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Date: March 11, 2005

Refer To: ER2005-0134

Mr. James Bearzi
NMED – Hazardous Waste Bureau
2905 Rodeo Park Drive East
Building 1
Santa Fe, NM 87505-6303

**SUBJECT: RESPONSE TO THE NOTICE OF DISAPPROVAL FOR THE INVESTIGATION
WORK PLAN FOR THE DELTA PRIME SITE AGGREGATE AREA,
TECHNICAL AREA 21**



Dear Mr. Bearzi:

Enclosed please find two copies of the response of the Los Alamos National Laboratory (LANL) and the Department of Energy (DOE) to the New Mexico Environment Department's Notice of Disapproval of the "Investigation Work Plan for Delta Prime Site Aggregate Area, at Technical Area 21." This Notice of Disapproval was received by the Environmental Stewardship–Remediation Services (ENV–RS) Project Office on February 10, 2005.

If you have any questions, please contact Mark Thacker at 505-665-5342 or David Gregory at 505-667-5808.

Sincerely,

David McInroy, Deputy Project Director
Remediation Services
Los Alamos National Laboratory

Sincerely,

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

DM/DG/MT/ds



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Enclosure: Response to the "Notice of Disapproval for the Investigation Work Plan for Delta Prime Site Aggregate Area, at Technical Area 21" (ER2005-0128)

Cy:(w/enc)

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L. Woodworth, LASO, MS A316
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L. King, EPA Region 6
ENV-RS File (CT#05-012), MS M992
IM-9, MS A150
RPF, MS M707
S-7, MS F674

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M. Thacker, ENV-ECR, MS M992
W. Criswell, ENV-RS, MS M992
D. McInroy, ENV-RS, MS M992
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M. Leavitt, NMED-SWQB
C. Voorhees, NMED-OB

**Response to the "Notice of Disapproval for the Investigation Work Plan
for Delta Prime Site Aggregate Area, at Technical Area 21,"
Dated February 8, 2005**

INTRODUCTION

This submittal is the response by Los Alamos National Laboratory (LANL or the Laboratory) to the "Notice of Disapproval for the Investigation Work Plan for Delta Prime Site Aggregate Area, at Technical Area 21," issued by the New Mexico Environment Department (NMED) Hazardous Waste Bureau on February 8, 2005, received by LANL on February 10, 2005. The *Investigation Work Plan for Delta Prime Site Aggregate Area at Technical Area 21* (LA-UR-04-5009, 87461) was submitted by LANL to NMED in August 2004.

To facilitate review of these responses, NMED's comments are included verbatim. The comments are divided into general and specific categories as presented by NMED. LANL's responses follow NMED comments.

GENERAL COMMENTS

NMED Comment

1. *Figures must include all applicable features and structures, underground utilities, and existing well and/or borehole locations. This includes fence-lines, SWMU and AOC boundaries, and former structure locations. For example, Figure 1.1-11 (SWMU 21-009, waste treatment laboratory site) does not depict the location of the former building. This type of information is important to determine if proposed sampling locations are adequate or if additional samples are required. The Permittees must ensure these changes are also reflected in the Investigation Report.*

LANL Response

1. LANL will add the requested features wherever applicable. Two copies of the replacement figures for the Delta Prime (DP) Site Aggregate Area investigation work plan are provided with this response (Figures 1.1-11 and 4.1-1).

NMED Comment

2. *There are several items listed in Section 9.0 (References) that are not included in the Reference Set for TA-21. NMED cannot adequately evaluate the work plan without reviewing the references provided throughout the report. The Permittees must supply these references to the NMED for review. A list of these references is attached.*

LANL Response

2. The TA-21 reference set update that was delivered to NMED in early March 2005 includes the requested references.

NMED Comment

3. *Sections 2.3.1-2.3.4 summarize previous investigations at the SWMUs/AOC identified as investigation sites in this work plan. As a reminder, the Permittees are required to retain analytes as chemicals of potential concern (COPCs) when detected at levels above established background values (BV) or if above Estimated Quantitation Limits (EQLs).*

Also, it is not acceptable for the Permittees to compare the detected concentrations to both BV and the maximum of the soil background data set. If contamination is detected at values greater than BV, the analyte must be retained as a COPC.

LANL Response

3. Chemicals of potential concern (COPCs) identified for a site are those that are either detected above background (inorganic chemicals and radionuclides) or detected without background data (organic chemicals and radionuclides). However, any exceedance of a background value (BV) does not automatically indicate a release of contamination or even exceedance of background. The BV is an upper tolerance limit, which is a measure of the upper end of the background distribution, and represents the background data set for a given inorganic chemical in a given medium. However, it is not the only value against which site data may be compared. The BV is the concentration at which 95 percent of the background distribution will be less than the BV at a 95 percent confidence. Therefore, by definition, site data are expected to exceed the BV in roughly 5 percent of the data and still be in the upper end of the background distribution. The comparison to the maximum, or more appropriately the range of the background data, identifies those site data that fall within the background distribution. Comparisons can be made to determine whether the reported concentrations are within the range of background concentrations in the background data set (i.e., whether they reflect the concentrations considered to be background concentrations), or statistical analyses may be performed to compare the data sets. If either comparison indicates that site data is not different from background data, then the inorganic chemical can be eliminated as a COPC. The process is recommended by the Environmental Protection Agency (EPA) for determining if inorganic COPCs are different than background (e.g., *Statistical Tests for Background Comparison at Hazardous Waste Sites [Interim Draft Supplemental Guidance to RAGS; EPA, 1998]; Determination of Background Concentrations of Inorganics in Soils and Sediments at Hazardous Waste Sites [EPA, 1995]; Evaluating and Identifying Contaminants of Concern for Human Health [EPA, 1994]*), and is appropriate for use at LANL. For the purposes of a work plan, this level of analysis is usually not warranted unless it helps define the extent of contamination (and, therefore, influences the proposed sampling).

NMED Comment

4. *Tables 4.1-1 through 4.5-1 show the proposed soil sampling locations and analytical suites for each investigation site SWMU/AOC. There is very little information with respect to historical activities at these sites provided in Section 2.0, Background. The Permittees must complete full analytical suites for each sample at each of the investigation sites proposed in Tables 4.1-1 through 4.5-1. This suite must include, VOCs, SVOCs, explosive compounds, pH, PCBs, dioxins, furans, nitrates, perchlorate, TAL metals, and cyanide, and radionuclides.*

LANL Response

4. In response to NMED's notice of disapproval comments of the MDA U work plan, dated February 8, 2005, LANL agrees with the recommendation to select the most contaminated sample based on field screening results and complete a full analytical suite on the selected sample, as described in Section IV.C.2.f.iv of the Consent Order. If dioxins, furans, and explosive compounds are not detected in the sample, the Permittees may not be required to include them in the remainder of the analyses. As a result of logistical restrictions associated with sampling rates during drilling investigations, analytical data turnaround-time and analytical holding-time requirements that identify the "most contaminated sample based on field screening results" require a planned and coordinated effort. LANL proposes to proceed with drilling and sample collection activities following standard practices; however, in addition to collecting sample aliquots for the suite of analyses as prescribed in the DP Site Aggregate Area investigation work plan, we will also collect additional aliquots from all sample intervals for the analysis of potential dioxins, furans, and explosive compounds. LANL will store these additional aliquots under chain-of-custody and in accordance with analytical method requirements at the Sample Management Office. LANL will use screening data to identify the initial sample for the expanded-suite analysis. If screening results do not indicate contamination, historical data will be used to select the sample most likely to represent the most contaminated area of the site, and submit the selected samples will be submitted to an analytical laboratory with a request for quick turnaround for the analytical results of dioxins, furans, and explosive compounds. LANL also proposes that polychlorinated biphenyl (PCB) analysis be conducted on a quick turnaround schedule of those sites where PCBs are not a COPC based on site history. This data will be transmitted to NMED, via fax, for its review. LANL requests a cooperative effort from NMED to review the data within one week from receipt and then contact the LANL project leader to discuss the results. If the additional analytes are not detected, or detected at low levels reflective of anthropogenic activity, the remaining samples will not have to be analyzed for the full analytical suite. If the additional analytes are detected at levels attributable to the site, LANL will submit the remaining stored aliquots to the analytical laboratory for the analysis of the indicated chemicals.

LANL will modify Section 4 of the DP Site Aggregate Area investigation work plan to include the required and potential additional analyses. LANL will also modify the work plan to include the general procedure that will be followed to select samples for expanded-suite analyses, including the specification of the NMED data review cycle.

