TA-03

Los Alamos
NATIONAL LABORATORY
EST. 1943
Environmental Stewardship (ENV)
Remediation Services (RS), MS M992
Los Alamos, New Mexico 87545
(505) 667-0808/FAX (505) 665-4747

Date: December 2, 2004
Refer To: ER2004-0643

Mr. John Young, Project Leader
Permits Management Program
NMED – Hazardous Waste Bureau
2905 Rodeo Park Drive East
Building 1
Santa Fe, NM 87505-6303

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DEC 2004
NMED Hazardous Waste Bureau

SUBJECT: SUBMITTAL OF ACCELERATED CORRECTIVE ACTION WORK PLAN FOR THE INVESTIGATION AND REMEDIATION OF AREA OF CONCERN 03-001(i) AND SOLID WASTE MANAGEMENT UNITS (SWMUs) 03-029 AND 61-002

Dear Mr. Young:

Enclosed are two copies of the Los Alamos National Laboratory (LANL) Environmental Stewardship–Remediation Services (ENV-RS) Project Accelerated Corrective Action Work Plan for the Investigation and Remediation of Area of Concern (AOC) 03-001(i) and Solid Waste Management Units (SWMUs) 03-029 and 61-002. Sampling activities are expected to begin on or about January 3, 2004.

This accelerated corrective action work plan describes fieldwork to be accomplished by subcontractor and Laboratory personnel, in support of characterization and remediation, for areas of concern (AOCs) and solid-waste management units (SWMUs) in the planned path of the Technical Area (TA)-03 Security Perimeter Road Project. Once the road is completed our ability to investigate and remediate these sites in the future will be impeded. ENV-RS Project will conduct these investigations now, to ensure that characterization and remediation are completed prior to the sites being disrupted by construction of the road.

If you have any questions, please contact Roy Bohn at (505) 665-5138 or David Gregory at (505) 667-5808.

Sincerely,

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

Sincerely,

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

DM/DG/RB/ds

Enclosures: 1). Certification
2). Corrective Action Work Plan (ER2004-0593)

Cy:(w/enc)
K. Birdsall, ENV-ECR, MS M992
R. Bohn, ENV-ECR, MS M992
G. Lopez-Escobedo, ENV-RS, MS M992
R. Mirenda, ENV-ECR, MS M992
E. Rainey, ENV-ECR, MS M992
D. Gregory, LASO, MS A316
M. Leavitt, NMED-SWQB
J. Schoeppner, NMED-GWQB
S. Yanicak, NMED-OB, MS J993
L. King, EPA Region 6
J. Young, NMED-HWB
ENV-RS File, MS M992
IM-5, MS A150
RPF MS M707

Cy:(w/o enclosure)
D. McInroy, ENV-RS, MS M992
G. Lopez-Escobedo, ENV-RS, MS M992
J. Kieling, NMED-HWB
C. Voorhees, NMED-OB

CERTIFICATION

CERTIFICATION BY THE RISK REDUCTION AND ENVIRONMENTAL STEWARDSHIP–REMEDIATION SERVICES (RRES-RS) PROJECT TECHNICAL REPRESENTATIVES

Document Title: **ACCELERATED CORRECTIVE ACTION WORK PLAN FOR THE INVESTIGATION AND REMEDIATION OF AREA OF CONCERN 03-001(i) AND SOLID WASTE MANAGEMENT UNITS (SWMUs) 03-029 AND 61-002**

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

Name: _____ Date: 11/29/04

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

or

_____ Date: 12/02/04

Ken Hargis, Division Leader
Environmental Stewardship Division
Los Alamos National Laboratory

_____ Date: 12/02/04

David Gregory, Federal Project Director
Environmental Restoration Program
Department Of Energy/Los Alamos Site Office

or

_____ Date: _____

John Ordaz,
Assistant Area Manager of
Environmental Projects
Department Of Energy/Los Alamos Site Office

LA-UR-04-07879
November 2004
ER2004-0593

Accelerated Corrective Action Work Plan for the Investigation and Remediation of Area of Concern 03-001(i) and Solid Waste Management Units 03-029 and 61-002

Los Alamos
NATIONAL LABORATORY
EST. 1943

CD included with this document

Prepared by
Environmental Stewardship–Remediation Services

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Accelerated Corrective Action Work Plan for the Investigation and Remediation of Area of Concern 03-001(i) and Solid Waste Management Units 03-029 and 61-002

November 2004

Responsible team leader:

Printed Name	Signature	Title	Organization	Date
Roy Bohn		Team Leader	ENV-ECR	11/24/04

Responsible UC representative:

Printed Name	Signature	Title	Organization	Date
Dave McInroy		Deputy Project Director	ENV-RS	11/29/04

Responsible DOE representative:

Printed Name	Signature	Title	Organization	Date
David Gregory		Federal Project Director	DOE-LASO	12/02/04

EXECUTIVE SUMMARY

This accelerated corrective action (ACA) work plan presents the approach for characterization and remediation of an area of concern (AOC) and solid-waste management units (SWMUs) within the Upper Sandia Canyon Aggregate Area at Los Alamos National Laboratory (LANL or the Laboratory). In accordance with the terms of the Proposed Order on Consent, the investigation work plan for this aggregate area is due to the New Mexico Environment Department (NMED) in March 2008. The Laboratory plans to investigate and remediate AOC 03-001(i), SWMU 03-029, and SWMU 61-002 within the aggregate in advance of the work plan deliverable date because these sites lie in the path of the planned Technical Area 3 Security Perimeter Road and will be inaccessible during and after the road's construction, scheduled to begin in March 2005.

The purpose of the activities described in this ACA work plan is to complete corrective actions at AOC 03-001(i), SWMU 03-029, and SWMU 61-002 while the sites are still accessible. ACA objectives include (1) removing asphalt and debris from SWMU 03-029; (2) defining the nature and extent of contamination at AOC 03-001(i), SWMU 03-029, and SWMU 61-002 following completion of soil and debris removal; and (3) supporting requests for Certification of Completion for these sites. To meet these objectives, the Laboratory's Environmental Stewardship (ENV) – Remediation Services (RS) project (formerly the Environmental Restoration Project) will conduct the following activities:

- survey sites
- remove asphalt, debris, and contaminated soil at SWMU 03-029
- remove soil at SWMU 61-002 and AOC 03-001(i) to below the grade planned for the security perimeter road
- collect soil and tuff surface and subsurface samples to fully characterize the lateral and vertical extent of potential contamination at the sites
- based on the concentrations of chemicals detected, remediate AOC 03-001(i) and SWMU 61-002 as necessary to reduce potential risk to human and ecological receptors

After ACA activities are complete, the Laboratory will turn the sites over to the Security Perimeter Road Project construction team, which will maintain and implement best management practices as needed during construction activities at the sites. ENV-RS project personnel will characterize and dispose of the waste generated during ACA sampling activities in accordance with applicable Laboratory and regulatory requirements.

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1.0 INTRODUCTION

Los Alamos National Laboratory (LANL or the Laboratory) is a multidisciplinary research facility owned by the US Department of Energy (DOE) and managed by the Regents of the University of California. The Laboratory is located in north-central New Mexico approximately 60 mi northeast of Albuquerque and 20 mi northwest of Santa Fe. The Laboratory site covers 40 mi^2 of the Pajarito Plateau, which consists of a series of finger-like mesas separated by deep canyons. These canyons contain ephemeral and intermittent streams that run west to east. Mesa tops range in elevation from approximately 6200 to 7800 ft. The eastern portion of the plateau stands 300 to 900 ft above the Rio Grande valley.

The Laboratory's Environmental Stewardship (ENV) – Remediation Services (RS) project (formerly the Environmental Restoration [ER] Project) is involved in a national DOE effort to reduce risk to human health and the environment at its facilities. The goal of the ENV-RS project is to ensure that past DOE operations do not threaten human or environmental health and safety in and around Los Alamos County. To achieve this goal, the ENV-RS project is investigating and, as necessary, remediating sites potentially contaminated by past Laboratory operations. The ENV-RS project will perform the activities in this accelerated corrective action (ACA) work plan to complete investigation and remediation of Area of Concern (AOC) 03-001(i), Solid Waste Management Unit (SWMU) 03-029, and SWMU 61-002.

This ACA work plan presents the approach for characterization and remediation for AOC 03-001(i), SWMU 03-029, and SWMU 61-002 within the Upper Sandia Canyon Aggregate Area at the Laboratory. In accordance with the terms of the Proposed Order on Consent, the investigation work plan for this aggregate area is due to the New Mexico Environment Department (NMED) in March 2008. The Laboratory plans to investigate and remediate AOC 03-001(i), SWMU 03-029, and SWMU 61-002 within the aggregate in advance of the work plan deliverable date because these sites lie in the path of the planned Technical Area (TA-) 3 Security Perimeter Road and will be inaccessible during and after the road's construction, scheduled to begin in March 2005.

To accommodate the security perimeter road construction schedule, the Laboratory has accelerated the schedule for corrective action at AOC 03-001(i), SWMUs 03-029, and 61-002. SWMU 03-029 and SWMU 61-002 are listed in Module VIII of the Laboratory's Hazardous Waste Facility Permit (EPA 1990; 01585; EPA 1994 44146). NMED has not approved either SWMU for no further action (NFA). The Order on Consent will modify and replace the corrective action requirements of Module VIII. Under the terms of the Order on Consent, NMED may issue Certificates of Completion for corrective actions as either "complete without controls" or "complete with controls." The Laboratory plans to complete corrective actions at AOC 03-001(i), SWMU 03-029, and SWMU 61-002 to the levels required for NMED to issue a Certificate of Completion for each site for corrective action complete without controls. In the event that corrective action at a site receives NMED approval as complete with controls, the Laboratory will assume responsibility for the controls specified for the site by NMED. The Laboratory expects that such controls will be limited to institutional/administrative controls to ensure that land use remains consistent with residual contamination at the site. In the event that NMED will not issue a Certificate of Completion for corrective action at a site, the Facility Owner will assume long-term responsibility for the site.

1.1 General Site Information

AOC 03-001(i), SWMU 03-029, and SWMU 61-002 are situated on a mesa top of the Pajarito Plateau. AOC 03-001(i) and SWMU 03-029 are within TA-3 and SWMU 61-002 is within TA-61 (Figure 1). The area of the combined sites is bounded on the north by Los Alamos Canyon and on the south by Sandia Canyon. A brief description of each site is provided in the following sections. Historical investigations of the sites are discussed in section 2.5.

1.1.1 AOC 03-001(i), Inactive Material and Equipment Storage Areas

AOC 03-001(i) consists of two inactive material and equipment storage areas (Storage Areas #1 and #2) located near the Parks and Refuse Office building (Building 70) within TA-3. Storage Area #1 will not be impacted by construction activities for the security perimeter road and will not be investigated or remediated under this ACA. This ACA work plan describes investigation and remediation activities for Storage Area #2, a 50-ft by 150-ft level, unpaved area located directly northeast of Building 70 (Figure 2). Storage Area #2 was used as a staging area for old transformers and containers of roofing compound, tars, and adhesives. Dumpsters within the area were used for storage of bagged and labeled asbestos materials before disposal at the Los Alamos County landfill. Storage Area #2 was in use from the 1970s to 1989. Addendum 1 to the 1995 Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) Work Plan for Operational Unit (OU) 1114 (LANL 1995, 57590) included a sampling and analysis plan for Storage Area #2 that called for the collection of nine samples from a random grid at two depths. NMED disapproved the work plan (NMED 1996, 65591) but did not include any comments specific to the sampling plan in the letter of disapproval.

1.1.2 SWMU 03-029, Landfill

SWMU 03-029, which is now included in consolidated SWMU 03-009(a)-00, is an inactive 30-ft by 70-ft landfill located near the rim of Sandia Canyon and about 300 ft south of Building 271 (Figure 2). While active, the landfill was used as an asphalt cleanout area and received excess asphalt. Decommissioning included filling the landfill with sand to bring the surface level with the mesa rim. NMED issued a notice of violation to the Laboratory in November 1990 because pieces of asphalt and an oily sheen were found in the Sandia Canyon watercourse below Building 73. The Laboratory completed the corrective action required by NMED for SWMU 03-029 in early 1993 and, following approval of the corrective action, recommended the site for NFA in Addendum 1 to the 1995 RFI work plan for OU 1114 (LANL 1995, 57590). NMED disapproved the NFA recommendation and requested additional site investigation (NMED 1996, 65591). After removing the asphalt and other debris to accommodate the perimeter road construction activities, the Laboratory will collect confirmation samples to address the requirement for additional investigation stated in the NMED letter of disapproval.

1.1.3 SWMU 61-002, Outdoor Storage Area

SWMU 61-002 is a storage area east of the Radio Repair Shop (Building 23) on East Jemez Road. An 81-ft by 91-ft portion of the SWMU lies within a fenced area (Figure 2). This part of the SWMU was historically used as a storage area for capacitors and transformers and contained unmarked containers, several of which were oil-filled. Before 1985, oil contaminated with polychlorinated biphenyls (PCBs) was stored in containers on the soil surface within the storage area. The containers were known to have leaked. In 1986, the Laboratory Environment, Safety, and Health Division collected thirty-two soil samples from the portion of the SWMU within the fenced area and from locations within the SWMU to the south of the fenced area; analyses of these samples detected elevated PCB concentrations. This area of the SWMU was subsequently excavated and resampled. Results of confirmation sampling conducted after the excavation showed that cleanup was successful, and the area was backfilled with clean soil and paved with asphalt (LANL 1993, 20947). Following remediation, the east side of the storage area was again used to store electrical equipment, some of which contained PCBs. Storage operations were discontinued in 1992. The 1993 OU 1114 work plan reported staining on the surface of the asphalt within the SWMU (LANL 1993, 20947). The Laboratory conducted an RFI in the summer of 1994 to determine if PCBs were present in the stains on the asphalt or in surface soils downgradient from the site. Based on investigation results published in the 1996 RFI report (LANL 1996, 52930), the Laboratory conducted an RFI in 1997 to determine the extent of contamination. The RFI results are included in section 2.5 and Appendix B of this ACA work plan.

1.2 Investigation Objectives

The objective of this ACA work plan is to complete investigation and remediation activities in support of obtaining Certifications of Completion from NMED for AOC 03-001(i), SWMU 03-029, and SWMU 61-002. To meet this objective, the Laboratory ENV-RS project will conduct the following activities:

- survey the sites
- remove asphalt, debris, and contaminated soil at SWMU 03-029
- remove soil at SWMU 61-002 and AOC 03-001(i) to below the grade of the planned security perimeter road
- collect soil and tuff surface and subsurface samples to fully characterize the lateral and vertical extent of potential contamination at the sites
- based on the concentrations of chemicals detected, remediate AOC 03-001(i) and SWMU 61-002 as necessary to reduce potential risk to human and ecological receptors

The investigation and potential remediation of AOC 03-001(i), SWMU 03-029, and SWMU 61-002 will be conducted in accordance with the requirements contained in the September 1, 2004, Proposed Order on Consent and the Hazardous and Solid Waste Amendments. This ACA work plan outlines the scope of activities for investigation and potential remediation of AOC 03-001(i), SWMU 03-029, and SWMU 61-002, describes surface and subsurface conditions at the sites, and presents the results of the RFI sampling at SWMU 61-002. AOC 03-001(i) and SWMU 03-029 have not been sampled to date. Appendix A includes a list of acronyms and abbreviations and defines the terms used in this work plan. Appendix B (included on a CD inside the back cover of this work plan) contains all of the analytical data previously collected at SWMU 61-002. Appendix C describes how investigation-derived wastes will be managed.

2.0 BACKGROUND

2.1 Operational History

The three sites described in this ACA work plan are located within two TAs at the Laboratory, TA-3, which contains the core of operational facilities at the Laboratory, and TA-61. TA-61 was created during the Laboratory technical area redesignations in 1989. With the exception of a 1-mi^2, privately owned residential trailer park, the few buildings at TA-61 were previously part of TA-3. A major feature at TA-61 is the municipal landfill. Established in 1974, the landfill is still in use and is operated by the County of Los Alamos.

Four structures are adjacent to or housed operations that may have impacted AOC 03-001(i), SWMU 03-029, and SWMU 61-002. These structures are the Asphalt Batch Plant (Building 73), the Parks and Refuse Office building (Building 70), the Model Shop (Building 23), and the former salvage area (within and around Building 271) for Zia Company, a former Laboratory maintenance contractor (Figure 2).

The Asphalt Batch Plant was moved to its current location at the northeast corner of TA-3 in 1954. The plant began operation in May 1961 and was decommissioned in September 2003. The Parks and Refuse Office (formerly Building 12 in former TA-32) was built directly northeast of the Asphalt Batch Plant on August 28, 1953, and originally housed Zia Company roads and grounds maintenance staff. Tasks associated with the roads and grounds crew were operation of the plant and maintenance of the fuel and sealer loading area and the gravel storage and distribution areas. The crew also maintained small gasoline-powered motors associated with plant operations. AOC 03-001(i), located northeast of Building 70 (Figure 2), was used as a staging area for old transformers and containers of roofing

compound, tars, and adhesives. Dumpsters within the area were used for storage of bagged and labeled asbestos materials before disposal at the Los Alamos County landfill. The site was in use from the 1970s to 1989. No staining has been observed within AOC 03-001(i), nor have any releases from this area been documented; however, workers from the adjacent salvage yard confirm that transformers stored within the area often contained PCBs.

SWMU 03-029 is located within TA-3 near the rim of Sandia Canyon and about 300 ft south of Building 271 (Figure 2). This landfill received excess asphalt and clean-out from the Asphalt Batch Plant and later was covered with sand to bring the surface level with the mesa rim. Debris at the SWMU is made up of asphalt pieces of less than 1 ft^2. NMED issued a notice of violation to the Laboratory in November 1990 because pieces of asphalt and an oily sheen were found in the Sandia Canyon watercourse below Building 73. The Laboratory completed the required corrective action at SWMU 03-029 in early 1993. The corrective action involved removing the asphalt within the drainage and on the associated slope, regrading the watercourse and slope to support vegetation, extending the drainage, and constructing a concrete berm to prevent additional erosion and exposure of asphalt buried in the fill. A dense grass cover has been maintained on all fill slopes and disturbed areas. NMED closed out this site on October 20, 1993, with a conditional approval requiring surface water monitoring if erosion or tar reappear in the outfall.

SWMU 61-002 is adjacent to the Model Shop (Radio Repair Shop, Building 23) within TA-61 (Figure 2). The Model Shop (former Building 282 located within the former boundaries of TA-3), was built in 1951 for the Reynolds Electric Company and purchased by the Laboratory in 1966. The building lies 58 ft south of the centerline of East Jemez Road and approximately 1200 ft east of Diamond Drive. The outdoor fenced area east of the Model Shop was periodically used for storage of capacitors and transformers, unmarked drums, and other oil-filled vessels. Before 1985, these items were stored on the soil surface at the area. The items are known to have leaked. Remediation activities conducted in 1986 included paving the storage area. After remediation, the east side of the storage area was again used to store electrical equipment, some of which contained PCBs. Storage operations were discontinued in 1992.

2.2 Contaminant Transport Mechanisms and Potential Receptors

The primary mechanisms of contaminant release at AOC 03-001(i), SWMU 03-029, and SWMU 61-002 are leaks and spills related to historical Laboratory operations, specifically equipment and material storage and disposal. Stormwater runoff also may be a mechanism of contaminant release and transport at these sites. The only media containing residual contamination at these sites are surface and subsurface soil, tuff, and debris.

The potential pathways for human exposure to surface soil and tuff are dermal contact, inhalation of vapors and particulates, and incidental soil ingestion. Pathways from subsurface contamination to potential human receptors would be complete only if contaminated soil or tuff were excavated and brought to the surface. The potential pathways would then be similar to those of a surface soil release (i.e., dermal contact, inhalation of vapors or fugitive dust, and incidental soil ingestion).

AOC 03-001(i), SWMU 03-029, and SWMU 61-002 are located in developed areas with receptors. For ecological receptors, pathways from subsurface contamination to potential surface-dwelling animals would be complete only if contaminated soil or tuff were excavated and brought to the surface. The potential pathways would then be similar to those of a surface soil release (i.e., dermal contact, inhalation of vapors or fugitive dust, incidental ingestion of soil, uptake by plants, and food-web transport). Pathways from subsurface releases may be complete for plants and burrowing animals. These pathways include the uptake of contaminants by plant roots and the exposure of burrowing animals through dermal contact,

inhalation of vapors or dust, incidental ingestion of soil, and food-web transport. No burrowing animals were observed during site visits.

Downward migration of contaminants in the vadose zone is limited by a lack of hydraulic gradient. The lack of saturated conditions in the area restricts vertical migration; however, horizontal migration through stormwater runoff is possible. No perched alluvial aquifers have been identified in the areas of AOC 03-001(i), SWMU 03-029, or SWMU 61-002, nor are there springs or seeps nearby that would indicate the presence of perched alluvial aquifers. Therefore, a complete pathway to the groundwater, including the regional aquifer, located approximately 1000 ft below ground surface (bgs) from the mesa top, is unlikely. In addition, PCBs and polycyclic aromatic hydrocarbons (PAHs) are relatively insoluble materials and are not likely to migrate downward appreciably.

