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Refer To: EP2009-0100

James P. Bearzi
Hazardous Waste Bureau
New Mexico Environment Department
2905 Rodeo Park Drive East, Building 1
Santa Fe, NM 87505-6303

Subject: Submittal of the Investigation Work Plan and the Historical Investigation Report for Lower Sandia Canyon Aggregate Area

Dear Mr. Bearzi:

Enclosed please find two hard copies with electronic files of the Investigation Work Plan for Lower Sandia Canyon Aggregate Area and the Historical Investigation Report for Lower Sandia Canyon Aggregate Area. The Lower Sandia Canyon Aggregate Area includes a total of 82 solid waste management units and areas of concern located in Technical Area 53 (TA-53), TA-72, and former TA-20. Of these 82 sites, 54 have been previously investigated and/or remediated and have been approved for no further action. Site descriptions, previous investigations, and analytical results for the remaining 28 sites are included in the historical investigation report. Proposed investigation activities at the 28 sites are discussed in the investigation work plan.

If you have any questions, please contact Kent Rich at (505) 665-4272 (krich@lanl.gov) or Suzy Schulman at (505) 606-1962 (sschulman@doeal.gov).

Sincerely,

Michael J. Graham, Associate Director
Environmental Programs
Los Alamos National Laboratory

Sincerely,

David R. Gregory, Project Director
Environmental Operations
Los Alamos Site Office

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Enclosures: 1) Two hard copies with electronic files - Investigation Work Plan for Lower Sandia Canyon Aggregate Area (LA-UR-09-2076)
2) Two hard copies with electronic files - Historical Investigation Report for Lower Sandia Canyon Aggregate Area (LA-UR-09-2077)

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LA-UR-09-2077
April 2009
EP2009-0101

Historical Investigation Report for Lower Sandia Canyon Aggregate Area

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Prepared by the Environmental Programs Directorate

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LA-UR-09-2077
EP2009-0101

Historical Investigation Report for Lower Sandia Canyon Aggregate Area

April 2009

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Printed Name	Signature	Title	Organization	Date
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EXECUTIVE SUMMARY

The Lower Sandia Canyon Aggregate Area includes a total of 82 solid waste management units and areas of concern located in Technical Area 53 (TA-53), TA-72, and former TA-20 at Los Alamos National Laboratory. Of these 82 sites, 54 have been previously investigated and/or remediated and have been approved for no further action. For the remaining 28 sites requiring investigation, 11 are located in former TA-20, 16 are in TA-53, and 1 is in TA-72. This historical investigation report provides site descriptions, summarizes previous investigations, and presents analytical results. The background information and supporting data form the basis for the proposed sampling design necessary to complete the site investigations as presented in the Lower Sandia Canyon Aggregate Area investigation work plan.

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Appendixes

Appendix A Acronyms and Abbreviations, Metric Conversion Table, and Data Qualifier Definitions
Appendix B Analytical Suites and Results (on CD included with this document)

Plate

Plate 1 Lower Sandia Canyon Aggregate Area

1.0 INTRODUCTION

Los Alamos National Laboratory (LANL or the Laboratory) is a multidisciplinary research facility owned by the U.S. Department of Energy (DOE) and managed by Los Alamos National Security, LLC. 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 containing perennial and intermittent streams running from west to east. Mesa tops range in elevation from approximately 6200 to 7800 ft. The location of Lower Sandia Canyon Aggregate Area with respect to the Laboratory technical areas (TAs) is shown in Figure 1.0-1.

The Laboratory's Environmental Programs (EP) Directorate, which includes the former Environmental Restoration Project, is participating in a national effort by DOE to reduce risk to human health and the environment at its facilities. The goal of EP Directorate is to ensure that past operations do not threaten human or environmental health and safety in and around Los Alamos County, New Mexico. To achieve this goal, EP is currently investigating sites potentially contaminated by past Laboratory operations. The sites under investigation are designated as either solid waste management units (SWMUs) or areas of concern (AOCs).

This historical investigation report (HIR) describes operational histories, previous investigations, and analytical data for SWMUs and AOCs in Technical Area 53 (TA-53), TA-72, and former TA-20 within the Lower Sandia Canyon Aggregate Area. The sites addressed in this HIR are potentially contaminated with hazardous and/or radioactive chemicals. Information on radioactive materials and radionuclides, including the results of sampling and analysis of radioactive constituents, is voluntarily provided to the New Mexico Environment Department (NMED) in accordance with DOE policy.

Corrective actions at the Laboratory are subject to the March 1, 2005, Compliance Order on Consent (the Consent Order). The Consent Order was issued pursuant to the New Mexico Hazardous Waste Act (NMHWA), New Mexico Statutes Annotated (NMSA) 1978, § 74-4-10, and the New Mexico Solid Waste Act, NMSA 1978, § 74-9-36(D). NMED has authority under the NMHWA over cleanup of hazardous wastes and hazardous constituents.

1.1 Historical Investigation Report Overview

The Lower Sandia Canyon Aggregate Area includes a total of 82 SWMUs and AOCs, 54 of which have been previously investigated and/or remediated and have been approved for no further action (NFA). For the remaining 28 sites requiring investigation, 11 are located in former TA-20, 16 are in TA-53, and 1 is in TA-72. Table 1.1-1 provides a summary of the 82 sites within the aggregate area and their regulatory status. For NFA sites, only brief descriptions and the reference to the approval document are provided in this HIR and only in Table 1.1-1.

The purpose of this HIR is to provide supporting information for the activities necessary to complete the investigations as presented in the Lower Sandia Canyon Aggregate Area investigation work plan (LANL 2009, 105078). The SWMUs and AOCs are presented in this document on the basis of their regulatory status.

Sections 2 to 4 of this HIR provide site descriptions and operational histories, summarize previous investigations, and present analytical data for site(s) under investigation in TA-53, TA-72, and former TA-20, respectively. For each site, the location, historical operations, and current status are described first, followed by descriptions of historical investigations with dates and activities conducted. The results

of analytical data obtained from previous investigation are summarized. Plate 1 shows the locations of the sites under investigation in the Lower Sandia Canyon Aggregate Area.

Appendix A includes a list of acronyms and abbreviations, a metric conversion table, and a table for data qualifier definitions. Appendix B presents decision-level and screening-level data from past investigations (included on CD).

1.2 Data Overview

Data evaluated in this report include historical data collected from 1995 through 2006, as part of a Resource Conservation and Recovery Act (RCRA) facility investigation (RFI) and other corrective actions. In EP Directorate's database, all data records include a vintage code field denoting how and where samples were submitted for analyses. All historical data evaluated in this report are validated or revalidated by current quality control metrics.

Analytical samples described in this report have undergone analyses at both on-site and off-site laboratories. Because analytical practices and documentation of analyses vary in quality and completeness, analytical data presented are of either screening-level or decision-level quality. Screening-level data are appropriate for applications that only require determination of gross contamination areas and/or for site characterization. Screening-level data are also often used to specify areas where additional data should be collected. Decision-level data are used to quantify the nature and extent of releases and to perform risk assessments. Decision-level data presented in this report have been validated for such use. The decision-level data provide supporting information for the investigation activities proposed in the work plan.

Inorganic chemical and radionuclide data from previous investigations were compared with background values (BVs) and fallout values (FVs) (LANL 1998, 059730, p. 6-2). Fallout radionuclides in soil greater than a depth of 6 in. or in rock and organic chemicals are evaluated based on detection status.

2.0 SITES UNDER INVESTIGATION IN FORMER TA-20

Former TA-20 was located near the west end of Sandia Canyon and the SWMUs and AOCs associated with former TA-20 are now contained within TA-53 and TA-72. The site consisted of a series of firing areas that were spaced along a small road heading west from NM 4 (LANL 1994, 034756, pp. 2-1–2-5).

TA-20 was established during the Manhattan Project to test initiators (devices that generate neutrons to initiate nuclear explosions). Initiators were tested using both implosion and impaction methods. Implosion testing involved placing test devices inside metal spheres that were then imploded using high explosives (HE). After implosion, the devices were recovered for study. Implosion tests were conducted at several firing sites in TA-20, two of which had containment vessels or structures to assist with recovery of the test devices. Impaction tests were conducted by firing test devices from a smooth-bore Navy gun into an earth-filled recovery bin or by firing devices from a 20-mm gun into a target. Test measurements were taken as the devices impacted the recovery bin or targets. Initiator tests were conducted until late 1945, when the work was transferred to TA-33. TA-20 was then used briefly to conduct other types of implosion tests (LANL 1994, 034756, pp. 2-1–2-4).

In 1946, an intensive radiation monitoring and cleanup effort was performed at TA-20. Soil contaminated with polonium was removed from firing areas, from a cave where radioactive materials had been stored, and from disposal pits. Polunium-210 was used in initiator tests but has only a 138-d half-life and would no longer be present at the site. Other contaminated items, including rubber gloves, were also found and

removed for disposal at TA-21. Two structures were also removed: a storage building (20-18) and a "cut-off shack" (structure 20-17) (LANL 1994, 034756, p. 2-4). A radiological survey of the cut-off shack in 1946 identified two "highly contaminated" pieces of equipment in the building (Buckland 1946, 005998).

Beginning in 1948, TA-20 was largely decommissioned to make way for a new road through the canyon (East Jemez Road, also known as the "Truck Route"). Decommissioning activities included dismantling and removing structures, and a site cleanup that netted 60 to 70 lb of HE. Some of the structures deactivated in 1948 were not destroyed until 1960, when they were burned after being monitored for HE, radiation, and toxic materials. Periodic follow-up searches for HE continued until 1973, when the Laboratory Safety Group declared the area safe and removed fencing and warning signs. In 1985, a radiation survey of the remaining structures in former TA-20 (mainly underground structures including manholes, pull boxes, and footings) was conducted, and most of the structures were removed at that time (LANL 1994, 034756, p. 2-4).

A summary of the historical samples collected and the laboratory analyses requested for TA-20 samples is presented in Table 2.0-1. Inorganic chemicals detected above BVs or having detection limits above BVs are presented in Table 2.0-2. Organic chemicals detected are presented in Table 2.0-3, and radionuclides detected or detected above BVs/FVs are presented in Table 2.0-4. All laboratory analytical data are provided in Appendix B.

2.1 SWMU 20-001(a), Landfill

2.1.1 Description and History

SWMU 20-001(a) is a former landfill used to bury scrap metal, some of which may have been contaminated from firing site activities conducted at former TA-20. This SWMU is adjacent to East Jemez Road and slightly west of the currently active small-arms firing range at TA-72 (Figure 2.1-1). The landfill was removed in 1948 before East Jemez Road was constructed. A 1948 memorandum describing cleanup efforts in Sandia Canyon notes that three burial grounds were excavated and that the ground "checked negative" after removal (Buckland 1948, 006001). SWMU 20-001(a) is presumed to be one of the three burial grounds referred to in the memorandum. Little is known about the actual dimensions of the landfill; however, a 1965 memorandum states the landfill was approximately 5 ft deep (Russo 1965, 005984).

2.1.2 Previous Investigations

In 1986, geophysical surveys were conducted in an attempt to find evidence of the landfill site. Its location was not positively established at that time. This area was included in a DOE Headquarters Environmental Survey in 1987 (DOE 1988, 008609, pp. 4-177–4-180). The DOE report notes that the landfill site was located across East Jemez Road from the present location of the TA-72 small-arms firing range and that a depression, approximately 5 ft deep, was observed at the end of an unimproved road. This depression was not noted during the 1986 geophysical survey (LANL 1994, 034756, p. 5-5).

A Phase I RFI was conducted during 1995. During the 1995 RFI, the former location of SWMU 20-001(a) and the surrounding area was gridded (200 ft × 300 ft) and a geophysical survey was conducted. A backhoe was used to excavate portions (two trenches) of the site that showed anomalies in the geophysical survey. A field radiological survey was conducted before excavating, and no radiation levels above local background were detected (LANL 1996, 054466, p. 5-3). The north trench excavation exposed small pieces of wood debris, a 3-ft-long section of a pole, and a metal power-pole anchor. Excavation of the south trench produced no evidence of previous disturbance. Soil samples were

collected from seven locations at the north trench and one location at the south trench (LANL 1996, 054466, p. 5-7). At each location, a sample was collected from a depth of 10 to 11 ft and analyzed for gamma-emitting radionuclides, HE, isotopic uranium, metals, strontium-90, and uranium. The samples collected in 1995 and analyses requested are presented in Table 2.0-1.

2.1.3 Analytical Results

During the 1995 investigation, total uranium was detected above the soil BV in all eight samples. The maximum concentration was approximately 2.5 times the BV. No other inorganic chemicals were detected above BVs, but mercury, silver, and thallium had detection limits above BVs. The only organic chemical detected was the explosive tetryl (2,4,6-trinitrophenyl-N-methylnitramine), which was detected at 0.65 mg/kg in one sample. Three radionuclides were detected: cesium-137 was detected in one sample (0.033 pCi/g), europium-152 in four samples (up to 0.195 pCi/g), and strontium-90 in one sample (1.52 pCi/g).

Analytical data from the 1995 sampling event are presented in Tables 2.0-2, 2.0-3, and 2.0-4, which show inorganic chemicals detected above BVs or having detection limits above BVs, organic chemicals detected, and radionuclides detected or detected above BVs/FVs, respectively. Sampling locations and results for inorganic chemicals detected above BVs, organic chemicals detected, and radionuclides detected or detected above BVs/FVs are shown in Figures 2.1-2, 2.1-3, and 2.1-4, respectively.

2.2 SWMU 20-001(b), Landfill

2.2.1 Description and History

SWMU 20-001(b) is a former landfill located in the central portion of Sandia Canyon next to East Jemez Road (Figure 2.2-1). Together with SWMU 20-002(c) and AOC 20-003(c), SWMU 20-001(b) comprises Consolidated Unit 20-001(b)-00. The site is believed to have been excavated using a bulldozer and had been used to dispose of a number of gun barrels (Russo 1965, 005984). The landfill was excavated and its contents removed in a 1948 cleanup effort (LANL 1994, 034756, pp. 5-1–5-3). A 1948 memorandum describing cleanup efforts in Sandia Canyon notes that three burial grounds were excavated and that the ground "checked negative" after removal (Buckland 1948, 006001). SWMU 20-001(b) is presumed to be one of the three burial grounds referred to in the memorandum.