LANL notes that the required analytical suite identified in NMED's comment includes radionuclides. Per the Consent Order agreement, the Department of Energy (DOE) will determine sampling and analysis requirements for radionuclides, and the resulting data will be voluntarily reported to NMED.

NMED Comment

5. *The Permittees must provide a brief description of each cited SOP in accordance with Section IX.A, Standard Operating Procedures of the September 1, 2004 Proposed Consent Order (Order).*

LANL Response

5. LANL has developed a table that contains a brief description of each cited standard operating procedure (SOP) in accordance with Section IX.A, Standard Operating Procedures of the Consent Order. Two copies of the table are provided with this response.

NMED Comment

6. *The Permittees must provide a map defining the boundaries of the DP Aggregate Area. The TA boundary is not synonymous with the aggregate boundary. The map must also depict the boundary of the Middle Los Alamos Canyon Aggregate Area, and all SWMUs and AOCs located within each aggregate area (regardless of status e.g., NFA) for reference purposes.*

LANL Response

6. For reference purposes, LANL has prepared two maps that define the boundaries of the DP Aggregate and the Middle Los Alamos Canyon Aggregate Areas, and the boundaries of all solid waste management units (SWMUs) and areas of concern (AOCs) located within each aggregate area (regardless of status, such as no further action). Two copies of each map are provided with this response.

NMED Comment

7. *Stormwater sampling by NMED has revealed that PCBs are present at high levels in a drainage area possibly associated with SWMUs 21-024(m) and 21-027(b). As discussed with Permittees' staff during a site visit on January 20, 2005, sampling from 21-024(m), 21-027(b), and other SWMUs and AOCs with drainages and outfalls, which discharge to the canyon bottom, must sample from the mesa top to the toe of the colluvium. Sampling must target areas such as fine-grained sediment in outfall channels, areas of sediment accumulation, etc. A full analytical suite will be completed on all samples and the Permittees must determine the source of PCB contamination.*

LANL Response

7. LANL agrees to expand the scope of sampling, based on the detection of PCBs in stormwater samples collected by NMED in a drainage area possibly associated with SWMUs 21-024(m) and 21-027(b). LANL will work with NMED on selecting sampling locations around and below SWMUs 21-024(m) and 21-027(b) and will collect samples of fine-grained sediment in outfall channels and areas of sediment accumulation. In accordance with NMED's notice of disapproval comments on the MDA U work plan, dated February 2005, LANL will select the most contaminated sample, based on field screening results, and complete a full analytical suite on the selected sample, exclusive of explosive compounds and volatile organic compounds (VOCs). If field screening results do not indicate contamination, the sample will be collected from the location that had the highest PCB detection during the NMED sampling event. If dioxins and furans are not detected in the sample, the Permittees may not be required to include them in the remainder of the analyses. This data will be transmitted to NMED, via fax, for their review. LANL requests a cooperative effort from NMED to review the data within one week from receipt and then contact the LANL project leader to discuss the results. If the additional analytes are not detected, or detected at low levels reflective of anthropogenic activity, the remaining samples would not have to be analyzed for the full analytical suite. If the additional analytes are detected at levels attributable to the site, LANL will submit the remaining stored aliquots to the analytical laboratory for the analysis of the indicated chemicals.

As outlined in the LANL response to specific comment 4 below, LANL has developed a plan for sampling SWMUs and AOCs with drainages and outfalls which discharge to the canyon bottom (corrective action sites); this plan will be submitted as the revised Section 5.0 to the DP Site Aggregate Area investigation work plan. The plan includes sampling from the mesa top to the edge of the bench separating the mesa from the canyon bottom. Colluvium sampling is currently handled by

the Canyons Investigations team. Specifically, this plan will include SWMUs 21-012(b), 21-024(a), 21-024(b), 21-024(d), 21-024(e), 21-024(g), 21-024(h), 21-024(i), 21-024(j), 21-024(k), 21-024(n), 21-024(o), 21-022(f), 21-027(a), 21-027(c), and consolidated SWMUs 21-006(c)-99, 21-022(h)-99, 21-023(a)-99, 21-024(l)-99, and 21-026(a)-99, all of which had historic outfalls to the canyons.

NMED Comment

8. *The Permittees must provide NMED with a current list of all SMWUs and AOCs (regardless of status) within the DP and Middle Los Alamos Canyon Aggregate Areas. This list must also identify in which technical area each SWMU/AOC is included. The Permittees must also provide justification for not outlining investigation or remediation of SMWUs/AOCs located within the DP Aggregate Area in the DP Aggregate Area Work Plan. As a reminder, all SWMUs and AOCs located within an aggregate area must be addressed in the work plan or justification for exclusion must be provided.*

LANL Response

8. LANL has developed a table that lists all SMWUs and AOCs (regardless of status) within the DP Site and Middle Los Alamos Canyon Aggregate Areas. The table also identifies the technical area locations of SWMUs/AOCs. As stated in Table 1.2-2 of the work plan, SWMUs 21-004(b)-99, 21-006(e)-99, 21-011(b), and 21-022(b)-99 and AOC 21-028(c) are deferred sites. These deferred sites are either active [21-004(b), 21-011(b)] or cannot be investigated until the associated structures are decommissioned [21-006(e)-99, 21-022(b)-99, 21-028(c)]. Planned investigations for these five sites will be included in the Middle Los Alamos Canyon Aggregate Area investigation work plan, to be submitted to NMED on or before December 31, 2005. Section 1.2 of the work plan explains why other sites located within the DP Site Aggregate Area are not being investigated as part of the work plan (e.g., sites that have previously been investigated or sites being investigated as part of other TA-21 MDA investigations).

SPECIFIC COMMENTS

NMED Comment

1. *Section 2.3.3, SWMU 21-024(c), Septic System, page 26:*

Permittees' Statement: "Vertical extent for all inorganic chemicals was demonstrated in the borehole (location 21-01669)."

NMED Comment: The Permittees have not determined lateral or vertical extent of inorganic contamination at SWMU 21-024(c). One 20 ft. borehole was drilled in 1993 outside the SWMU boundary and two surface soil samples at two locations were collected within the outfall area (up to 1.0-ft bgs). Aluminum, chromium, iron, lead, manganese, selenium, and zinc were all detected in the deepest samples taken from borehole 21-01669. These investigations are not sufficient to determine vertical and horizontal extent for inorganic chemicals. The Permittees must revise the Work Plan to resolve this issue.

LANL Response

1. LANL agrees that the lateral and vertical extent of inorganic chemicals has not been determined. Therefore, the work plan proposes two additional borings (AH-1 and AH-2) and 21 additional soil samples to determine extent.

NMED Comment

2. *Section 4.0, Scope of Activities, pages 42-45:*

NMED Comment: Because the Permittees make a distinction between Investigation sites and Corrective Action sites, the Permittees must provide clarification as to why geophysical and radiological surveys are proposed for the Corrective Action Sites and not included as part of the scope of work for the Investigation Sites in this work plan. There is insufficient historical information with respect to these sites to determine whether radiological and geophysical surveys are warranted. Alternately, these surveys should be included in the scope of work.

Permittees' Statement: "Additional or deeper samples will be collected as necessary based on field screening results."

NMED Comment: The Permittees must be more specific about conditions under which additional samples will be obtained. The above statement is used for describing the proposed activities for all four SMWUs and the AOC under investigation. The Permittees must explain how they will determine a final sampling depth at each site. For example, the Permittees may choose to propose that sampling will continue to 10 ft below the last detected contamination.

LANL Response

2. Geophysical and radiological surveys were conducted on both the investigation sites and corrective action sites. The geophysical surveys were used to identify structures [specifically, investigation sites 21-024(c) and 21-009 were included in the geophysical surveys]. The radiological surveys were used to determine if any areas of elevated radiological surface contamination were present at the sites. Results of the radiological surveys did not indicate any elevated radiological surface contamination at any of the sites. The results of the surveys will be presented in the investigation report.

When field screening instruments indicate a nondetect for organic vapors and radiation, the final sampling depth will be one interval below the last field screening detection.

NMED Comment

3. *Section 4.3, Sampling and Analysis of SWMU 21-024(c), Septic System, page 44, paragraph 1:*

Permittees' Comment: "The septic tank will be carefully excavated and inspected for evidence of leaks (e.g. stained soil, holes in the tank). One sample will be collected from the center of the floor of the excavation beneath the tank (Figure 4.3-1, location AH-1). One auger hole will be advanced in the center of the excavation and a sample collected from 10 ft below the bottom of the tank. Soil samples will be collected immediately beneath the septic tank inlet (Figure 4.3-1, location E), and outlet (Figure 4.3-1, location F) connections to the sewer line at the 0-0.5-ft and 1.5 to 2.0-ft depth intervals, and beneath the septic tank connections."