Laboratory land use at TA-3 and TA-61 historically has been industrial; land use within the two TAs will remain industrial for the foreseeable future.

2.3 Waste Inventory

The waste inventories for AOC 03-001(i), SWMU 03-029, and SWMU 61-002 may contain hazardous components related to historical operations. Radiological components were not used at these sites. The estimated 850 yd^3 of soil to be removed from AOC 03-001(i) may contain volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), and PCBs. The estimated 350 yd^3 of soil and asphalt to be removed from SWMU 03-029 may contain coal-tar–derived PAHs. Sample analyses performed during previous investigations of SWMU 61-002 detected PCB concentrations above the screening action level (SAL), and elevated concentrations of zinc and butylbenzylphthalate (LANL 1996, 52930). The estimated 1000 yd^3 of soil to be removed from SWMU 61-002 is likely to contain PCBs and may contain SVOCs and metals. The estimated total contaminated soil volume to be removed from the three sites is approximately 2200 yd^3 (refer to Appendix C, Table C-1).

2.4 Historical Releases

Potential releases related to historical activities at AOC 03-001(i), SWMU 03-029, and SWMU 61-002 include releases to surface and subsurface soil and tuff. All potential historical releases are related to Laboratory historical operations (outdoor storage and disposal/burial of asphalt-related by-products or debris).

2.5 Summary of Historical Investigations

Historical sampling investigations have been conducted at SWMU 61-002; to date, no sampling investigations have been conducted at AOC 03-001(i) or SWMU 03-029. Historical data collected at SWMU 61-002 are discussed in the following sections and presented in Appendix B (included on a CD inside the back cover of this work plan).

2.5.1 1994 RFI for SWMU 61-002

The Laboratory conducted an RFI at SWMU 61-002 in the summer of 1994 to determine if PCBs were present in the stains on the asphalt or in surface soils downgradient from SWMU 61-002. The sampling was not designed to evaluate the concentrations of PCBs left in the soil under the asphalt and fill, which had been previously cleaned up to Toxic Substance Control Act requirements and backfilled (LANL 1993, 20947). Sampling locations were selected using the stained areas and a minor drainage area as reference points. Sixteen samples (five fill samples and eleven asphalt samples) were collected from fourteen locations (Figure 3 and Table 1). Samples were field-screened for organic chemicals, and then submitted for analysis of VOCs, SVOCs, PCBs, and target analyte list (TAL) metals. Zinc and cadmium

were detected above their background values (Tables 2 and 3) and butylbenzylphthalate was detected in one fill sample (Tables 4 and 5). PCBs were detected in all five fill samples with maximum concentrations of 1.7 mg/kg for mixed Aroclors and 1.6 mg/kg for Aroclor-1260 (LANL 1996, 52930) (Table 5). Aroclor-1254 was detected in one asphalt sample (Tables 6 and 7). The RFI report (LANL 1996, 52930) recommended further investigation to identify the extent of contamination at SWMU 61-002.

2.5.2 1997 RFI for SWMU 61-002

Because PCB concentrations were detected in five fill samples from three sampling locations at SWMU 61-002 during the 1994 RFI and because the extent of contamination at the site was not determined, SWMU 61-002 was recommended for Phase II investigation (LANL 1996, 52930). The Phase II sampling plan was designed to define the horizontal and vertical extent of elevated PCB concentrations in the soil and sediment south of the paved fenced area only. Phase I sampling indicated no new surface PCB contamination within the fenced yard. The Phase II investigation was also designed to support a screening assessment, with samples collected from the most likely locations of potential contamination.

In 1997, forty-two samples (soil, fill, tuff, and asphalt) were collected from nineteen locations (Figure 4) and submitted to an off-site analytical laboratory for PCB analysis (Table 1). Thirty-eight samples (soil, fill, and tuff) had detected concentrations of Aroclor 1254 and Aroclor-1260. Table 4 presents the frequency of detected Aroclor concentrations in soil, fill, and tuff for the RFI samples. Table 5 presents the detected concentrations of Aroclor-1254 and Aroclor-1260 in the 1997 RFI samples. The maximum concentrations were 0.85 mg/kg and 1.9 mg/kg, respectively. A report on the Phase II sampling was never written. Review of the Phase II analytical data determined that the extent of the contamination was not defined. All historical analytical data for SWMU 61-002 are provided in Appendix B (included on a CD inside the back cover of this work plan).

2.5.3 Summary of Site Contamination

Based on operational history, the hazardous components that may be present at AOC 03-001(i) and SWMU 03-029 and the hazardous components that have been identified at SWMU 61-002 are as follows:

- AOC 03-001(i), inactive material and equipment storage area (Storage Area # 2): metals, VOCs, SVOCs, and PCBs
- SWMU 03-029, landfill: coal-tar–derived PAHs and metals
- SWMU 61-002, outdoor storage area: metals, SVOCs, and PCBs

3.0 SITE CONDITIONS

AOC 03-001(i), SWMU 03-029, and SWMU 61-002 are all situated on a mesa top of the Pajarito Plateau. The surface of the plateau slopes generally eastward, with elevations ranging from approximately 7520 ft in the western part to 7280 ft in the eastern part. The walls of the canyons cutting the Pajarito Plateau generally consist of vertical ledges alternating with steep slopes. However, slopes along the upper reaches of the canyons and in small tributaries cutting the areas of TA-3 and TA-61 are gentle and mantled with up to several feet of colluvium and soil. The area is bounded on the north by Los Alamos Canyon and on the south by Sandia Canyon. The Pajarito Plateau is drained by several west-to-east oriented canyons; surface water flows eastward toward the Rio Grande. The average annual rainfall on this portion of the Pajarito Plateau is 18.3 in., of which at least a third is received from the convective thunderstorms that commonly occur during the months of July and August (LANL 2002, 73876).

Surface soils and alluvium, locally ranging in thickness from zero to a few feet, overlie bedrock tuff. The subsurface bedrock tuff is composed of cooling units 2 through 4 of the Quaternary Tshirege (upper)

Member of the Bandelier Tuff (Qbt), which consists of multiple layers of ash-flow tuffs approximately 300 to 600 ft thick. Portions of the Tshirege Member are highly welded and form vertical cliffs as well as the caprock on the plateau.

The regional water table is approximately 1000 ft bgs from the mesa top on the eastern side of the Pajarito Plateau. The movement of meteoric water and potential migration of contaminants from the surface to the regional aquifer are very limited because of the considerable thickness of the vadose zone and the minimal amount of precipitation at the sites.

3.1 Surface Conditions

Surficial deposits on the Pajarito Plateau consist of coarse-grained colluvium on steep hillslopes and along the base of cliffs, generally fine-grained fluvial and colluvial sediments with a thin cover of eolian fine-grained sediments on the flatter parts of mesa surfaces, and alluvial fan deposits at the mouths of drainages cut into the mountain front or escarpments related to post-Bandelier faulting. Well-developed soils generally occur only on the gently sloping surfaces associated with the mesas. These soils usually consist of several subhorizons of the Bandelier Tuff that contain reddish clay. Soils present on top of the mesas and the soils making up the steep hill slopes, drainages, and other areas flanking erosionally stable mesa tops are typically thin and weakly developed, possessing only an A horizon and C horizon. Erosion of the mesa top is caused primarily by shallow runoff on the relatively flat part of the mesas, by deeper runoff in channels cut into mesa surfaces, and by rockfall and colluvial transport on the walls of the canyon.

A thin layer of soil is preserved in flat parts of the mesa surface and supports small outcroppings of vegetation. Tuff outcrops dominate the steep mesa slopes, and little to no vegetation is present on the upper slope reaches. Soil development and vegetative covering increase progressively downslope.

3.2 Subsurface Conditions

The regional stratigraphy of the Pajarito Plateau consists of the Bandelier Tuff, the Cerros del Rio lavas, the Puye Formation, the Totavi Lentil deposits, the Santa Fe Group, and the Santa Fe age basalts. Because AOC 03-001(i), SWMU 03-029, and SWMU 61-002 are located on a mesa top, subsurface conditions defining the sites include only the plateau's uppermost stratigraphic unit, the Tshirege Member of the Bandelier Tuff, and/or fill material deposited to extend the mesa top. Descriptions of the Bandelier Tuff members associated with the AOC and SWMUs are provided in the following sections.

3.2.1 Bandelier Tuff

The term welding is used with regard to Bandelier Tuff to distinguish tuffs that are uncompacted and porous (nonwelded) from tuffs that are more compacted and dense (welded). In the field, the degree of welding in tuff is quantified by the degree of flattening of pumice fragments (a higher degree of flattening and elongation equals a higher degree of welding). Petrographically, welded tuffs show adhesion (welding) of grains but nonwelded tuffs do not. The term devitrified is applied to tuffs whose volcanic glass has crystallized.

3.2.1.1 Tshirege Member

The Tshirege Member of the Bandelier Tuff is a compound cooling unit that resulted from several successive ash-flow deposits separated by periods of inactivity, which allowed for partial cooling of each unit. Properties related to water flow and contaminant migration (e.g., density, porosity, degree of welding, fracture content, and mineralogy) vary both vertically and laterally as a result of localized emplacement temperature, thickness, gas content, and composition.

3.2.1.2 Tshirege Member Unit 3 (Qbt3)

Unit 3 of the Tshirege Member of the Bandelier Tuff is poorly welded and nonindurated to slightly indurated. Forming the cliff caprocks of the Pajarito Plateau, Qbt3 defines the tuff at the soil/tuff interface at AOC 03-001(i), SWMU 03-029, and SWMU 61-002.

3.2.2 Hydrology

The proposed hydrogeologic conceptual model for the Pajarito Plateau (LANL 1998, 59599) predicts that such surface conditions as topography, surface water flow, and microclimate greatly influence the infiltration of water into the subsurface and the subsequent transport of water, vapor, and solutes through the upper regions of the vadose zone. According to model predictions, movement through deeper layers, including the regional aquifer, is influenced only weakly by surface conditions and is influenced more strongly by hydraulic characteristics of aquifer rocks, regional groundwater flow patterns, and stresses induced by water supply production. The following sections provide an overview of infiltration rates and groundwater occurrence in the vicinity of AOC 03-001(i), SWMU 03-029, and SWMU 61-002.

3.2.2.1 Surface Water and Infiltration

Surface and near-surface conditions (topography, precipitation, surface runoff) control water infiltration into the subsurface and the transport of contaminants in the shallow subsurface. In this respect, the climate of mesas and canyons forming the plateau differ (LANL 1998, 59599). Mesas are generally dry, both on the surface and within the rock that forms the mesa. Canyons range from wet to relatively dry; the wettest canyons contain continuous streams and perennial groundwater in the canyon-bottom alluvium. Dry canyons have only occasional stream flow and may lack alluvial groundwater.

The amount of mesa-top recharge along the portion of the Laboratory where AOC 03-001(i), SWMU 03-029, and SWMU 61-002 are located is minimal. Fractures within mesas do not enhance the movement of dissolved contaminants unless saturated conditions develop. Contaminants in the vapor phase generally migrate by diffusion through mesas (Stauffer et al. 2002, 69794; LANL 1997, 63131). Most of the surface drainage from the combined sites flows to Sandia Canyon.

3.2.2.2 Groundwater

Groundwater beneath the Pajarito Plateau occurs in three distinct horizons: (1) in the regional aquifer, (2) in shallow perched zones beneath canyons that maintain relatively wet surface conditions (surface flow) for most of the year, and (3) in intermediate perched zones in the vadose zone between the regional aquifer and the shallow perched zones (Nylander et al. 2003, 76059).

The regional aquifer occurs within the Santa Fe Group and Puye Formation and is the only aquifer capable of large-scale municipal water supply (Purtymun 1984, 6513). The regional aquifer extends throughout the Española Basin (an area roughly 2317 mi^2) and reaches its maximum thickness beneath the Pajarito Plateau (over 800 ft thick). Depths to the regional aquifer range from about 1200 ft bgs along the western edge of the plateau to about 600 ft bgs to the east. The depth to the water table from the mesa top on which AOC 03-001(i), SWMU 03-029, and SWMU 61-002 are located is approximately 1000 ft bgs.

Groundwater in the shallow perched zones occurs within the canyon alluvium (i.e., gravel, sand and finer sediments deposited by surface flow in the canyon bottoms). The alluvial deposits are limited in their geographical extent and are very permeable relative to the underlying Bandelier Tuff; therefore, surface water readily infiltrates the alluvium and becomes captured, forming narrow, ribbon-like alluvial aquifers that lie directly beneath the canyon bottoms. These shallow alluvial aquifers generally occur at depths

less than 100 ft bgs and are as much as 100 ft thick in some locations. With the exception of detections within TA-16, shallow alluvial perched aquifers have been detected only beneath canyons with relatively wet surface conditions (surface flow) for most of the year (e.g., Los Alamos Canyon). Currently, no evidence indicates the presence of a shallow alluvial aquifer beneath AOC 03-001(i), SWMU 03-029, or SWMU 61-002 (Nylander et al. 2003, 76059).

Groundwater also occurs in intermediate perched water zones. In areas where low-permeability beds impede the downward migration of water, water will pool and collect, forming isolated intermediate depth aquifers. Evidence of intermediate depth aquifers has been found beneath Pueblo, Los Alamos, Sandia, Mortandad, Pajarito, and Ancho Canyons and Cañon de Valle (Nylander et al. 2003, 76059). These perched intermediate aquifers are morphologically similar to the shallow alluvial aquifers, occurring as narrow ribbons that follow the canyons; however, the depths at which these intermediate aquifers occur are highly variable, ranging from less than 100 ft bgs to as much as 900 ft bgs from the canyon bottoms. No perched intermediate aquifers have been found beneath these sites.

3.2.2.3 Vadose Zone

The region beneath the ground surface and above the regional aquifer is called the vadose (unsaturated) zone. The source of moisture in the vadose zone is precipitation, most of which is removed as runoff, evaporation, and transpiration (LANL 1997, 63131). The subsurface movement of the remaining moisture (often referred to as recharge) is predominantly vertical in direction and is influenced by properties and conditions of the vadose zone.

The geologic property of the Bandelier Tuff that most influences fluid flow in the unsaturated zone is the degree of welding. Welded tuffs tend to have less matrix porosity and more fractures than nonwelded tuffs. Fractures in welded tuff may include relatively close-spaced cooling joints as well as tectonic fractures. Although nonwelded tuffs also have fractures, they are generally less abundant than in welded tuffs. In and around AOC 03-001(i), SWMU 03-029, and SWMU 61-002, the mesa caprock is exposed in several tuff outcroppings. The tuff appears highly welded but shows little to no sign of weathering or fracture.

4.0 SCOPE OF ACTIVITIES

The ACA work plan for AOC 03-001(i), SWMU 03-029, and SWMU 61-002 includes the following activities:

- develop planning and health and safety documents for the implementation of the work plan
- mobilize to and prepare sites
    - conduct presampling geodetic survey and establish survey grid
    - conduct electromagnetic and ground-penetrating radar surveys (SWMU 03-029 only)
- collect samples for site characterization at AOC 03-001(i) and SWMU 61-002
- submit samples for fixed analytical laboratory analysis
- excavate trenches at SWMU 03-029
- remove asphalt/fill material from SWMU 03-029 and soils at all sites from locations with elevated contaminant concentrations
- remove 3 to 4 ft of soil from all of AOC 03-001(i) and from the northern portion of SWMU 61-002
- collect confirmation samples from all sites

- submit samples for fixed analytical laboratory analysis
- conduct post-sampling geodetic surveys
- restore and demobilize from sites
- prepare a report, including presentation and analysis of all data collected, detailing the work performed

Methods for performing investigation activities are provided in section 5.0. The schedule for the planned activities is provided in section 7.0.

5.0 INVESTIGATION METHODS

Activities described in this work plan will be performed in accordance with the applicable quality assurance (QA) requirements addressed in the ENV-RS Project Quality Management Plan and implementing quality and standard operating procedures (SOPs), Laboratory requirement documents (e.g., Laboratory Implementation Requirements and Laboratory Performance Requirements), or equivalent Laboratory-approved subcontractor documents (e.g., statements of work, field implementation plans etc.). Table 8 presents a summary of the SOPs that will be used for this project. These SOPs are available at http://erproject.lanl.gov/documents/procedures.html.

Additional procedures may be used as necessary to guide the work plan activities. Implementation of the ACA site characterization activities includes mobilization and site preparation and collection of surface and subsurface characterization or confirmation samples at locations associated with AOC 03-001(i), SWMU 03-029, and SWMU 61-002.

5.1 AOC 03-001(i)

5.1.1 Mobilization and Site Preparation

Mobilization, characterization sampling, excavation, and confirmation sampling activities will be conducted at AOC 03-001(i) within Storage Area #2.

Mobilization to the site will include the delivery and inspection of heavy equipment and, as appropriate, the use of ropes, postings, or construction fencing to establish site work areas and control public and untrained worker access to the site. As required by the Laboratory Storm Water Pollution Prevention Plan, erosion-control best management practices (BMPs) (e.g., silt fence and straw wattles) will be installed before any soil-disturbing activities are performed.

A survey grid will be established at the site to guide sampling. Geodetic survey data will be collected to establish the existing topography of the site. The survey will be conducted in accordance with SOP-03.11, Coordinating and Evaluating Geodetic Surveys, and the data will be delivered to the ENV-RS Records Processing Facility (RPF) for migration to the ENV-RS Geographical Information System.

The field team will evaluate the current site conditions to determine if the current grade is in fact the ground surface for historical operations. The evaluation may involve examination of on-site trees to determine if portions of them have been buried by backfill material. The team may excavate pits at the site to identify buried soil horizons. A review of historical photos and interviews with workers at the site may also be conducted to obtain information as to whether the current grade represents the ground surface during operations at AOC 03-001(i).

5.1.2 Site Characterization Sampling

Samples will be collected from eight locations (Figure 5) at three depth intervals to define the lateral extent of contamination. Based on the results of the site evaluation, the field team will determine the final depth intervals to be sampled using best professional judgment. Planned sample depth intervals (0.0 to 0.5 ft, 1.5 to 2.0 ft, and 3.5 to 4.0 ft) assume that the current grade has not changed since the AOC was active. Final sample depth intervals will be adjusted to the historical operational grade if necessary. Two locations will be sampled at the same depth intervals downslope from AOC 03-001(i). The exact locations will be determined during sampling activities. Samples will be collected either by using the spade and scoop method (SOP-06.09) manually or with the assistance of a backhoe or similar equipment or by using a hand auger (SOP-06.10), as appropriate. Headspace vapor screening for VOCs (SOP-06.33) will be conducted using a photoionization detector (PID) capable of measuring quantities as low as 1 ppm.

5.1.3 Excavation and Confirmation Sampling

The site will be excavated to the grade planned for the security perimeter road. This will avoid excavation, characterization, and waste disposal during construction. Twelve confirmation samples will be collected from six locations on a grid established over the site. Planned sample depth intervals of 0.0 to 0.5 ft and 1.5 to 2.0 ft after soil removal. Samples will be collected either by using the spade and scoop method (SOP-06.09) manually or with the assistance of a backhoe or similar equipment or by using a hand auger (SOP-06.10), as appropriate. Headspace vapor screening for VOCs (SOP-06.33) will be conducted using a PID capable of measuring quantities as low as 1 ppm.

5.1.4 Fixed Laboratory Analytical Methods

All samples will be submitted to the ENV Sample Management Office (SMO) for fixed-laboratory analysis of PCBs, SVOCs, VOCs, and TAL metals with a request for 30-day turnaround time of the analytical results. Toxicity characteristic leaching procedure (TCLP) and total petroleum hydrocarbon (TPH) analyses for waste characterization will be requested in accordance with the waste-characterization strategy form (WCSF). After collection, samples will be stored and transported to the SMO in accordance with SOP-01.03, Handling, Packaging, and Transporting Field Samples. The SMO will ship samples to a qualified off-site analytical laboratory. Specific analytical methods are described in the US Environmental Protection Agency (EPA) document, "Test Methods for Evaluating Solid Wastes" (SW846) and listed in Table 9.

QA/quality control (QC) samples will include trip blanks for VOC analysis, field duplicates to evaluate the reproducibility of the sampling technique, and rinsate blanks to evaluate decontamination procedures. These samples will be collected according to SOP-1.05, Field Quality Control Samples.

5.1.5 Site Restoration, Decontamination, and Demobilization Activities

Site restoration will include backfilling all sampling locations to the grade of the surrounding ground surface. BMPs to control stormwater run-on and runoff will be installed and maintained, as needed. Because perimeter road construction activities are scheduled to take place at AOC 03-001(i) shortly after sampling and soil-removal activities are completed, backfilling and the installation and maintenance of BMPs are the only restoration activities currently planned for the site. The BMPs will be left in place and upgraded as needed to prevent erosion of site soils. The Laboratory will inspect BMPs as part of the existing BMP maintenance and inspection program for ENV Division.

