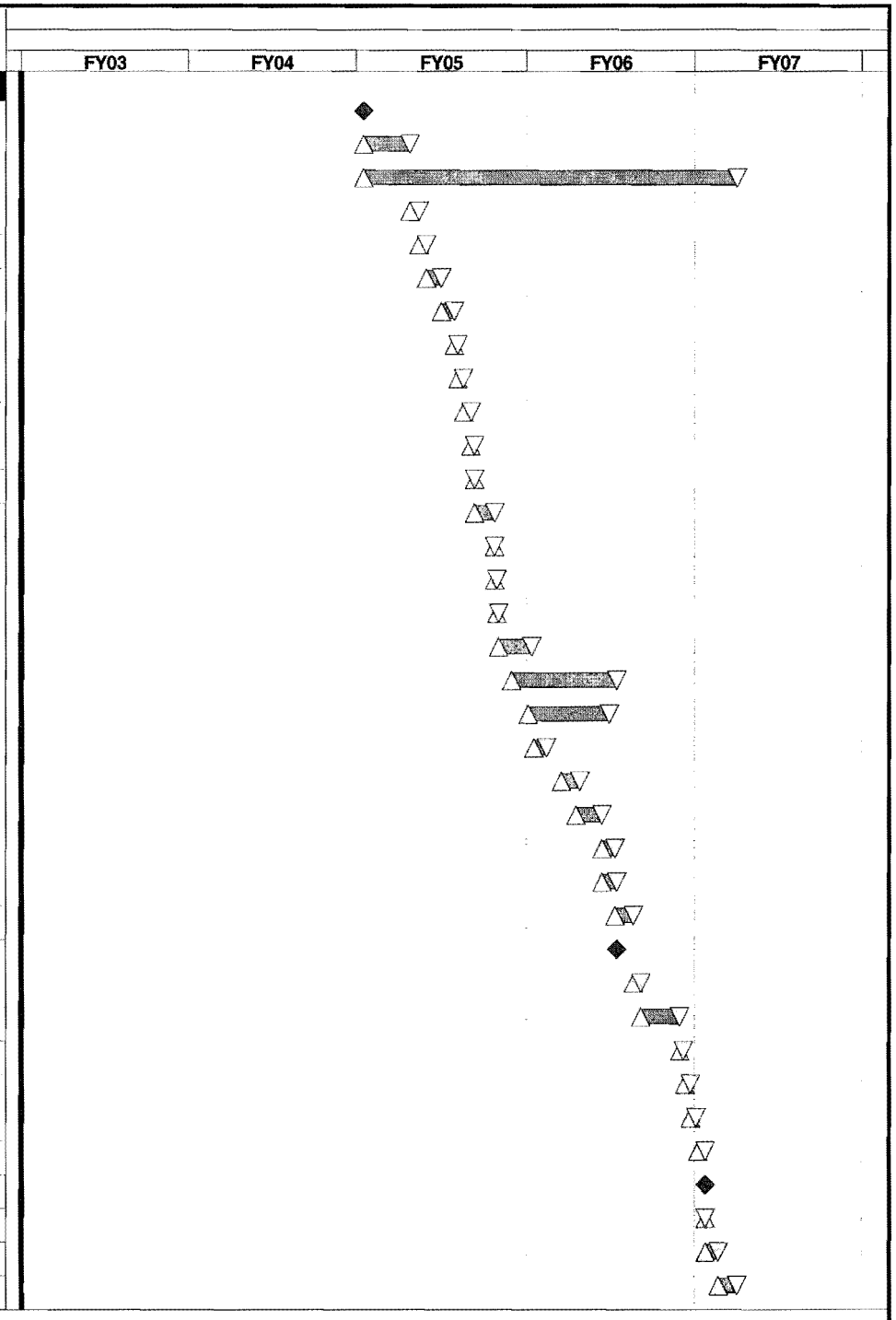
**Middle Mortandad/Ten Site Schedule**

| Activity ID | Activity Description | Orig Dur | Early Start | Early Finish |
|---|---|---|---|---|
| AP TA-35 VCA ACTIONS | | | | |
| D311AP0802 | TA35: Start VCA Cleanup | 0 | 15OCT04 | |
| D311AP0803 | TA35: Prep SOW, Bid Docs, & Bid Acceptance | 60 | 15OCT04 | 21JAN05 |
| D311APCA | TA35 VCA Actions Contingency | 540* | 15OCT04 | 02JAN07 |
| D311AP0804 | TA35: Develop Fact Sheets / AA Presentation | 15 | 24JAN05 | 11FEB05 |
| D311AP0801 | TA35: Decision Peer Review | 10 | 14FEB05 | 28FEB05 |
| D311AP0805 | TA35: AA Decision: VCA Or VCM | 22 | 01MAR05 | 30MAR05 |
| D311AP0806 | TA35: Develop VCA Plan | 20 | 31MAR05 | 27APR05 |
| D311AP0808 | TA35: VCA Plan Peer Review | 6 | 28APR05 | 05MAY05 |
| D311AP0810 | TA35: Incorporate Peer Review Comments | 10 | 06MAY05 | 19MAY05 |
| D311AP0812 | TA35: DOE Review Of VCA Plan | 10 | 20MAY05 | 03JUN05 |
| D311AP0814 | TA35: Incorporate DOE & LANL Comments | 5 | 06JUN05 | 10JUN05 |
| )311AP0815 | TA35: AA Administrative Acceptance | 1 | 13JUN05 | 13JUN05 |
| D311AP0820 | TA35: Prepare For Readiness Review | 30 | 14JUN05 | 26JUL05 |
| D311AP0824 | TA35: Conduct Readiness Review | 1 | 27JUL05 | 27JUL05 |
| D311AP0826 | TA35: Perform Visual Site Survey | 2 | 28JUL05 | 29JUL05 |
| D311AP0828 | TA35: Conduct Rad Survey | 3 | 01AUG05 | 03AUG05 |
| D311AP0832 | TA35: VCA Cleanup | 50 | 04AUG05 | 14OCT05 |