NMED Comment: NMED does not believe that the sampling intervals proposed directly beneath the septic tank are appropriate. One sample obtained from the center of the floor of the excavation and one sample 5 ft below the bottom of the tank is acceptable if there is no evidence of obvious contamination such as leaks, stains, or cracking during the tank excavation. If there is still contamination at 5 ft below the bottom of the tank, the Permittees must sample every 2 ft until clean soil (i.e., non-detect) is encountered. Extent of contamination was not defined in previous RFI investigations. Therefore, the Permittees must determine extent during this sampling event. The Permittees must also revise Table 4.3-1 to reflect this change in the sampling intervals.

LANL Response

3. LANL agrees that if no evidence of obvious contamination, such as leaks, stains, or cracking, is found during the tank excavation, then one sample will be collected from the center of the floor of the excavation and one sample will be collected 5 ft below the bottom of the tank. If evidence of contamination 5 ft below the bottom of the tank is found, soil samples will be collected every 2 ft until clean soil (i.e., nondetect based on field screening) is encountered. Table 4.3-1 will be revised to include changes in the sampling intervals.

NMED Comment

4. *Section 5.6, Progress Reporting, page 47:*

NMED Comment: All the information included in the proposed "progress reports" should be included in, and formatted in the same manner as, Section 4.0, Scope of Activities for Investigation Sites. Another separate document submittal is not appropriate. The Permittees must therefore revise Section 5.0, so that it describes in detail the activities proposed at the Corrective Action Site SWMUs.

LANL Response

4. The proposed "Progress Report" information will be incorporated into Section 5.0 of the DP Site Aggregate Area investigation work plan. The revised Section 5.0 will include the site history, a summary of previous investigations, and proposed investigations for each of the corrective action sites. The revised Section 5.0 will be submitted to NMED.

NMED Comment

5. *Section 5.7, Structure Excavation and Removal, page 47, paragraph 1:*

Permittees' Statement: "The septic tanks, sumps, and other subsurface structures will be carefully unearthed and inspected, to the extent possible, for structural flaws or evidence of releases (e.g., stained soil, cracks in the tank or associated piping, and elevated field screening results from the floor and sidewalls of the excavation, etc.)."

NMED Comment: NMED understands that field conditions will dictate "the extent possible" for inspecting subsurface structures, however, the Permittees must explain what field conditions may alter inspection efforts, i.e., under what conditions septic tanks, sumps, and other subsurface structures would not be completely inspected and how the Permittees plan to address possible contamination in areas that were not inspected for one reason or another.

LANL Response

5. Based on an evaluation of the site history, the cases where inspection will be complicated by site conditions are those septic tanks that were poured in place and cannot be removed in one piece because they are cemented to the tuff. Prior to removal, a visual inspection of the tanks will be conducted. The tanks will be removed by crushing them in place and removing the material from the subsurface. In these cases, the rubble will be field screened and inspected for staining, and the exposed side walls and excavation bottom will be inspected, field screened, and sampled.

NMED Comment

6. *Section 6.1.3, Collecting Soil and Rock Samples, page 50:*

Permittees' Statement: "Samples will be field screened for radioactivity and organic vapors (see Section 6.1.4), photographed, then placed in Ziploc bags and/or samples jars as grab samples derived from hand augers, scoops, or chiseling devices in accordance with the sampling guidance document and appropriate SOPs (see Section 5.0, LANL-ER-SOP-01.01-01.08 series)."

NMED Comment: The Permittees must cite what sampling guidance document they are referring to in this section so that NMED can properly review the work plan.

LANL Response

6. Sampling guidance referred to are
 - LANL-ER-SOP-1.01, General Instructions for Field Investigations
 - LANL-ER-SOP-1.02, Sample Containers and Preservation
 - LANL-ER-SOP-1.03, ICN2; Handling, Packaging, and Shipping of Samples
 - LANL-ER-SOP-1.04, ICN1; Sample Control and Field Documentation
 - LANL-ER-SOP-1.05, Field Quality Control Samples
 - LANL-ER-SOP-1.06, Management of ER Project Wastes
 - LANL-ER-SOP-1.08, Field Decontamination of Drilling and Sampling Equipment

NMED Comment

7. *Section 6.1.4, Field Screening, page 51:*

NMED Statement: The Permittees must follow the field-screening methodology outlined in Section IX.B.2.d of the Order.

LANL Response

7. LANL agrees to follow the field-screening methodology outlined in Section IX.B.2.d of the Consent Order, and Section 6.1.4 will be revised to reflect the Order.

NMED Comment

8. Section 6.2.4, Trenching, page 52:

Permittees' Statement: "Trenching will be completed using the same protocols and equipment as the excavations. Trenching will assist in locating subsurface structures if geophysical surveys are inconclusive. Trenching will be conducted to remove lifts of soil in areas of suspected subsurface features to allow identification of disturbed soil of non-native material."

NMED Comment: The Permittees must provide additional information regarding the methods and procedures that will be utilized for proposed trenching activities. This information must include at which SMWUs/AOC trenching is anticipated, to what depth trenches are likely to be excavated, and how depths will be determined in the field.

LANL Response

8. Trenching will be conducted to determine whether subsurface structures exist and, if so, to identify their location(s). Trenching will be conducted with a backhoe and will progress from the surface to approximately 5 ft below grade. The trench will be visually logged for evidence of non-native materials, and for disturbed bedding horizons and areas of visible staining, and the trench will be field screened for elevated radioactivity and organic vapors. Trenching will continue in the historically identified areas until the subsurface structures are located and their boundaries have been determined, until evidence of a former subsurface structure is found, or until the absence of a subsurface structure in each area has been verified. The revised Section 5.0 will specify which of the corrective action sites are anticipated to require trenching activities to verify the presence or absence of a structure. The results of the geophysical surveys are being used to determine the need for trenching.

NMED Comment

9. Section 6.2.7, Borehole Abandonment, page 53:

Permittees' Statement: "Backfilling (abandonment) of investigation boreholes will be conducted according to procedures outlined in LANL-ER-SOP-05.03. The use of backfill materials, such as bentonite and cement, will be documented in a field logbook with regard to volume (calculated and actual), intervals of placement, and additives used to enhance backfilling."

NMED Comment: The Permittees must follow the borehole abandonment procedures outlined in Section X.D of the Order. Alternately, the Permittees must provide a description of the borehole abandonment procedures in addition to the reference to the SOP.

LANL Response

9. LANL will comply with the Order, but no borehole abandonment procedure has been outlined in the Order's Section X.D. Therefore, LANL will follow the borehole abandonment procedures outlined in SOP-05.03, Monitoring Well and RFI Borehole Abandonment. This SOP is summarized in the table submitted in response to general comment #5.

NMED Comment

10. Section 7.0, *Monitoring and Sampling Program*, page 53:

Permittees' Statement: "No monitoring is currently performed at any of the investigation or corrective action sites. It is anticipated that no further sampling or monitoring will be required at all the sites after these work plan activities are completed."

NMED Comment: While this initial assumption may be valid, the Permittees are advised that, depending on what is found during implementation of this work plan, monitoring wells, sampling, and a monitoring plan may be required. NMED shall determine if monitoring is needed and/or required based on the results presented in the investigation report.

LANL Response

10. LANL recognizes that NMED shall determine whether monitoring is needed and/or required based on the results presented in the investigation report.

NMED Comment

11. Table 2.3-8, *SWMU 21-024(c) 1994 Investigation, Radionuclides Greater than BVs or FVs*, page 127:

NMED Comment: The date of the investigation at 21-024(c) was not 1994, as displayed in the title of Table 2.3-8. The investigation took place in 1993. This correction must be reflected in the investigation report.

LANL Response

11. The date in the title of Table 2.3-8 will be changed to 1993.

NMED Comment

12. No comment #12 was in the notice of disapproval.

NMED Comment

13. Table 4.1-1, *Summary of Proposed Soil Sampling at SWMU 21-013(c)* page 130:

NMED Comment: See NMED Comment # 3 for specific sampling requirements.

LANL Response

13. See LANL specific response #3.

NMED Comment

14. Appendix C *Management Plan for Investigation-Derived Waste*, page C-1-C-2:

NMED Comment: The Permittees must provide brief descriptions of the methods and procedures used to manage and characterize the waste streams. As stated in section IX.A of the Order, the Permittees cannot substitute a reference to their SOPs and website for a description of procedures.