Stainless-steel sampling equipment will be decontaminated daily and between uses at sampling locations. To minimize or eliminate liquid waste generation, decontamination of equipment will be accomplished using dry methods whenever possible. If required, an alconox/water solution

decontamination technique may be used to decontaminate sampling equipment. Wet or dry decontamination techniques will be conducted in accordance with SOP-01.08, Field Decontamination of Drilling and Sampling Equipment. Any decontamination wastewater generated will be sampled and stored in a 5-gal. plastic bucket and may be disposed of on site in accordance with the exemption for wastewater volumes of less than 6 gal. per day.

QA/quality control (QC) samples will include trip blanks for VOC analysis, field duplicates to evaluate the reproducibility of the sampling technique, and rinsate blanks to evaluate decontamination procedures. These samples will be collected according to SOP-1.05, Field Quality Control Samples.

All sampling and decontamination equipment, materials, and investigation-derived wastes will be removed from the site for disposal in accordance with the WCSF.

Each phase of ACA activities will be documented including photographs, with descriptive annotations, of site field work (excavation, sampling, etc.) and restoration activities. The investigation-derived waste management plan for wastes generated during the ACA field activities is presented in Appendix C.

5.1.6 Post-sampling Geodetic Survey

A post-investigation geodetic survey will be conducted at the site to confirm the exact sampling locations; any deviations from the proposed sample design will be documented. The post-investigation geodetic survey will be performed in accordance with SOP-03.11, Coordinating and Evaluating Geodetic Surveys.

5.2 SWMU 03-029

5.2.1 Mobilization and Site Preparation

Mobilization to SWMU 03-029 will include delivery and inspection of heavy equipment and, as appropriate, the use of ropes, postings, or construction fencing to establish site work areas and control public and untrained worker access to the site. As required by the Laboratory Storm Water Pollution Prevention Plan, erosion-control BMPs (e.g., silt fence and straw wattles) will be installed before any soil-disturbing activities are performed.

SWMU 03-029 will be trenched to define the physical limits of the asphalt dump. Following mobilization to the site, a geophysical survey will be performed to verify the limits of the landfill and to confirm that the estimated volume of material planned for removal is accurate. Electromagnetic (EM)-31, EM-61, and ground-penetrating radar surveys will be conducted by the geophysicist as necessary to estimate the vertical and lateral limits of the landfill.

5.2.2 Site Characterization Sampling

No characterization samples will be collected at SWMU 03-029 because the site is being excavated. Post-excavation confirmation samples will be collected as described in section 5.2.3.

5.2.3 Excavation and Confirmation Sampling

The excavation limits to guide asphalt removal will be staked based on the results of the trenching and the geophysical surveys. Topsoil placed as fill over the landfill will be removed and stockpiled on site for later use as backfill material. The asphalt will be excavated; loaded directly to trucks for disposal in accordance with the WCSF, waste profile form, and chemical waste disposal requests; and transported off-site under Laboratory-generated manifests to a Laboratory-approved disposal facility. All asphalt materials and any stained soil or tuff beneath it will be removed, characterized, and disposed of as appropriate.

Following the removal of asphalt and stained soils, a 20-ft-square grid pattern will be established over and around the removal area. Assuming a 30-ft by 70-ft excavation area, 11 selected locations will be sampled at two interval depths (0.0 to 0.5 ft and 1.5 to 2.0 ft). All sample depths will be relative to the bottom of the excavation, and the appropriate depths for samples around the perimeter of the excavation will be determined in the field based on the depth of the excavation. Samples will be collected at depth intervals of 0.0 to 0.5 ft and 1.5 to 2.0 ft from three additional step-out sampling locations at 20-ft distances from both ends of the landfill (Figure 6). Samples will be collected by spade and scoop or hand auger methods (SOP-06.09 and SOP-06.10, respectively). Headspace vapor–screening for VOCs (SOP-06.33) will be conducted using a PID capable of measuring quantities as low as 1 ppm.

5.2.4 Fixed Laboratory Analytical Methods

All samples will be submitted to the SMO for fixed-laboratory analysis of SVOCs, VOCs, TAL metals, and PCBs, with a request for a 30-day turnaround time of the analytical results. TCLP and TPH analyses for waste characterization will be requested in accordance with the WCSF. After collection, samples will be stored and transported to the SMO in accordance with SOP-01.03, Handling, Packaging, and Transporting Field Samples. The SMO will ship samples to a qualified off-site analytical laboratory. Specific analytical methods are described in the EPA document, "Test Methods for Evaluating Solid Wastes" (SW846) and listed in Table 9.

QA/quality control (QC) samples will include trip blanks for VOC analysis, field duplicates to evaluate the reproducibility of the sampling technique, and rinsate blanks to evaluate decontamination procedures. These samples will be collected according to SOP-1.05, Field Quality Control Samples.

5.2.5 Site Restoration, Decontamination, and Demobilization Activities

Site restoration will include using imported fill to backfill all sampling locations to the grade of the surrounding ground surface. BMPs to control stormwater run-on and runoff will be installed or maintained, as needed. Because perimeter road construction activities are scheduled to take place at the site shortly after sampling and soil-removal activities are completed, backfilling and the installation and maintenance of BMPs are the only restoration activities currently planned for the site. The site BMPs will be left in place and upgraded as needed to prevent erosion of site soils. The Laboratory will inspect BMPs as part of the existing BMP maintenance and inspection program for ENV Division.

Stainless-steel sampling equipment will be decontaminated daily and between uses at sampling locations. To minimize or eliminate liquid waste generation, decontamination of equipment will be accomplished using dry methods whenever possible. If required, an alconox/water solution decontamination technique may be used to decontaminate sampling equipment. Wet or dry decontamination techniques will be conducted in accordance with SOP-01.08, Field Decontamination of Drilling and Sampling Equipment. Any decontamination wastewater generated will be sampled and stored in a 5-gal. plastic bucket and may be disposed of on site in accordance with the exemption for wastewater volumes of less than 6 gal. per day.

Each phase of ACA activities will be documented including photographs, with descriptive annotations, of site field work (excavation, sampling, etc.) and restoration activities. The investigation-derived waste management plan for wastes generated during the ACA field activities is presented in Appendix C.

5.2.6 Post-sampling Geodetic Survey

A post-investigation geodetic survey will be conducted at the site to confirm the exact sampling locations; any deviations from the proposed sample design will be documented. The post-investigation geodetic survey will be performed in accordance with SOP-03.11, Coordinating and Evaluating Geodetic Surveys.

5.3 SWMU 61-002

5.3.1 Mobilization and Site Preparation

Mobilization to SWMU 61-002 will include delivery and inspection of heavy equipment and, as appropriate, the use of ropes, postings, or construction fencing to establish site work areas and control public and untrained worker access to the site. As required by the Laboratory Storm Water Pollution Prevention Plan, erosion-control BMPs (e.g., silt fence and straw wattles) will be installed before any soil-disturbing activities are performed.

5.3.2 Site Characterization Sampling

Fifty-three characterization samples will be collected from twenty-five locations on a 20-ft-square grid pattern established over the site. The sampling depth intervals will be relative to the existing surface. For sampling locations within the fenced area, the depth intervals are 0.5 to 1.0 ft and 2.0 to 2.5 ft. These intervals should ensure that samples collected are from beneath the pavement or fill material present in this area. For sampling locations within the unpaved area outside the fence, the proposed sampling depth intervals are 0.0 to 0.5 ft and 1.5 to 2.0 ft. Three sampling locations north and east of the SWMU will be sampled at three depth intervals, 0.0 to 0.5 ft, 1.5 to 2.0 ft, and 3.5 to 4.0 ft. These locations surround a 20-ft by 120-ft area of the SWMU that will be excavated to a depth of 3 to 4 ft.

5.3.3 Excavation and Confirmation Sampling

Excavation of soil to a depth of at least 1 ft is anticipated from within all of the boundary of SWMU 61-002. Excavation within a 20-ft by 120-ft area in the northern portion of the SWMU is planned to a depth of 3 to 4 ft (the grade planned for the security perimeter road). This will avoid excavation, characterization, and waste disposal during construction. After soil removal is conducted, confirmation samples will be collected from the site. Forty-seven samples will be collected from twenty-two locations on a 20-ft-square grid pattern established over the site. Sampling depth intervals will be 0.0 to 0.5 ft and 1.5 to 2.0 ft relative to the surface after soil removal. Samples will be collected either by using the spade and scoop method (SOP-06.09) manually or with the assistance of a backhoe or similar equipment or by using a hand auger (SOP-06.10), as appropriate.

5.3.4 Fixed Laboratory Analytical Methods

All samples will be submitted to the SMO for fixed-laboratory analysis of PCBs, SVOCs, and TAL metals, with a request for 30-day turn-around of analytical results to confirm final conditions at the site. TCLP analysis for waste characterization will be requested in accordance with the WCSF. The field team will coordinate sample collection and analysis with the SMO. After collection, samples will be stored and transported to the SMO in accordance with SOP-01.03, Handling, Packaging, and Transporting Field Samples. The SMO will ship samples to a qualified off-site analytical laboratory. Specific analytical methods are described in the EPA document, "Test Methods for Evaluating Solid Wastes" (SW846) and listed in Table 9.

QA/QC samples will include field duplicates to evaluate the reproducibility of the sampling technique and rinsate blanks to evaluate decontamination procedures. These samples will be collected according to SOP-1.05, Field Quality Control Samples.

5.3.5 Site Restoration, Decontamination, and Demobilization Activities

Site restoration will include using imported fill to backfill all sampling locations to the surrounding grade of the ground surface. BMPs to control stormwater run-on and runoff will be installed or maintained, as needed. Because perimeter road construction activities are scheduled to take place at the site shortly

after sampling and soil-removal activities are completed, backfilling and the installation and maintenance of BMPs are the only restoration activities currently planned for the site. The site BMPs will be left in place and upgraded as needed to prevent the erosion of site soils. The Laboratory will inspect BMPs as part of the existing BMP maintenance and inspection program for ENV Division.

Stainless-steel sampling equipment will be decontaminated daily and between uses at sampling locations. To minimize or eliminate liquid waste generation, decontamination of equipment will be accomplished using dry methods whenever possible. If required, an alconox/water solution decontamination technique may be used to decontaminate sampling equipment. Wet or dry decontamination techniques will be conducted in accordance with SOP-01.08, Field Decontamination of Drilling and Sampling Equipment. Any decontamination wastewater generated will be sampled and stored in a 5-gal. plastic bucket and may be disposed of on site in accordance with the exemption for wastewater volumes of less than 6 gal. per day.

Each phase of ACA activities will be documented including photographs, with descriptive annotations, of site field work (excavation, sampling, etc.) and restoration activities. The investigation-derived waste management plan for wastes generated during the ACA field activities is presented in Appendix C.

5.3.6 Post-sampling Geodetic Survey

A post-investigation geodetic survey will be conducted at the site to confirm the exact sampling locations; any deviations from the proposed sample design will be documented. The post-investigation geodetic survey will be performed in accordance with SOP-03.11, Coordinating and Evaluating Geodetic Surveys.

5.4 Proposed Samples and Analytical Suites

Table 9 presents the proposed number of samples to be collected from AOC 03-001(i), SWMU 03-029, and SWMU 61-002, the analytical suites proposed to be performed during laboratory analysis, and the analytical methods to be followed.

6.0 MONITORING

No monitoring activities are planned at AOC 03-001(i), SWMU 03-029, and SWMU 61-002. The Laboratory anticipates the ACA activities for investigation and remediation of AOC 03-001(i), SWMU 03-029, and SWMU 61-002 will be the final remedies for the sites.

7.0 SCHEDULE

Field activities associated with implementation of this ACA work plan are expected to begin in January 2005. A completion report for the ACA will be prepared and submitted to the NMED Hazardous Waste Bureau 90 days after ACA activities are completed at all sites. The schedule for specific ACA work plan preparation and field activities is summarized in Table 10.

8.0 REFERENCES

The following list includes all documents cited in this work plan. Parenthetical information following each reference provides the author, publication date, and ER ID number. This information is also included in text citations. ER ID numbers are assigned by the ENV-RS RPF and are used to locate the document at the RPF and, where applicable, in the ENV-RS project reference set titled "Reference Set for Operable Unit 1114."

Copies of the reference sets are maintained at the NMED Hazardous Waste Bureau; the DOE Los Alamos Site Office; EPA, Region 6 offices; and ENV-RS project library. The sets were developed to ensure that the administrative authority has all material needed to review this document and are updated periodically as needed.

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Stauffer, P. H., K. H. Birdsell, M. Witkowski, T. Cherry, and J. Hopkins, March 2000. "Subsurface Vapor-Phase Transport of TCA at MDA L: Model Predictions," Los Alamos National Laboratory report LA-UR-00-2080, Los Alamos, New Mexico. (Stauffer et al. 2000, 69794)

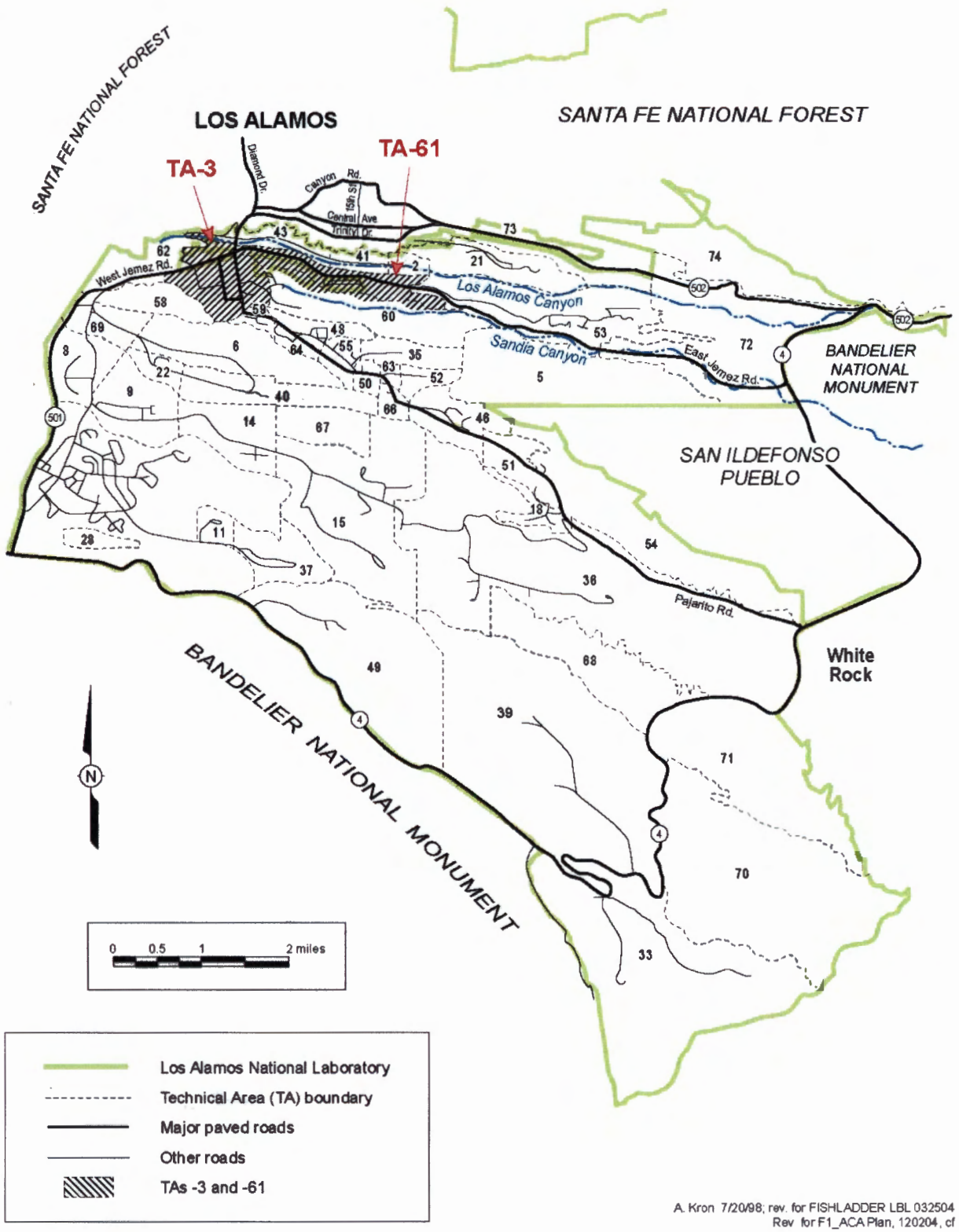
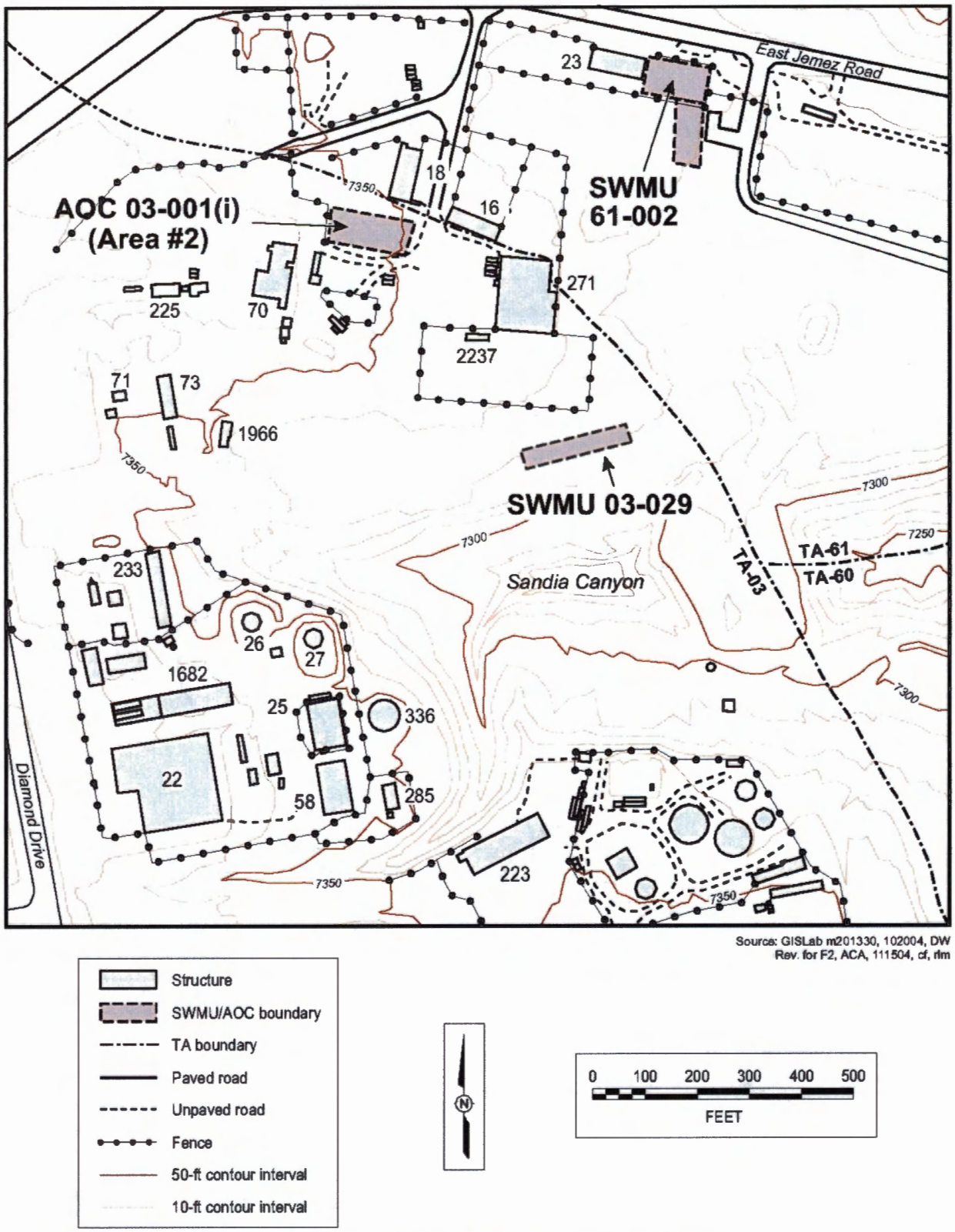


Figure 1. Locations of TA-3 and TA-61 with respect to Laboratory TAs and surrounding land holdings