| D311AP0822 | TA35: Storm Water Controls | 152 | 31AUG05 | 17APR06 |
| D311AP0834 | TA35: Waste Management | 116 | 05OCT05 | 30MAR06 |
| D311AP0836 | TA35: Collect & Submit Samples | 22 | 17OCT05 | 16NOV05 |
| D311AP0838 | TA35: Sample Analysis | 22 | 19DEC05 | 27JAN06 |
| D311AP0840 | TA35: Validate & Authenticate Data (CDM) | 40 | 19JAN06 | 16MAR06 |
| D311AP0841 | TA35: Focused Validation & Assessment | 17 | 17MAR06 | 10APR06 |
| D311AP0842 | TA35: Restore Site And Demobilize | 22 | 17MAR06 | 17APR06 |
| D311AP0844 | TA35: Data Analysis & Assessment | 30 | 11APR06 | 22MAY06 |
| 311AP0846 | TA35: VCA Field Work Completed | 0 | | 17APR06 |
| D311AP0848 | TA35: Decision Peer Review | 10 | 23MAY06 | 06JUN06 |
| D311AP0850 | TA35: Write VCA Report | 60 | 07JUN06 | 30AUG06 |
| D311AP0852 | TA35: Document Peer Review | 6 | 31AUG06 | 08SEP06 |
| D311AP0854 | TA35: Incorporate Peer Review Comments | 10 | 11SEP06 | 22SEP06 |
| D311AP0856 | TA35: DOE & LANL Review Of VCA Report | 10 | 25SEP06 | 06OCT06 |
| D311AP0858 | TA35: Incorporate DOE & LANL Comments | 10 | 10OCT06 | 23OCT06 |
| D311AP0860 | TA35: Submit VCA Report To AA | 0 | | 23OCT06 |
| D311AP0861 | TA35: AA Administrative Acceptance | 1 | 24OCT06 | 24OCT06 |
| D311AP0862 | TA35: AA Review Report | 30 | 25OCT06 | 23NOV06 |
| D311AP0864 | TA35: Incorporate AA Comments | 22 | 24NOV06 | 02JAN07 |

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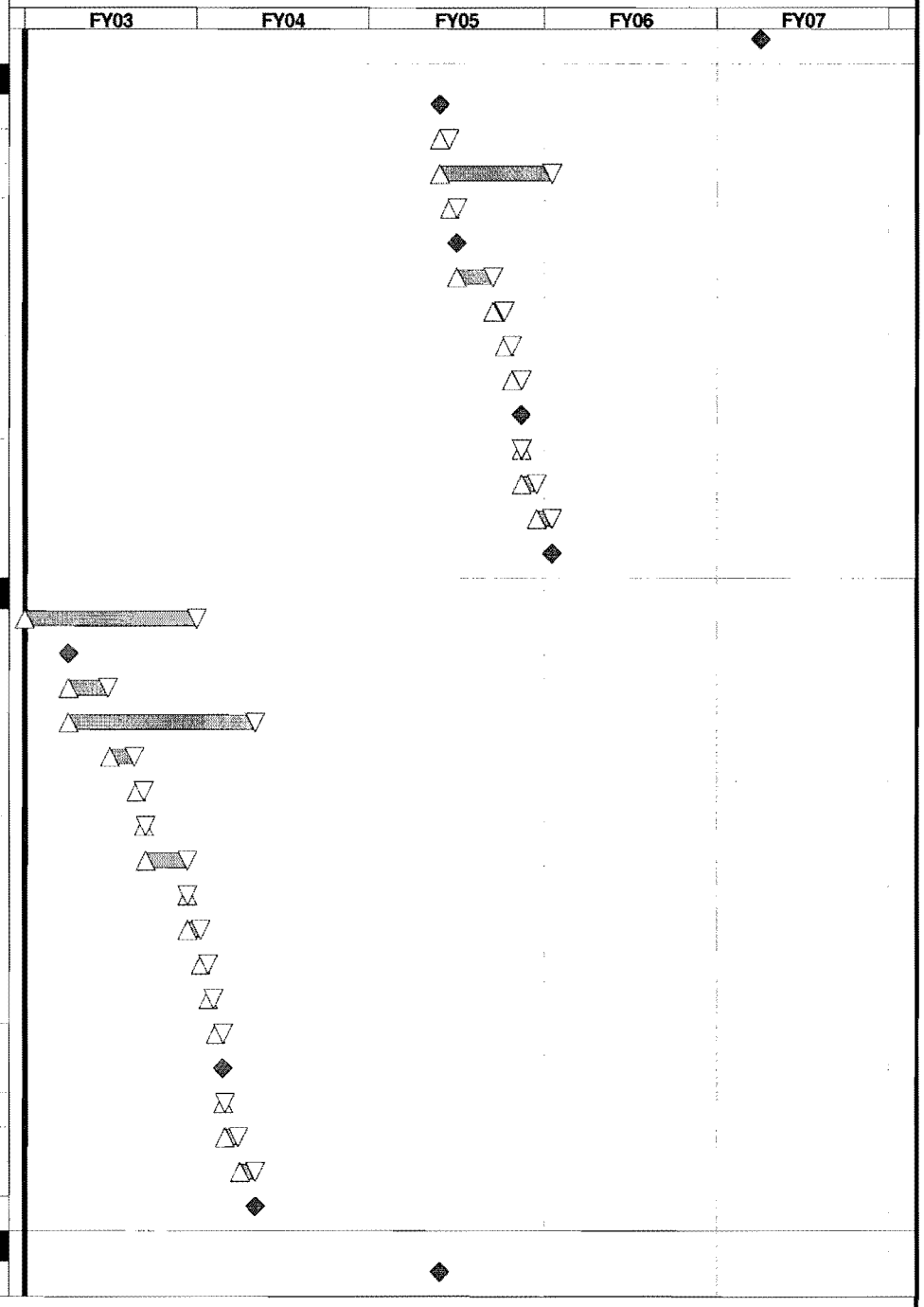