The Permittees cannot use previous sampling data for the purpose of characterizing newly generated waste streams. The Permittees must collect samples of all newly generated waste streams related to IDW and submit the samples for laboratory analysis.

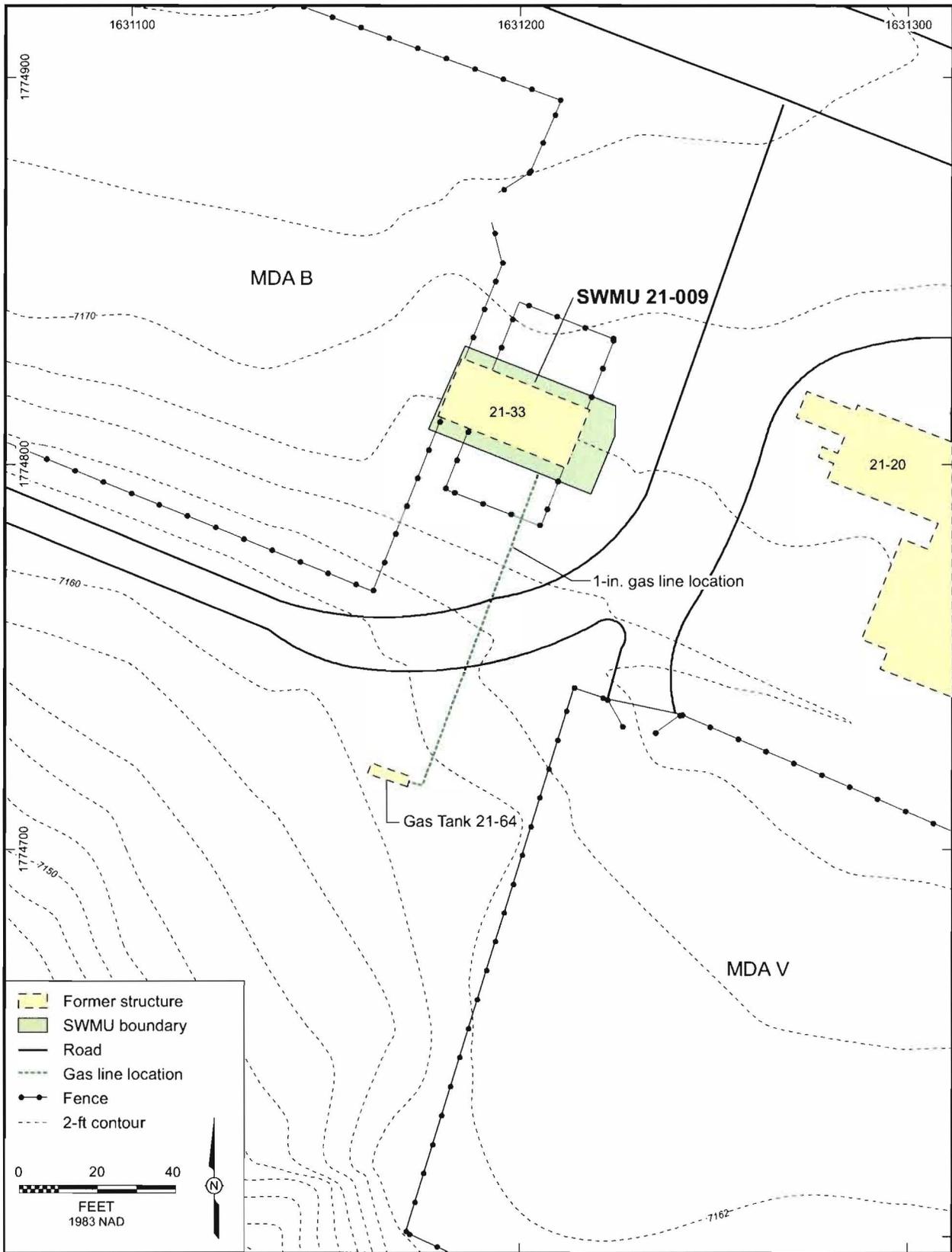
The Permittees did not provide information on how drill cuttings will be handled during and after the investigation. The Permittees must describe how this waste stream will be managed and characterized, and where it is anticipated to be disposed.

LANL Response

14. This SOP is summarized in the table submitted in response to general comment #5.

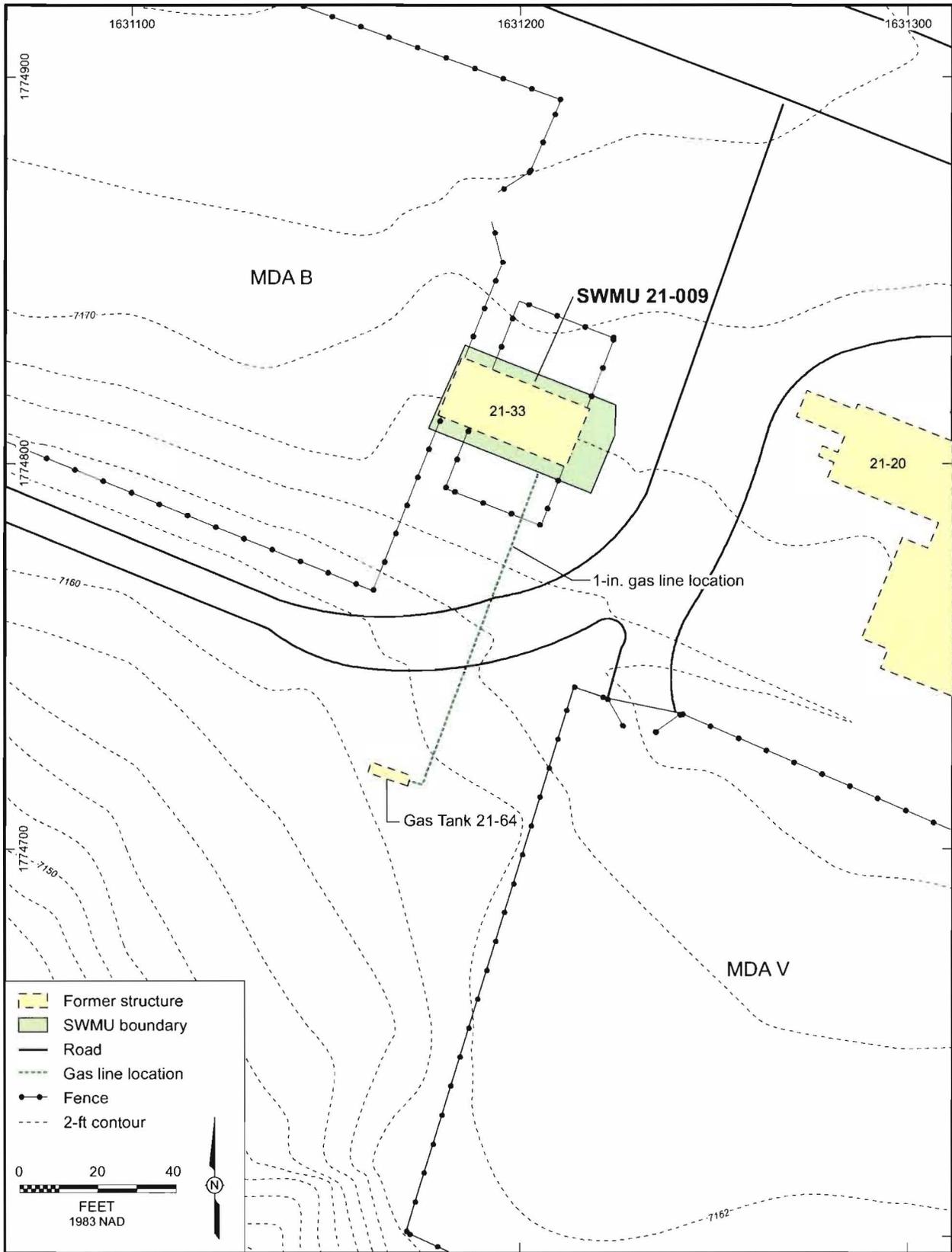
LANL procedures stipulate that previous sampling data may be used for waste characterization purposes. As required by SOP-01.10, a waste stream characterization strategy must be developed and approved by LANL's Solid Waste Operations Group before any investigation-derived waste (IDW) stream can be generated. The SOP allows wastes to be characterized on the basis of acceptable knowledge from existing data/documentation, acceptable knowledge from site characterization, and/or direct sampling and analysis of containerized wastes. In developing the strategies, LANL will evaluate previous sampling data to determine if they constitute acceptable knowledge for the purpose of waste characterization. If this acceptable knowledge is sufficient to characterize the waste, no direct waste sampling will be conducted. If not, wastes will be sampled and analyzed as necessary to determine the proper waste designation. This approach complies with hazardous waste determination requirements contained in 40 CFR 262.11, which allow knowledge of the hazardous characteristics of the waste to be used in lieu of waste testing.