Source: GISLab m201330, 102004, DW
Rev. for F2, ACA, 111504, cf, rlm

Figure 2. Locations of AOC 03-001(i), SWMU 03-029, and SWMU 61-002

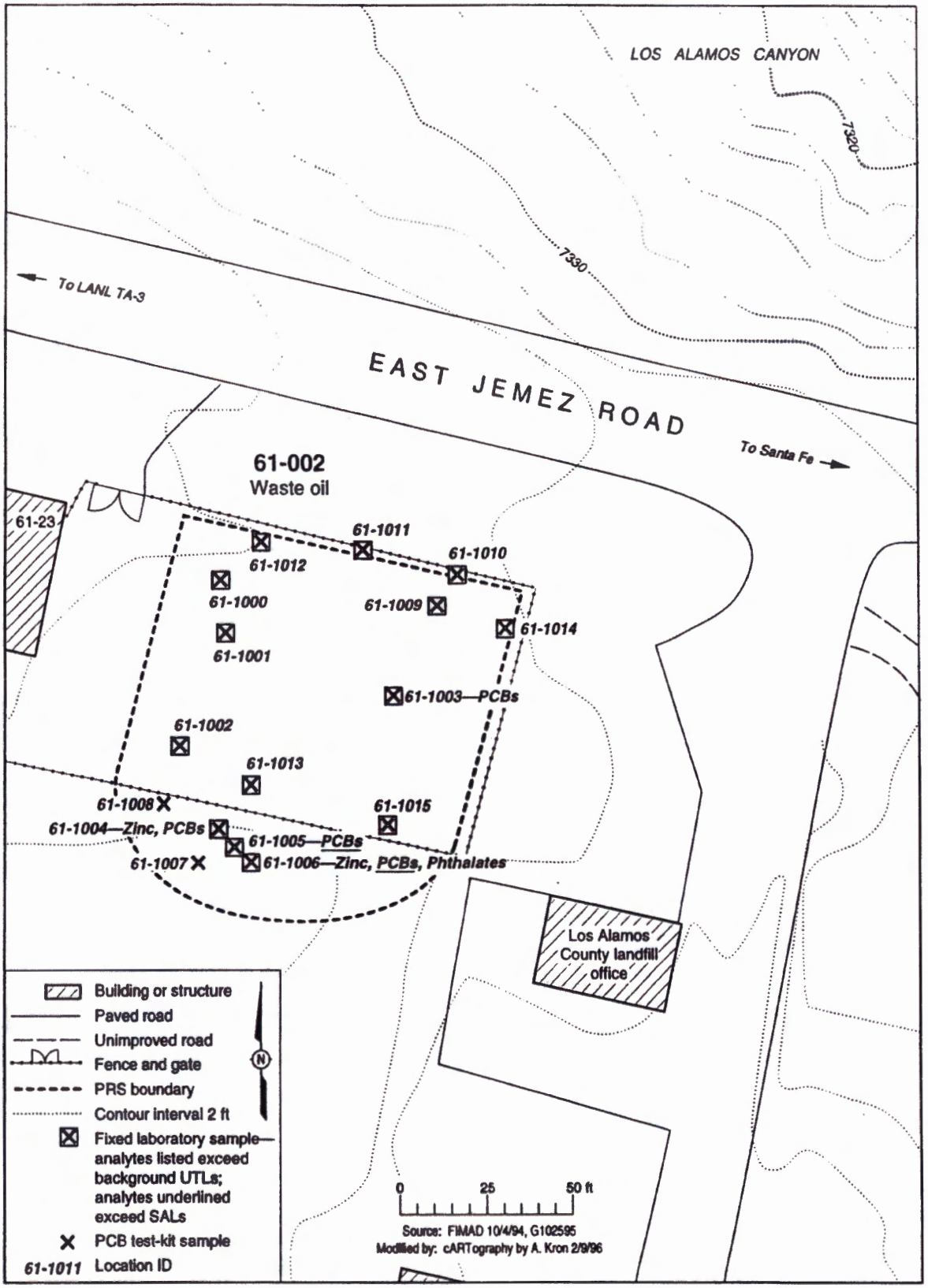


Figure 3. SWMU 61-002 1994 RFI sampling locations

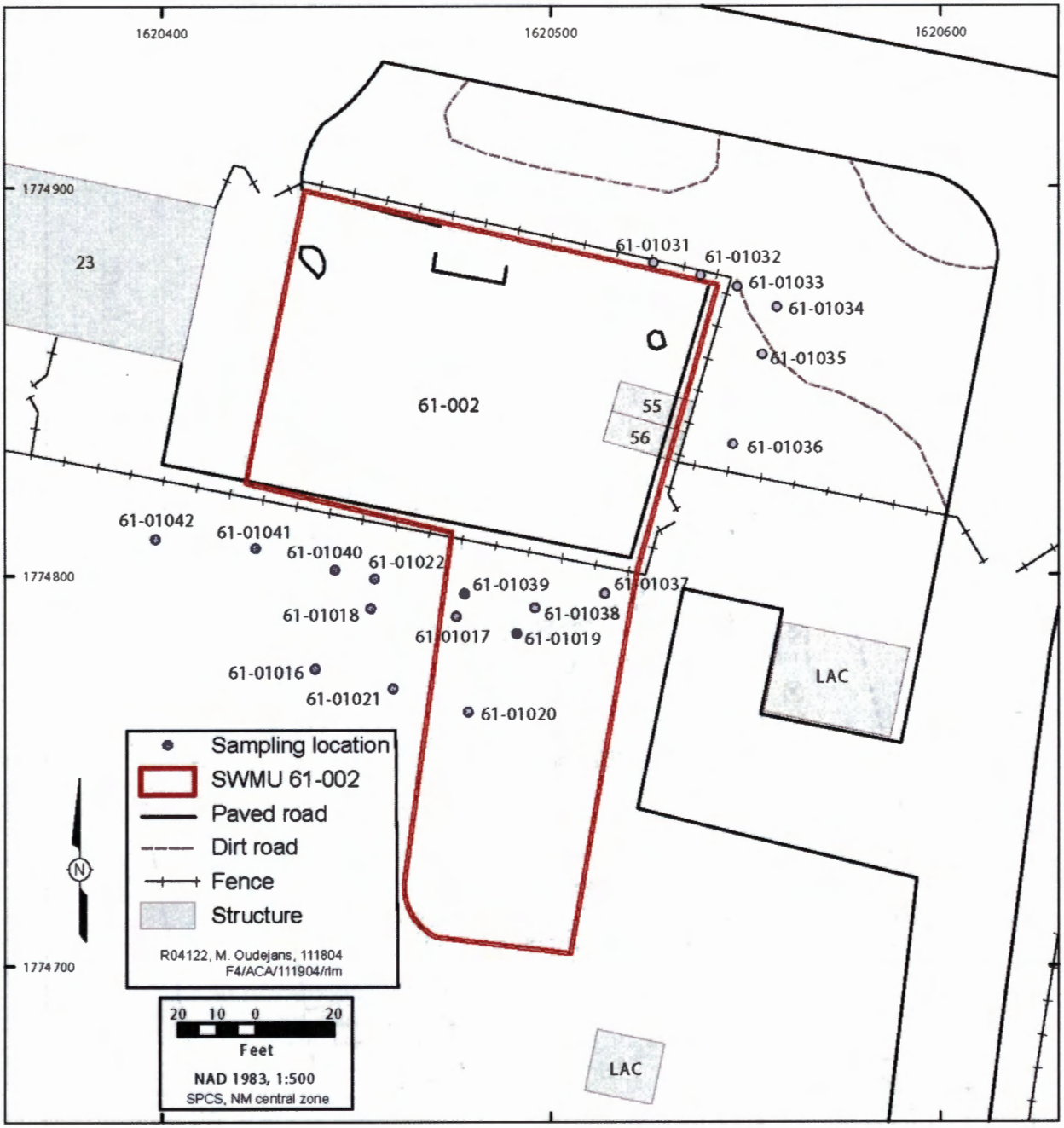


Figure 4. SWMU 61-002 1997 Phase II RFI sampling locations

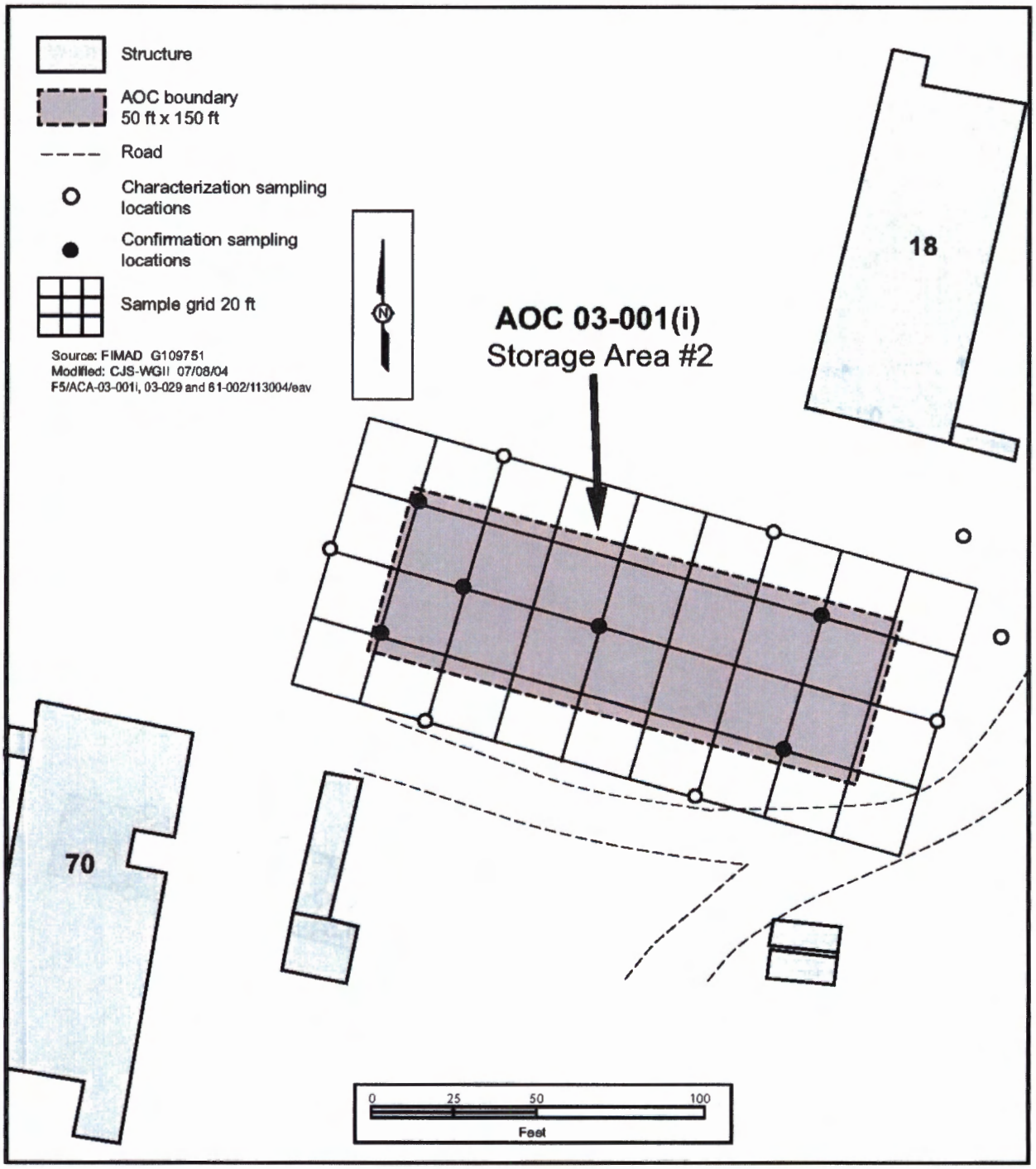


Figure 5. Proposed characterization and confirmation sampling locations for Storage Area #2 in AOC 03-001(i)

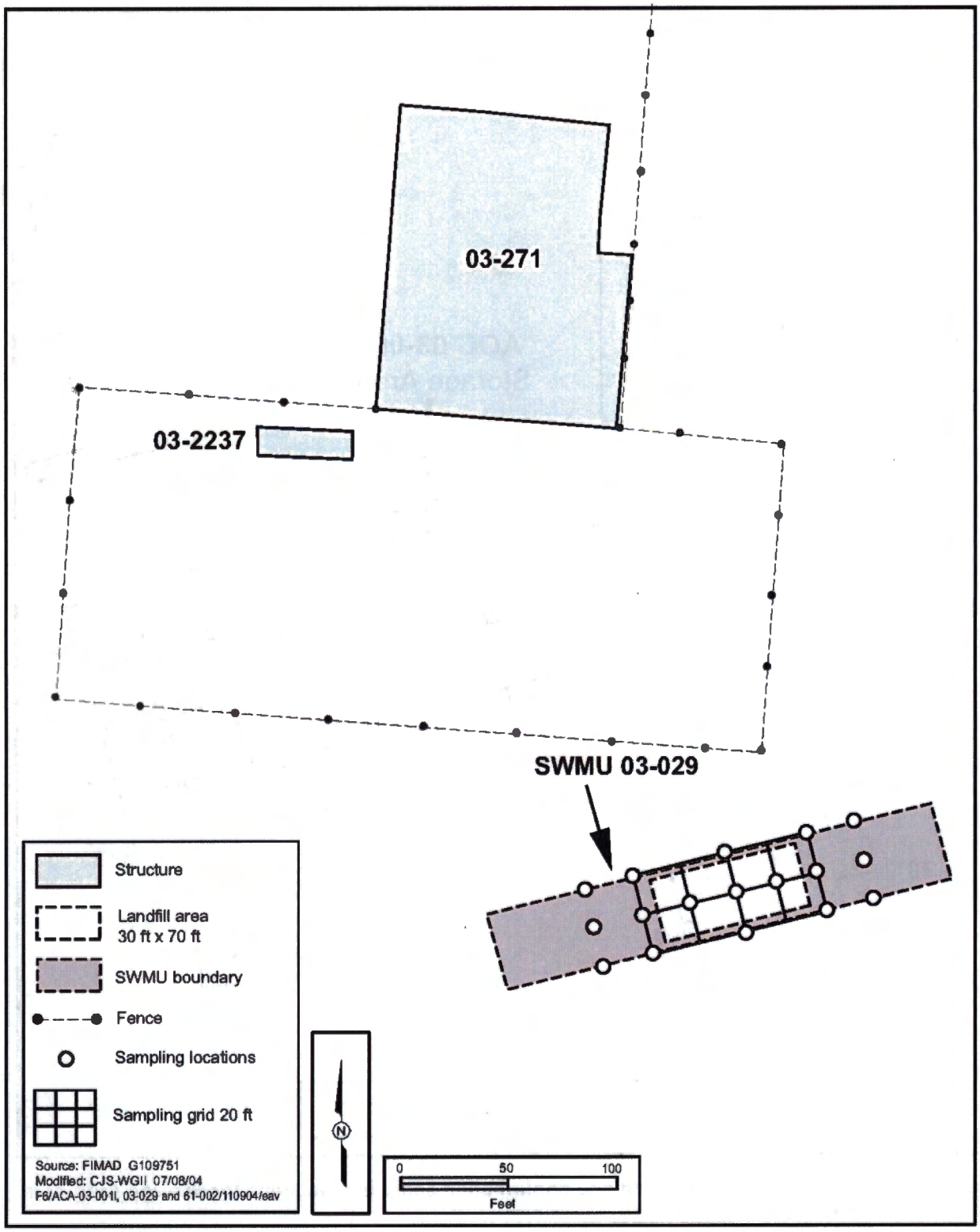


Figure 6. Proposed confirmation sampling locations for SWMU 03-029

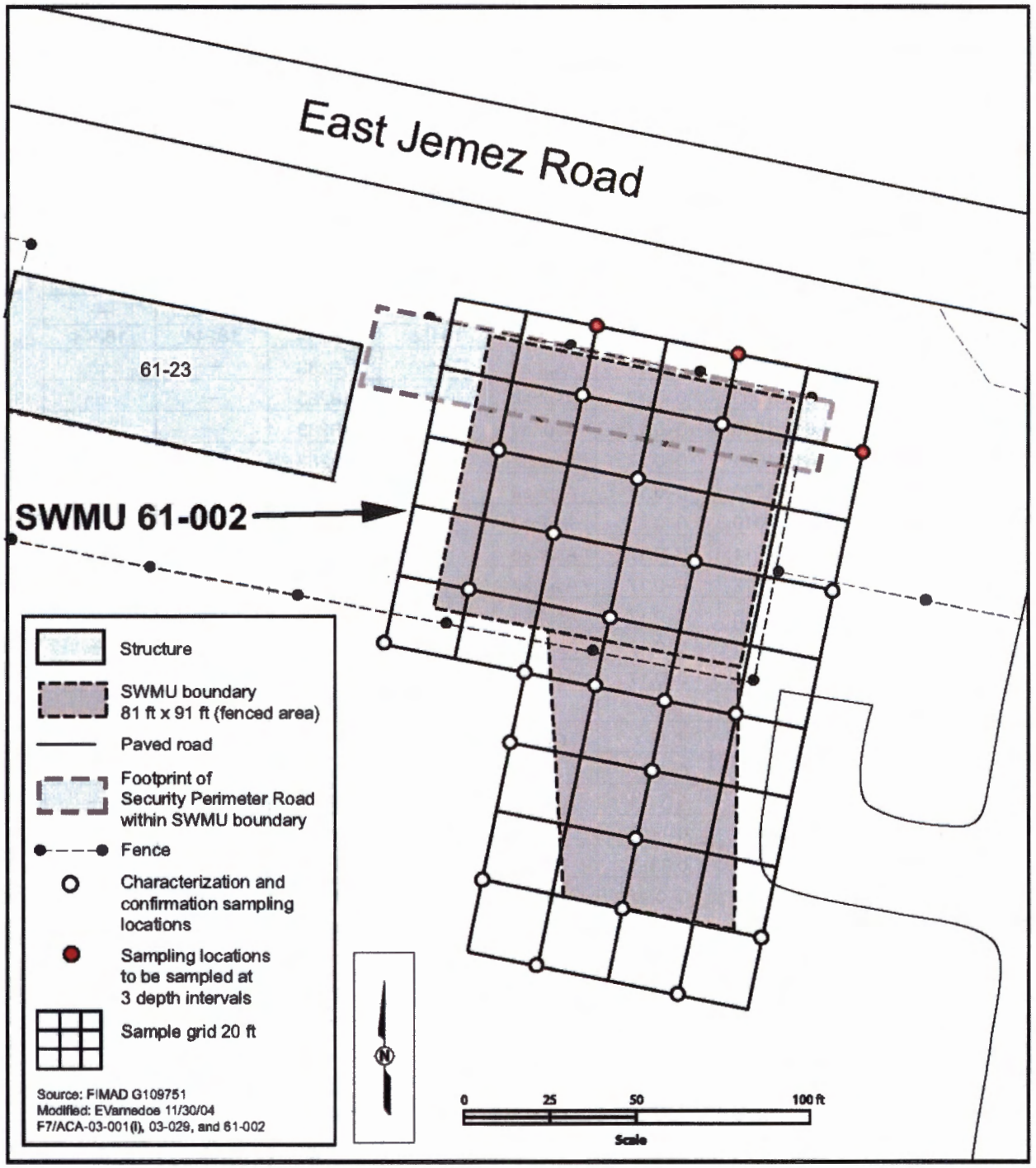


Figure 7. Proposed characterization and confirmation sampling locations for SWMU 61-002

Table 1
Samples Collected from SWMU 61-002

Sample ID	Location ID	Depth (ft)	Media	METALS	PCBs	SVOCs	VOCs
AAB6015	61-01004	0–0.5	Fill	18458	18244	18244	—*
AAB6016	61-01005	0–0.5	Fill	18458	18244	18244	—
AAB6017	61-01006	0–0.5	Fill	18458	18244	18244	—
AAB6018	61-01005	0–0.5	Fill	18458	18244	18244	—
AAB6019	61-01004	0–0.5	Fill	18458	18244	18244	18244
AAB7602	61-01000	0–0.17	Asphalt	—	18283	—	—
AAB7603	61-01003	0–0.17	Asphalt	—	18283	—	—
AAB7604	61-01009	0–0.17	Asphalt	—	18283	—	—
AAB7652	61-01001	0–0.17	Asphalt	—	18283	—	—
AAB7653	61-01002	0–0.17	Asphalt	—	18283	—	—
AAB7661	61-01010	0–0.17	Asphalt	—	18550	—	—
AAB7662	61-01011	0–0.17	Asphalt	—	18550	—	—
AAB7663	61-01012	0–0.17	Asphalt	—	18550	—	—
AAB7664	61-01013	0–0.17	Asphalt	—	18550	—	—
AAB7665	61-01014	0–0.17	Asphalt	—	18550	—	—
AAB7666	61-01015	0–0.17	Asphalt	—	18550	—	—
0161-97-0001	61-01016	0–0.5	Fill	—	3450R	—	—
0161-97-0002	61-01016	0.5–1	Qbt3	—	3450R	—	—
0161-97-0003	61-01017	0–0.33	Fill	—	3450R	—	—
0161-97-0004	61-01017	0.33–1	Qbt3	—	3450R	—	—
0161-97-0005	61-01018	0–0.33	Fill	—	3450R	—	—
0161-97-0006	61-01018	0.33–1	Qbt3	—	3450R	—	—
0161-97-0007	61-01019	0–0.42	Asphalt	—	3450R	—	—
0161-97-0008	61-01019	0.42–0.92	Qbt3	—	3450R	—	—
0161-97-0009	61-01019	0.92–1.42	Qbt3	—	3450R	—	—
0161-97-0010	61-01020	0–0.58	Asphalt	—	3450R	—	—
0161-97-0011	61-01020	0.58–1.08	Qbt3	—	3450R	—	—
0161-97-0012	61-01020	1.08–1.58	Qbt3	—	3450R	—	—
0161-97-0013	61-01021	0–0.5	Asphalt	—	3450R	—	—
0161-97-0014	61-01021	0.5–1	Qbt3	—	3450R	—	—
0161-97-0015	61-01021	1–1.5	Qbt3	—	3450R	—	—
0161-97-0016	61-01022	0–0.5	Fill	—	3450R	—	—
0161-97-0017	61-01022	0.5–1	Fill	—	3450R	—	—
0161-97-0026	61-01022	0.5–1	Fill	—	3450R	—	—
0161-97-0031	61-01031	0–0.5	Fill	—	3830R	—	—
0161-97-0032	61-01031	0.5–1	Fill	—	3830R	—	—

Table 1 (continued)

Sample ID	Location ID	Depth (ft)	Media	METALS	PCBs	SVOCs	VOCs
0161-97-0033	61-01032	0–0.5	Fill	—	3830R	—	—
0161-97-0034	61-01032	0.5–1	Fill	—	3830R	—	—
0161-97-0035	61-01033	0–0.5	Fill	—	3830R	—	—
0161-97-0036	61-01033	0.5–1	Fill	—	3830R	—	—
0161-97-0037	61-01034	0–0.5	Fill	—	3830R	—	—
0161-97-0038	61-01034	0.5–1	Fill	—	3830R	—	—
0161-97-0039	61-01035	0–0.5	Fill	—	3830R	—	—
0161-97-0040	61-01035	0.5–1	Fill	—	3830R	—	—
0161-97-0041	61-01036	0–0.5	Fill	—	3830R	—	—
0161-97-0042	61-01036	0.5–1	Soil	—	3830R	—	—
0161-97-0043	61-01037	0–0.5	Soil	—	3830R	—	—
0161-97-0044	61-01037	0.5–1	Fill	—	3830R	—	—
0161-97-0045	61-01038	0–0.5	Fill	—	3830R	—	—
0161-97-0046	61-01038	0.5–1	Fill	—	3830R	—	—
0161-97-0047	61-01039	0–0.5	Fill	—	3830R	—	—
0161-97-0048	61-01039	0.5–1	Fill	—	3830R	—	—
0161-97-0049	61-01040	0–0.5	Fill	—	3830R	—	—
0161-97-0050	61-01040	0.5–1	Fill	—	3830R	—	—
0161-97-0051	61-01041	0–0.5	Fill	—	3830R	—	—
0161-97-0052	61-01041	0.5–1	Soil	—	3830R	—	—
0161-97-0053	61-01042	0–0.5	Soil	—	3830R	—	—
0161-97-0054	61-01042	0.5–1	Soil	—	3830R	—	—

* — = Not sampled.