**Middle Mortandad/Ten Site Schedule**

| Activity ID | Activity Description | Orig Dur | Early Start | Early Finish |
|---|---|---|---|---|
| D311AP0866 | TA35: Final VCA Report Completed | 0 | | 02JAN07 |
| **AY TA-4,5,35,50,52,63 INTEGRATED RFI REPORT** | | | | |
| D311AY0402 | TA 4,5,35,50,52,63: Start Integrated RFI Rpt | 0 | 24FEB05 | |
| D311AY0404 | TA 4,5,35,50,52,63: Integ RFI Rpt Data Anlys | 15 | 24FEB05 | 16MAR05 |
| D311AYCA | TA 4,5,35,50,52,63 Integ RFI Report Contingency | 165* | 24FEB05 | 18OCT05 |
| D311AY0414 | TA 4,5,35,50,52,63: Decision Peer Review | 10 | 17MAR05 | 30MAR05 |
| D311AY0410 | TA 4,5,35,50,52,63: Start RFI Report Draft | 0 | 31MAR05 | |
| D311AY0412 | TA 4,5,35,50,52,63: Write Draft Int. RFI Rpt | 55 | 31MAR05 | 16JUN05 |
| D311AY0418 | TA 4,5,35,50,52,63: Doc Peer Rev & Incorp. | 16 | 17JUN05 | 11JUL05 |
| D311AY0422 | TA 4,5,35,50,52,63: DOE & LANL Rvw Draft Rpt | 10 | 12JUL05 | 25JUL05 |
| D311AY0424 | TA 4,5,35,50,52,63: Incorp DOE & LANL Comment | 15 | 26JUL05 | 15AUG05 |
| D311AY0426 | TA 4,5,35,50,52,63: Submit RFI Report To AA | 0 | | 15AUG05 |
| D311AY0427 | TA 4,5,35,50,52,63: AA Administratve Acceptance | 1 | 16AUG05 | 16AUG05 |
| D311AY0428 | TA 4,5,35,50,52,63: AA Review Of RFI Report | 30 | 17AUG05 | 15SEP05 |
| D311AY0430 | TA 4,5,35,50,52,63: Incorporate AA Comments | 22 | 16SEP05 | 18OCT05 |
| D311AY0432 | TA 4,5,35,50,52,63: Issue Final Int. RFI Rpt | 0 | | 18OCT05 |