Generally, borehole cuttings will be returned to the borehole from where they came. Cuttings will be characterized based on the results of the samples collected from the associated borehole. If the cuttings are determined to be nonhazardous, they will be returned to the borehole. Otherwise, they will be managed as hazardous or mixed waste and disposed of at an off-site facility permitted for such disposal.



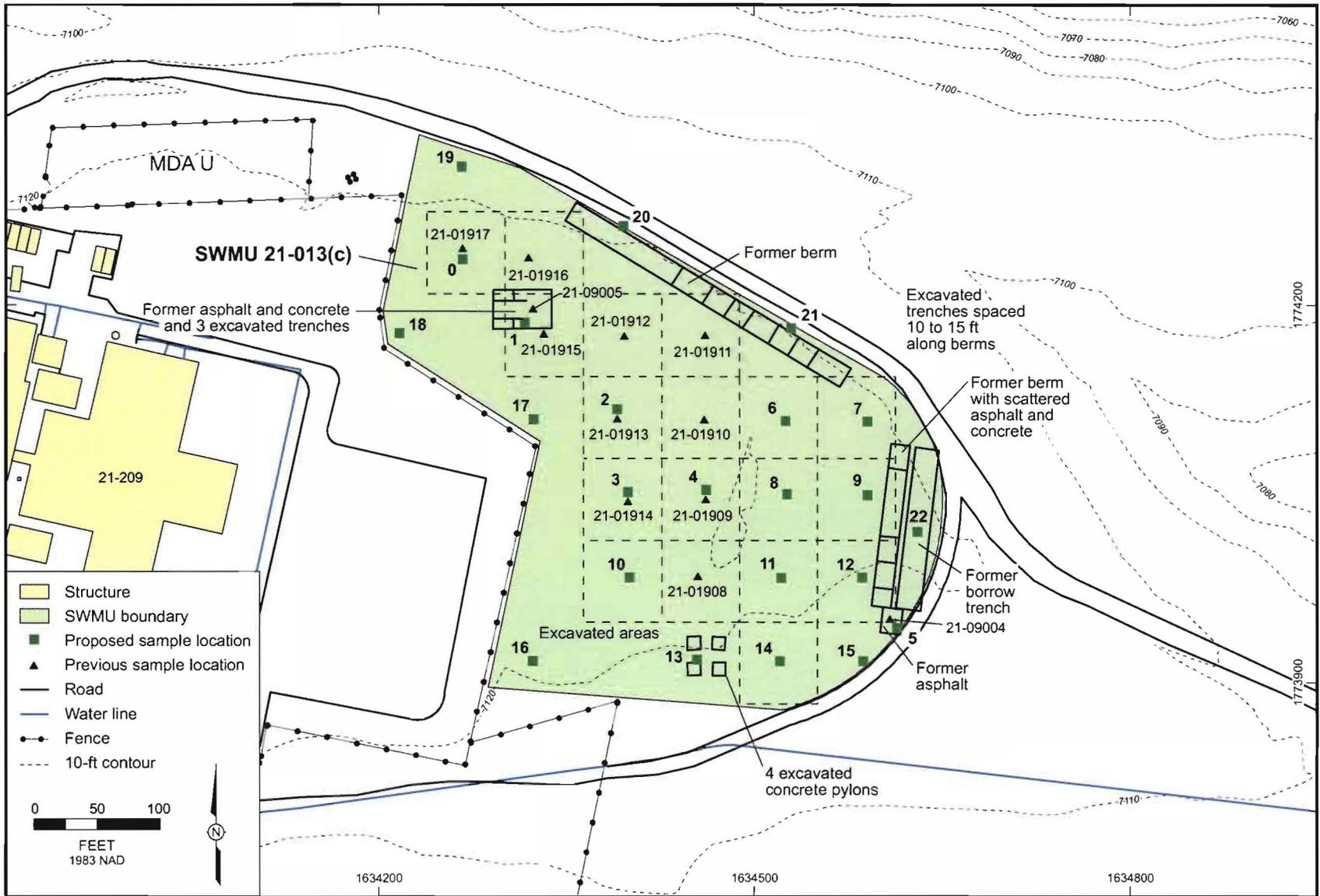
Source: GISLab, m201260 072904; modified for F1.1-11, DP IWP, 030205, ptm

Figure 1.1-11. SWMU 21-009, waste treatment laboratory site



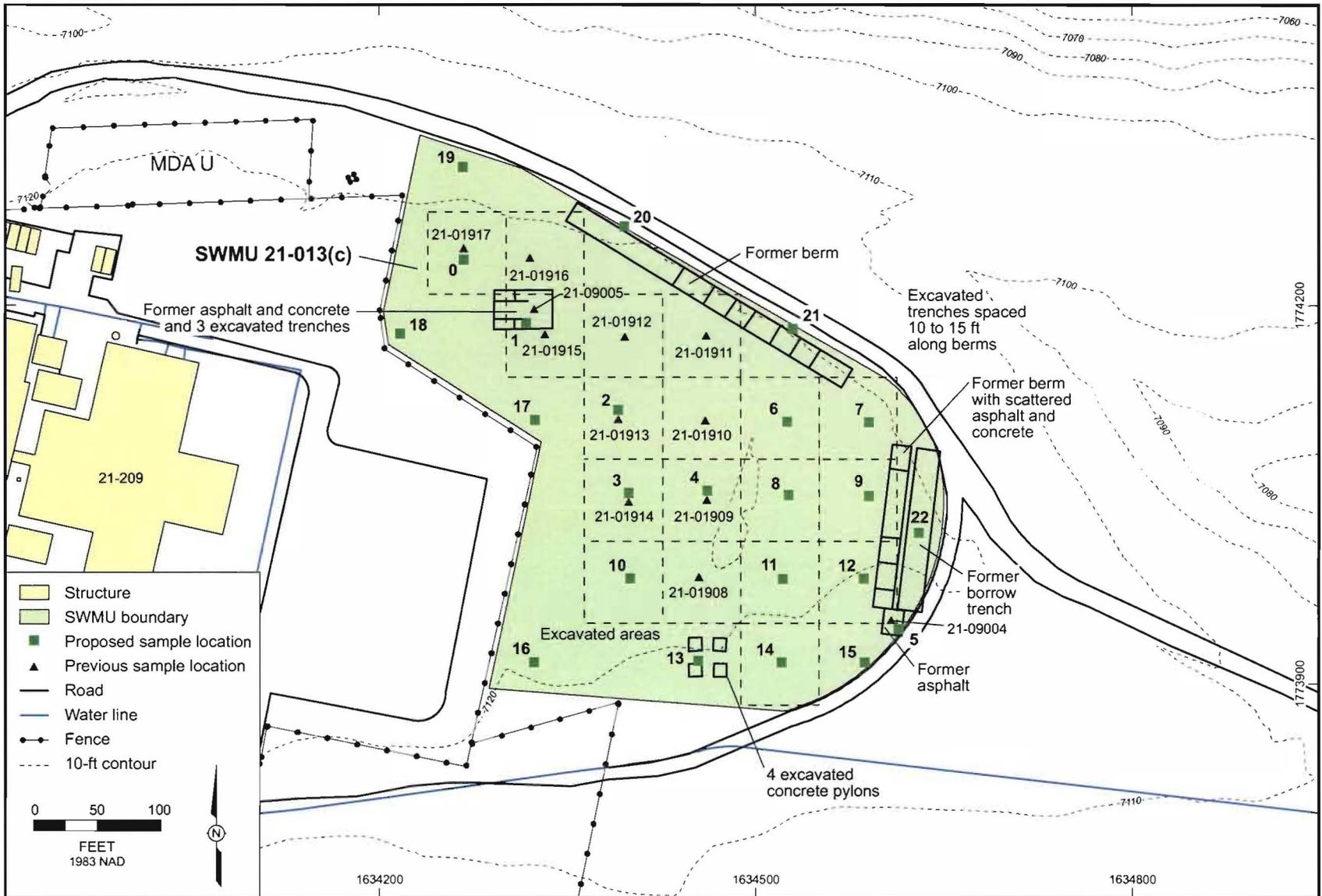
Source: GISLab, m201260 072904; modified for F1.1-11, DP IWP, 030205, ptm