Table 2
Frequency of Inorganic Chemicals Detected above Background for Samples Collected in 1994 from SWMU 61-002

Analyte	Media	Number of Analyses	Number of Detects	Concentration Range (mg/kg)*	Background Value (mg/kg)	Frequency of Detects above Background Value	Frequency of Nondetects above Background Value
Aluminum	Fill	5	5	4500 to 6650	29200	0/5	0/5
Antimony	Fill	5	0	[4.4 to 6]	0.83	0/5	5/5
Arsenic	Fill	5	0	[0.45 to 1]	8.17	0/5	0/5
Barium	Fill	5	4	[42.2] to 60.2	295	0/5	0/5
Beryllium	Fill	5	0	[0.79 to 1]	1.83	0/5	0/5
Cadmium	Fill	5	1	[0.7] to 1.2	0.4	1/5	4/5
Calcium	Fill	5	2	[970] to 1680	6120	0/5	0/5
Chromium	Fill	5	4	[2] to 6.3	19.3	0/5	0/5
Cobalt	Fill	5	0	[1.5 to 2.5]	8.64	0/5	0/5
Copper	Fill	5	1	[3.4] to [6.9]	14.7	0/5	0/5
Iron	Fill	5	5	6450 to 9090	21500	0/5	0/5
Lead	Fill	5	5	11 to 21.2	22.3	0/5	0/5
Magnesium	Fill	5	0	[816 to 1210]	4610	0/5	0/5
Manganese	Fill	5	4	182 to 230	671	0/5	0/5
Mercury	Fill	5	0	[0.03 to 0.09]	0.1	0/5	0/5
Nickel	Fill	5	0	[3.5 to 6.4]	15.4	0/5	0/5
Potassium	Fill	5	0	[720 to 1010]	3460	0/5	0/5
Silver	Fill	5	0	[0.78 to 1.1]	1	0/5	1/5
Sodium	Fill	5	0	[133 to 253]	915	0/5	0/5
Thallium	Fill	5	0	[0.42 to 0.57]	0.73	0/5	0/5
Vanadium	Fill	5	0	[6.1 to 10.2]	39.6	0/5	0/5
Zinc	Fill	5	5	29.1 to 59.9	48.8	2/5	0/5

* Brackets indicate nondetected results.

Table 3
Summary of Inorganic Chemicals Detected Above Background for Samples Collected in 1994 from SWMU 61-002

Sample ID	Location ID	Depth (ft)	Media	Antimony	Cadmium	Silver	Zinc
Fill Background Value				**0.83**	**0.4**	**1**	**48.8**
Industrial Screening Soil Level [a]				**454**	**1128[b]**	**5680**	**100,000**
PRS 61-002							
AAB6015	61-01004	0.00-0.50	Fill	6 (U[c])	1 (U)	1.1 (U)	57.3
AAB6019	61-01004	0.00-0.50	Fill	5.2 (U)	0.7 (U)	—[d]	—
AAB6016	61-01005	0.00-0.50	Fill	4.7 (U)	0.86 (U)	—	—
AAB6018	61-01005	0.00-0.50	Fill	4.8 (U)	0.91 (U)	—	—
AAB6017	61-01006	0.00-0.50	Fill	4.4 (U)	1.2	—	59.9

[a] Levels obtained from "Technical Background Document for Development of Soil Screening Levels" (NMED 2004, 85615).
[b] Cadimum industrial SSL in "Technical Background Document for Development of Soil Screening Levels" (NMED 2004, 85615) is incorrect. It was recalculated using NMED parameters and toxicity values.
[c] U = Undetected.
[d] — = Not sampled.

Table 4
Frequency of Detected Organic Chemicals for Soil, Fill, and Qbt3 Samples Collected in 1994 and 1997 from SWMU 61-002

Analyte	Media	Number of Analyses	Number of Detects	Concentration Range (mg/kg)*	Frequency of Detects
Aroclor-1254	Soil	5	1	[0.038] to 0.11	1/5
Aroclor-1254	Fill	30	10	[0.035] to 0.85	10/30
Aroclor-1254	Qbt3	9	0	[0.035 to 0.041]	0/9
Aroclor-1260	Soil	5	3	[0.036] to 0.074	3/5
Aroclor-1260	Fill	30	16	[0.035] to [2.1]	16/30
Aroclor-1260	Qbt 3	9	6	0.027 to 0.19	6/9
Aroclors (Mixed)	Fill	5	5	0.659 to 1.712	5/5
Butylbenzylphthalate	Fill	5	1	[0.37] to 0.92	1/5

* Brackets indicate nondetected results.

Table 5
Summary of Detected Organic Chemicals
for Soil, Fill, and Qbt3 Samples Collected in 1994 and 1997 from SWMU 61-002

Sample ID	Location ID	Depth (ft)	Media	Aroclor-1254	Aroclor-1260	Aroclors (Mixed)	Butylbenzylphthalate
Industrial Soil Screening Levels [a]				**8.26**	**8.26**	**8.26**	**240[b]**
AAB6015	61-01004	0.00–0.50	Fill	—[c]	0.94 (J)	1.055 (J)	—
AAB6019	61-01004	0.00–0.50	Fill	—	0.55 (J)	0.659 (J)	—
AAB6016	61-01005	0.00–0.50	Fill	—	0.99 (J)	1.1 (J)	—
AAB6018	61-01005	0.00–0.50	Fill	—	1.4 (J)	1.512 (J)	—
AAB6017	61-01006	0.00–0.50	Fill	—	1.6 (J)	1.712 (J)	0.92
0161-97-0001	61-01016	0.00–0.50	Fill	—	0.096	—	—
0161-97-0003	61-01017	0.00–0.33	Fill	—	0.071	—	—
0161-97-0004	61-01017	0.33–1.00	Qbt3	—	0.19	—	—
0161-97-0005	61-01018	0.00–0.33	Fill	—	0.057	—	—
0161-97-0006	61-01018	0.33–1.00	Qbt3	—	0.15	—	—
0161-97-0008	61-01019	0.42–0.92	Qbt3	—	0.034 (J)	—	—
0161-97-0009	61-01019	0.92–1.42	Qbt3	—	0.032 (J)	—	—
0161-97-0014	61-01021	0.50–1.00	Qbt3	—	0.03 (J)	—	—
0161-97-0015	61-01021	1.00–1.50	Qbt3	—	0.027 (J)	—	—
0161-97-0016	61-01022	0.00–0.50	Fill	—	0.23	—	—
0161-97-0017	61-01022	0.50–1.00	Fill	—	0.43	—	—
0161-97-0026	61-01022	0.50–1.00	Fill	—	0.2	—	—
0161-97-0032	61-01031	0.50–1.00	Fill	0.23	—	—	—
0161-97-0033	61-01032	0.00–0.50	Fill	0.083	—	—	—
0161-97-0034	61-01032	0.50–1.00	Fill	0.056	—	—	—
0161-97-0035	61-01033	0.00–0.50	Fill	0.85	—	—	—
0161-97-0036	61-01033	0.50–1.00	Fill	0.055	—	—	—
0161-97-0037	61-01034	0.00–0.50	Fill	0.051	—	—	—
0161-97-0039	61-01035	0.00–0.50	Fill	—	0.14	—	—
0161-97-0040	61-01035	0.50–1.00	Fill	—	0.051	—	—
0161-97-0041	61-01036	0.00–0.50	Fill	0.037	—	—	—
0161-97-0043	61-01037	0.00–0.50	Soil	0.11	—	—	—
0161-97-0044	61-01037	0.50–1.00	Fill	0.07	—	—	—
0161-97-0047	61-01039	0.00–0.50	Fill	0.59	—	—	—
0161-97-0048	61-01039	0.50–1.00	Fill	0.21	0.036	—	—
0161-97-0048	61-01039	0.50–1.00	Fill	0.21	0.036	—	—
0161-97-0048	61-01039	0.50–1.00	Fill	0.21	0.036	—	—
0161-97-0048	61-01039	0.50–1.00	Fill	0.21	0.036	—	—
0161-97-0050	61-01040	0.50–1.00	Fill	—	1.9	—	—
0161-97-0051	61-01041	0.00–0.50	Fill	—	0.081	—	—

Table 5 (continued)

Sample ID	Location ID	Depth (ft)	Media	Aroclor-1254	Aroclor-1260	Aroclors (Mixed)	Butylbenzylphthalate
Industrial Soil Screening Levels[a]				**8.26**	**8.26**	**8.26**	**240[b]**
0161-97-0052	61-01041	0.50–1.00	Soil	—	0.072	—	—
0161-97-0053	61-01042	0.00–0.50	Soil	—	0.074	—	—
0161-97-0054	61-01042	0.50–1.00	Soil	—	0.06	—	—

[a] Levels obtained from "Technical Background Document for Development of Soil Screening Levels" (NMED 2004, 85615) (NMED 2004, 85615).

[b] Level obtained from EPA Region 6 Human Health Medium Specific Screening Levels (EPA 2003, 81724).

[c] — = Not sampled.

Table 6
Frequency of Detected Organic Chemicals
for Asphalt Samples Collected in 1994 and 1997 from SWMU 61-002

Analyte	Media	Number of Analyses	Number of Detects	Concentration Range (mg/kg)	Frequency of Detects
Aroclor-1254	Asphalt	14	1	[0.033] to [0.87]	1/14

[*] Brackets indicate nondetected results.

Table 7
Summary of Detected Organic Chemicals
for Asphalt Samples Collected in 1994 and 1997 from SWMU 61-002

Sample ID	Location ID	Depth (ft)	Media	Aroclor-1254
Industrial Soil Screening Levels[*]				**8.26**
PRS 61-002				
AAB7603	61-01003	0.00–0.17	Asphalt	0.53

[*] Level obtained from "Technical Background Document for Development of Soil Screening Levels" (NMED 2004, 85615).

Table 8
SOPs for ACA Activities at AOC 03-001(i), SWMU 03-029, and SWMU 61-002

Procedure Number	Title	Summary
SOP-01.01	General Instructions for Field Investigations	Provides an overview of instructions regarding activities to be performed before, during, and after field investigations. It is assumed that field investigations involve standard sampling equipment, personal protective equipment, waste-management, and site-control equipment/materials. 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	Describes the specific requirements for sample containers, preservation techniques, and holding times as specified by field regulations and guidance documents. The use of specific sample container types, 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. Procedure covers documenting procedural 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 Transporting Field Samples	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 are expected to have a low concentration of potential contaminants, although higher concentrations will be present in some cases. These low-concentration samples that do not satisfy the US 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 will 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. Procedure covers transportation of environmental and DOT-regulated samples.

Table 8 (continued)

Procedure	Title	Summary
SOP-01.04	Sample Control and Field Documentation	Describes the process for 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. 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, delivering samples to another analytical laboratory, using custody seals, collecting the samples, completing sample control and field documentation, completing field investigation summaries, and performing field closeouts.
SOP-01.05	Field Quality Control Samples	Describes the requirements for the collection of field quality control samples to ensure the reliability and validity of field and laboratory data. Field quality control samples shall be collected as described in this procedure and taken to the Sample Management Office with the regular field samples for subsequent chemical and physical testing. Procedure covers pre-operation activities, collecting and preparing each type of QC sample including equipment rinsate blank, field duplicate, and trip blank.
SOP-01.06	Management of Environmental Restoration Project Wastes	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. Procedure covers waste identification and characterization, waste minimization/recycling, waste generation/storage, segregation, waste treatment, authorized release limits, packaging/transportation, disposal options, and specific policies for area-of-contamination, environmental media, and hazardous-waste–contaminated media.
SOP-01.08	Field Decontamination of Drilling and Sampling Equipment	Describes the process for the general field decontamination of drilling and sampling equipment. The process 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 community personnel, requiring that equipment not be removed from a controlled area without proper decontamination. Procedure covers set up of dry and wet decontamination areas, drilling/excavation equipment decontamination, and sampling equipment decontamination.
SOP-01.10	Waste Characterization	Describes the development of a strategy for characterizing wastes generated during projects performed. Specifically, this document (1) identifies the steps involved in waste identification and characterization and (2) provides instructions for completing a waste characterization strategy form, a task required prior to every project.

Table 8 (continued)

Procedure	Title	Summary
SOP-01.12	Field Site Closeout Checklist	Describes the process for documenting completion of fieldwork at individual sites This checklist is designed to ensure that upon demobilization from a field site all necessary field compliance activities, equipment accountability, and documentation is complete. Field activities included in this procedure are site investigation, remediation, and interim action projects. Field activities that do not generate waste, collect samples, or fulfill regulatory requirements (e.g., inspection of best management practices [BMPs]) are exempt from this procedure. Periodic activities such as BMP inspection can postpone site-closeout activities until the end of the period of performance or annually, whichever is shorter.
SOP-03.11	Coordinating and Evaluating Geodetic Surveys	Describes the methodology for coordinating and evaluating geodetic surveys and establishing quality assurance and control for geodetic survey data. Procedure covers evaluating geodetic survey requirements, preparing to perform a geodetic survey, performing geodetic survey field activities, preparing geodetic survey data for quality assurance review, performing quality assurance review of geodetic survey data, and submitting geodetic survey data.
SOP-06.09	Spade and Scoop Method for the Collection of Soil Samples	Describes the process for spade-and-scoop collection of shallow (i.e., typically 0 to 12 in.) soil samples. The 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. Procedure covers pre-sampling activities, sampling activities, and post-sampling activities.
SOP-06.10	Hand Auger and Thin-Wall Tube Sampler	States the responsibilities and describes the process for collecting surface and subsurface (up to about 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. Procedure covers pre-sampling activities, sampling activities, collecting field duplicates, and post-sampling activities.
SOP-06.33	Headspace Vapor Screening with a Photoionization Detector	Describes the process for using a photoionization detector (PID) to screen headspace vapor in soil samples for volatile organic compounds. The PID is a portable, nonspecific, vapor/gas detector employing the principle of photoionization to detect and measure real-time concentrations of a variety of chemical compounds, both organic and inorganic, in air. Procedure covers performing field calibration, operating, and post-operating activities.

Table 9
Proposed Samples and Analytical Suites

AOC/ SWMU	Estimated Number of Samples	Type of Sampling	Methods	Analytical Suite Type
03-001(i)	24 planned 2 duplicates 26 total	Characterization sampling by SOP-06.09 or SOP-06.10. Headspace vapor screening by SOP-06.33	8082, 8270C, and 8260B, and TAL metals by 6010B, 6020, and 7471A.	PCBs, SVOCs, VOCs, and TAL metals
03-001(i)	12 planned 1 duplicate 13 total	Confirmation sampling by SOP-06.09 or SOP-06.10. Headspace vapor screening by SOP-06.33	8082, 8270C, and 8260B, and TAL metals by 6010B, 6020, and 7471A.	PCBs, SVOCs, and VOCs, and TAL metals
03-029	34 planned 3 duplicates 37 total	Confirmation sampling by SOP-06.09 or SOP-06.10. Headspace vapor screening by SOP-06.33	8082, 8270C, 8260B, and TAL metals by 6010B, 6020, and 7471A.	PCBs, SVOCs, VOCs, and TAL metals
61-002	53 planned 5 duplicates 58 total	Characterization sampling by SOP-06.09 or SOP-06.10.	8082, 8270C, and TAL metals by 6010B, 6020, and 7471A.	PCBs, SVOCs, and TAL metals
61-002	47 planned 5 duplicates 52 total	Confirmation sampling by SOP-06.09 or SOP-06.10.	8082, 8270C, and TAL metals by 6010B, 6020, and 7471A.	PCBs, SVOCs, and TAL metals
TOTAL	**170 planned** **16 duplicates** **186 total**			

Table 10
ACA Field Implementation Schedule for AOC 03-001(i), SWMU 03-029, and SWMU 61-002

Activity	Duration (workdays)	Start	Finish
Preparation/readiness review	38	11/15/04	12/23/04
Field preparation: • mobilize equipment • implement BMPs • establish work zones and waste management areas	1	01/03/05	01/04/05
Surface and subsurface sampling	15	01/05/05	01/20/05
Postsampling Geodetic survey	2	01/20/05	01/21/05
Laboratory analysis	35	01/20/05	02/25/05
Soil removal (based on sampling results)	15	02/25/05	03/11/05
Site restoration and demobilization	6	03/14/05	03/21/05
Final site inspection	1	03/21/05	03/21/05
Data validation	12	02/28/05	03/09/05
Total duration	**124**		

Appendix A

Acronyms and Abbreviations

LIST OF ACRONYMS AND ABBREVIATIONS

ACA	accelerated corrective action
AOC	area of concern
bgs	below ground surface
BMP	best management practice
COPC	chemical of potential concern
DOE	US Department of Energy
DOT	US Department of Transportation
EM	electromagnetic (induction)
ENV	Environmental Stewardship Division
EPA	US Environmental Protection Agency
ER	Environmental Restoration
Laboratory	Los Alamos National Laboratory
LANL	Los Alamos National Laboratory
LIR	Laboratory Implementation Requirement
NFA	no further action
NMSW	New Mexico special waste
NMED	New Mexico Environment Department
OU	Operational Unit
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl
PID	photoionization detector
QA	quality assurance
Qbt	Quaternary Tshirege member of the Bandelier tuff
QC	quality control
RCRA	Resource Conservation and Recovery Act
RFI	RCRA facility investigation
RPF	Records Processing Facility
RS	Remediation Services
SAL	screening action level
SMO	Sample Management Office
SOP	standard operating procedure
SVOC	semivolatile organic compound

SWMU	solid waste management unit
TA	technical area
TAL	target analyte list
TCLP	toxicity characteristic leaching procedure
TSCA	Toxic Substance Control Act
VOC	volatile organic compound
WCSF	waste-characterization strategy form

Appendix B

Historical Analytical Data for
Solid Waste Management Unit 61-002

(CD inside back cover of this work plan)

This appendix presents all analytical data collected for Solid Waste Management Unit 61-002 during the two previous site investigations: (1) the 1994 RFI sampling and (2) the 1997 Phase II RFI sampling. All analytical data are provided on the accompanying CD labeled "Historical Analytical Data for SWMU 61-002."