| **DB TA-4,5,52,63 INTEGRATED SAP** | | | | |
| D311DB0100 | Project Management & Techinical Oversight | 246 | 01OCT02 | 30SEP03 |
| D311DB0202 | TA 4,5,52,63: Start Integrated SAP / Work Pl | 0 | 02JAN03* | |
| D311DB0204 | TA 4,5,52,63: Prep.SOW, Bid Docs & Bid Accep | 60 | 02JAN03 | 28MAR03 |
| D311DBCA | TA 4,5,52,63 Integrated SAP Contingency | 267* | 02JAN03 | 03FEB04 |
| D311DB0206 | TA 4,5,52,63: Locate & Analyze Existing Data | 40 | 31MAR03 | 23MAY03 |
| D311DB0208 | TA 4,5,52,63: Write Data Quality Objectives | 10 | 26MAY03 | 09JUN03 |
| D311DB0209 | TA 4,5,52,63: Decision Peer Review | 5 | 10JUN03 | 16JUN03 |
| D311DB0210 | TA 4,5,52,63: Write ISAP | 60 | 17JUN03 | 10SEP03 |
| D311DB0212 | TA 4,5,52,63: Issue Peer Review Draft | 1 | 11SEP03 | 11SEP03 |
| D311DB0214 | TA 4,5,52,63: Document Peer Rev. & Incorp Comnts | 20 | 12SEP03 | 09OCT03 |
| D311DB0216 | TA 4,5,52,63: DOE & LANL Review | 10 | 10OCT03 | 24OCT03 |
| D311DB0218 | TA 4,5,52,63: Incorporate DOE & LANL Comments | 10 | 27OCT03 | 07NOV03 |
| D311DB0220 | TA 4,5,52,63: Prepare ISAP For AA | 10 | 12NOV03 | 27NOV03 |
| D311DB0219 | TA 4,5,52,63: Submit Integrated SAP to AA | 0 | | 27NOV03 |
| D311DB0221 | TA 4,5,52,63: AA Administrative Acceptance | 1 | 28NOV03 | 28NOV03 |
| D311DB0222 | TA 4,5,52,63: AA Review ISAP | 30 | 29NOV03 | 28DEC03 |
| D311DB0224 | TA 4,5,52,63: Incorporate AA Comments | 22 | 02JAN04 | 03FEB04 |