2.2.2 Previous Investigations

In 1986, a geophysical survey of the site was conducted to find evidence of the former landfill. Several anomalies possibly indicating past disposal activity were noted (Weston 1989, 005439). In 1989, a radiological survey of the area found only background radiation levels (LANL 1994, 034756, pp. 5-1–5-3).

A Phase I RFI was conducted during 1995, at which time an area approximately 150 ft × 200 ft was gridded and a geophysical survey conducted. Where geophysical anomalies were evident from the survey, three trenches were excavated. The east trench excavation exposed a 4-ft-long piece of electrical conduit and some rope. Excavation of the north trench exposed structural steel shapes and angles, the Navy gun foundation, and wood debris. The southern trench exposed inactive utility lines and a 6-ft-long pipe wrench. Soil samples were collected from seven locations in each trench (LANL 1996, 054466, pp. 5-8–5-12). One sample was collected at each location at depth intervals ranging from 1.0 to 2.0 ft, 6.0 to 7.0 ft, 8.0 to 9.0 ft, 9.0 to 10.0 ft and 10.0 to 11.0 ft and analyzed for gamma-emitting radionuclides, HE, isotopic uranium, metals, and strontium-90. The samples collected in 1995 and analyses requested are presented in Table 2.0-1.

2.2.3 Analytical Results

Inorganic chemicals detected above BVs during the 1995 investigation were cadmium, copper, iron, silver, and uranium. Cadmium was detected above BV in two samples, with a maximum concentration approximately 5 times its BV. Copper, iron, and silver were each detected above BVs in just one sample, with copper and iron only slightly above BVs, and silver approximately 4 times BV. Uranium was detected above BV in all 21 samples. The maximum concentration was approximately 3.5 times BV. Antimony was not detected above BV but had detection limits above BV. No organic chemicals were detected. Radionuclides detected above BVs/FV or detected and not having a BV or FV were cesium-137, sodium-22, and uranium-238. Cesium-137 was detected in one sample taken at 1.0 to 2.0 ft at 0.26 pCi/g. Sodium-22 does not have a BV and was detected in one sample at 0.19 pCi/g. Uranium-238 was detected in one sample slightly above its BV.

Analytical data from the 1995 sampling event are presented in Tables 2.0-2 and 2.0-4, which show inorganic chemicals detected above BVs or having detection limits above BVs and radionuclides detected or detected above BVs/FVs, respectively. Sampling locations and results for inorganic chemicals detected above BVs and radionuclides detected or detected above BVs/FVs are shown in Figures 2.2-2 and 2.2-3, respectively.

2.3 SWMU 20-001(c), Landfill

2.3.1 Description and History

SWMU 20-001(c) is a former landfill and, together with SWMUs 20-002(a) and 20-002(b), comprises Consolidated Unit 20-001(c)-00. This landfill was located on the far west end of former TA-20, just north of East Jemez Road (Figure 2.3-1). This site is believed to have been used to dispose of a number of 3- to 5-in. base guns cut into sections and buried in a trench (Russo 1965, 005984). The site was excavated and its contents were removed in a 1948 cleanup (LANL 1994, 034756, pp. 5-1–5-3). A 1948 memorandum describing cleanup efforts in Sandia Canyon notes three burial grounds were excavated and the ground "checked negative" after removal (Buckland 1948, 006001). SWMU 20-001(c) is presumed to be one of the three burial grounds referred to in the memorandum.

2.3.2 Previous Investigations

A Phase I RFI was conducted at SWMU 20-001(c) in 1995. During the RFI, samples were collected at 21 locations. Subsurface samples were collected from a depth of 10 to 11 ft at each location, and a surface sample was collected at one location. All samples were analyzed for gamma-emitting radionuclides, HE, isotopic uranium, metals, and strontium-90. The RFI report stated that the 1995 sampling for SWMU 20-001(c) was not conducted in the proper location (LANL 1996, 054466, p. 5-15) but did not elaborate on the reasons.

2.3.3 Analytical Results

The 1995 sampling locations for SWMU 20-001(c) are incorrect; therefore, it is uncertain whether the results of the 1995 RFI sampling are representative of contamination conditions at this site. Because the locations associated with these sampling results could not be confirmed as being correct, these results are not decision-level data and are not presented in this HIR.

2.4 SWMU 20-002(a), Former Firing Pit

2.4.1 Description and History

SWMU 20-002(a) is the location of a former firing pit (structure 20-6) used from 1945 to 1948 to conduct initiator tests. Together with SWMUs 20-001(c) and 20-002(b), SWMU 20-002(a) comprises Consolidated Unit 20-001(c)-00. The firing pit was located on the far west end of former TA-20, south of East Jemez Road (Figure 2.3-1). The steel-lined pit was constructed following the failure of the Dumbo [a contained firing vessel, see description of SWMU 20-002(b)]. The firing pit had interior dimensions of 14 ft 8 in. × 14 ft 8 in. × 12 ft deep. The walls and floor of the pit consisted of 0.75-in.-thick steel plate backed by 12-in. × 12-in. timbers. The pit was covered by a steel framework overlain by a mat of 0.25-in.-diameter steel rods spaced 1 in. apart. According to a 1947 report, the framework and mat, presumably installed to contain shot debris, failed after the first few shots (LASL 1947, 005581, p. 13). Laboratory facility engineering records indicate the pit was removed in April 1948. A memorandum dated April 20, 1948, describing cleanup efforts in Sandia Canyon notes that one "cage" was excavated and that the "interior checked negative after clearing" (Buckland 1948, 006001). The SWMU 20-002(a) firing pit is presumed to be the "cage" referred to in the memorandum.

2.4.2 Previous Investigations

In 1985, environmental samples were collected from this site for the Los Alamos Site Characterization Program. The samples were analyzed for HE, uranium, beryllium, and gross-alpha and gross-beta radioactivity. As reported in the RFI work plan, only one sample indicated the presence of uranium slightly above the background levels in use at that time (10.16 mg/kg versus 3 mg/kg to 7 mg/kg) (LANL 1994, 034756, p. 5-20).

In 1995, a Phase I RFI was conducted at SWMU 20-002(a) (LANL 1996, 054466). The site was gridded and field surveyed for radiological contamination; the survey results were used to determine the sampling locations. Soil samples were collected at 11 locations within an approximate 100-ft radius of the firing pit. At each location, a surface sample (0.0 to 0.5 ft) and subsurface sample (2.5 to 3.0 ft) were collected and analyzed for gamma-emitting radionuclides, HE, isotopic uranium, metals, strontium-90, and uranium. The samples collected in 1995 and analyses requested are presented in Table 2.0-1.

2.4.3 Analytical Results

Inorganic chemicals detected above BVs during the 1995 investigation were copper, lead, and uranium. Copper was detected above BV in three samples up to approximately 5.5 times BV. Lead was detected above BV in one sample at approximately 2 times BV. Uranium was detected above BV in 16 samples, with a maximum concentration approximately 3 times BV. Mercury, silver, and thallium were not detected above BVs but had detection limits above their BVs. No organic chemicals were detected, and no radionuclides were detected above BVs/FVs.

Analytical data from the 1995 sampling event are presented in Table 2.0-2, which shows inorganic chemicals detected above BVs. Sampling locations and results for inorganic chemicals detected above BVs are shown in Figure 2.4-1.

2.5 SWMU 20-002(b), Former Steel Tanks (Firing Site)

2.5.1 Description and History

SWMU 20-002(b) is the site of two former 5-ft-diameter cylindrical steel containment vessels known as Dumbos. Together with SWMUs 20-001(c) and 20-002(a), SWMU 20-002(b) comprises Consolidated Unit 20-001(c)-00. The Dumbos were designed to contain explosives tests to recover explosive fragments. The Dumbo containment units were mounted on a firing pad at each end of a concrete platform (structure 20-7) near the west end of former TA-20 (Figure 2.3-1). Other structures associated with this site are a manhole (structure 20-4) and platform and hoist (structure 20-8). One Dumbo unit was used only once because of the difficulty of opening the containment vessel after the shot was fired within the vessel, and the second Dumbo unit was never used. The two Dumbos were constructed in 1945 and 1946 and were removed in 1948 (LANL 1994, 034756, pp. 5-13–5-15). Laboratory facility engineering records document that the firing pads and platform were removed in April 1948.

2.5.2 Previous Investigations

A 1946 Laboratory memorandum states the two Dumbos were surveyed for radioactivity. The used Dumbo showed activity of 3000 to 5000 counts per minute (cpm) on the rim and greater than 20,000 cpm on the interior; there was no contamination on the unused Dumbo (Littlejohn 1946, 005997).

In 1985, radiation surveys and soil sampling were performed at this site as part of the Los Alamos Site Characterization Program. The surveys showed background radiation levels, and the soil samples showed no uranium concentrations above background levels (LANL 1994, 034756, p. 5-20).

In 1995, a Phase I RFI was conducted at SWMU 20-002(b) (LANL 1996, 054466). The site was gridded and field-surveyed for radiological contamination; the survey results were used to determine the soil sampling locations. Soil samples were collected at 11 locations within an approximate 100-ft radius of the firing pad. At each location, a surface sample (0.0 to 0.5 ft) and subsurface sample (2.5 to 3.0 ft) were collected and analyzed for gamma-emitting radionuclides, HE, isotopic uranium, metals, strontium-90, and uranium. The samples collected in 1995 and analyses requested are presented in Table 2.0-1.

2.5.3 Analytical Results

Inorganic chemicals detected above BVs in the 1995 investigation were mercury and uranium. Mercury was detected slightly above BV in one sample. Uranium was detected above BV in 19 samples, with a maximum concentration approximately 2.5 times BV. Antimony, cadmium, silver, and thallium were not detected above BVs but had detection limits above BVs. No organic chemicals were detected. Radionuclides detected and not having BVs/FVs were europium-152 and ruthenium-106. Europium-152 was detected in four samples with a maximum activity of 0.31 pCi/g. Ruthenium-106 was detected in one sample at 0.078 pCi/g.

Analytical data from the 1995 sampling event are presented in Tables 2.0-2 and 2.0-4, which show inorganic chemicals detected above BVs or having detection limits above BVs and radionuclides detected or detected above BVs/FVs, respectively. Sampling locations and results for inorganic chemicals detected above BVs and radionuclides detected or detected above BVs/FVs are shown in Figures 2.4-1 and 2.5-1, respectively.

2.6 SWMU 20-002(c), Former Firing Point

2.6.1 Description and History

SWMU 20-002(c) is a former firing point located near the southwest edge of TA-53 close to the boundary of TA-72 (Figure 2.2-1). This firing point was used for tests with explosive charges of up to 50 lb. Together with SWMU 20-001(b) and AOC 20-003(c), SWMU 20-002(c) comprises Consolidated Unit 20-001(b)-00. The firing point is depicted in engineering drawing ENG-C 1778, Revision 1, as a pad bordered on three sides by an earthen berm (LASL 1951, 024345). Engineering records show that the structure associated with this firing point (structure 20-9) was removed in April 1948. A memorandum dated April 20, 1948, describing cleanup efforts in Sandia Canyon notes seven "shot areas" were excavated and the "ground checked negative after removal" (Buckland 1948, 006001). It is likely that the SWMU 20-002(c) firing point is one of the seven shot areas. The north side of this site is currently covered by the road embankment for East Jemez Road.

2.6.2 Previous Investigations

A Phase I RFI was conducted in 1995 (LANL 1996, 054466). During the RFI, a 200-ft^2-grid field radiological survey was conducted at this site. Surface radiation readings were measured and recorded at 20-ft intervals (LANL 1996, 054466, p. 5-3). The radiological survey showed little variation across the site, except for higher readings along the drainage that transects the site (LANL 1996, 054466, p. 5-30). Samples were collected from eight locations within an approximate 100-ft radius of the firing point (Figure 2.2-1). At each location, a surface sample (0.0 to 0.5 ft) and two subsurface samples (2.5 to 3.0 ft and 4.5 to 5.0 ft) were collected and analyzed for gamma-emitting radionuclides, HE, isotopic uranium, metals, strontium-90, and uranium. The samples collected in 1995 and analyses requested are presented in Table 2.0-1.

2.6.3 Analytical Results

Inorganic chemicals detected above BVs in the 1995 investigation were chromium, lead, mercury, silver, thallium, uranium, and zinc. Chromium was detected above BV in 12 samples, with a maximum concentration of 6 times BV. Lead was detected slightly above BV in one sample. Mercury was detected above BV in seven samples, with a maximum concentration of 3 times BV. Silver was detected above BV in one sample at approximately 2 times BV. Thallium was detected above BV in three samples, with a maximum concentration of 3 times BV. Uranium was detected above BV in 22 samples, with a maximum concentration approximately 2.5 times BV. Zinc was detected slightly above BV in nine samples. Antimony and cadmium were not detected above BVs but had detection limits above BVs. No organic chemicals were detected. Fallout radionuclides detected at greater than 0.5 ft were cesium-137 and strontium-90. Cesium-137 was detected in two samples at a maximum activity of 0.219 pCi/g, and strontium-90 was detected in four samples at a maximum activity of 0.6 pCi/g.

Analytical data from the 1995 sampling event are presented in Tables 2.0-2 and 2.0-4, which show inorganic chemicals detected above BVs or having detection limits above BVs and radionuclides detected or detected above BVs/FVs, respectively. Sampling locations and results for inorganic chemicals detected above BVs and radionuclides detected or detected above BVs/FVs are shown in Figures 2.6-1 and 2.2-3, respectively.