Appendix C

Waste Management and Disposal

WASTE MANAGEMENT AND DISPOSAL

The waste streams that may be generated and managed during investigation and remediation activities for Area of Concern (AOC) 03-001(i), Solid Waste Management Unit (SWMU) 03-029, and SWMU 61-002 at Los Alamos National Laboratory (LANL or the Laboratory) include the following:

- excavated soil from AOC 03-001(i), SWMU 03-029, and SWMU 61-002
- asphalt (excavated and co-mingled with soil)
- personal protective equipment, sampling supplies, decontamination trash, and other investigation-derived waste

Potential waste streams, regulatory classifications, estimated amounts, and disposal pathways are shown in Table C-1. The volumes are estimated. More accurate volumes, final waste determinations, and disposal pathways will be based on sample analysis results and the extent of contamination.

Table C-1
Waste Streams from AOC 03-001(i), SWMU 03-029, and SWMU 61-002

Potential Waste Streams	Potential Waste Types	Estimated Maximum Volume (yd^3)	Expected Disposal Site
Excavated petroleum-contaminated soil and asphalt from AOC 03-001(i) and SWMU 03-029	Solid, suspect New Mexico Special Waste (NMSW)*	600–1600	Waste Management, Rio Rancho, New Mexico
Excavated asphalt and soil from AOC 03-001(i) and SWMU 03-029 (not contaminated by petroleum)	Nonradioactive, nonhazardous solid waste	600–1600	Waste Management, Rio Rancho, New Mexico
Excavated polychlorinated biphenyl (PCB)–contaminated soil and asphalt from AOC 03-001(i) and SWMU 61-002	Solid, Toxic Substances Control Act (TSCA)–regulated waste (<50 ppm)*	0-963	US Ecology, Beatty, Nevada
Excavated PCB-contaminated soil and asphalt from AOC 03-001(i) and SWMU 61-002	Solid, Non-TSCA–regulated waste (<1ppm)*	0-963	Waste Management, Rio Rancho, New Mexico
Personal protective equipment, sampling supplies, and other investigation-derived waste	Solid, suspect NMSW, or PCB waste*	<1	Waste Management, Rio Rancho, New Mexico, or US Ecology, Nevada

* Pending characterization sampling.

All wastes generated during the investigation of AOC 03-001(i), SWMU 03-029, and SWMU 61-002 will be managed in a way that is protective of human health and the environment, compliant with applicable federal, state, US Department of Energy, and Laboratory regulatory requirements, and consistent with Laboratory waste-minimization goals. All waste generated during field investigation activities will be managed in accordance with applicable standard operating procedures (SOPs). The following SOPs are applicable to the characterization and management of solid waste:

- SOP-01.06, Management of Environmental Restoration Project Wastes
- SOP-01.10, Waste Characterization

Investigation activities will be conducted in a manner that minimizes the generation of waste. Waste minimization is accomplished by implementing the requirements of the Environmental Stewardship (ENV) – Remediation Services (RS) project portion of the 2003 Pollution Prevention Roadmap (LANL 2003, 85205), which is updated annually as a requirement of Module VIII of the Laboratory's Hazardous Waste Facility Permit (EPA 1990; 01585; EPA 1994 44146).

The decision to excavate and dispose of soil and asphalt and the characterization of the associated waste streams will be based on analyses of samples collected during ACA activities, knowledge of historical operations, and analyses of additional waste samples, as necessary.

Pre-remediation waste characterization samples will be collected at each AOC or SWMU and will be used to determine the preliminary waste type of the soil and the asphalt before they are excavated.

Because of the suspected presence of PCBs at SWMU 61-002, it is anticipated that soil and asphalt material removed from the site will be managed as PCB waste, pending final characterization. The PCB waste will be managed in a less-than-180-day PCB-remediation waste storage area registered with ENV-Solid Waste Regulatory Compliance. The less-than-180-day waste storage area will be set up near SWMU 61-002 and will be inspected in accordance with requirements for the specific waste type and classification.

To minimize or eliminate liquid waste generation, decontamination of equipment will be accomplished using dry methods whenever possible. If required, an alconox/water solution decontamination technique may be used to decontaminate stainless-steel sampling equipment between uses at sampling locations and for daily decontamination of equipment. Wet or dry decontamination techniques will be conducted in accordance with SOP-01.08, Field Decontamination of Drilling and Sampling Equipment. Any decontamination wastewater generated will be sampled and stored in a 5-gal. plastic bucket and may be disposed of on site in accordance with the exemption for wastewater volumes of less than 6 gal. per day.

Before field investigation activities begin, a waste characterization strategy form (WCSF) will be prepared and approved in accordance with requirements of SOP-01.10, Waste Characterization. The WCSF will provide detailed information on waste characterization, waste handling and segregation strategy, containerization, and potential volume generation. Waste characterization will be achieved through direct sampling of the waste or sampling of the media being investigated (i.e., surface and subsurface soil, etc.). If direct waste characterization sampling is necessary, it will be described in the WCSF. Waste profile forms will be submitted for waste streams generated from this investigation.

The selection of waste containers will be based on the appropriate US Department of Transportation (DOT) requirements and the type and amount of waste planned for generation. Immediately following containerization, each waste container will be individually labeled showing the waste classification, item identification number, and date of generation. Container and storage requirements will be described in the WCSF, based on requirements outlined in the most recent versions of the Laboratory's Waste Management Facilities Waste Acceptance Criteria and Laboratory Implementation Requirement (LIR) 404-00-03, Hazardous and Mixed Waste Requirements; LIR-404-00-04, Managing Solid Waste; LIR-404-00-06, Managing Polychlorinated Biphenyls; and LIR 405-10-01, Packaging and Transportation. Transportation of waste will comply with appropriate DOT requirements. After determining waste classification, disposal of solid waste will take place at an approved off-site disposal facility. Transportation and disposal requirements will be detailed in the WCSF. ENV-RS project waste management personnel will use the methods in SOP-01.12, Field Site Closeout Checklist, to verify each site is "waste free" by before completion of ACA-related activities.

RFI_CLASS	URI	SEQ_NUM	REQUEST_NUM	SAMPLE_ID	LAB_REPORT_NUM	EXCAV_FLAG	COMPOS_TYPE_CODE	SAMPLE_TECH_CODE	SAMPLE_USG_CODE	FIELD_PREP	PRS	PRS_ORDER	LOCATION_ID	BEGIN_DEPTH	END_DEPTH	DEPTH_UNITS	DEPTH	FLD_MATRIX_CODE	MATRIX	MEDIA_CODE	ANALYTE_CODE	ANALYTE_NAME
INORGANIC	16572632	CST1:0260616	18458	AAB6015	28932	N	NA	HA	INV	Not Applicable		0	61-01004	0	0.5	FT	0-0.5 FT	S	SO	FILL	AL	Aluminum
INORGANIC	16572782	CST1:0260631	18458	AAB6015	28932	N	NA	HA	INV	Not Applicable		0	61-01004	0	0.5	FT	0-0.5 FT	S	SO	FILL	SB	Antimony
INORGANIC	16572642	CST1:0260617	18458	AAB6015	28932	N	NA	HA	INV	Not Applicable		0	61-01004	0	0.5	FT	0-0.5 FT	S	SO	FILL	AS	Arsenic
INORGANIC	16572652	CST1:0260618	18458	AAB6015	28932	N	NA	HA	INV	Not Applicable		0	61-01004	0	0.5	FT	0-0.5 FT	S	SO	FILL	BA	Barium
INORGANIC	16572662	CST1:0260619	18458	AAB6015	28932	N	NA	HA	INV	Not Applicable		0	61-01004	0	0.5	FT	0-0.5 FT	S	SO	FILL	BE	Beryllium
INORGANIC	16572822	CST1:0260636	18458	AAB6015	28932	N	NA	HA	INV	Not Applicable		0	61-01004	0	0.5	FT	0-0.5 FT	S	SO	FILL	CD	Cadmium
INORGANIC	16572672	CST1:0260620	18458	AAB6015	28932	N	NA	HA	INV	Not Applicable		0	61-01004	0	0.5	FT	0-0.5 FT	S	SO	FILL	CA	Calcium
INORGANIC	16572692	CST1:0260622	18458	AAB6015	28932	N	NA	HA	INV	Not Applicable		0	61-01004	0	0.5	FT	0-0.5 FT	S	SO	FILL	CR	Chromium
INORGANIC	16572682	CST1:0260621	18458	AAB6015	28932	N	NA	HA	INV	Not Applicable		0	61-01004	0	0.5	FT	0-0.5 FT	S	SO	FILL	CO	Cobalt
INORGANIC	16572702	CST1:0260623	18458	AAB6015	28932	N	NA	HA	INV	Not Applicable		0	61-01004	0	0.5	FT	0-0.5 FT	S	SO	FILL	CU	Copper
INORGANIC	16572712	CST1:0260624	18458	AAB6015	28932	N	NA	HA	INV	Not Applicable		0	61-01004	0	0.5	FT	0-0.5 FT	S	SO	FILL	FE	Iron
INORGANIC	16572772	CST1:0260630	18458	AAB6015	28932	N	NA	HA	INV	Not Applicable		0	61-01004	0	0.5	FT	0-0.5 FT	S	SO	FILL	PB	Lead
INORGANIC	16572742	CST1:0260627	18458	AAB6015	28932	N	NA	HA	INV	Not Applicable		0	61-01004	0	0.5	FT	0-0.5 FT	S	SO	FILL	MG	Magnesium
INORGANIC	16572752	CST1:0260628	18458	AAB6015	28932	N	NA	HA	INV	Not Applicable		0	61-01004	0	0.5	FT	0-0.5 FT	S	SO	FILL	MN	Manganese
INORGANIC	16572722	CST1:0260625	18458	AAB6015	28932	N	NA	HA	INV	Not Applicable		0	61-01004	0	0.5	FT	0-0.5 FT	S	SO	FILL	HG	Mercury
INORGANIC	16572762	CST1:0260629	18458	AAB6015	28932	N	NA	HA	INV	Not Applicable		0	61-01004	0	0.5	FT	0-0.5 FT	S	SO	FILL	NI	Nickel
INORGANIC	16572732	CST1:0260626	18458	AAB6015	28932	N	NA	HA	INV	Not Applicable		0	61-01004	0	0.5	FT	0-0.5 FT	S	SO	FILL	K	Potassium
INORGANIC	16572622	CST1:0260615	18458	AAB6015	28932	N	NA	HA	INV	Not Applicable		0	61-01004	0	0.5	FT	0-0.5 FT	S	SO	FILL	AG	Silver
INORGANIC	16572612	CST1:0260614	18458	AAB6015	28932	N	NA	HA	INV	Not Applicable		0	61-01004	0	0.5	FT	0-0.5 FT	S	SO	FILL	NA	Sodium
INORGANIC	16572792	CST1:0260633	18458	AAB6015	28932	N	NA	HA	INV	Not Applicable		0	61-01004	0	0.5	FT	0-0.5 FT	S	SO	FILL	TL	Thallium
INORGANIC	16572802	CST1:0260634	18458	AAB6015	28932	N	NA	HA	INV	Not Applicable		0	61-01004	0	0.5	FT	0-0.5 FT	S	SO	FILL	V	Vanadium
INORGANIC	16572812	CST1:0260635	18458	AAB6015	28932	N	NA	HA	INV	Not Applicable		0	61-01004	0	0.5	FT	0-0.5 FT	S	SO	FILL	ZN	Zinc
INORGANIC	16573662	CST1:0260724	18458	AAB6019	28932	N	NA	HA	INV	Not Applicable		0	61-01004	0	0.5	FT	0-0.5 FT	S	SO	FILL	AL	Aluminum
INORGANIC	16573552	CST1:0260713	18458	AAB6019	28932	N	NA	HA	INV	Not Applicable		0	61-01004	0	0.5	FT	0-0.5 FT	S	SO	FILL	SB	Antimony
INORGANIC	16573702	CST1:0260728	18458	AAB6019	28932	N	NA	HA	INV	Not Applicable		0	61-01004	0	0.5	FT	0-0.5 FT	S	SO	FILL	AS	Arsenic
INORGANIC	16573672	CST1:0260725	18458	AAB6019	28932	N	NA	HA	INV	Not Applicable		0	61-01004	0	0.5	FT	0-0.5 FT	S	SO	FILL	BA	Barium
INORGANIC	16573682	CST1:0260726	18458	AAB6019	28932	N	NA	HA	INV	Not Applicable		0	61-01004	0	0.5	FT	0-0.5 FT	S	SO	FILL	BE	Beryllium
INORGANIC	16573522	CST1:0260709	18458	AAB6019	28932	N	NA	HA	INV	Not Applicable		0	61-01004	0	0.5	FT	0-0.5 FT	S	SO	FILL	CD	Cadmium
INORGANIC	16573692	CST1:0260727	18458	AAB6019	28932	N	NA	HA	INV	Not Applicable		0	61-01004	0	0.5	FT	0-0.5 FT	S	SO	FILL	CA	Calcium
INORGANIC	16573652	CST1:0260723	18458	AAB6019	28932	N	NA	HA	INV	Not Applicable		0	61-01004	0	0.5	FT	0-0.5 FT	S	SO	FILL	CR	Chromium
INORGANIC	16573512	CST1:0260708	18458	AAB6019	28932	N	NA	HA	INV	Not Applicable		0	61-01004	0	0.5	FT	0-0.5 FT	S	SO	FILL	CO	Cobalt
INORGANIC	16573642	CST1:0260722	18458	AAB6019	28932	N	NA	HA	INV	Not Applicable		0	61-01004	0	0.5	FT	0-0.5 FT	S	SO	FILL	CU	Copper
INORGANIC	16573632	CST1:0260721	18458	AAB6019	28932	N	NA	HA	INV	Not Applicable		0	61-01004	0	0.5	FT	0-0.5 FT	S	SO	FILL	FE	Iron
INORGANIC	16573562	CST1:0260714	18458	AAB6019	28932	N	NA	HA	INV	Not Applicable		0	61-01004	0	0.5	FT	0-0.5 FT	S	SO	FILL	PB	Lead
INORGANIC	16573602	CST1:0260718	18458	AAB6019	28932	N	NA	HA	INV	Not Applicable		0	61-01004	0	0.5	FT	0-0.5 FT	S	SO	FILL	MG	Magnesium
INORGANIC	16573592	CST1:0260717	18458	AAB6019	28932	N	NA	HA	INV	Not Applicable		0	61-01004	0	0.5	FT	0-0.5 FT	S	SO	FILL	MN	Manganese
INORGANIC	16573622	CST1:0260720	18458	AAB6019	28932	N	NA	HA	INV	Not Applicable		0	61-01004	0	0.5	FT	0-0.5 FT	S	SO	FILL	HG	Mercury
INORGANIC	16573572	CST1:0260715	18458	AAB6019	28932	N	NA	HA	INV	Not Applicable		0	61-01004	0	0.5	FT	0-0.5 FT	S	SO	FILL	NI	Nickel
INORGANIC	16573612	CST1:0260719	18458	AAB6019	28932	N	NA	HA	INV	Not Applicable		0	61-01004	0	0.5	FT	0-0.5 FT	S	SO	FILL	K	Potassium
INORGANIC	16573502	CST1:0260707	18458	AAB6019	28932	N	NA	HA	INV	Not Applicable		0	61-01004	0	0.5	FT	0-0.5 FT	S	SO	FILL	AG	Silver
INORGANIC	16573582	CST1:0260716	18458	AAB6019	28932	N	NA	HA	INV	Not Applicable		0	61-01004	0	0.5	FT	0-0.5 FT	S	SO	FILL	NA	Sodium
INORGANIC	16573492	CST1:0260706	18458	AAB6019	28932	N	NA	HA	INV	Not Applicable		0	61-01004	0	0.5	FT	0-0.5 FT	S	SO	FILL	TL	Thallium
INORGANIC	16573542	CST1:0260711	18458	AAB6019	28932	N	NA	HA	INV	Not Applicable		0	61-01004	0	0.5	FT	0-0.5 FT	S	SO	FILL	V	Vanadium
INORGANIC	16573532	CST1:0260710	18458	AAB6019	28932	N	NA	HA	INV	Not Applicable		0	61-01004	0	0.5	FT	0-0.5 FT	S	SO	FILL	ZN	Zinc
INORGANIC	16572852	CST1:0260639	18458	AAB6016	28932	N	NA	HA	INV	Not Applicable		0	61-01005	0	0.5	FT	0-0.5 FT	S	SO	FILL	AL	Aluminum
INORGANIC	16573042	CST1:0260659	18458	AAB6016	28932	N	NA	HA	INV	Not Applicable		0	61-01005	0	0.5	FT	0-0.5 FT	S	SO	FILL	SB	Antimony
INORGANIC	16572862	CST1:0260640	18458	AAB6016	28932	N	NA	HA	INV	Not Applicable		0	61-01005	0	0.5	FT	0-0.5 FT	S	SO	FILL	AS	Arsenic
INORGANIC	16572872	CST1:0260641	18458	AAB6016	28932	N	NA	HA	INV	Not Applicable		0	61-01005	0	0.5	FT	0-0.5 FT	S	SO	FILL	BA	Barium
INORGANIC	16573032	CST1:0260658	18458	AAB6016	28932	N	NA	HA	INV	Not Applicable		0	61-01005	0	0.5	FT	0-0.5 FT	S	SO	FILL	BE	Beryllium
INORGANIC	16572902	CST1:0260644	18458	AAB6016	28932	N	NA	HA	INV	Not Applicable		0	61-01005	0	0.5	FT	0-0.5 FT	S	SO	FILL	CD	Cadmium
INORGANIC	16572882	CST1:0260642	18458	AAB6016	28932	N	NA	HA	INV	Not Applicable		0	61-01005	0	0.5	FT	0-0.5 FT	S	SO	FILL	CA	Calcium
INORGANIC	16573022	CST1:0260657	18458	AAB6016	28932	N	NA	HA	INV	Not Applicable		0	61-01005	0	0.5	FT	0-0.5 FT	S	SO	FILL	CR	Chromium
INORGANIC	16572892	CST1:0260643	18458	AAB6016	28932	N	NA	HA	INV	Not Applicable		0	61-01005	0	0.5	FT	0-0.5 FT	S	SO	FILL	CO	Cobalt
INORGANIC	16573012	CST1:0260656	18458	AAB6016	28932	N	NA	HA	INV	Not Applicable		0	61-01005	0	0.5	FT	0-0.5 FT	S	SO	FILL	CU	Copper
INORGANIC	16573002	CST1:0260655	18458	AAB6016	28932	N	NA	HA	INV	Not Applicable		0	61-01005	0	0.5	FT	0-0.5 FT	S	SO	FILL	FE	Iron
INORGANIC	16572932	CST1:0260648	18458	AAB6016	28932	N	NA	HA	INV	Not Applicable		0	61-01005	0	0.5	FT	0-0.5 FT	S	SO	FILL	PB	Lead
INORGANIC	16572972	CST1:0260652	18458	AAB6016	28932	N	NA	HA	INV	Not Applicable		0	61-01005	0	0.5	FT	0-0.5 FT	S	SO	FILL	MG	Magnesium
INORGANIC	16572962	CST1:0260651	18458	AAB6016	28932	N	NA	HA	INV	Not Applicable		0	61-01005	0	0.5	FT	0-0.5 FT	S	SO	FILL	MN	Manganese
INORGANIC	16572992	CST1:0260654	18458	AAB6016	28932	N	NA	HA	INV	Not Applicable		0	61-01005	0	0.5	FT	0-0.5 FT	S	SO	FILL	HG	Mercury
INORGANIC	16572942	CST1:0260649	18458	AAB6016	28932	N	NA	HA	INV	Not Applicable		0	61-01005	0	0.5	FT	0-0.5 FT	S	SO	FILL	NI	Nickel
INORGANIC	16572982	CST1:0260653	18458	AAB6016	28932	N	NA	HA	INV	Not Applicable		0	61-01005	0	0.5	FT	0-0.5 FT	S	SO	FILL	K	Potassium
INORGANIC	16572842	CST1:0260638	18458	AAB6016	28932	N	NA	HA	INV	Not Applicable		0	61-01005	0	0.5	FT	0-0.5 FT	S	SO	FILL	AG	Silver
INORGANIC	16572952	CST1:0260650	18458	AAB6016	28932	N	NA	HA	INV	Not Applicable		0	61-01005	0	0.5	FT	0-0.5 FT	S	SO	FILL	NA	Sodium
INORGANIC	16572922	CST1:0260646	18458	AAB6016	28932	N	NA	HA	INV	Not Applicable		0	61-01005	0	0.5	FT	0-0.5 FT	S	SO	FILL	TL	Thallium
INORGANIC	16572832	CST1:0260637	18458	AAB6016	28932	N	NA	HA	INV	Not Applicable		0	61-01005	0	0.5	FT	0-0.5 FT	S	SO	FILL	V	Vanadium
INORGANIC	16572912	CST1:0260645	18458	AAB6016	28932	N	NA	HA	INV	Not Applicable		0	61-01005	0	0.5	FT	0-0.5 FT	S	SO	FILL	ZN	Zinc
INORGANIC	16573432	CST1:0260700	18458	AAB6018	28932	N	NA	HA	QC	Not Applicable		0	61-01005	0	0.5	FT	0-0.5 FT	S	SO	FILL	AL	Aluminum
INORGANIC	16573332	CST1:0260690	18458	AAB6018	28932	N	NA	HA	QC	Not Applicable		0	61-01005	0	0.5	FT	0-0.5 FT	S	SO	FILL	SB	Antimony
INORGANIC	16573472	CST1:0260704	18458	AAB6018	28932	N	NA	HA	QC	Not Applicable		0	61-01005	0	0.5	FT	0-0.5 FT	S	SO	FILL	AS	Arsenic
INORGANIC	16573442	CST1:0260701	18458	AAB6018	28932	N	NA	HA	QC	Not Applicable		0	61-01005	0	0.5	FT	0-0.5 FT	S	SO	FILL	BA	Barium
INORGANIC	16573452	CST1:0260702	18458	AAB6018	28932	N	NA	HA	QC	Not Applicable		0	61-01005	0	0.5	FT	0-0.5 FT	S	SO	FILL	BE	Beryllium
INORGANIC	16573292	CST1:0260685	18458	AAB6018	28932	N	NA	HA	QC	Not Applicable		0	61-01005	0	0.5	FT	0-0.5 FT	S	SO	FILL	CD	Cadmium
INORGANIC	16573462	CST1:0260703	18458	AAB6018	28932	N	NA	HA	QC	Not Applicable		0	61-01005	0	0.5	FT	0-0.5 FT	S	SO	FILL	CA	Calcium
INORGANIC	16573422	CST1:0260699	18458	AAB6018	28932	N	NA	HA	QC	Not Applicable		0	61-01005	0	0.5	FT	0-0.5 FT	S	SO	FILL	CR	Chromium
INORGANIC	16573282	CST1:0260684	18458	AAB6018	28932	N	NA	HA	QC	Not Applicable		0	61-01005	0	0.5	FT	0-0.5 FT	S	SO	FILL	CO	Cobalt
INORGANIC	16573412	CST1:0260698	18458	AAB6018	28932	N	NA	HA	QC	Not Applicable		0	61-01005	0	0.5	FT	0-0.5 FT	S	SO	FILL	CU	Copper
INORGANIC	16573482	CST1:0260705	18458	AAB6018	28932	N	NA	HA	QC	Not Applicable		0	61-01005	0	0.5	FT	0-0.5 FT	S	SO	FILL	FE	Iron
INORGANIC	16573342	CST1:0260691	18458	AAB6018	28932	N	NA	HA	QC	Not Applicable		0	61-01005	0	0.5	FT	0-0.5 FT	S	SO	FILL	PB	Lead
INORGANIC	16573382	CST1:0260695	18458	AAB6018	28932	N	NA	HA	QC	Not Applicable		0	61-01005	0	0.5	FT	0-0.5 FT	S	SO	FILL	MG	Magnesium
INORGANIC	16573372	CST1:0260694	18458	AAB6018	28932	N	NA	HA	QC	Not Applicable		0	61-01005	0	0.5	FT	0-0.5 FT	S	SO	FILL	MN	Manganese
INORGANIC	16573402	CST1:0260697	18458	AAB6018	28932	N	NA	HA	QC	Not Applicable		0	61-01005	0	0.5	FT	0-0.5 FT	S	SO	FILL	HG	Mercury
INORGANIC	16573352	CST1:0260692	18458	AAB6018	28932	N	NA	HA	QC	Not Applicable		0	61-01005	0	0.5	FT	0-0.5 FT	S	SO	FILL	NI	Nickel
INORGANIC	16573392	CST1:0260696	18458	AAB6018	28932	N	NA	HA	QC	Not Applicable		0	61-01005	0	0.5	FT	0-0.5 FT	S	SO	FILL	K	Potassium
INORGANIC	16573272	CST1:0260683	18458	AAB6018	28932	N	NA	HA	QC	Not Applicable		0	61-01005	0	0.5	FT	0-0.5 FT	S	SO	FILL	AG	Silver
INORGANIC	16573362	CST1:0260693	18458	AAB6018	28932	N	NA	HA	QC	Not Applicable		0	61-01005	0	0.5	FT	0-0.5 FT	S	SO	FILL	NA	Sodium
INORGANIC	16573322	CST1:0260688	18458	AAB6018	28932	N	NA	HA	QC	Not Applicable		0	61-01005	0	0.5	FT	0-0.5 FT	S	SO	FILL	TL	Thallium
INORGANIC	16573312	CST1:0260687	18458	AAB6018	28932	N	NA	HA	QC	Not Applicable		0	61-01005	0	0.5	FT	0-0.5 FT	S	SO	FILL	V	Vanadium
INORGANIC	16573302	CST1:0260686	18458	AAB6018	28932	N	NA	HA	QC	Not Applicable		0	61-01005	0	0.5	FT	0-0.5 FT	S	SO	FILL	ZN	Zinc
INORGANIC	16573262	CST1:0260682	18458	AAB6017	28932	N	NA	HA	INV	Not Applicable		0	61-01006	0	0.5	FT	0-0.5 FT	S	SO	FILL	AL	Aluminum
INORGANIC	16573152	CST1:0260671	18458	AAB6017	28932	N	NA	HA	INV	Not Applicable		0	61-01006	0	0.5	FT	0-0.5 FT	S	SO	FILL	SB	Antimony
INORGANIC	16573252	CST1:0260681	18458	AAB6017	28932	N	NA	HA	INV	Not Applicable		0	61-01006	0	0.5	FT	0-0.5 FT	S	SO	FILL	AS	Arsenic
INORGANIC	16573062	CST1:0260661	18458	AAB6017	28932	N	NA	HA	INV	Not Applicable		0	61-01006	0	0.5	FT	0-0.5 FT	S	SO	FILL	BA	Barium
INORGANIC	16573242	CST1:0260680	18458	AAB6017	28932	N	NA	HA	INV	Not Applicable		0	61-01006	0	0.5	FT	0-0.5 FT	S	SO	FILL	BE	Beryllium
INORGANIC	16573232	CST1:0260679	18458	AAB6017	28932	N	NA	HA	INV	Not Applicable		0	61-01006	0	0.5	FT	0-0.5 FT	S	SO	FILL	CD	Cadmium
INORGANIC	16573072	CST1:0260662	18458	AAB6017	28932	N	NA	HA	INV	Not Applicable		0	61-01006	0	0.5	FT	0-0.5 FT	S	SO	FILL	CA	Calcium
INORGANIC	16573222	CST1:0260678	18458	AAB6017	28932	N	NA	HA	INV	Not Applicable		0	61-01006	0	0.5	FT	0-0.5 FT	S	SO	FILL	CR	Chromium
INORGANIC	16573082	CST1:0260663	18458	AAB6017	28932	N	NA	HA	INV	Not Applicable		0	61-01006	0	0.5	FT	0-0.5 FT	S	SO	FILL	CO	Cobalt
INORGANIC	16573092	CST1:0260664	18458	AAB6017	28932	N	NA	HA	INV	Not Applicable		0	61-01006	0	0.5	FT	0-0.5 FT	S	SO	FILL	CU	Copper
INORGANIC	16573112	CST1:0260666	18458	AAB6017	28932	N	NA	HA	INV	Not Applicable		0	61-01006	0	0.5	FT	0-0.5 FT	S	SO	FILL	FE	Iron
INORGANIC	16573162	CST1:0260672	18458	AAB6017	28932	N	NA	HA	INV	Not Applicable		0	61-01006	0	0.5	FT	0-0.5 FT	S	SO	FILL	PB	Lead
INORGANIC	16573202	CST1:0260676	18458	AAB6017	28932	N	NA	HA	INV	Not Applicable		0	61-01006	0	0.5	FT	0-0.5 FT	S	SO	FILL	MG	Magnesium
INORGANIC	16573192	CST1:0260675	18458	AAB6017	28932	N	NA	HA	INV	Not Applicable		0	61-01006	0	0.5	FT	0-0.5 FT	S	SO	FILL	MN	Manganese
INORGANIC	16573102	CST1:0260665	18458	AAB6017	28932	N	NA	HA	INV	Not Applicable		0	61-01006	0	0.5	FT	0-0.5 FT	S	SO	FILL	HG	Mercury
INORGANIC	16573172	CST1:0260673	18458	AAB6017	28932	N	NA	HA	INV	Not Applicable		0	61-01006	0	0.5	FT	0-0.5 FT	S	SO	FILL	NI	Nickel
INORGANIC	16573212	CST1:0260677	18458	AAB6017	28932	N	NA	HA	INV	Not Applicable		0	61-01006	0	0.5	FT	0-0.5 FT	S	SO	FILL	K	Potassium
INORGANIC	16573052	CST1:0260660	18458	AAB6017	28932	N	NA	HA	INV	Not Applicable		0	61-01006	0	0.5	FT	0-0.5 FT	S	SO	FILL	AG	Silver
INORGANIC	16573182	CST1:0260674	18458	AAB6017	28932	N	NA	HA	INV	Not Applicable		0	61-01006	0	0.5	FT	0-0.5 FT	S	SO	FILL	NA	Sodium
INORGANIC	16573142	CST1:0260669	18458	AAB6017	28932	N	NA	HA	INV	Not Applicable		0	61-01006	0	0.5	FT	0-0.5 FT	S	SO	FILL	TL	Thallium
INORGANIC	16573132	CST1:0260668	18458	AAB6017	28932	N	NA	HA	INV	Not Applicable		0	61-01006	0	0.5	FT	0-0.5 FT	S	SO	FILL	V	Vanadium
INORGANIC	16573122	CST1:0260667	18458	AAB6017	28932	N	NA	HA	INV	Not Applicable		0	61-01006	0	0.5	FT	0-0.5 FT	S	SO	FILL	ZN	Zinc