Figure 1.1-11. SWMU 21-009, waste treatment laboratory site



Source: GISLab, m201166, 060204; modified for F4.1-1, DP IWP, 030205, ptm

Figure 4.1-1. SWMU 21-013(c) proposed sample locations



Source: GISLab, m201166, 060204; modified for F4.1-1, DP IWP, 030205, ptm

Figure 4.1-1. SWMU 21-013(c) proposed sample locations

Brief Description of Cited SOPs

Procedure	Title	Summary
Standard Operating Procedure (SOP) 01.01	General Instructions for Field Investigations	This SOP provides an overview of instructions regarding activities to be performed before, during, and after field investigations completed by the Los Alamos National Laboratory's Environmental Stewardship, Remediation Services (ENV-RS) project. It is assumed that field investigations involve standard sampling equipment, personal protective equipment, waste-management, and site-control equipment/materials. The procedure covers pre-mobilization activities, mobilization to the site, documentation and sample-collection activities, sample-media evaluation, surveying, and completing lessons learned.
SOP 01.02	Sample Containers and Preservation	This SOP describes the specific requirements/process for sample containers, preservation techniques, and holding times as specified by field regulations and guidance documents. The use of specific types of sample containers, and preservation techniques is mandatory for hazardous site investigations because the integrity of any sample is diminished over time. Physical factors (light, pressure, temperature, etc.), chemical factors (changes in pH, volatilization, etc.), and biological factors may alter the original quality of the sample. Because the various target parameters are uniquely altered at varying rates, distinct sample containers, preservation techniques, and holding times have been established to maintain sample integrity for a reasonable and acceptable period of time. The procedure covers documenting SOP deviations, using proper sample containers and preservatives, performing data entry, implementing containment procedures, preserving samples, implementing holding times, completing documentation, implementing post-operation activities, and performing lessons learned.
SOP 01.03	Handling, Packaging, and Shipping of Samples	This SOP directs field team members in the preparation of environmental and waste characterization samples for transportation to the Sample Management Office or an approved radiation-screening laboratory. In general, samples taken for the ENV-RS Project are expected to have a low concentration of potential contaminants, although higher concentrations will be present in some cases. Those low-concentration samples that do not satisfy the U.S. Department of Transportation (DOT) hazard-class definitions are classified as environmental samples and are not subject to DOT regulations. Historical data, knowledge of processes, and field screening results assist the team members in making decisions as to whether a sample can be designated as "environmental" or needs to be treated as a DOT-regulated material. The procedure covers the transportation of environmental and DOT-regulated samples.
SOP 01.04	Sample Control and Field Documentation	This SOP describes the process for documenting samples collected for the ENV-RS project using sample control and field documentation, specifically, container labels, sample collection logs, chain of custody/request for analysis forms, and daily activity log forms or field notebooks. The procedure covers performing request notification, generating sample control and field documentation, completing sample collection logs, using field chain-of-custody forms, delivering samples to the Sample Management Office (SMO), delivering samples to another analytical laboratory, using custody seals, collecting the samples, completing field investigation summaries, and performing field closeouts.
SOP 01.05	Field Quality Control Samples	This SOP describes the requirements for the collection of field quality control (QC) samples to ensure the reliability and validity of field and laboratory data. Field QC samples shall be collected as described in this procedure and taken to the Los Alamos National Laboratory SMO with the regular field samples for subsequent chemical and physical testing. The procedure covers pre-operation activities, collecting and preparing each type of QC sample including equipment rinsate blank, field duplicate, and trip blank.

Procedure	Title	Summary
SOP 01.06	Management of Environmental Restoration Project Wastes	This SOP describes the process for managing waste generated during corrective action activities. This procedure outlines the preparation, approval, and retention of all required documents associated with waste generation. The procedure covers waste identification and characterization, waste minimization/recycling, waste generation/storage, segregation, waste treatment, authorized release limits, packaging/transportation, disposal options, and specific ENV-RS project policies, including the area of contamination policy, environmental media, and "contained in" policy.
SOP 01.08	Field Decontamination of Drilling and Sampling Equipment	This SOP describes the process for the general field decontamination of drilling and sampling equipment. It is intended to help ensure the integrity of soil, sediment, rock, water, and other samples collected from potentially contaminated sites and to minimize the potential for cross contamination between sampling locations. Implementation of this procedure will help protect site and project personnel, requiring that equipment not be removed from a controlled area without proper decontamination. The procedure covers set up of dry and wet decontamination areas, drilling/excavation equipment decontamination, and sampling equipment decontamination.
SOP 01.10	Waste Characterization	This SOP describes the development of a strategy for characterizing wastes generated during projects performed. Specifically, this document (1) identifies steps involved in waste identification and characterization and (2) provides instructions for completing a Waste Characterization Strategy Form (WCSF), a task that is required before every project.
SOP 03.11	Geodetic Surveys	This SOP describes the methodology for coordinating and evaluating geodetic surveys and establishing quality assurance (QA) and control for geodetic survey data. The procedure covers evaluating geodetic survey requirements, preparing to perform a geodetic survey, performing geodetic survey field activities, preparing geodetic survey data for QA review, performing QA review of geodetic survey data, and submitting geodetic survey data.
SOP 04.01	Drilling Methods and Drill-Site Management	This SOP describes the drilling methods and drilling-package implementation to meet subsurface sampling requirements. Various drilling methods have been developed to achieve successful subsurface contact for retrieving suitable formation, gas, and water samples. These include, but are not limited to, solid-stem augering, hollow-stem augering, direct rotary drilling, reverse rotary drilling, cable-tool drilling, and hand augering.
SOP 05.03	Monitoring Well and RFI Borehole Abandonment	This SOP describes the process for monitoring well and RFI borehole abandonment. Procedures described in this SOP are consistent with acceptable practice for monitoring well and borehole abandonment under RCRA (Resource Conservation and Recovery Act) facility investigation (RFI) guidance. The procedure covers monitoring well and RFI borehole abandonment, placement of the appropriate sealing and fill material, options for destroying monitoring wells and RFI boreholes in urban areas and near active technical areas, and reporting requirements.
SOP 06.09	Spade and Scoop Method for the Collection of Soil Samples	This SOP describes the process for spade-and-scoop collection of shallow (i.e., typically 0 to 12 inches) soil samples. The "spade-and-scoop" method involves digging a hole to the desired depth, as prescribed in the sampling and analysis plan, and collecting a discrete grab or portion of a composite sample. The procedure covers pre-sampling activities, sampling activities, and post sampling activities.