2.7 SWMU 20-002(d), Former Firing Point

2.7.1 Description and History

SWMU 20-002(d) is a former firing point located near a manhole (structure 20-3) in the central part of former TA-20 (Figure 2.7-1). Fewer than 10 implosion shots were fired near structure 20-3 (LANL 1994, 034756, p. 5-15). One of these shots, containing 500 lb of Composition B, did not completely detonate. A 1962 Laboratory memorandum describes two cleanup efforts related to this incident: one conducted immediately after the incident and a second that was part of the 1948 Sandia Canyon cleanup conducted before the construction of East Jemez Road (Courtright 1962, 005971). Other historical documents indicate small pieces of HE were found and removed from this site at various times, including in July 1966, July 1967, and June 1969 (Drake and Courtright 1966, 005985; Drake and Courtright 1967, 005986; Drake and Courtright 1969, 005987). No HE was found during inspections in April 1971, May 1973, and June 1975.

2.7.2 Previous Investigations

In 1985, environmental samples were collected from this site for the Los Alamos Site Characterization Program. Two soil samples indicated the presence of uranium above the background levels in use at that time (52.48 mg/kg and 33.25 mg/kg versus 3 mg/kg to 7 mg/kg) (LANL 1994, 034756, p. 5-22).

In 1995, a Phase I RFI was conducted at SWMU 20-002(d) (LANL 1996, 054466). Samples were collected from eight locations within a 50-ft radius of the former firing point. At each location, a surface sample (0.0 to 0.5 ft) and two subsurface samples (2.5 to 3.0 ft and 4.5 to 5.0 ft) were collected and analyzed for gamma-emitting radionuclides, HE, isotopic uranium, metals, strontium-90, and uranium. The samples collected in 1995 and analyses requested are presented in Table 2.0-1.

2.7.3 Analytical Results

Inorganic chemicals detected above BVs during the 1995 investigation were beryllium, copper, thallium, uranium, and zinc. Beryllium was detected above BV in three samples, with a maximum concentration 3.5 times BV. Copper was detected above BV in five samples, with a maximum concentration approximately 5 times BV. Thallium was detected in one sample at approximately 2.5 times BV. Uranium was detected above BV in 20 samples. The maximum concentration was 38 times BV. Zinc was detected slightly above BV in two samples. Antimony, cadmium, and silver were not detected above BVs but had detection limits above BVs. No organic chemicals were detected. Radionuclides detected above BVs and fallout radionuclides detected at greater than 0.5 ft were cesium-137, strontium-90, uranium-234, uranium-235, and uranium-238. Cesium-137 was detected in one sample at 0.131 pCi/g. Strontium-90 was detected in six samples with a maximum activity of 9.28 pCi/g. Uranium-234 was detected above BV in five samples with a maximum concentration approximately 14 times BV. Uranium-235 was detected above BV in eight samples with a maximum concentration 10 times BV. Uranium-238 was detected less than 2 times BV in three samples.

Analytical data from the 1995 sampling event are presented in Tables 2.0-2 and 2.0-4, which show inorganic chemicals detected above BVs or having detection limits above BVs and radionuclides detected or detected above BVs, respectively. Sampling locations and results for inorganic chemicals detected above BVs and radionuclides detected or detected above BVs/FVs are shown in Figures 2.7-2 and 2.7-3, respectively. The sample coordinates for the samples collected at location 20-01093 could not be verified. Therefore, the results for these samples are not decision-level data and are not presented in Tables 2.0-2

and 2.0-4 and Figures 2.7-2 and 2.7-3. The results for the surface sample collected at this location included the highest detected concentrations of copper and beryllium.

2.8 AOC 20-003(b), Former 20-mm Gun Firing Site

2.8.1 Description and History

AOC 20-003(b) is a former 20-mm gun-firing site that consisted of two buildings built in 1945 and located near the canyon wall (Figure 2.8-1). Building 20-44 was a 16 ft × 16 ft × 8 ft high wood-frame building equipped with concrete gun mounts. Adjacent control building 20-13 had approximately the same dimensions. The site was used to conduct initiator timing tests, which consisted of firing projectiles from a 20-mm gun into steel plates set against the canyon walls. In 1948, the 20-mm gun was relocated to TA-04. A site visit in 1993 confirmed that all surface structures and the steel plates had been removed and that some concrete foundations remained (LANL 1994, 034756, p. 5-16).

2.8.2 Previous Investigations

In 1985, the area around the gun site was investigated as part of the Los Alamos Site Characterization Program. A radiation survey and soil sampling were conducted. The radiation survey showed no readings above background. Soil samples showed uranium levels within background. The survey and sampling were performed near the gun-mount building rather than at the projectile impact areas (LANL 1994, 034756, p. 5-22).

In 1995, a Phase I RFI was conducted at AOC 20-003(b) (LANL 1996, 054466). An 80 ft × 140-ft grid was established at the site and surface radiation readings were measured to help determine sampling locations. Radiological readings were consistent across the site, with no areas exhibiting elevated readings. A total of nine soil and tuff samples were collected from six locations in the drainage channel downgradient of the projectile impact area. Surface samples (0.0 to 1.0 ft) were collected at each of three locations and one subsurface sample (2.0 to 3.0 ft or 5.0 to 5.5 ft) was collected at all six locations for a total of three surface and six subsurface samples. All samples were analyzed for gamma-emitting radionuclides, metals, and strontium-90. The samples collected in 1995 and analyses requested are presented in Table 2.0-1.

2.8.3 Analytical Results

Lead was the only inorganic chemical detected above BV during the 1995 investigation. Lead was detected in one sample at 3 times BV. Selenium was not detected above BV but had detection limits above BV. Uranium-235 was detected above BV in three samples with a maximum activity 6 times BV. No other radionuclides were detected or detected above BVs/FVs.

Analytical data from the 1995 sampling event are presented in Tables 2.0-2 and 2.0-4, which show inorganic chemicals detected above BVs or having detection limits above BVs and radionuclides detected or detected above BVs/FVs, respectively. Sampling locations and results for inorganic chemicals detected above BVs and radionuclides detected or detected above BVs/FVs are shown in Figures 2.8-2 and 2.8-3, respectively.

2.9 AOC 20-003(c), Former U.S. Navy Gun Site

2.9.1 Description and History

AOC 20-003(c) is the site of a former U.S. Navy gun mount that was located approximately 90 ft north of East Jemez Road in Sandia Canyon (Figure 2.2-1). Together with SWMUs 20-001(b) and 20-002(c), AOC 20-003(c) comprises Consolidated Unit 20-001(b)-00. The former gun site was used between 1945 and 1948. A 10-ft × 10-ft concrete pad with a steel plate surface (structure 20-16) was used as a mount for the gun. Engineering drawing ENG-C 1778 shows a 30-ft-long earth-bermed timber frame filled with tamped earth (structure 20-10) located near the gun and on the slope at the toe of the canyon wall (LASL 1951, 024354). At the end nearest the gun, the timber frame was 12 ft wide and 10 ft high, and at the far end it was 20 ft wide and 5 ft high. The gun was fired into the earth-filled bin so the projectile could be recovered. Laboratory engineering records show that in April 1948 structures 20-10 and 20-16 were removed and that structure 20-28, a conduit manhole, was left in place. The disposition of the soil that filled the frame is not known (LANL 1994, 034756, pp. 5-16–5-17).

2.9.2 Previous Investigations

In 1985, the area around the gun mount pad (structure 20-16) was investigated under the Los Alamos Characterization Program. Radiation surveys revealed no readings higher than background and soil samples showed uranium levels within the background range (LANL 1994, 034756, p. 5-22).

In 1995, a Phase I RFI was conducted at AOC 20-003(c) (LANL 1996, 054466). The gun mount consisted of a soil-covered concrete pad with anchor bolts and included conduit and electrical wire debris. Samples were collected at eight locations. At each location, a surface sample (0.0 to 0.5 ft) and two subsurface samples (2.5 to 3.0 ft and 4.5 to 5.0 ft) were collected and analyzed for gamma-emitting radionuclides, HE, isotopic uranium, metals, strontium-90, and uranium. The samples collected in 1995 and analyses requested are presented in Table 2.0-1.

In 1995, a voluntary corrective action (VCA) was conducted at AOC 20-003(c). The top 4 ft of the 6-ft-thick concrete pad, conduits, the manhole (structure 20-28), and miscellaneous metal debris were removed. Approximately 21.5 yd^3 of concrete debris was disposed of at the Los Alamos County landfill. The remaining portion of the concrete pad that was not removed was covered with 5 to 6 ft of soil. No confirmation samples were collected during the VCA (LANL 1996, 053775, pp. 1–2).

2.9.3 Analytical Results

The locations of the 1995 samples were not provided in the 1996 RFI report (LANL 1996, 054466). Available sampling location coordinate data for the 1995 RFI samples do not associate these samples with TA-20. Because the locations associated with these sampling results could not be confirmed, these results are not decision-level data and are not presented in this HIR.

The seven samples collected from the northernmost trench during the 1995 RFI of SWMU 20-001(b) were adjacent to the former structures associated with AOC 20-003(c) (structures 20-10, 20-16, and 20-28) (see section 2.2). Copper, iron, and uranium were the only inorganic chemicals detected above BVs in these samples. Copper and iron were each detected slightly above BVs in one sample. Uranium was detected above BV in all seven samples, with a maximum concentration approximately 4 times BV. No organic chemicals were detected. Cesium-137 was the only radionuclide detected or detected above BVs/FVs and was detected in one sample at 0.26 pCi/g.

2.10 AOC 20-004, Septic System

2.10.1 Description and History

AOC 20-004, a former septic system (septic tank and drainlines), was located next to the current TA-72 small-arms firing range (Figure 2.10-1). This septic system was constructed in 1952 to serve the guardhouse (structure 20-47, now designated as 72-8) at former TA-20. The 540-gal.-capacity tank (structure 20-49) was a single-tank chamber made of 6-in. reinforced concrete, with inside dimensions of 6 ft × 6 ft × 5 ft (LASL 1951, 026066). The inlet drainline to the septic tank consisted of 6-in.-diameter vitrified clay pipe and was approximately 100 ft long. It is not clear from engineering drawings whether the system discharged to daylight. The tank ceased to be used after 1957, when the guard shack was abandoned, but was returned to service in 1966 when the TA-72 firing range opened. In 1989, the tank was collapsed and filled in. Interviews with site personnel state that the tank and associated drainlines were removed during a construction project in the early 1990s. This tank was registered with the New Mexico Environmental Improvement Division (NMEID) as an Unpermitted Individual Liquid Waste System (Registration Number LA-10). The NMEID registration states no leach bed was associated with the tank (LANL 1994, 034756, pp. 5-62–5-64).

2.10.2 Previous Investigations

In 1995, a Phase I RFI was conducted at AOC 20-004 (LANL 1996, 054466). A geophysical survey was conducted to help locate the tank. Survey data showed no subsurface anomalies, indicating the tank had been removed. Three surface (0.0 to 0.5 ft) and six subsurface (1.0 to 1.3 ft or 2.5 to 3.0 ft) samples were collected from nine locations at the former location of the septic tank and analyzed for metals, volatile organic compounds (VOCs), and semivolatile organic compounds (SVOCs) (LANL 1996, 054466, p. 5-60). The samples collected in 1995 and analyses requested are presented in Table 2.0-1.

2.10.3 Analytical Results

No inorganic chemicals were detected above BVs during the 1995 investigation. Antimony, cadmium, and mercury were not detected above BVs but had detection limits above BV. Two organic chemicals, benzoic acid and butylbenzylphthalate, were detected. Each chemical was detected in one sample at concentrations less than 0.1 mg/kg.

Based on a review of engineering drawing ENG-C45621 (LANL 1989, 104234), the AOC 20-004 septic tank was actually located approximately 50 ft south/southeast of the location sampled during the 1995 RFI. Therefore, the 1995 RFI samples were not collected near the location of the former septic tank, as intended but were collected near the active sanitary wastewater drainline associated with TA-72. Because these samples were not collected at the correct location, they are not decision-level data and are not presented in Tables 2.0-2 through 2.0-4 or in figures summarizing results.

2.11 SWMU 20-005, Septic System

2.11.1 Description and History

SWMU 20-005 is a former septic system (septic tank and drainlines) that was located south of East Jemez Road in the central portion of the aggregate area (Figure 2.11-1). The system served a toilet, restroom sink, and darkroom sink in building 20-1. The system was constructed in 1945, and its use was discontinued in 1948. Engineering drawings show the tank (structure 20-27) as having 6-in.-thick concrete walls with interior dimensions of 3 ft × 6 ft × 5 ft high and a capacity of 540 gal. (LASL 1951, 024343). The

discharge point of the tank is not known. The septic system could not be located during a 1985 program conducted by the Laboratory to remove existing structures from Sandia Canyon. Although the tank could not be located, a pit-like depression was noted in the tuff in the area where the tank was believed to have been located. According to the 1985 report, excavation surrounding the area of the "pit" turned up no evidence of the tank or associated drainlines (LANL 1994, 034756, pp. 5-64–5-65).

2.11.2 Previous Investigations

In 1985, a soil sample was collected from the pit-like depression where the tank is believed to have been located. No radioactivity was detected in this sample (LANL 1994, 034756, pp. 5-64–5-65). A Phase I RFI of SWMU 20-005 was conducted during 1995. As part of the RFI, a geophysical survey was conducted to help locate the tank. Survey data indicated no subsurface anomalies, confirming that the tank had been removed. Nine subsurface samples (4.5 to 5.0 ft) were collected from nine locations in the drainage downgradient of the former location of the septic tank and analyzed for metals and cyanide (LANL 1996, 054466, pp. 5-63–5-64). Samples collected in 1995 and analyses requested are presented in Table 2.0-1.

2.11.3 Analytical Results

The only inorganic chemical detected above BVs during the 1995 investigation was lead, which was detected slightly above BV in one sample. Antimony, cadmium, and total cyanide were not detected above BVs but had detection limits above BVs.

Analytical data from the 1995 sampling event are presented in Table 2.0-2, which shows inorganic chemicals detected above BVs or having detection limits above BVs. Sampling locations and results for inorganic chemicals detected above BVs are shown in Figure 2.11-2.