URI	PERCENT_MOISTURE	DL	MDL	MDA	QUANT_LIM	DLC	DILUTION_FACTOR	TEXT_RESULT	SAMPLE_VALUE	UNCERTAINTY	REPORTING_UNITS	STD_SAMPLE_VALUE	STD_UNCERTAINTY	STD_REPORTING_UNITS	[illegible]_QUAL	RFI_REASON_CODE	LAB_QUALIFIER	LANL_QUALIFIER_1	LANL_QUALIFIER_2	LANL_QUALIFIER_3	LANL_QUALIFIER_4
16572632									6650	1330	MG/KG	6650	1330	MG/KG	J	J_LAB	J	J	J	J	
16572782									6		MG/KG	6		MG/KG	U	U_LAB	U	U	U		
16572642									0.66		MG/KG	0.66		MG/KG	U	U_LAB	U	U	U		
16572652									60.2	12.04	MG/KG	60.2	12.04	MG/KG				NQ	NQ		
16572662									1		MG/KG	1		MG/KG	U	U_LAB	U	U	U		
16572822									1		MG/KG	1		MG/KG	U	U_LAB	U	U	U		
16572672									1680	336	MG/KG	1680	336	MG/KG				NQ	NQ		
16572692									6.3	1.26	MG/KG	6.3	1.26	MG/KG	J	J_LAB	J	J	J	J	
16572682									2.5		MG/KG	2.5		MG/KG	U	U_LAB	U	U	U		
16572702									6.9		MG/KG	6.9		MG/KG	U	U_LAB	U	U	U		
16572712									9090	1818	MG/KG	9090	1818	MG/KG				NQ	NQ		
16572772									21.2	4.24	MG/KG	21.2	4.24	MG/KG	J	J_LAB	J	J	J	J	
16572742									1210		MG/KG	1210		MG/KG	U	U_LAB	U	U	U		
16572752									186	37.2	MG/KG	186	37.2	MG/KG				NQ	NQ		
16572722									0.04		MG/KG	0.04		MG/KG	U	U_LAB	U	U	U		
16572762									6.4		MG/KG	6.4		MG/KG	U	U_LAB	U	U	U		
16572732									1010		MG/KG	1010		MG/KG	U	U_LAB	U	U	U		
16572622									1.1		MG/KG	1.1		MG/KG	U	U_LAB	U	U	U		
16572612									253		MG/KG	253		MG/KG	U	U_LAB	U	U	U		
16572792									0.57		MG/KG	0.57		MG/KG	U	U_LAB	U	U	U		
16572802									10.2		MG/KG	10.2		MG/KG	U	U_LAB	UJ	UJ	U		
16572812									57.3	11.46	MG/KG	57.3	11.46	MG/KG				NQ	NQ		
16573662									4990	998	MG/KG	4990	998	MG/KG	J	J_LAB	J	J	J	J	
16573552									5.2		MG/KG	5.2		MG/KG	U	U_LAB	U	U	U		
16573702									0.56		MG/KG	0.56		MG/KG	U	U_LAB	U	U	U		
16573672									42.2		MG/KG	42.2		MG/KG	U	U_LAB	U	U	U		
16573682									0.91		MG/KG	0.91		MG/KG	U	U_LAB	U	U	U		
16573522									0.7		MG/KG	0.7		MG/KG	U	U_LAB	U	U	U		
16573692									1030		MG/KG	1030		MG/KG	U	U_LAB	U	U	U		
16573652									2.8	0.56	MG/KG	2.8	0.56	MG/KG	J	J_LAB	J	J	J	J	
16573512									1.8		MG/KG	1.8		MG/KG	U	U_LAB	U	U	U		
16573642									4		MG/KG	4		MG/KG	U	U_LAB	U	U	U		
16573632									7190	1438	MG/KG	7190	1438	MG/KG				NQ	NQ		
16573562									11	2.2	MG/KG	11	2.2	MG/KG	J	J_LAB	J	J	J	J	
16573602									898		MG/KG	898		MG/KG	U	U_LAB	U	U	U		
16573592									182	36.4	MG/KG	182	36.4	MG/KG				NQ	NQ		
16573622									0.09		MG/KG	0.09		MG/KG	U	U_LAB	U	U	U		
16573572									3.6		MG/KG	3.6		MG/KG	U	U_LAB	U	U	U		
16573612									720		MG/KG	720		MG/KG	U	U_LAB	U	U	U		
16573502									0.92		MG/KG	0.92		MG/KG	U	U_LAB	U	U	U		
16573582									164		MG/KG	164		MG/KG	U	U_LAB	U	U	U		
16573492									0.5		MG/KG	0.5		MG/KG	U	U_LAB	U	U	U		
16573542									6.6		MG/KG	6.6		MG/KG	U	U_LAB	UJ	UJ	U		
16573532									38.7	7.74	MG/KG	38.7	7.74	MG/KG				NQ	NQ		
16572852									5930	1186	MG/KG	5930	1186	MG/KG	J	J_LAB	J	J	J	J	
16573042									4.7		MG/KG	4.7		MG/KG	U	U_LAB	U	U	U		
16572862									0.45		MG/KG	0.45		MG/KG	U	U_LAB	U	U	U		
16572872									48.8	9.76	MG/KG	48.8	9.76	MG/KG				NQ	NQ		
16573032									0.86		MG/KG	0.86		MG/KG	U	U_LAB	U	U	U		
16572902									0.86		MG/KG	0.86		MG/KG	U	U_LAB	U	U	U		
16572882									1020		MG/KG	1020		MG/KG	U	U_LAB	U	U	U		
16573022									2		MG/KG	2		MG/KG	U	U_LAB	UJ	UJ	U		
16572892									1.7		MG/KG	1.7		MG/KG	U	U_LAB	U	U	U		
16573012									3.4		MG/KG	3.4		MG/KG	U	U_LAB	U	U	U		
16573002									6450	1290	MG/KG	6450	1290	MG/KG				NQ	NQ		
16572932									13.8	2.76	MG/KG	13.8	2.76	MG/KG	J	J_LAB	J	J	J	J	
16572972									887		MG/KG	887		MG/KG	U	U_LAB	U	U	U		
16572962									217	43.4	MG/KG	217	43.4	MG/KG				NQ	NQ		
16572992									0.03		MG/KG	0.03		MG/KG	U	U_LAB	U	U	U		
16572942									3.7		MG/KG	3.7		MG/KG	U	U_LAB	U	U	U		
16572982									806		MG/KG	806		MG/KG	U	U_LAB	U	U	U		
16572842									0.83		MG/KG	0.83		MG/KG	U	U_LAB	U	U	U		
16572952									166		MG/KG	166		MG/KG	U	U_LAB	U	U	U		
16572922									0.45		MG/KG	0.45		MG/KG	U	U_LAB	U	U	U		
16572832									6.2		MG/KG	6.2		MG/KG	U	U_LAB	UJ	UJ	U		
16572912									29.1	5.82	MG/KG	29.1	5.82	MG/KG				NQ	NQ		
16573432									6020	1204	MG/KG	6020	1204	MG/KG	J	J_LAB	J	J	J	J	
16573332									4.8		MG/KG	4.8		MG/KG	U	U_LAB	U	U	U		
16573472									0.46		MG/KG	0.46		MG/KG	U	U_LAB	U	U	U		
16573442									50.3	10.06	MG/KG	50.3	10.06	MG/KG				NQ	NQ		
16573452									0.82		MG/KG	0.82		MG/KG	U	U_LAB	U	U	U		
16573292									0.91		MG/KG	0.91		MG/KG	U	U_LAB	U	U	U		
16573462									1300	260	MG/KG	1300	260	MG/KG				NQ	NQ		
16573422									2.4	0.48	MG/KG	2.4	0.48	MG/KG	J	J_LAB	J	J	J	J	
16573282									1.5		MG/KG	1.5		MG/KG	U	U_LAB	U	U	U		
16573412									3.8		MG/KG	3.8		MG/KG	U	U_LAB	U	U	U		
16573482									6650	1330	MG/KG	6650	1330	MG/KG				NQ	NQ		
16573342									14.5	2.9	MG/KG	14.5	2.9	MG/KG	J	J_LAB	J	J	J	J	
16573382									849		MG/KG	849		MG/KG	U	U_LAB	U	U	U		
16573372									190		MG/KG	190		MG/KG	U	U_LAB	U	U	U		
16573402									0.03		MG/KG	0.03		MG/KG	U	U_LAB	U	U	U		
16573352									3.9		MG/KG	3.9		MG/KG	U	U_LAB	U	U	U		
16573392									783		MG/KG	783		MG/KG	U	U_LAB	U	U	U		
16573272									0.85		MG/KG	0.85		MG/KG	U	U_LAB	U	U	U		
16573362									160		MG/KG	160		MG/KG	U	U_LAB	U	U	U		
16573322									0.46		MG/KG	0.46		MG/KG	U	U_LAB	U	U	U		
16573312									6.2		MG/KG	6.2		MG/KG	U	U_LAB	UJ	UJ	U		
16573302									33.6	6.72	MG/KG	33.6	6.72	MG/KG				NQ	NQ		
16573262									4500	900	MG/KG	4500	900	MG/KG	J	J_LAB	J	J	J	J	
16573152									4.4		MG/KG	4.4		MG/KG	U	U_LAB	U	U	U		
16573252									1		MG/KG	1		MG/KG	U	U_LAB	U	U	U		
16573062									42.6	8.52	MG/KG	42.6	8.52	MG/KG				NQ	NQ		
16573242									0.79		MG/KG	0.79		MG/KG	U	U_LAB	U	U	U		
16573232									1.2	0.24	MG/KG	1.2	0.24	MG/KG				NQ	NQ		
16573072									970		MG/KG	970		MG/KG	U	U_LAB	U	U	U		
16573222									4.1	0.82	MG/KG	4.1	0.82	MG/KG	J	J_LAB	J	J	J	J	
16573082									2.1		MG/KG	2.1		MG/KG	U	U_LAB	U	U	U		
16573092									6.6	1.32	MG/KG	6.6	1.32	MG/KG				NQ	NQ		
16573112									6930	1386	MG/KG	6930	1386	MG/KG				NQ	NQ		
16573162									15.1	3.02	MG/KG	15.1	3.02	MG/KG	J	J_LAB	J	J	J	J	
16573202									816		MG/KG	816		MG/KG	U	U_LAB	U	U	U		
16573192									230	46	MG/KG	230	46	MG/KG				NQ	NQ		
16573102									0.09		MG/KG	0.09		MG/KG	U	U_LAB	U	U	U		
16573172									3.5		MG/KG	3.5		MG/KG	U	U_LAB	U	U	U		
16573212									726		MG/KG	726		MG/KG	U	U_LAB	U	U	U		
16573052									0.78		MG/KG	0.78		MG/KG	U	U_LAB	U	U	U		
16573182									133		MG/KG	133		MG/KG	U	U_LAB	U	U	U		
16573142									0.42		MG/KG	0.42		MG/KG	U	U_LAB	U	U	U		
16573132									6.1		MG/KG	6.1		MG/KG	U	U_LAB	UJ	UJ	U		
16573122									59.9	11.98	MG/KG	59.9	11.98	MG/KG				NQ	NQ		