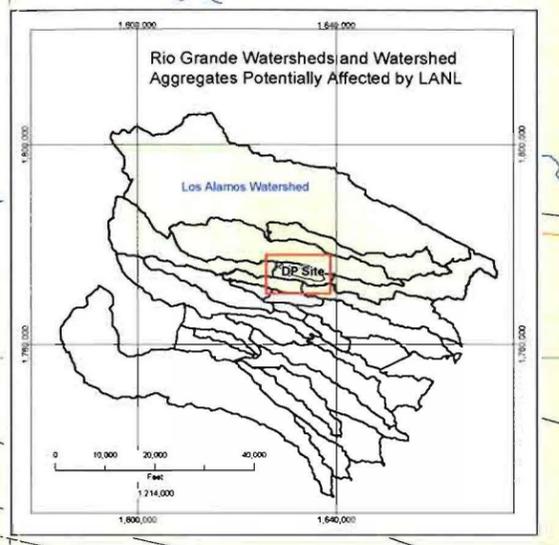
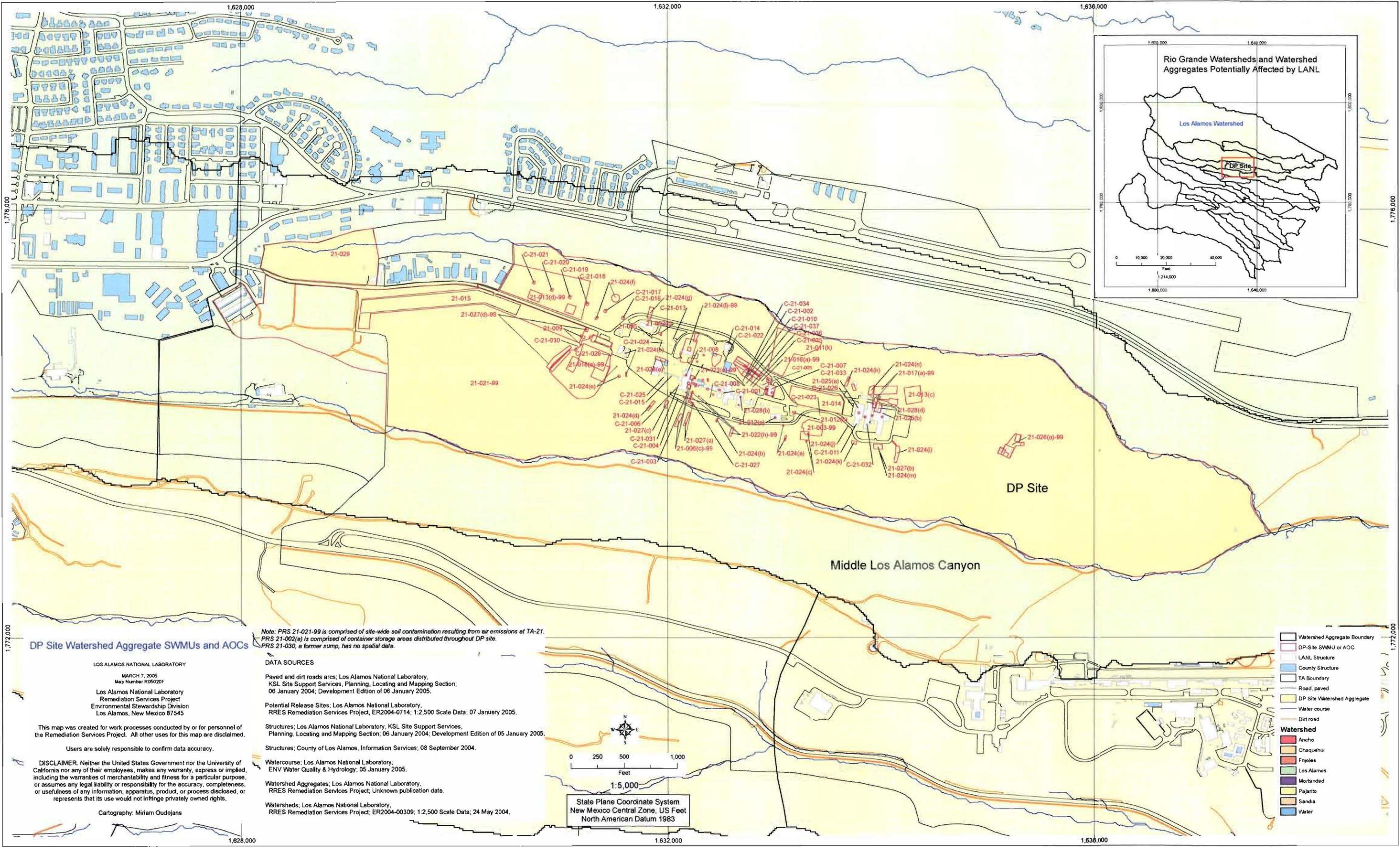
Procedure	Title	Summary
SOP 06.10	Hand Auger and Thin-Wall Tube Sampler	This SOP states the responsibilities and describes the process for collecting surface and subsurface (up to approximately 15 ft) soil samples with a hand auger and thin-wall tube sampler. This procedure describes the selection and use of sampling methods and equipment at sites that may include contamination with hazardous or radioactive materials. The procedure covers pre-sampling activities, sampling activities, collecting field duplicates, and post-sampling activities.
SOP 06.26	Core-Barrel Sampling for Subsurface Earth Materials	This SOP describes the process for collecting core-barrel samples of subsurface earth materials. The field team may sample for other constituents under this SOP (or modifications thereof). The procedure covers pre-sampling activities, sampling activities, and post-sampling activities.
SOP 12.01	Field Logging, Handling, and Documentation of Borehole Materials	This SOP prescribes the specific borehole material management methods to be followed and the documentation to be prepared, during handling and field logging of selected borehole materials identified in the site guidance documents and waste-characterization strategy form. This procedure is limited to the activities necessary to take custody of core and cuttings from drill rig personnel, conduct field screening, remove time-sensitive analytical samples and subsamples for preliminary characterization, complete photo documentation when necessary, perform field structural and lithologic description, and mark, package, and temporarily store the borehole materials at a drill-site borehole material storage trailer. This procedure describes the handling of the subset of borehole materials to be curated from the time they are withdrawn from the borehole to the time they are ready to be transported to the ENV-RS Project's Field Support Facility for curating and archiving. For the purposes of this SOP, borehole material may also refer to other solid materials, such as drive samples or augured materials. This procedure covers borehole material staging, temporary packaging of time-sensitive analytical samples, measurement and determination of material loss, marking core (depth notation and stripes), core photography, core logging, removal of analytical samples (core), and core-box loading and storing.
SOP 15.09	Chain of Custody for Analytical Data Record Packages	This SOP states the responsibilities and describes the process for establishing and maintaining a proper chain of custody in the management and processing of analytical data record packages.

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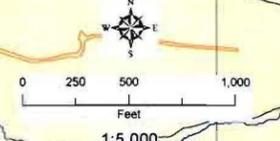
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Note: PRS 21-021-99 is comprised of site-wide soil contamination resulting from air emissions at TA-21.
 PRS 21-002(a) is comprised of container storage areas distributed throughout DP site.
 PRS 21-030, a former sump, has no spatial data.

DATA SOURCES

- Paved and dirt roads arcs: Los Alamos National Laboratory, KSL Site Support Services, Planning, Locating and Mapping Section; 06 January 2004; Development Edition of 06 January 2005.
- Potential Release Sites: Los Alamos National Laboratory, RRES Remediation Services Project, ER2004-0714; 1:2,500 Scale Data; 07 January 2005.
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- Watersheds; Los Alamos National Laboratory, RRES Remediation Services Project; ER2004-00309; 1:2,500 Scale Data; 24 May 2004.



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

DP Site Watershed Aggregate SWMUs and AOCs

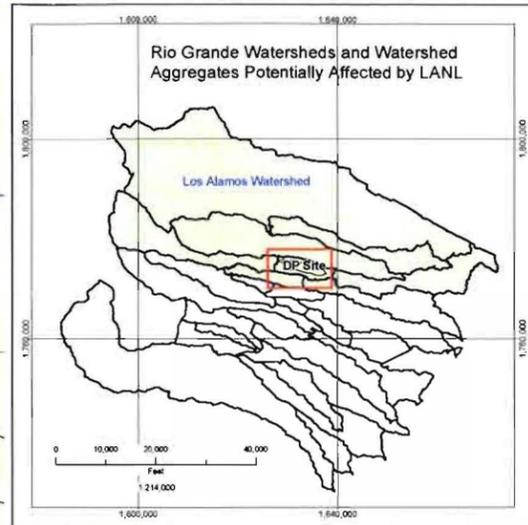
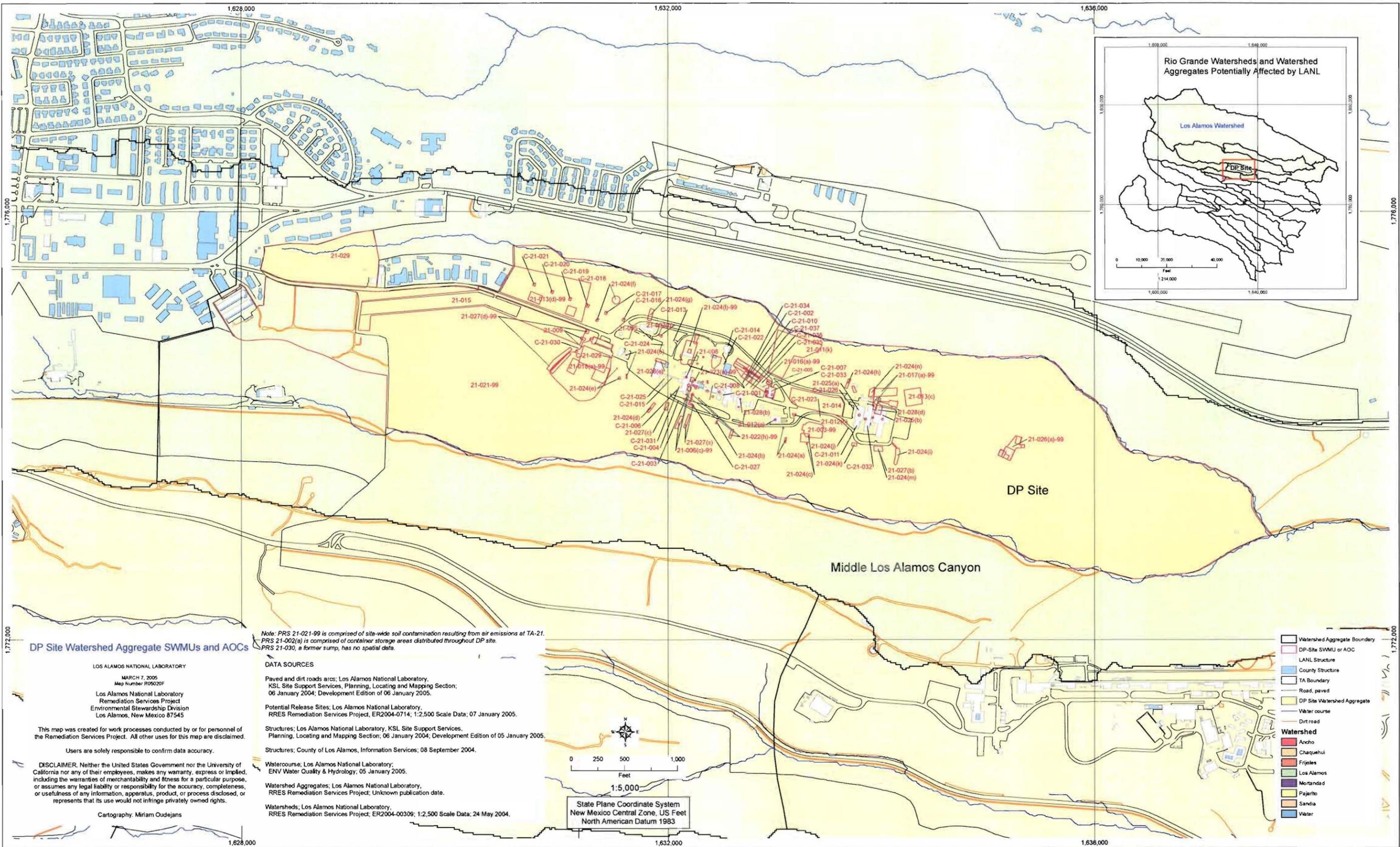
LOS ALAMOS NATIONAL LABORATORY
 MARCH 7, 2005
 Map Number: R05020F
 Los Alamos National Laboratory
 Remediation Services Project
 Environmental Stewardship Division
 Los Alamos, New Mexico 87545