3.0 SITES UNDER INVESTIGATION IN TA-53

TA-53 is located in the northeast portion of the Laboratory on Mesita de los Alamos, which is the mesa bounded by Los Alamos Canyon to the north and Sandia Canyon to the south. TA-53 is the location of the Los Alamos Neutron Science Center (LANSCE). The primary component of LANSCE is a 0.5-mi-long linear proton accelerator that produces subatomic particles for experimental physics activities and isotope production. TA-53 also contains office buildings, laboratories, and other facilities associated with operation of the accelerator. Construction of the accelerator began in 1967. Before 1967, the area occupied by TA-53 was undeveloped.

Laboratory analyses requested for TA-53 samples are presented in Table 3.0-1. Decision-level data for TA-53 are provided in Tables 3.0-2 to 3.0-4. All laboratory analytical data are provided in Appendix B.

3.1 SWMU 53-001(a), Storage Area

3.1.1 Description and History

SWMU 53-001(a) is an outdoor storage area located on the north side of the TA-53 equipment test laboratory, building 53-2 (Figure 3.1-1). This storage area consists of a covered concrete pad currently serving as a drum storage area for building 53-2. Nonpolychlorinated biphenyl (non-PCB) dielectric oil is currently stored on the concrete pad. This area was also formerly used as a satellite accumulation area. The pad is surrounded by a concrete curb to provide secondary containment. A drain valve located in the northwest corner of the curbed area was formerly used to release accumulated rainwater but is now plugged. The storage area is believed to have been first used in 1968 when operations at building 53-2

began. A 1989 photograph of the area shows the site to look much as it does today (LANL 1989, 020502). Use of the site as a satellite accumulation area ceased in 1992. A Laboratory listing of waste-accumulation areas dated April 1993 notes the satellite accumulation area on the north side of building 53-2 was removed (LANL 1993, 029415). The site was inspected during preparation of the RFI work plan in 1993, and no evidence of staining or releases was noted (LANL 1994, 034756, p. 5-38).

3.1.2 Previous Investigations

Previous investigations at SWMU 53-001(a) include a Phase I RFI conducted during 1995 and 1997 (LANL 1996, 054466; LANL 1997, 056647). In 1995, two surface soil samples (0.0 to 0.5 ft) were collected at each of four locations along the northern side of the storage pad to determine if releases had occurred (LANL 1996, 054466, p. 5-43). One sample from each location was analyzed for metals, pesticides/PCBs, total petroleum hydrocarbons (TPHs), and VOCs, and the other sample was analyzed for SVOCs (LANL 1996, 054466, p. 5-45). In 1997, one surface (0.0 to 0.5 ft) and two subsurface (0.5 to 1.0 ft and 1.0 to 1.5 ft) samples were collected at one of the 1995 sampling locations and analyzed for pesticides/PCBs. Five surface (0.0 to 0.5 ft) and one subsurface (1.0 to 1.5 ft) samples were collected at six additional locations in a drainage downgradient of the site and analyzed for PCBs (LANL 1997, 056505, p. 1).

Based on the results of the Phase I RFI, a VCA was conducted during 1997 to remove PCB-contaminated soil. Approximately 10 yd^3 of soil was excavated. Following soil removal, 22 confirmation samples were collected from 16 locations. Ten of these sampling locations were just outside the boundary of the excavation, and six were at the bottom of the excavation (LANL 1997, 056505, p. 11). The sampling depth intervals were 0.0 to 0.5 ft, 0.5 to 0.8 ft, 0.7 to 1.2 ft, 0.8 to 1.2 ft, 2.5 to 3.0 ft, and 5.5 to 6.0 ft. All confirmation samples were analyzed for PCBs.

The samples collected in 1995 and 1997 and analyses requested are presented in Table 3.0-1. During the VCA, soil at the locations of four RFI samples (53-01054, 53-01518, 53-01519, and 53-01520) was excavated. Based on the results of the VCA confirmation samples, additional soil was removed at location 53-01526, including removal of the location of sample 0253-97-0080. Following this additional soil removal, a new confirmation sample (0253-97-0111) was collected at this location.

3.1.3 Analytical Results

Inorganic chemicals detected above BVs during the 1995 investigation were copper, lead, and mercury. Copper and lead were each detected slightly above BVs in one sample, and mercury was detected slightly above BV in two samples. Silver and thallium were not detected above BVs but had detection limits above BVs. Aroclor-1260 was detected in two samples, with a maximum concentration of 3.25 mg/kg. The pesticides alpha-chlordane, dieldrin, endosulfan II, and endrin aldehyde were each detected in one sample at concentrations ranging from 0.00284 mg/kg to 0.104 mg/kg. TPH was detected in four samples with a maximum concentration of 458 mg/kg.

Aroclor-1260, the only organic chemical detected during the 1997 investigation sampling, was detected in six samples with a maximum concentration of 3.9 mg/kg.

Aroclor-1260 was also the only organic chemical detected during the 1997 confirmation sampling in five confirmation samples, with a maximum concentration of 0.15 mg/kg.

Analytical data from the 1995 and 1997 sampling events are presented in Tables 3.0-2 and 3.0-3, which show inorganic chemicals detected above BVs and having detection limits above BVs and detected organic chemicals, respectively. Sampling locations and results for inorganic chemicals detected above

BV and detected organics are shown in Figures 3.1-2 and 3.1-3, respectively. The results for those samples excavated during the VCA are not representative of current site conditions and are identified by shading in the tables. The data for excavated samples are not presented in the figures but are provided in Appendix B.

3.2 SWMU 53-001(b), Storage Area

3.2.1 Description and History

SWMU 53-001(b) is an outdoor storage area located on a concrete pad that rests on the asphalt parking lot on the south side of the TA-53 equipment test laboratory, building 53-2 (Figure 3.1-1). Before 1990, this area consisted of drum racks used to store drums of products and wastes associated with maintenance activities conducted in building 53-2. Wastes included spent trichloroethene (TCE), Freon, other solvents, and acidic waste. Engineering drawings show the storage area was constructed in 1971 (LASL 1971, 023260). A photograph taken in 1989 shows the storage area contained drums, some of which were product and some of which were marked with hazardous waste labels. In addition, the photograph identifies no staining, suggesting no spills or leakage occurred (LANL 1989, 020516). In 1990, the drum racks were removed and replaced with four lockable flammable-material storage cabinets. The site was inspected during preparation of the RFI work plan in 1993, and again no evidence of staining or releases was noted (LANL 1994, 034756, p. 5-40). The Laboratory's current waste-site database indicates this storage location also contained a less-than-90-d storage area that was removed (i.e., taken out of service) in 1998. The site currently contains flammable-material storage cabinets, which are used for product storage but not for waste storage.

3.2.2 Previous Investigations

A Phase I RFI was conducted at SWMU 53-001(b) in 1995 to determine whether contaminants were present in the drainage channel downgradient of this site. This drainage channel collects surface runoff from the parking lot upon which the storage area is located. Five surface samples (0.0 to 0.3 ft, 0.0 to 0.7 ft, and 0.0 to 1.0 ft) and two subsurface samples (0.3 to 0.7 ft and 1.0 to 1.5 ft) were collected from two locations in the drainage channel (LANL 1996, 054466, p. 5-49). One surface sample from each location and one subsurface sample were analyzed for metals, PCBs, TPH, and VOCs. Two surface samples from one location and one surface sample and one subsurface sample from the other location were analyzed for SVOCs. The samples collected in 1995 and analyses requested are presented in Table 3.0-1.

3.2.3 Analytical Results

Inorganic chemicals detected above BVs during the 1995 investigation were cadmium, copper, lead, and zinc. Cadmium was detected above BV at two locations with a maximum concentration 3 times BV. Copper and lead were each detected above BVs at one location at approximately 2.5 times BV. Zinc was detected above BV at two locations with a maximum concentration 2 times BV. Antimony and mercury were not detected above BVs but had detection limits above BVs. TPH was the only organic chemical detected and was detected in three samples with a maximum concentration of 75.2 mg/kg.

Analytical data from the 1995 sampling event are presented in Tables 3.0-2 and 3.0-3, which show inorganic chemicals detected above BVs and having detection limits above BVs and detected organic chemicals, respectively. Sampling locations and results for inorganic chemicals detected above BVs and detected organic chemicals are shown in Figures 3.1-2 and 3.2-1, respectively.

3.3 SWMU 53-005, Former Waste Disposal Pit

3.3.1 Description and History

SWMU 53-005 is an inactive disposal pit located southeast of the TA-53 equipment test laboratory, building 53-2 (Figure 3.1-1). This pit measured approximately 8 ft × 8 ft × 6 ft deep and was excavated directly into the tuff. The pit was constructed in approximately 1970 and used until 1986. Historical engineering drawings indicate that solvent wastes (TCE and Freon) and acidic wastes were piped from the building 53-2 equipment test laboratory to the pit (LASL 1971, 023260). Other wastes may also have been dumped into the pit. The 1986 working draft of the Comprehensive Environmental Assessment and Response Program report describes the pit as being full of a thick brownish liquid and notes the presence of a metal grate over the pit (DOE 1986, 008657, p. TA53-3). The 1990 SWMU report states that the pit contents were removed in 1986 and the sides of the pit scraped clean. The contents of the pit were sampled during the 1986 removal, but sampling data were not reported and could not be located. The 1990 SWMU report notes that the liquid in the pit contained 4–5 ppm PCBs (LANL 1990, 007514). Equipment maintained in building 53-2 and the wastes discharged to the pit may also have contained radioactive activation products. The reported location of the disposal pit is currently vegetated and undeveloped.

3.3.2 Previous Investigations

A Phase I RFI was conducted at the disposal pit during 1995 to determine whether contaminants were present (LANL 1996, 054466). A reconnaissance-type geophysical survey was conducted at the general location of the pit to identify sampling locations. The location of the pit was not found. Additional historical research was conducted to better identify the location of the pit. The 1996 RFI report notes an expanded geophysical survey was conducted and the location of the pit was identified (LANL 1996, 054466, p. 5-57). The location of the pit was not documented in the RFI report, however, and associated documentation cannot be located.

3.3.3 Analytical Results

No previous sampling has been performed at SWMU 53-005.

3.4 SWMUs 53-006(b) and 53-006(c), Underground Storage Tanks

3.4.1 Description and History

SWMUs 53-006(b) and 53-006(c) are two identical steel underground tanks (structures 53-68 and 53-69, respectively), located west of building 53-3, Sector M (Figure 3.4-1). Together with AOC 53-006(a), SWMUs 53-006(b) and 53-006(c) comprise Consolidated Unit 53-006(b)-99. Each tank is approximately 6 ft in diameter × 12 ft long, with a capacity of approximately 2500 gal. The tanks are installed next to each other and are approximately 18 ft belowgrade. The tanks were formerly used to store radioactive liquid waste (RLW), which was generated in building 53-3 during operation of the LANSCE accelerator. Most of this RLW consisted of tritiated deionized water collected in floor drains along the length of the accelerator tunnel. The tanks received the wastewater from the floor drains and from a sink, shower, and clothes washer in building 53-502 (LANL 1994, 034756, p. 6-12). Waste flowed into the tanks through a buried 4-in.-diameter drainline. Structures 53-68 and 53-69 functioned primarily as holding tanks to allow short-lived activation products to decay before discharging the RLW to the TA-53 surface impoundments [Consolidated Unit 53-002(a)-99]. The tanks were installed in 1973 and operated until 1999 when the new TA-53 RLW system became operational.

In 2000, both tanks were emptied, high-pressure washed, and double-rinsed. The drainlines to the tanks were cut and capped, isolating the tanks. A video camera and light source were placed in the tanks to observe conditions inside the tanks. No cracks, fractures, holes, or other integrity issues were observed (LANL 2001, 070268).

The location of the two tanks is currently within the locked, fenced nuclear facility boundary associated with structure 53-59 (AOC 53-006[a]), an underground tank formerly used to store spent ion-exchange resin. AOC 53-006(a) was approved for NFA by the U.S. Environmental Protection Agency (EPA 2005, 088464) and is regulated by DOE as a Category 2 nuclear facility and nuclear environmental site.

3.4.2 Previous Investigations

In March 1999, samples were collected beneath the waste lines connected to the tanks when the lines were exposed, cut, and capped to bypass the tanks and route the RLW lines to the new TA-53 RLW system. Samples were collected at two depths at each of three locations beneath the waste lines. Samples were analyzed for VOCs, SVOCs, metals, cyanide, isotopic uranium, isotopic plutonium, strontium-90, tritium, and gamma-emitting radionuclides. The samples collected in 1999 and analyses requested are presented in Table 3.0-1.

The contents of the tanks were also sampled in accordance with a sampling and analysis plan (SAP) approved by NMED (2000, 064821). In March 2000, the contents of the tanks were removed and transferred to a high-integrity container (HIC). The material in the HIC was allowed to settle, and the liquid was removed from the HIC for treatment. The liquid was sampled to verify that it met the waste acceptance criteria (WAC) of the treatment facility. In March 2000, a sample of the sludge remaining after the liquid had been removed was collected and analyzed for VOCs, SVOCs, toxicity characteristic leaching procedure (TCLP) metals, and PCBs. The sample volume was insufficient to also analyze for total metals.

3.4.3 Analytical Results

No inorganic chemicals were detected above BVs during the 1999 sampling. Antimony, total cyanide, and selenium were not detected above BVs but had detection limits above BVs. Benzene and bis(2-ethylhexyl)phthalate were the only organic chemicals detected. Benzene was detected in three samples at a maximum concentration of 0.00078 mg/kg, and bis(2-ethylhexyl)phthalate was detected in four samples at a maximum concentration of 0.097 mg/kg. Radionuclides detected and having no BVs/FVs were europium-152, strontium-90, and tritium. Europium-152 and tritium were each detected in one sample at 1.23 pCi/g and 7.08 pCi/g, respectively. Strontium-90 was detected in two samples at a maximum activity of 1.45 pCi/g.