| D311DB0226 | TA 4,5,52,63: AA Approves SAP / Issue SAP | 0 | | 03FEB04 |
| **DC TA-4,5,52,63 RFI REPORT** | | | | |
| D311DC0402 | TA 4,5,52,63: Start NFA RFI Report | 0 | 24FEB05 | |

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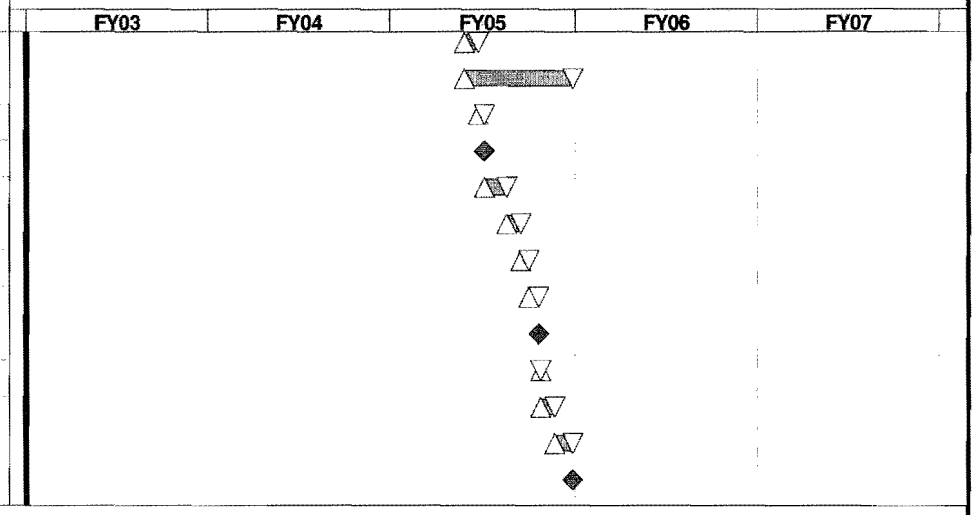
| Activity ID | Activity Description | Orig Dur | Early Start | Early Finish |
|---|---|---|---|---|
| D311DC0404 | TA 4,5,52,63: Data Analysis & Assessment | 20 | 24FEB05 | 23MAR05 |
| D311DCCA | TA 4,5,52,63 RFI Report Contingency | 150* | 24FEB05 | 26SEP05 |
| D311DC0414 | TA 4,5,52,63: Decision Peer Review | 10 | 24MAR05 | 06APR05 |
| D311DC0410 | TA 4,5,52,63: Start RFI Report Draft | 0 | 07APR05 | |
| D311DC0412 | TA 4,5,52,63: Write Draft RFI Report | 30 | 07APR05 | 18MAY05 |
| D311DC0418 | TA 4,5,52,63: Document Peer Review & Incorp Comm | 20 | 19MAY05 | 16JUN05 |
| D311DC0422 | TA 4,5,52,63: DOE & LANL Rev. RFI Drft Report | 10 | 17JUN05 | 30JUN05 |
| D311DC0424 | TA 4,5,52,63: Incorporate DOE & LANL Comments | 15 | 01JUL05 | 22JUL05 |
| D311DC0426 | TA 4,5,52,63: Submit RFI Report To AA | 0 | | 22JUL05 |
| D311DC0427 | TA 4,5,52,63: AA Administrative Acceptance | 1 | 25JUL05 | 25JUL05 |
| D311DC0428 | TA 4,5,52,63: AA Review Of RFI Report | 30 | 26JUL05 | 24AUG05 |
| D311DC0430 | TA 4,5,52,63: Incorporate AA Comments | 22 | 25AUG05 | 26SEP05 |
| D311DC0432 | TA 4,5,52,63: Issue Final NFA RFI Report | 0 | | 26SEP05 |

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