URI	LANL_QUALIFIER_REASON_1	LANL_QUALIFIER_REASON_2	LANL_QUALIFIER_REASON_3	LANL_QUALIFIER_REASON_4	LANL_SET_TYPE_CODE_1	LANL_SET_TYPE_CODE_2	LANL_SET_TYPE_CODE_3	LANL_SET_TYPE_CODE_4	FIELD_QC_TYPE_CODE	SAMPLE_TYPE_CODE	ANALYTICAL_SUITE	ANYL_METH_CODE	LAB_CODE
16572632	I1	J_LAB	IJCST		ROUTINE03	ROUTINE03	REPORTING		NA	CS	METALS	SW-846:6010	ATICO
16572782	IULAB	U_LAB			REPORTING	ROUTINE03			NA	CS	METALS	SW-846:6010	ATICO
16572642	IULAB	U_LAB			REPORTING	ROUTINE03			NA	CS	METALS	SW-846:6010	ATICO
16572652	INONE	NQ			REPORTING	ROUTINE03			NA	CS	METALS	SW-846:6010	ATICO
16572662	IULAB	U_LAB			REPORTING	ROUTINE03			NA	CS	METALS	SW-846:6010	ATICO
16572822	IULAB	U_LAB			REPORTING	ROUTINE03			NA	CS	METALS	SW-846:6010	ATICO
16572672	INONE	NQ			REPORTING	ROUTINE03			NA	CS	METALS	SW-846:6010	ATICO
16572692	IJCST	I1	J_LAB		REPORTING	ROUTINE03	ROUTINE03		NA	CS	METALS	SW-846:6010	ATICO
16572682	IULAB	U_LAB			REPORTING	ROUTINE03			NA	CS	METALS	SW-846:6010	ATICO
16572702	IULAB	U_LAB			REPORTING	ROUTINE03			NA	CS	METALS	SW-846:6010	ATICO
16572712	INONE	NQ			REPORTING	ROUTINE03			NA	CS	METALS	SW-846:6010	ATICO
16572772	IJCST	I1	J_LAB		REPORTING	ROUTINE03	ROUTINE03		NA	CS	METALS	SW-846:6010	ATICO
16572742	IULAB	U_LAB			REPORTING	ROUTINE03			NA	CS	METALS	SW-846:6010	ATICO
16572752	INONE	NQ			REPORTING	ROUTINE03			NA	CS	METALS	SW-846:6010	ATICO
16572722	IULAB	U_LAB			REPORTING	ROUTINE03			NA	CS	METALS	SW-846:7470A	ATICO
16572762	IULAB	U_LAB			REPORTING	ROUTINE03			NA	CS	METALS	SW-846:6010	ATICO
16572732	IULAB	U_LAB			REPORTING	ROUTINE03			NA	CS	METALS	SW-846:6010	ATICO
16572622	IULAB	U_LAB			REPORTING	ROUTINE03			NA	CS	METALS	SW-846:6010	ATICO
16572612	U_LAB	IULAB			ROUTINE03	REPORTING			NA	CS	METALS	SW-846:6010	ATICO
16572792	IULAB	U_LAB			REPORTING	ROUTINE03			NA	CS	METALS	SW-846:6010	ATICO
16572802	IUJCS	U_LAB			REPORTING	ROUTINE03			NA	CS	METALS	SW-846:6010	ATICO
16572812	INONE	NQ			REPORTING	ROUTINE03			NA	CS	METALS	SW-846:6010	ATICO
16573662	IJCST	I1	J_LAB		REPORTING	ROUTINE03	ROUTINE03		NA	CS	METALS	SW-846:6010	ATICO
16573552	IULAB	U_LAB			REPORTING	ROUTINE03			NA	CS	METALS	SW-846:6010	ATICO
16573702	IULAB	U_LAB			REPORTING	ROUTINE03			NA	CS	METALS	SW-846:6010	ATICO
16573672	IULAB	U_LAB			REPORTING	ROUTINE03			NA	CS	METALS	SW-846:6010	ATICO
16573682	IULAB	U_LAB			REPORTING	ROUTINE03			NA	CS	METALS	SW-846:6010	ATICO
16573522	IULAB	U_LAB			REPORTING	ROUTINE03			NA	CS	METALS	SW-846:6010	ATICO
16573692	IULAB	U_LAB			REPORTING	ROUTINE03			NA	CS	METALS	SW-846:6010	ATICO
16573652	IJCST	I1	J_LAB		REPORTING	ROUTINE03	ROUTINE03		NA	CS	METALS	SW-846:6010	ATICO
16573512	IULAB	U_LAB			REPORTING	ROUTINE03			NA	CS	METALS	SW-846:6010	ATICO
16573642	IULAB	U_LAB			REPORTING	ROUTINE03			NA	CS	METALS	SW-846:6010	ATICO
16573632	INONE	NQ			REPORTING	ROUTINE03			NA	CS	METALS	SW-846:6010	ATICO
16573562	IJCST	I1	J_LAB		REPORTING	ROUTINE03	ROUTINE03		NA	CS	METALS	SW-846:6010	ATICO
16573602	IULAB	U_LAB			REPORTING	ROUTINE03			NA	CS	METALS	SW-846:6010	ATICO
16573592	INONE	NQ			REPORTING	ROUTINE03			NA	CS	METALS	SW-846:6010	ATICO
16573622	IULAB	U_LAB			REPORTING	ROUTINE03			NA	CS	METALS	SW-846:7470A	ATICO
16573572	IULAB	U_LAB			REPORTING	ROUTINE03			NA	CS	METALS	SW-846:6010	ATICO
16573612	IULAB	U_LAB			REPORTING	ROUTINE03			NA	CS	METALS	SW-846:6010	ATICO
16573502	IULAB	U_LAB			REPORTING	ROUTINE03			NA	CS	METALS	SW-846:6010	ATICO
16573582	IULAB	U_LAB			REPORTING	ROUTINE03			NA	CS	METALS	SW-846:6010	ATICO
16573492	IULAB	U_LAB			REPORTING	ROUTINE03			NA	CS	METALS	SW-846:6010	ATICO
16573542	IUJCS	U_LAB			REPORTING	ROUTINE03			NA	CS	METALS	SW-846:6010	ATICO
16573532	INONE	NQ			REPORTING	ROUTINE03			NA	CS	METALS	SW-846:6010	ATICO
16572852	IJCST	I1	J_LAB		REPORTING	ROUTINE03	ROUTINE03		NA	CS	METALS	SW-846:6010	ATICO
16573042	IULAB	U_LAB			REPORTING	ROUTINE03			NA	CS	METALS	SW-846:6010	ATICO
16572862	IULAB	U_LAB			REPORTING	ROUTINE03			NA	CS	METALS	SW-846:6010	ATICO
16572872	INONE	NQ			REPORTING	ROUTINE03			NA	CS	METALS	SW-846:6010	ATICO
16573032	IULAB	U_LAB			REPORTING	ROUTINE03			NA	CS	METALS	SW-846:6010	ATICO
16572902	IULAB	U_LAB			REPORTING	ROUTINE03			NA	CS	METALS	SW-846:6010	ATICO
16572882	IULAB	U_LAB			REPORTING	ROUTINE03			NA	CS	METALS	SW-846:6010	ATICO
16573022	IUJCS	U_LAB			REPORTING	ROUTINE03			NA	CS	METALS	SW-846:6010	ATICO
16572892	IULAB	U_LAB			REPORTING	ROUTINE03			NA	CS	METALS	SW-846:6010	ATICO
16573012	IULAB	U_LAB			REPORTING	ROUTINE03			NA	CS	METALS	SW-846:6010	ATICO
16573002	INONE	NQ			REPORTING	ROUTINE03			NA	CS	METALS	SW-846:6010	ATICO
16572932	IJCST	I1	J_LAB		REPORTING	ROUTINE03	ROUTINE03		NA	CS	METALS	SW-846:6010	ATICO
16572972	IULAB	U_LAB			REPORTING	ROUTINE03			NA	CS	METALS	SW-846:6010	ATICO
16572962	INONE	NQ			REPORTING	ROUTINE03			NA	CS	METALS	SW-846:6010	ATICO
16572992	IULAB	U_LAB			REPORTING	ROUTINE03			NA	CS	METALS	SW-846:7470A	ATICO
16572942	IULAB	U_LAB			REPORTING	ROUTINE03			NA	CS	METALS	SW-846:6010	ATICO
16572982	IULAB	U_LAB			REPORTING	ROUTINE03			NA	CS	METALS	SW-846:6010	ATICO
16572842	IULAB	U_LAB			REPORTING	ROUTINE03			NA	CS	METALS	SW-846:6010	ATICO
16572952	IULAB	U_LAB			REPORTING	ROUTINE03			NA	CS	METALS	SW-846:6010	ATICO
16572922	IULAB	U_LAB			REPORTING	ROUTINE03			NA	CS	METALS	SW-846:6010	ATICO
16572832	IUJCS	U_LAB			REPORTING	ROUTINE03			NA	CS	METALS	SW-846:6010	ATICO
16572912	INONE	NQ			REPORTING	ROUTINE03			NA	CS	METALS	SW-846:6010	ATICO
16573432	IJCST	I1	J_LAB		REPORTING	ROUTINE03	ROUTINE03		CO	CS	METALS	SW-846:6010	ATICO
16573332	IULAB	U_LAB			REPORTING	ROUTINE03			CO	CS	METALS	SW-846:6010	ATICO
16573472	IULAB	U_LAB			REPORTING	ROUTINE03			CO	CS	METALS	SW-846:6010	ATICO
16573442	INONE	NQ			REPORTING	ROUTINE03			CO	CS	METALS	SW-846:6010	ATICO
16573452	IULAB	U_LAB			REPORTING	ROUTINE03			CO	CS	METALS	SW-846:6010	ATICO
16573292	IULAB	U_LAB			REPORTING	ROUTINE03			CO	CS	METALS	SW-846:6010	ATICO
16573462	INONE	NQ			REPORTING	ROUTINE03			CO	CS	METALS	SW-846:6010	ATICO
16573422	IJCST	I1	J_LAB		REPORTING	ROUTINE03	ROUTINE03		CO	CS	METALS	SW-846:6010	ATICO
16573282	IULAB	U_LAB			REPORTING	ROUTINE03			CO	CS	METALS	SW-846:6010	ATICO
16573412	IULAB	U_LAB			REPORTING	ROUTINE03			CO	CS	METALS	SW-846:6010	ATICO
16573482	INONE	NQ			REPORTING	ROUTINE03			CO	CS	METALS	SW-846:6010	ATICO
16573342	IJCST	I1	J_LAB		REPORTING	ROUTINE03	ROUTINE03		CO	CS	METALS	SW-846:6010	ATICO
16573382	IULAB	U_LAB			REPORTING	ROUTINE03			CO	CS	METALS	SW-846:6010	ATICO
16573372	IULAB	U_LAB			REPORTING	ROUTINE03			CO	CS	METALS	SW-846:6010	ATICO
16573402	IULAB	U_LAB			REPORTING	ROUTINE03			CO	CS	METALS	SW-846:7470A	ATICO
16573352	IULAB	U_LAB			REPORTING	ROUTINE03			CO	CS	METALS	SW-846:6010	ATICO
16573392	IULAB	U_LAB			REPORTING	ROUTINE03			CO	CS	METALS	SW-846:6010	ATICO
16573272	IULAB	U_LAB			REPORTING	ROUTINE03			CO	CS	METALS	SW-846:6010	ATICO
16573362	IULAB	U_LAB			REPORTING	ROUTINE03			CO	CS	METALS	SW-846:6010	ATICO
16573322	IULAB	U_LAB			REPORTING	ROUTINE03			CO	CS	METALS	SW-846:6010	ATICO
16573312	IUJCS	U_LAB			REPORTING	ROUTINE03			CO	CS	METALS	SW-846:6010	ATICO
16573302	INONE	NQ			REPORTING	ROUTINE03			CO	CS	METALS	SW-846:6010	ATICO
16573262	IJCST	I1	J_LAB		REPORTING	ROUTINE03	ROUTINE03		NA	CS	METALS	SW-846:6010	ATICO
16573152	IULAB	U_LAB			REPORTING	ROUTINE03			NA	CS	METALS	SW-846:6010	ATICO
16573252	IULAB	U_LAB			REPORTING	ROUTINE03			NA	CS	METALS	SW-846:6010	ATICO
16573062	INONE	NQ			REPORTING	ROUTINE03			NA	CS	METALS	SW-846:6010	ATICO
16573242	IULAB	U_LAB			REPORTING	ROUTINE03			NA	CS	METALS	SW-846:6010	ATICO
16573232	INONE	NQ			REPORTING	ROUTINE03			NA	CS	METALS	SW-846:6010	ATICO
16573072	IULAB	U_LAB			REPORTING	ROUTINE03			NA	CS	METALS	SW-846:6010	ATICO
16573222	IJCST	I1	J_LAB		REPORTING	ROUTINE03	ROUTINE03		NA	CS	METALS	SW-846:6010	ATICO
16573082	IULAB	U_LAB			REPORTING	ROUTINE03			NA	CS	METALS	SW-846:6010	ATICO
16573092	INONE	NQ			REPORTING	ROUTINE03			NA	CS	METALS	SW-846:6010	ATICO
16573112	INONE	NQ			REPORTING	ROUTINE03			NA	CS	METALS	SW-846:6010	ATICO
16573162	IJCST	I1	J_LAB		REPORTING	ROUTINE03	ROUTINE03		NA	CS	METALS	SW-846:6010	ATICO
16573202	IULAB	U_LAB			REPORTING	ROUTINE03			NA	CS	METALS	SW-846:6010	ATICO
16573192	INONE	NQ			REPORTING	ROUTINE03			NA	CS	METALS	SW-846:6010	ATICO
16573102	IULAB	U_LAB			REPORTING	ROUTINE03			NA	CS	METALS	SW-846:7470A	ATICO
16573172	IULAB	U_LAB			REPORTING	ROUTINE03			NA	CS	METALS	SW-846:6010	ATICO
16573212	IULAB	U_LAB			REPORTING	ROUTINE03			NA	CS	METALS	SW-846:6010	ATICO
16573052	IULAB	U_LAB			REPORTING	ROUTINE03			NA	CS	METALS	SW-846:6010	ATICO
16573182	IULAB	U_LAB			REPORTING	ROUTINE03			NA	CS	METALS	SW-846:6010	ATICO
16573142	IULAB	U_LAB			REPORTING	ROUTINE03			NA	CS	METALS	SW-846:6010	ATICO
16573132	IUJCS	U_LAB			REPORTING	ROUTINE03			NA	CS	METALS	SW-846:6010	ATICO
16573122	INONE	NQ			REPORTING	ROUTINE03			NA	CS	METALS	SW-846:6010	ATICO

Analytical Performance for - mean+/-2.0 sd, n=2	2010/07/06		0101/0841
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0841
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0841
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0841
Analytical Performance for - mean+/-2.0 sd, n=2	2010/07/06		0101/0842
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0842
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0842
Analytical Performance for - mean+/-2.0 sd, n=2	2010/07/06		0101/0842
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0842
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0842
Analytical Performance for - mean+/-2.0 sd, n=2	2010/07/06		0101/0843
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0843
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0843
Analytical Performance for - mean+/-2.0 sd, n=2	2010/07/06		0101/0844
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0844
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0844
Analytical Performance for - mean+/-2.0 sd, n=2	2010/07/06		0101/0845
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0845
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0845
Analytical Performance for - mean+/-2.0 sd, n=2	2010/07/06		0101/0846
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0846
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0846
Analytical Performance for - mean+/-2.0 sd, n=2	2010/07/06		0101/0847
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0847
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0847
Analytical Performance for - mean+/-2.0 sd, n=2	2010/07/06		0101/0848
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0848
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0848
Analytical Performance for - mean+/-2.0 sd, n=2	2010/07/06		0101/0849
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0849
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0849
Analytical Performance for - mean+/-2.0 sd, n=2	2010/07/06		0101/0850
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0850
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0850
Analytical Performance for - mean+/-2.0 sd, n=2	2010/07/06		0101/0851
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0851
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0851
Analytical Performance for - mean+/-2.0 sd, n=2	2010/07/06		0101/0852
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0852
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0852
Analytical Performance for - mean+/-2.0 sd, n=2	2010/07/06		0101/0853
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0853
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0853
Analytical Performance for - mean+/-2.0 sd, n=2	2010/07/06		0101/0854
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0854
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0854
Analytical Performance for - mean+/-2.0 sd, n=2	2010/07/06		0101/0855
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0855
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0855
Analytical Performance for - mean+/-2.0 sd, n=2	2010/07/06		0101/0856
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0856
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0856
Analytical Performance for - mean+/-2.0 sd, n=2	2010/07/06		0101/0857
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0857
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0857
Analytical Performance for - mean+/-2.0 sd, n=2	2010/07/06		0101/0858
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0858
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0858
Analytical Performance for - mean+/-2.0 sd, n=2	2010/07/06		0101/0859
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0859
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0859
Analytical Performance for - mean+/-2.0 sd, n=2	2010/07/06		0101/0860
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0860
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0860
Analytical Performance for - mean+/-2.0 sd, n=2	2010/07/06		0101/0861
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0861
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0861
Analytical Performance for - mean+/-2.0 sd, n=2	2010/07/06		0101/0862
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0862
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0862
Analytical Performance for - mean+/-2.0 sd, n=2	2010/07/06		0101/0863
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0863
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0863
Analytical Performance for - mean+/-2.0 sd, n=2	2010/07/06		0101/0864
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0864
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0864
Analytical Performance for - mean+/-2.0 sd, n=2	2010/07/06		0101/0865
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0865
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0865
Analytical Performance for - mean+/-2.0 sd, n=2	2010/07/06		0101/0866
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0866
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0866
Analytical Performance for - mean+/-2.0 sd, n=2	2010/07/06		0101/0867
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0867
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0867
Analytical Performance for - mean+/-2.0 sd, n=2	2010/07/06		0101/0868
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0868
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0868
Analytical Performance for - mean+/-2.0 sd, n=2	2010/07/06		0101/0869
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0869
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0869
Analytical Performance for - mean+/-2.0 sd, n=2	2010/07/06		0101/0870
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0870
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0870
Analytical Performance for - mean+/-2.0 sd, n=2	2010/07/06		0101/0871
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0871
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0871
Analytical Performance for - mean+/-2.0 sd, n=2	2010/07/06		0101/0872
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0872
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0872
Analytical Performance for - mean+/-2.0 sd, n=2	2010/07/06		0101/0873
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0873
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0873
Analytical Performance for - mean+/-2.0 sd, n=2	2010/07/06		0101/0874
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0874
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0874
Analytical Performance for - mean+/-2.0 sd, n=2	2010/07/06		0101/0875
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0875
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0875
Analytical Performance for - mean+/-2.0 sd, n=2	2010/07/06		0101/0876
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0876
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0876
Analytical Performance for - mean+/-2.0 sd, n=2	2010/07/06		0101/0877
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0877
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0877
Analytical Performance for - mean+/-2.0 sd, n=2	2010/07/06		0101/0878
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0878
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0878
Analytical Performance for - mean+/-2.0 sd, n=2	2010/07/06		0101/0879
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0879
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0879
Analytical Performance for - mean+/-2.0 sd, n=2	2010/07/06		0101/0880
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0880
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0880
Analytical Performance for - mean+/-2.0 sd, n=2	2010/07/06		0101/0881
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0881
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0881
Analytical Performance for - mean+/-2.0 sd, n=2	2010/07/06		0101/0882
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0882
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0882
Analytical Performance for - mean+/-2.0 sd, n=2	2010/07/06		0101/0883
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0883
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0883
Analytical Performance for - mean+/-2.0 sd, n=2	2010/07/06		0101/0884
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0884
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0884
Analytical Performance for - mean+/-2.0 sd, n=2	2010/07/06		0101/0885
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0885
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0885
Analytical Performance for - mean+/-2.0 sd, n=2	2010/07/06		0101/0886
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0886
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0886
Analytical Performance for - mean+/-2.0 sd, n=2	2010/07/06		0101/0887
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0887
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0887
Analytical Performance for - mean+/-2.0 sd, n=2	2010/07/06		0101/0888
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0888
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0888
Analytical Performance for - mean+/-2.0 sd, n=2	2010/07/06		0101/0889
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0889
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0889
Analytical Performance for - mean+/-2.0 sd, n=2	2010/07/06		0101/0890
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0890
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0890
Analytical Performance for - mean+/-2.0 sd, n=2	2010/07/06		0101/0891
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0891
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0891
Analytical Performance for - mean+/-2.0 sd, n=2	2010/07/06		0101/0892
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0892
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0892
Analytical Performance for - mean+/-2.0 sd, n=2	2010/07/06		0101/0893
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0893
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0893
Analytical Performance for - mean+/-2.0 sd, n=2	2010/07/06		0101/0894
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0894
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0894
Analytical Performance for - mean+/-2.0 sd, n=2	2010/07/06		0101/0895
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0895
Statistical Performance for - 2008/05/30-2008/06	2010/07/06		0101/0895

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