Analytical data from the 1999 sampling event are presented in Tables 3.0-2, 3.0-3, and 3.0-4, which show inorganic chemicals having detection limits above BVs, detected organic chemicals, and radionuclides detected or detected above BVs/FVs, respectively. Sampling locations and results for detected organic chemicals and radionuclides detected or detected above BVs/FVs are shown in Figures 3.4-2 and 3.4-3, respectively.

The results of the tank sludge sampling were reported to NMED in March 2001 (LANL 2001, 070268). No organic chemicals were detected in the sludge associated with SWMUs 53-006(b) and 53-006(c). The only TCLP metals detected were barium (0.338 mg/L), cadmium (0.151 mg/L), and lead (0.187 mg/L), which were detected below TCLP regulatory levels. Because these data were collected for waste characterization purposes, they are not included with the environmental data presented in Appendix B.

3.5 SWMUs 53-006(d) and 53-006(e), Underground Storage Tanks

3.5.1 Description and History

SWMUs 53-006(d) and 53-006(e) (structures 53-144 and 53-145, respectively) comprise the two compartments of an inactive underground tank associated with the RLW system at TA-53. SWMUs 53-006(d) and 53-006(e) also comprise Consolidated Unit 53-006(d)-99. This tank, located directly south of building 53-622 (Figure 3.5-1), measures approximately 20 ft long × 12 ft wide × 10 ft high. The tank is approximately 10 ft belowgrade and constructed of 1-ft-thick reinforced concrete with a 1-ft-thick reinforced concrete divider wall between the two compartments. SWMUs 53-006(d) and 53-006(e) were used to store RLW generated in the Weapons Neutron Research facility. Wastes received by these tank compartments included drainage from floor drains in the beam line, target, and experimental areas in building 53-7; drainage from beneath a contaminated deionized water pump stand in building 53-8; drainage from contaminated floor drains and sink drains in building 53-30; drainage from the deionized water system in building 53-30; and discharges from an equipment room floor drain in building 53-368 (LANL 1994, 034756, p. 6-12). A buried 4-in. waste line conveyed RLW to the tank. The tank compartments were used primarily as holding areas to allow short-lived activation products to decay before discharging the RLW to the TA-53 surface impoundments [Consolidated Unit 53-002(a)-99]. The tank was installed in 1977 and operated until 1999 when the new TA-53 RLW system became operational.

In 2000, both tank compartments were emptied, high-pressure washed, and double-rinsed. The drainlines to the tank were cut and capped, isolating the tank. A video camera and light source were placed in the tank to observe conditions inside the tank. No cracks, fractures, holes, or other integrity issues were observed (LANL 2001, 070268). Facility staff reported that the tanks were backfilled with sand following decontamination. The pumps and piping formerly at the surface have been removed, and the tank is currently located beneath a recent addition to building 53-30 housing experimental equipment and is inaccessible.

3.5.2 Previous Investigations

In March 1999, the waste lines connected to the tanks were exposed, cut, and capped to bypass the tanks and reroute the lines to the new TA-53 RLW system. During these activities, samples were collected at two depths at each of two locations beneath the waste lines. Samples were analyzed for VOCs, SVOCs, metals, cyanide, isotopic uranium, isotopic plutonium, strontium-90, tritium, and gamma-emitting radionuclides. The samples collected and analyses requested are presented in Table 3.0-1.

The contents of the tanks were also sampled in accordance with a SAP approved by NMED (2000, 064821). In February 2000, the contents of the tanks were removed and transferred to an HIC. The material in the HIC was allowed to settle, and the liquid was removed from the HIC for treatment. The liquid was sampled to verify that it met the waste acceptance criteria of the treatment facility. In March 2000, a sample of the sludge remaining after the liquid had been removed was collected and analyzed for VOCs, SVOCs, target analyte list (TAL) metals, and PCBs. Because of the low solids content of the sample, it was analyzed as a liquid instead of as a sludge, as requested. An additional sample having higher solids content was collected in April 2000 and analyzed for SVOCs, TAL metals, TCLP metals, and PCBs.

3.5.3 Analytical Results

No inorganic chemicals were detected above BVs during the 1999 sampling. Antimony, total cyanide, mercury, and selenium were not detected above BV but had detection limits above BVs. Bis(2-ethylhexyl)phthalate, 2-butanone, and di-n-butylphthalate were the only organic chemicals detected. Bis(2-ethylhexyl)phthalate and 2-butanone were each detected in two samples at maximum concentrations of 0.12 mg/kg and 0.068 mg/kg, respectively. Di-n-butylphthalate was detected in one sample at 0.052 mg/kg. Strontium-90 was the only radionuclide detected and was detected in two samples at a maximum activity of 1.23 pCi/g.

Analytical data from the 1999 sampling event are presented in Tables 3.0-2, 3.0-3, and 3.0-4, which show inorganic chemicals having detection limits above BVs, detected organic chemicals, and radionuclides detected or detected above BVs/FVs, respectively. Sampling locations and results for detected organics and radionuclides detected or detected above BVs/FVs are shown in Figures 3.5-2 and 3.5-3, respectively.

The results of the tank sludge sampling were reported to NMED in March 2001 (LANL 2001, 070268). Organic chemicals detected in the sludge associated with SWMUs 53-006(d) and 53-006(e) were bis(2-ethylhexyl)phthalate (9.78 mg/kg), four polycyclic aromatic hydrocarbons (PAHs) (2.79 mg/kg to 4.9 mg/kg), ethylbenzene (0.084 mg/kg), methylene chloride (0.0081 mg/kg), and Aroclor-1254 (0.731 mg/kg). Twenty metals were detected, with iron having the highest concentration (26,400 mg/kg). The only TCLP metals detected were barium (2.60 mg/L) and chromium (0.011 mg/kg), which were detected below TCLP regulatory levels. Because these data were collected for waste characterization purposes, they are not included with the environmental data presented in Appendix B.

3.6 SWMU 53-006(f), Underground Storage Tank

3.6.1 Description and History

SWMU 53-006(f) is an inactive 3000-gal. storage tank located beneath the D Wing basement floor of building (53-1), an office, and laboratory (Figure 3.6-1). This tank was used from 1972 to 1996 to store neutralized RLW generated in building 53-1 radiochemistry laboratories. The storage tank received treated waste from an aboveground neutralization treatment tank [SWMU 52-007(a) discussed in section 3.7.1]. When sufficient wastes accumulated in the storage tank, the contents were removed for further treatment or disposal by pumping to a tank truck located on a transfer pad outside the southwest corner of building 53-1. The transfer pad had a spill-collection sump that drained back into the storage tank. The sump drain could be plugged to prevent rainwater from entering the RLW system (Santa Fe Engineering Ltd. 1993, 031756; LANL 1994, 034756, p. 6-2). Although the storage tank was intended only to manage radioactive waste, an unintended mercury spill in one of the radiochemistry laboratories in building 53-1 entered the neutralization tank, which drained into this storage tank. As a result, the contents of the storage tank were sampled and found to contain hazardous wastes (LANL 1999, 063459). The contents were subsequently removed, and the storage tank was decontaminated by steam cleaning. The storage tank was taken out of service in August 1996. The tank is currently empty, and all piping into and out of the tank has been cut and capped. The access doors into the tank are locked, and a spill-containment berm has been placed around the tank to prevent any spills inside the building from entering the tank.

3.6.2 Previous Investigations

No previous investigations have been conducted at SWMU 53-006(f).

3.6.3 Analytical Results

There are no analytical results for SWMU 53-006(f).

3.7 SWMU 53-007(a), Aboveground Neutralization Tank

3.7.1 Description and History

SWMU 53-007(a) is an inactive 50-gal. aboveground tank located in the D Wing basement of an office and laboratory building (53-1) at TA-53 (Figure 3.6-1). This tank was used from 1972 to 1996 to neutralize RLW generated in the radiochemistry laboratories in building 53-1. The sources of these wastes were cup drains, an emergency eye wash/shower drain, and a floor sink drain. The wastes were collected in the tank where they were neutralized with sodium hydroxide. After neutralization, the treated wastes were drained to an underground tank located beneath the basement floor [SWMU 53-006(f)]. The neutralization tank was intended only to manage radioactive waste. However, a 1990 RCRA inspection by NMED identified the potential for SWMU 53-007(a) to have received mercury from an unintentional spill in one of the radiochemistry laboratories in building 53-1. As a result, the contents of the neutralization tank were sampled and found to contain hazardous wastes (LANL 1999, 063459). The contents were subsequently removed, and the tank was decontaminated by steam cleaning. The neutralization tank is currently empty, and all piping into and out of the tank has been cut and capped.

3.7.2 Previous Investigations

No previous investigations have been conducted at SWMU 53-007(a).

3.7.3 Analytical Results

There are no analytical results for SWMU 53-007(a).

3.8 AOC 53-008, Storage Area

3.8.1 Description and History

AOC 53-008 is an unpaved open area (referred to as a "Boneyard") used to store used materials and equipment associated with experiments conducted at TA-53. This storage area, approximately 3 to 4 acres in size, is irregularly shaped and located north, east, and south of the former TA-53 surface impoundments [Consolidated Unit 53-002(a)-99] (Figure 3.8-1). Most of the storage area is vegetated with grasses, shrubs, and juniper trees; several dirt trails also run through it. Materials shown to be present at the site in 1989 photographs include vacuum pumps, metal ducting, concrete shielding blocks, empty overpack drums, and drums containing steel bearings (LANL 1989, 020616; LANL 1989, 020614; LANL 1989, 020615). This site was inspected in September 1993 during preparation of the RFI work plan and found to contain shielding blocks (magnetite concrete and steel), concrete, steel, other metallic debris, and other miscellaneous items. No hazardous materials or chemicals were observed, with the exception of lead stored in a shed (structure 53-621) at the south end of the site (LANL 1994, 034756, p. 5-44).

This area has been used for storage from approximately 1972 to the present; currently, much of the material that was previously stored at the site has been removed.

3.8.2 Previous Investigations

A Phase I RFI was conducted at AOC 53-008 during 1995 to determine whether contaminants were present at the site (LANL 1996, 054466). The Phase I RFI included conducting a radiation survey of the site, followed by collection of 11 surface samples (0.0 to 0.5 ft) at locations determined by the results of the radiation survey (LANL 1997, 056384). All samples were submitted for laboratory analysis of metals and gamma-emitting radionuclides. In 1998, three additional surface samples (0.0 to 0.2 ft) were collected within the boundary of AOC 53-008 at the location of the proposed new TA-53 radioactive liquid waste treatment facility (RLWTF) and analyzed for metals, gross-alpha-beta radioactivity, and gamma-emitting radionuclides. Samples collected in 1995 and 1998 and the analyses requested are presented in Table 3.0-1.

Investigation and cleanup activities were conducted at the former surface impoundments [Consolidated Unit 53-002(a)-99] located east of AOC 53-008 from 1999 to 2002 (LANL 2004, 085221). Some of the sampling performed to characterize potential releases from the impoundments was conducted on the mesa top within the boundary of AOC 53-008. Specifically, samples were collected at the head of the drainage east of the impoundments. Five surface samples (0.0–0.25 ft, 0.0–0.3 ft, and 0.0–0.5 ft) and six subsurface samples (0.3–0.8 ft, 1.0–2.0 ft, 4.0–5.0 ft, 14.0–15.0 ft, 28.9–30.0 ft, and 49.0–50.0 ft) were collected at seven locations. Samples were analyzed for various analytes, including metals, SVOCs, VOCs, PCBs, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, strontium-90, and tritium. The samples collected and analyses requested are presented in Table 3.8-1, and sampling locations are shown in Figure 3.8-2.

In 2001 and 2002, samples were also collected farther down the drainage, which receives runoff from AOC 53-008 in addition to previously having received discharges from the impoundments. Twenty-one surface samples and 26 shallow subsurface samples (1.7-ft maximum sample depth) were collected at 28 locations. These samples were analyzed for various analytes, including metals, hexavalent chromium, herbicides, PAHs, PCBs, pesticides, SVOCs, VOCs, americium-241, gamma-emitting radionuclides, tritium, isotopic plutonium, isotopic uranium, and strontium-90. Samples collected and analyses requested are presented in Table 3.8-1, and sampling locations are shown in Figure 3.8-2.

3.8.3 Analytical Results

RFI Sampling

Cadmium was the only inorganic chemical detected above BV in one sample during the 1995 RFI sampling. Antimony and mercury were not detected above BVs but had detection limits above BVs. Cesium-134 and cobalt-60 were the only radionuclides detected and have no BVs/FVs. Cesium-134 was detected in one sample at 6.22 pCi/g, and cobalt-60 was detected in two samples at a maximum activity of 2.69 pCi/g.

Antimony and lead were the only inorganic chemicals detected above BVs during the 1998 sampling. Antimony was detected slightly above BV in two samples. Lead was detected in one sample at approximately 3.5 times BV. No radionuclides were detected.

Analytical data from the 1995 and 1998 sampling events are presented in Tables 3.0-2 and 3.0-4, which show inorganic chemicals detected above BVs and having detection limits above BVs and radionuclides detected or detected above BVs/FVs, respectively. Sampling locations and results for inorganic chemicals detected above BVs and radionuclides detected or detected above BVs/FVs are shown in Figures 3.8-3 and 3.8-4, respectively.

Sampling at Head of Drainage

Aluminum, arsenic, barium, calcium, chromium, copper, magnesium, selenium, and zinc were detected above BVs in samples collected at the head of the drainage during the impoundments investigation. Aluminum, arsenic, barium, chromium, copper, and magnesium were detected at less than 3 times BV in one sample. Zinc was detected in one sample slightly above BV, and calcium was detected in two samples less than 2 times BV. Selenium was detected in three samples with a maximum concentration 2.5 times BV.

Benzyl alcohol, bis(2-ethylhexyl)phthalate, dichlorodifluoroethane, and phenol were the only organic chemicals detected in the samples collected at the head of the drainage. Each was detected in only one sample and at a maximum concentration of 0.063 mg/kg.