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Cartography: Miriam Oudejans

- Watershed Aggregate Boundary
- DP-Site SWMU or AOC
- LANL Structure
- County Structure
- TA Boundary
- Road, paved
- Road, unpaved
- DP Site Watershed Aggregate
- Water course
- Dirt road
- Watershed
- Ancho
- Chaquehue
- Frijoles
- Los Alamos
- Mortandad
- Pajarito
- Sandia
- Water



DP Site Watershed Aggregate SWMUs and AOCs

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Note: PRS 21-021-99 is comprised of site-wide soil contamination resulting from air emissions at TA-21.
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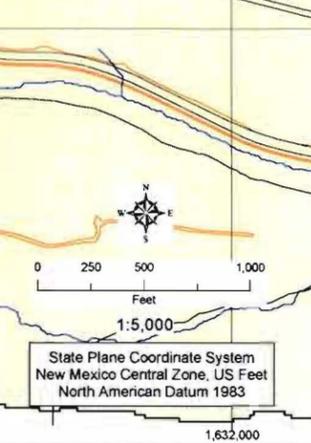
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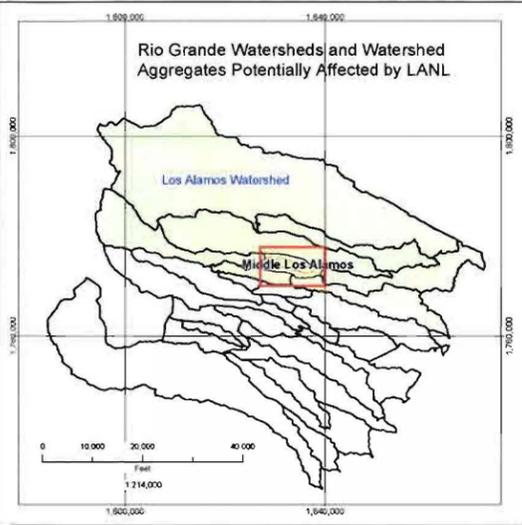
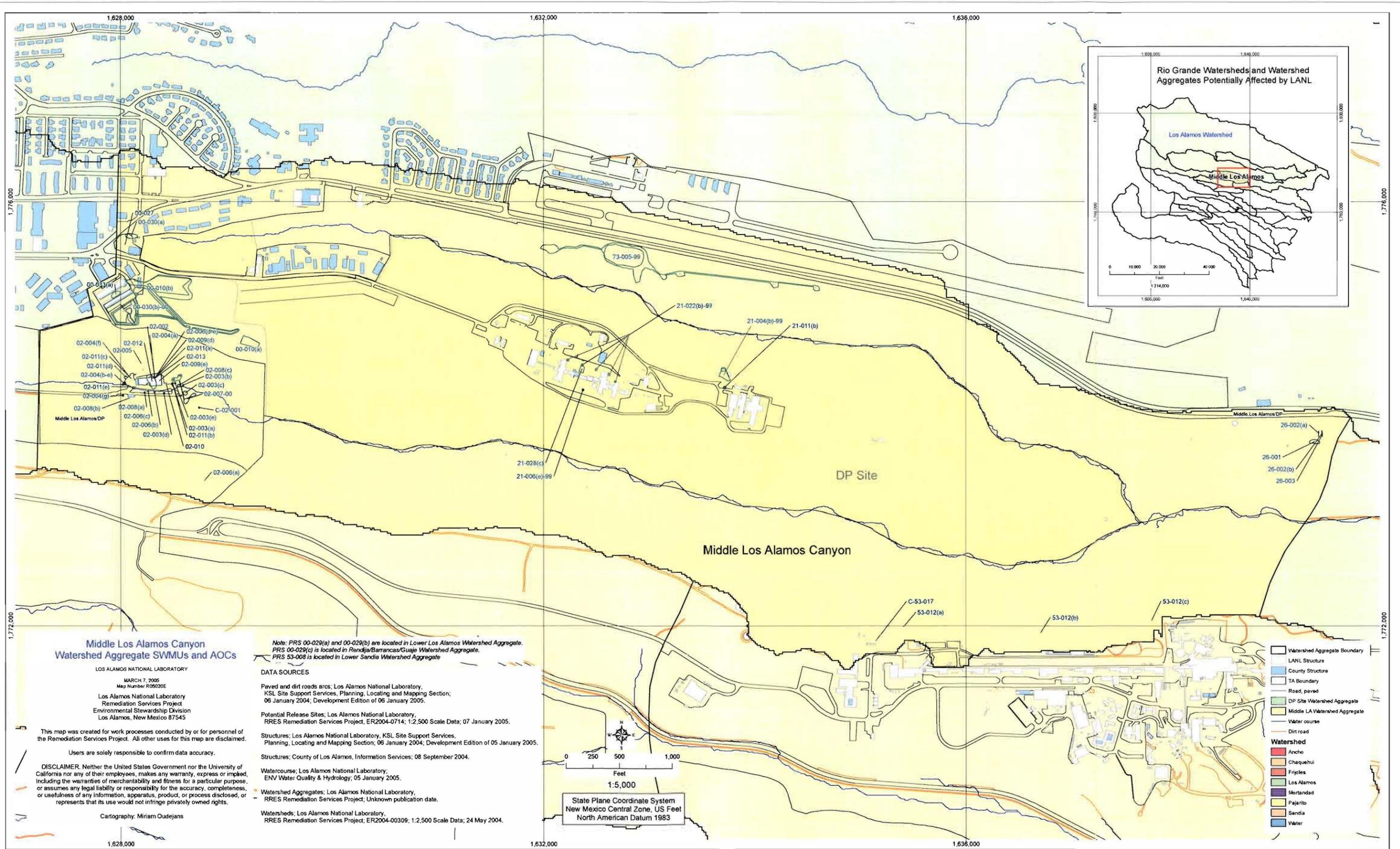
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 - Pajarito
 - Sandia
 - Water



Middle Los Alamos Canyon Watershed Aggregate SWMUs and AOCs

LOS ALAMOS NATIONAL LABORATORY
 MARCH 7, 2005
 Map Number R05020E
 Los Alamos National Laboratory
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 Los Alamos, New Mexico 87545

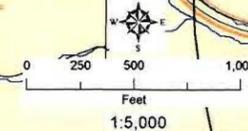
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Cartography: Miriam Oudejans

Note: PRS 00-029(a) and 00-029(b) are located in Lower Los Alamos Watershed Aggregate.
 PRS 00-029(c) is located in Rendija/Barrancas/Guaje Watershed Aggregate.
 PRS 53-008 is located in Lower Sandia Watershed Aggregate

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