Cesium-134, cobalt-60, sodium-22, strontium-90, and tritium were the only radionuclides detected or detected above FV. Cesium-134, which has no FV, was detected in two samples at a maximum activity of 0.71 pCi/g. Cobalt-60, which has no FV, was detected in five samples with a maximum activity of 3.7 pCi/g. Sodium-22, which has no FV, was detected in one sample at 0.28 pCi/g. Strontium-90 was detected above its FV in three surface samples, with a maximum activity of 4.98 pCi/g. Strontium-90 was also detected in three subsurface samples at a maximum activity of 2.08 pCi/g.

Analytical data from the sampling performed at the head of the drainage in 1999 and 2002 are presented in Tables 3.8-2, 3.8-3, and 3.8-4, which show inorganic chemicals detected above BVs and having detection limits above BVs, detected organic chemicals, and radionuclides detected or detected above BVs/FVs, respectively. .

Drainage Reach Sampling

Antimony, copper, lead, and selenium were the only inorganic chemicals detected above BVs in the reach sampling. Antimony was detected in one sample at approximately 10 times BV. Lead was detected at approximately 3 times BV or less in 11 samples. Selenium was detected slightly above BV in six samples.

Organic chemicals detected in the reach samples were acetone (4 samples); Aroclor-1254 (21 samples); Aroclor-1260 (5 samples); benzoic acid (2 samples); benzyl alcohol (1 sample); bromomethane (1 sample); 2-chlorotoluene (1 sample); 2,4,-D ([2,4-dichlorophenoxyacetic acid] 1 sample); dalapon (1 sample); 2,4,DB ([4-(2,4-dichlorophenoxy)butyric acid] 1 sample); 4,4'-DDE ([4,4'-dichlorophenyltrichloroethylene] 5 samples); 4,4'-DDT ([4,4'-dichlorodiphenyltrichloroethane] 3 samples); 1,2-dichlorobenzene (2 samples); 1,3-dichlorobenzene (3 samples); 1,4-dichlorobenzene (5 samples); dichlorofluoromethane (1 sample); cis/trans-1,2-dichlorethene (1 sample); fluoranthene (1 sample); hexacholorobenzene (1 sample); 4-isopropyltoluene (4 samples); tetrachloroethene (1 sample); toluene (14 samples); trichloroethene (4 samples); trichlorotrifluoroethane (1 sample); and total xylene (2 samples). All detected concentrations were less than 1 mg/kg, and most were near or below the estimated quantitation limit.

Americium-241, cesium-134, cesium-137, and cobalt-60 were the only radionuclides detected or detected above FVs in the reach samples. Americium-241 was detected in two samples at a maximum activity of 0.163 pCi/g.Cesium-134 was detected in 25 samples with a maximum activity of 1.95 pCi/g. Cesium-137 was detected in two samples at a maximum activity of 1.02 pCi/g. Cobalt-60 was detected in 25 samples with a maximum activity of 5.83 pCi/g.

Analytical data from the sampling performed in the drainage reaches in 2001 and 2002 are presented in Tables 3.8-2, 3.8-3, and 3.8-4, which show inorganic chemicals detected above BVs and having detection

limits above BVs, detected organic chemicals, and radionuclides detected or detected above BVs/FVs, respectively.

3.9 AOC 53-009, Former Storage Area

3.9.1 Description and History

AOC 53-009 is an unpaved area formerly used to store liquid scintillation oil used in experiments conducted at TA-53. This area is located north of the inactive TA-53 surface impoundments [Consolidated Unit 53-002(a)-99] (Figure 3.9-1). The date this storage area started operation is not known. The 1990 SWMU report describes this storage area as an earth-bermed area containing three aboveground-storage tanks (LANL 1990, 007514). The three tanks and earthern containment berm, which appears to be approximately 2 ft high, are shown in a 1989 photograph (LANL 1989, 020608). This photograph also shows twenty-five 55-gal. drums within the containment berm. Another photograph taken on the same day shows soil staining near one of the tanks (LANL 1989, 020609). This earthen-bermed area was later replaced with two steel containment structures (structures 53-1071 and 53-1072), each of which measured 30 ft × 60 ft × 3 ft high. Both containment structures were lined with 0.125-in.-thick butyl rubber to prevent the release of spills. This storage area was inspected in 1993 during preparation of the RFI work plan (LANL 1994, 034756, p. 6-33). At that time, three aboveground tanks, each containing 30,000 gal. liquid scintillation oil, were present in the western containment (structure 53-1071). The scintillation liquid was mineral-oil based and contained a small fraction of pseudocumene (1,2,4-trimethylbenzene). In addition, thirty 55-gal. drums were present. The drums also contained liquid scintillation oil. These drums were covered with a canvas tarp. Four empty tanks and 141 55-gal. drums of liquid scintillation oil, were present in the eastern containment (structure 53-1072). These drums were also covered with a canvas tarp. At the time this area was inspected, no staining was observed. Laboratory facility engineering records state that structure 53-1071 was removed in March 2003, and structure 53-1072 was removed in November 1998.

3.9.2 Previous Investigations

In September 2006, two subsurface samples were collected at the location of structure 53-1071 as part of closeout activities for removal of this structure. Samples were submitted for analysis of VOCs, SVOCs, and TPH-diesel range organics (DRO). These samples were collected using EP procedures and submitted for analysis through the Sample Management Office (SMO). Samples collected and analyses requested are presented in Table 3.0-1.

3.9.3 Analytical Results

The only organic chemical detected during the 2006 sampling was TPH-DRO, which was detected in one sample at 4.35 mg/kg. No VOCs or SVOCs were detected.

Analytical data from the 2006 sampling event are presented in Table 3.0-3. Sampling locations and results for detected organic chemicals are shown in Figure 3.9-2.

3.10 AOC 53-010, Former Storage Area

3.10.1 Description and History

AOC 53-010 is an unpaved former storage area used to store scintillation liquid in tanks and drums. This former storage area is located approximately 150 ft southeast of building 53-1031 (Figure 3.10-1). The

storage area measured 30 ft × 35 ft and was surrounded by 2-ft-high soil berms. The bottom and sidewalls of the storage area were lined with a reinforced welded geomembrane, which was covered with soil. The 1990 SWMU report notes this site was used in 1989 and 1990 to store scintillation liquid in two 3000-gal. tanks and eighteen 55-gal. drums (LANL 1990, 007514). The scintillation liquid was mineral-oil based and contained a small fraction of pseudocumene (1,2,4-trimethylbenzene). A 1989 photograph shows two tanks labeled "mineral oil" and approximately 12 drums (LANL 1989, 020636). The tanks and drums were removed in 1990 when the site was closed. Two small areas of stained soil were also removed at that time. The storage area was inspected in 1993 during preparation of the RFI work plan. The cover soil at the top of the berms had been eroded in some places, exposing the membrane liner and causing deterioration. Several circular indentations caused by drum storage were noted in the soil (LANL 1994, 034756, p.5-48). However, no evidence of staining was noted during the inspection. At present, the site is partially vegetated.

3.10.2 Previous Investigations

A Phase I RFI was conducted at AOC 53-010 during 1995 (LANL 1996, 054466). The Phase I RFI included collecting six surface samples (0.0 to 0.2 ft and 0.0 to 0.3 ft) from above the liner within the bermed area. These samples were submitted for laboratory analysis of SVOCs and TPH (ICF Kaiser Engineers 1995, 056781, p. 1).

Based on the results of the Phase I RFI sampling, a VCA was conducted in 1995 (LANL 1996, 053776). VCA activities included removing the cover soil from above the membrane liner, removing the membrane liner, inspecting the soil beneath the liner for evidence of staining (none was found), collecting six confirmation samples of soil from beneath the liner (0.0 to 0.08 ft and 0.0 to 0.5 ft), removing the soil berms, and regrading and reseeding the site. Confirmation samples were submitted for laboratory analysis of VOCs (LANL 1996, 053776, pp. 5–6). The samples collected and analyses requested are presented in Table 3.0-1.

3.10.3 Analytical Results

TPH was detected in the 1995 RFI soil samples at concentrations ranging from 7.93 to 5100 mg/kg (Table 3.0-3). No SVOCs were detected. During the VCA, these sample locations, which are all above the membrane liner, were excavated (these samples are indicated by shading in Table 3.0-3). These results, therefore, are no longer representative of site conditions. No organic chemicals were detected in the 1995 VCA confirmation samples.

3.11 AOC 53-012(e), Drainline and Outfall

3.11.1 Description and History

AOC 53-012(e) is a drainline and former outfall associated with the TA-53 equipment test laboratory (building 53-2). The drainline runs southwest under an asphalt parking lot approximately 140 ft from the southwest corner of building 53-2 and then changes direction, running northwest approximately 50 ft to the associated outfall near the edge of Sandia Canyon (Figure 3.1-1). The drainline received discharges from 12 trench drains, 2 sink drains, and a floor drain in building 53-2. The primary source of wastewater was blowdown from the building 53-2 cooling tower, which was discharged to one of the trench drains. Historically, chemicals added to the cooling water included sodium molybdate and hydroxyethylidene diphosphonic acid as corrosion inhibitors; 1-bromo-3-chloro-5,5-dimethylhydantoin as a microbicide; and sodium bisulfite as an oxygen scavenger. The trench drains also received equipment-flushing and floor-washing wastewater (LANL 1994, 034756, pp. 5-74–5-76). Discharges to this outfall began in

approximately 1968, when building 53-2 went into service. This outfall was included in the Laboratory's National Pollutant Discharge Elimination System (NPDES) permit as outfall 03A114. Discharges to this outfall ceased, and the outfall was removed from the NPDES permit on July 11, 1995. The drainline is still in place, but the outfall has been plugged.

3.11.2 Previous Investigations

A Phase I RFI was conducted at AOC 53-012(e) during 1995 (LANL 1996, 054466). The Phase I RFI included a geomorphic survey conducted downstream of the outfall to identify sediment catchments. Two surface samples (0.0 to 0.3 ft and 0.0 to 0.7 ft) were collected at each of three locations in the sediment catchments (LANL 1995, 054466, p. 5-66). One sample from each location was submitted for analysis of TAL metals, VOCs, pesticides/PCBs, and TPH. The other sample from each location was submitted for analysis of SVOCs (LANL 1995, 054466, p. 5-67). The samples collected and analyses requested are presented in Table 3.0-1.

3.11.3 Analytical Results

Inorganic chemicals detected above BVs during the 1995 investigation were antimony, cadmium, chromium, copper, lead, mercury, nickel, silver, and zinc. Antimony and cadmium were each detected in three samples at a maximum concentration of 3 times BV. Chromium was detected in one sample slightly above BV. Copper was detected in three samples at a maximum concentration of 18 times BV. Lead was detected in two samples at less than 2 times BV. Mercury was detected in one sample at approximately 3 times BV. Nickel was detected in one sample at less than 2 times BV. Silver was detected in one sample at approximately 2.5 times BV. Zinc was detected in three samples with a maximum concentration of 4.5 times BV. Thallium was not detected above BV but had detection limits above BV.

Organic chemicals detected were Aroclor-1248, Aroclor-1254, Aroclor-1260, alpha-chlordane, gamma-chlordane, dieldrin, endosulfan II, endrin aldehyde, and TPH. Aroclor-1248 was detected in three samples at a maximum concentration of 0.76 mg/kg. Aroclor-1254 was detected in one sample at 0.351 mg/kg. Aroclor-1260 was detected in two samples at a maximum concentration of 0.335 mg/kg. Alpha-chlordane, gamma-chlordane, and dieldrin were detected in one sample each at 0.00804 mg/kg, 0.00376 mg/kg, and 0.0156 mg/kg, respectively. Endosulfan II was detected in three samples at a maximum concentration of 0.00993 mg/kg. Endrin aldehyde was detected in two samples at a maximum concentration of 0.00599 mg/kg. TPH was detected in three samples at a maximum concentration of 2090 mg/kg.

Analytical data from the 1995 Phase I RFI sampling are presented in Tables 3.0-2 and 3.0-3, which show inorganic chemicals detected above BVs and having detection limits above BVs and detected organic chemicals, respectively. Sampling locations and results for inorganic chemicals detected above BVs and detected organic chemicals are shown in Figures 3.1-2 and 3.2-1, respectively.

3.12 AOC 53-013, Lead Spill Site

3.12.1 Description and History

AOC 53-013 is a lead spill site located near the east end of TA-53, northeast of buildings 53-10 and 53-315, which are part of the LANSCE accelerator facility (Figure 3.12-1). Lead shot is present within two fenced areas approximately 50 ft × 80 ft and 60 ft × 180 ft, that are used for storage and as a staging area for equipment used in beam experiments. The lead shot was used as radiation shielding for experiments conducted in building 53-10. The shot ranges from 1.5 mm to 4 mm in diameter and is mixed into the sandy soil present at the site. Previously, some of the shot was visible on the ground surface. The shot

was spilled at the site during assembly of components containing the shot and was also released from defective containers (ICF Kaiser Engineers 1995, 058172, p. 2). The dates the shot was spilled onto the ground surface are not known but could date as far back as the late 1960s or the early 1970s, when accelerator operations began. This site was not originally identified in the 1990 SWMU report (LANL 1990, 007514) but was discovered after the Operable Unit (OU) 1100 RFI work plan had been prepared (LANL 1994, 034756). Both areas are presently fenced and locked, and the westernmost area is posted as a radiological control area.

3.12.2 Previous Investigations

In July 1995, after this site was discovered, a sample of soil containing visible lead shot was collected to characterize the concentrations of lead present. This sample was analyzed for total lead and TCLP lead using an on-site laboratory. A portion of the sample was sieved to determine the amount of lead in different size fractions.

Soil outside the areas of visible lead contamination was also sampled in 1995 as part of planning activities for a VCA. Ten soil samples for screening were collected inside and outside the storage areas (ICF Kaiser Engineers 1995, 058172, p. 3). These samples were screened for lead using x-ray fluorescence (XRF), and lead was detected in one sample collected near the entrance to the southern storage area. No other investigations have been conducted at this site and, although a VCA plan was prepared (ICF Kaiser Engineers 1995, 058172), the VCA was not implemented.

3.12.3 Analytical Results

The concentration of lead in the soil sample collected in July 1995 for laboratory analysis was 110,000 mg/kg for the total (unsieved) sample, 72,400 mg/kg for the fraction less than 1.7 mm, and 210,200 mg/kg for the fraction between 1.7 mm and 4 mm. The TCLP results were 129 mg/L in the total sample, 168 mg/L for the size fraction less than 1.7 mm, and 155 mg/L for the size fraction between 1.7 mm and 4 mm (ICF Kaiser Engineers 1995, 058172, p. 2).

3.13 AOC 53-014, Lead Spill Site

3.13.1 Description and History

AOC 53-014, a lead spill site, is located at a paved storage area in TA-53 west of building 53-18. The lead shot was spilled on the paved surface, and stormwater washed the lead into an asphalt channel that joins a drainage below an NPDES-permitted outfall (03A113) (Figure 3.13-1). The lead shot was observed at a number of locations in the channel but was not detected below a large catchment approximately 50 ft below the canyon rim (ICF Kaiser Engineers 1995, 058172, pp. 4–5). This site was not originally identified in the 1990 SWMU report (LANL 1990, 007514) but was discovered only after the OU 1100 RFI work plan (LANL 1994, 034756) had been prepared.

3.13.2 Previous Investigations

In August 1995, sediment in the channel was sampled as part of planning activities for a VCA. Fifteen sediment samples were collected in the drainage below the extent of visible lead contamination (ICF Kaiser Engineers 1995, 058172, p. 5). These samples were screened for lead using XRF, and no lead was detected.

In 1997, a VCA was conducted at AOC 53-014. The VCA included removing all lead shot from the paved area, the asphalt channel, and the drainage below NPDES Outfall 03A113 (LANL 1997, 062913). To minimize impacts to the drainage, visible lead was picked up by hand, and sediment was sieved to remove lead. After the lead was removed, five surface sediment samples were collected from the drainage as confirmatory samples (Figure 3.13-1). These samples were submitted for analysis of lead. Samples collected and analyses requested are presented in Table 3.0-1.

3.13.3 Analytical Results

Lead was detected slightly above BV in two of the 1997 VCA confirmation samples.

Analytical data from the 1997 VCA confirmation samples are presented in Table 3.0-2, which shows inorganic chemicals detected above BVs. Sampling locations and results for inorganic chemicals detected above BVs are shown in Figure 3.13-2.

3.14 SWMU 53-015, Wastewater Treatment Facility

3.14.1 Description and History

SWMU 53-015 is the current RLW management system for TA-53. This system was constructed just east of the former wastewater impoundments (Consolidated Unit 53-002[a]-99) (Figure 3.8-1) to replace the former TA-53 RLW system, which included underground tanks [SWMUs 53-006(b–e)] and a surface impoundment [SWMU 53-002(b)]. This system consists of two lift stations, three 30,000-gal. double-walled tanks in an underground vault, two evaporation basins, and underground double-walled piping. SWMU 53-015 also includes some of the existing underground piping from the former RLW system. SWMU 53-015 began operation in October 1999.

Because SWMU 53-015 did not begin operation until 1999, it was not originally identified in the 1990 SWMU report (LANL 1990, 007514) or in the 1994 RFI work plan for OU 1100 (LANL 1994, 034756).

In October 1999, the Laboratory and DOE agreed with NMED to notify NMED of the existence of this system as a new SWMU, with the understanding it not be subject to a compliance schedule for corrective actions in Module VIII of the Laboratory's Hazardous Waste Facility Permit. SWMU 53-015 is listed in Module VIII for tracking purposes only. The Laboratory and DOE agreed with NMED that when this system ceases operation, it will be evaluated to determine whether releases have occurred (DOE 1999, 098985).

3.14.2 Previous Investigations

No previous investigations have been conducted at SWMU 53-015.

3.14.3 Analytical Results

There are no analytical results for SWMU 53-015.

4.0 SITES UNDER INVESTIGATION IN TA-72

The portion of TA-72 within the Lower Sandia Canyon Aggregate Area consists of the eastern portion of Sandia Canyon within the Laboratory boundary. TA-72 is in the eastern portion of the Laboratory, bounded by TA-05 and San Ildefonso Pueblo to the south, TA-74 to the north, TA-53 to the west, and

Bandelier National Monument to the east. The majority of TA-72 is vacant land that serves as a safety and security buffer. The primary active operations at TA-72 occur within the lower portion of Sandia Canyon and consist of a small-arms firing range used by the Laboratory's security force for training purposes. This range has been in use since 1966. Two Laboratory water-supply wells (Pajarito Wells 1 and 3), each with associated facilities (chlorinator and pump station), are located within TA-72.

Laboratory analyses requested for TA-72 samples are presented in Table 4.0-1. Decision-level data for TA-72 are provided in Table 4.0-2. All laboratory analytical data are provided in Appendix B.

4.1 AOC 72-001, Small Arms Firing Range

4.1.1 Description and History

AOC 72-001 consists of an active small arms firing and training range used by the Laboratory's security force. The firing range is located in Sandia Canyon at the west end of TA-72 (Figure 2.10-1) and has been operational since 1966. It includes a 175-ft × 250-ft firing range surrounded by earthen berms, an adjacent skeet-shooting range, and administrative buildings. The drainage channel and flood plain of Sandia Canyon run through the middle of the firing range. Structures at this site include an office building (building 72-8, a former guard station), range house (building 72-9), scoring area (building 72-10), firing station (building 72-11), weapons cleaning area (building 72-12), storage buildings (72-13 and 72-14), and canopies 3 and 4 (buildings 72-15 and 72-16) (LANL 1990, 007514). Lead is present within the firing range because bullets are scattered at the base of the berms and cliffs, and lead shot from skeet shooting is visible on the ground (LANL 1994, 034756. pp. 2-9, 5-22).

In 1995, as part of a VCA conducted at SWMU 00-016 (an inactive small-arms firing range), NMED concurred with the Laboratory's request to move lead-contaminated soil from the inactive range to the active AOC 72-001 firing range (DOE 1995, 046257). During the second phase of the VCA implemented at SWMU 00-016 in 1996 and 1997, lead was removed from soil stockpiled from berms at the former firing range using dry sieving. Approximately 4660 yd^3 of soil from SWMU 00-016 was transported to TA-72 and placed on the berms located along the north side of the AOC 72-001 firing range and along the berm located between, and north of, canopies 3 and 4 (LANL 1997, 056737).

4.1.2 Previous Investigations

A Phase I RFI was conducted at AOC 72-001 in 1995. After a geomorphic survey was performed to locate sediment catchments downstream of the small-arms firing range, seven surface sediment samples (0.0 to 1.0 ft) were collected from seven locations (LANL 1996, 054466, pp. 5-40–5-41). Surface radiological screening was performed before the start of intrusive activities; screening results showed no radioactivity above local background. HE spot tests and gross-radiation screening were performed on each sediment sample to be submitted for laboratory analysis. No HE was detected and no radiation levels above local background were detected. Samples were analyzed for TAL metals. The samples collected in 1995 and analyses requested are presented in Table 4.0-1.

4.1.3 Analytical Results

Selenium was the only inorganic chemical detected above BV in the 1995 investigation. Selenium was detected in one sample at approximately 3 times BV. Mercury, silver, and thallium were not detected above BVs but had detection limits above BVs.

Analytical data from the 1995 Phase I RFI sampling are presented in Table 4.0-2, which shows inorganic chemicals detected above BVs or having detection limits above BVs. Sampling locations and results for inorganic chemicals detected above BV are shown in Figure 4.1-1.

5.0 REFERENCES AND MAP DATA SOURCES

5.1 References

The following list includes all documents cited in this report. Parenthetical information following each reference provides the author(s), publication date, and ER ID. This information is also included in text citations. ER IDs are assigned by the Environmental Programs Directorate's Records Processing Facility (RPF) and are used to locate the document at the RPF and, where applicable, in the master reference set.

Copies of the master reference set are maintained at the NMED Hazardous Waste Bureau and the Directorate. The set was developed to ensure that the administrative authority has all material needed to review this document, and it is updated with every document submitted to the administrative authority. Documents previously submitted to the administrative authority are not included.

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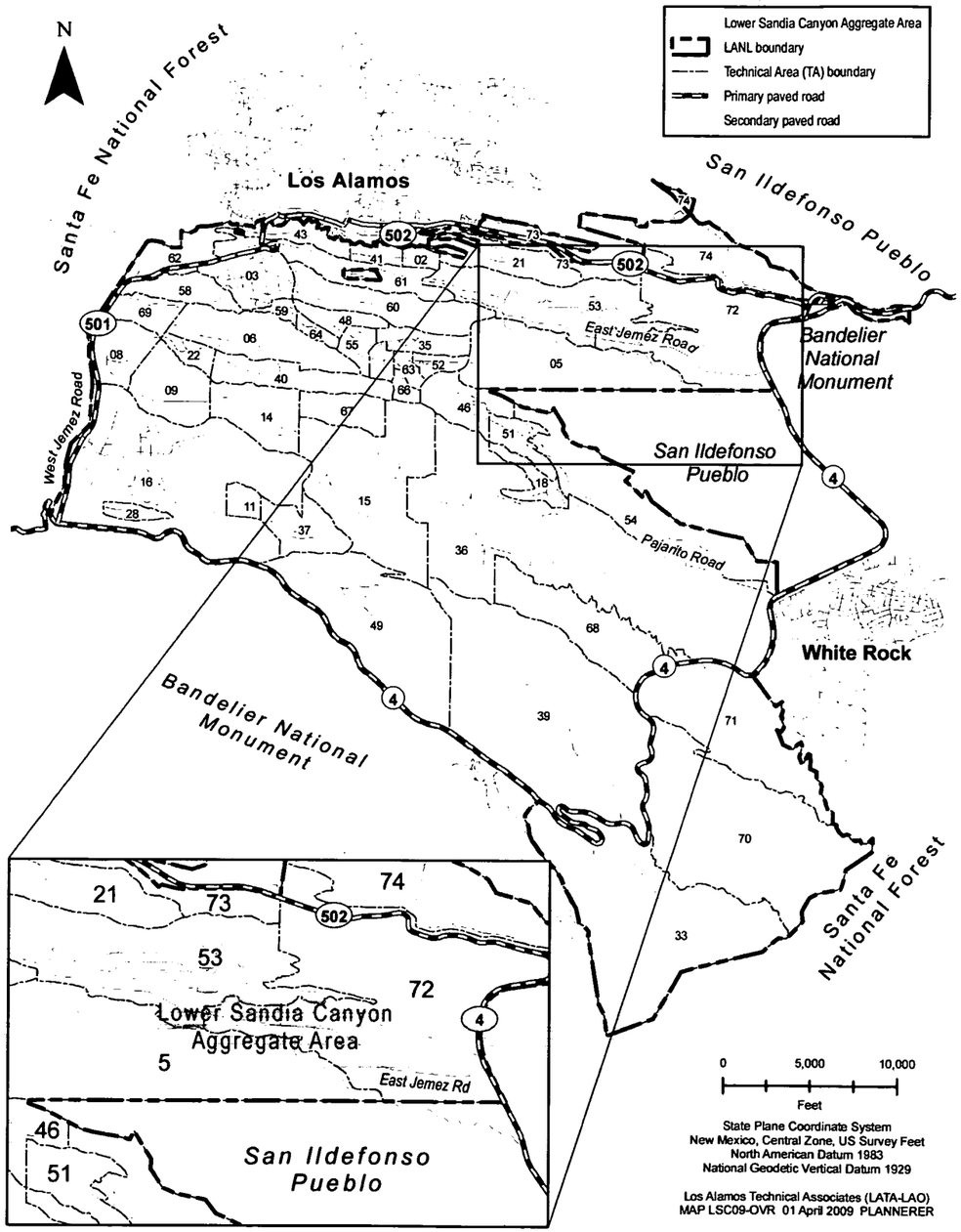


Figure 1.0-1 Lower Sandia Canyon Aggregate Area with respect to Laboratory TAs and surrounding land holdings

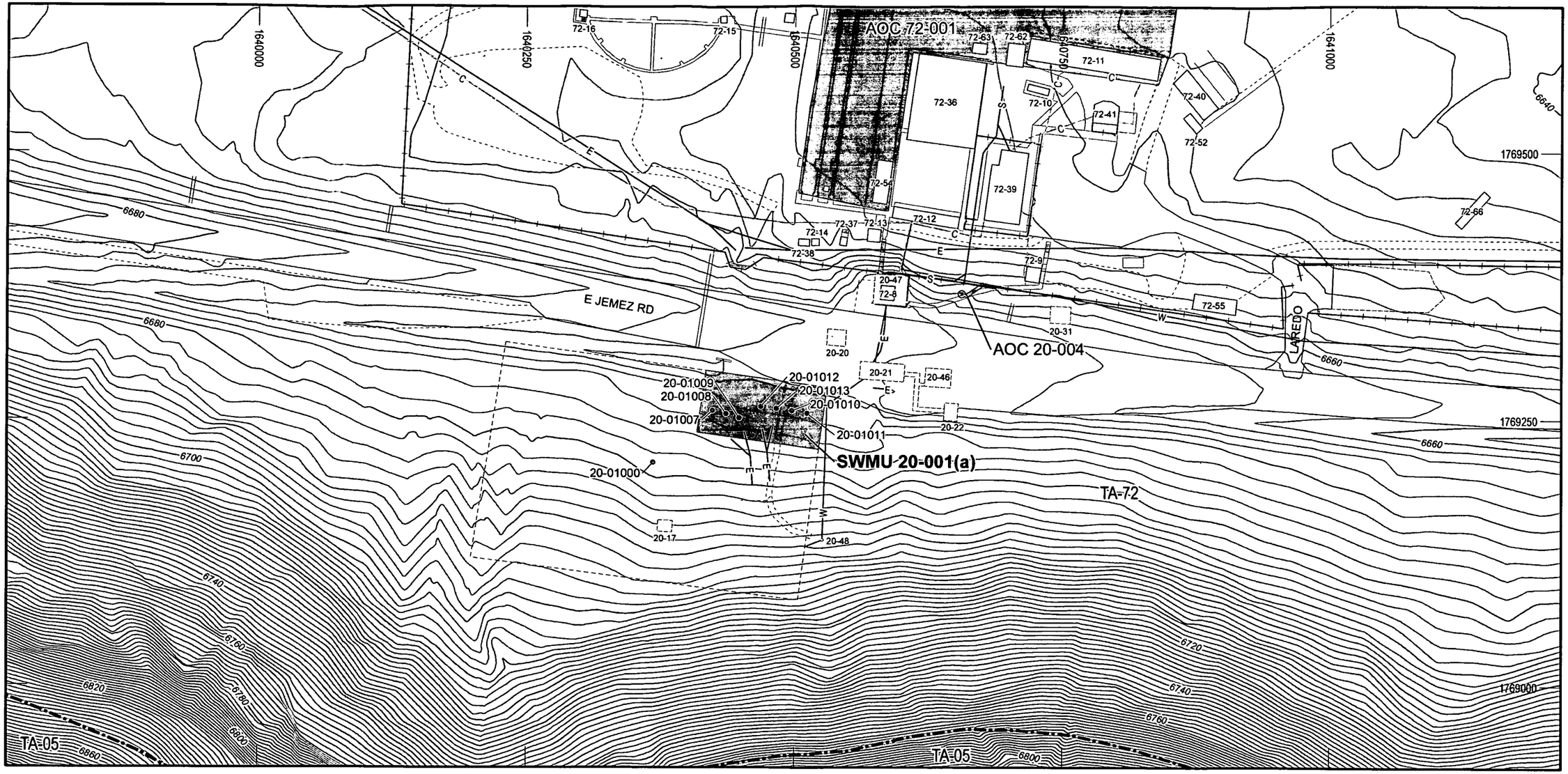


Figure 2.1-1 Site features and historical sampling locations for SWMU 20-001(a)



Figure 2.1-2 Inorganic chemicals detected above BVs at SWMU 20-001(a)

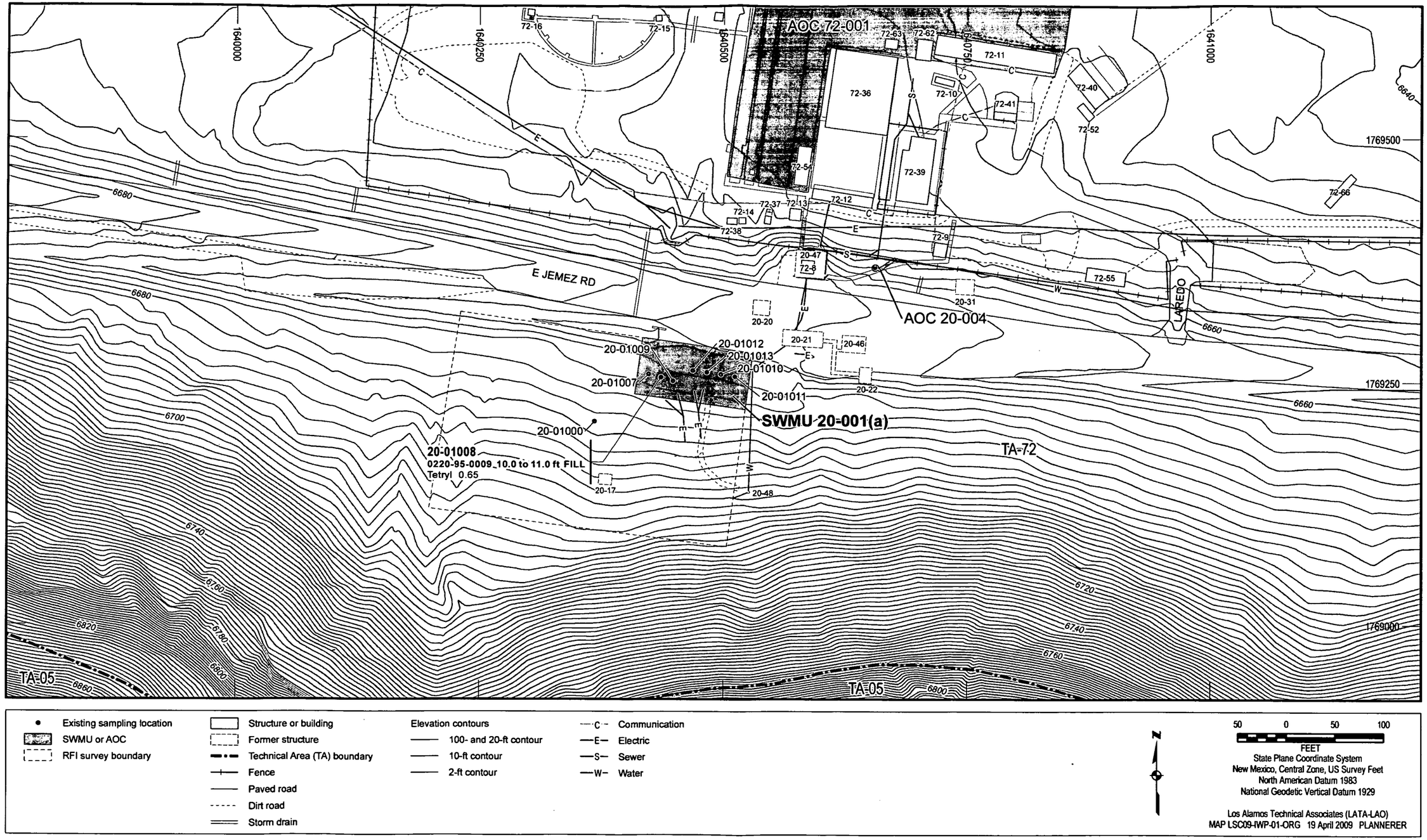


Figure 2.1-3 Organic chemicals detected at SWMU 20-001(a)

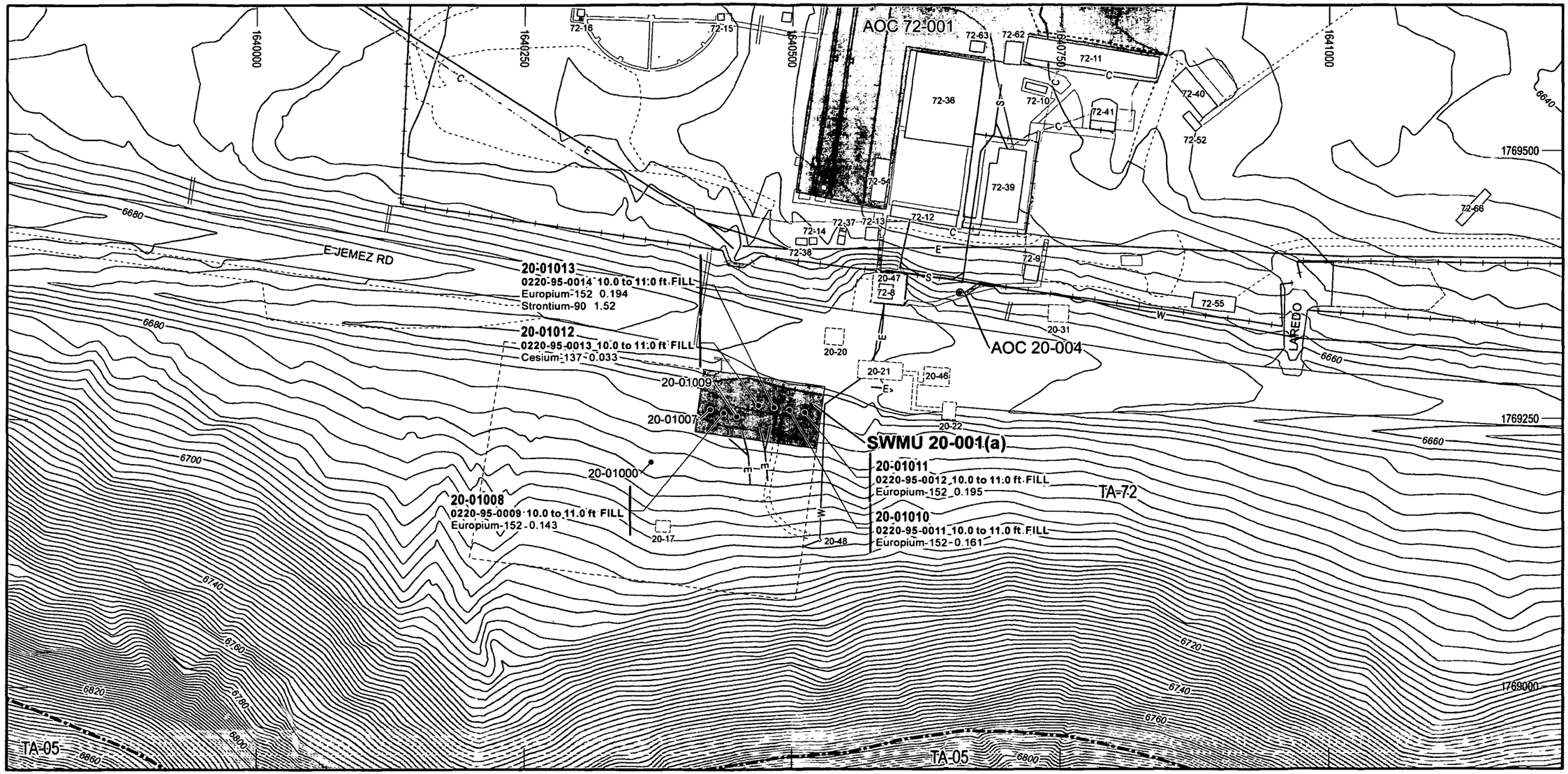


Figure 2.1-4 Radionuclides detected or detected above BVs/FVs at SWMU 20-001(a)

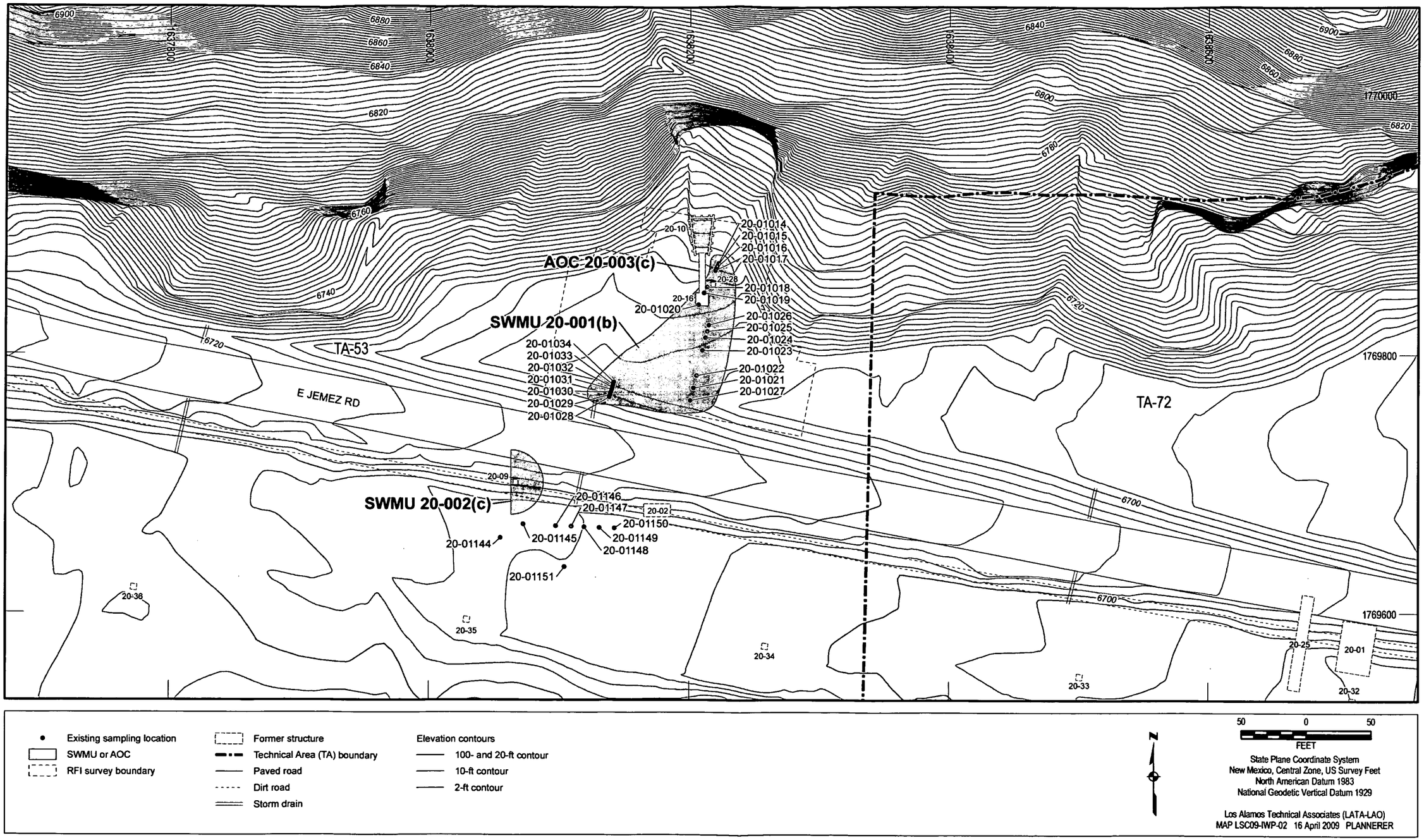


Figure 2.2-1 Site features and historical sampling locations for SWMUs 20-001(b) and 20-002(c) and AOC 20-003(c)

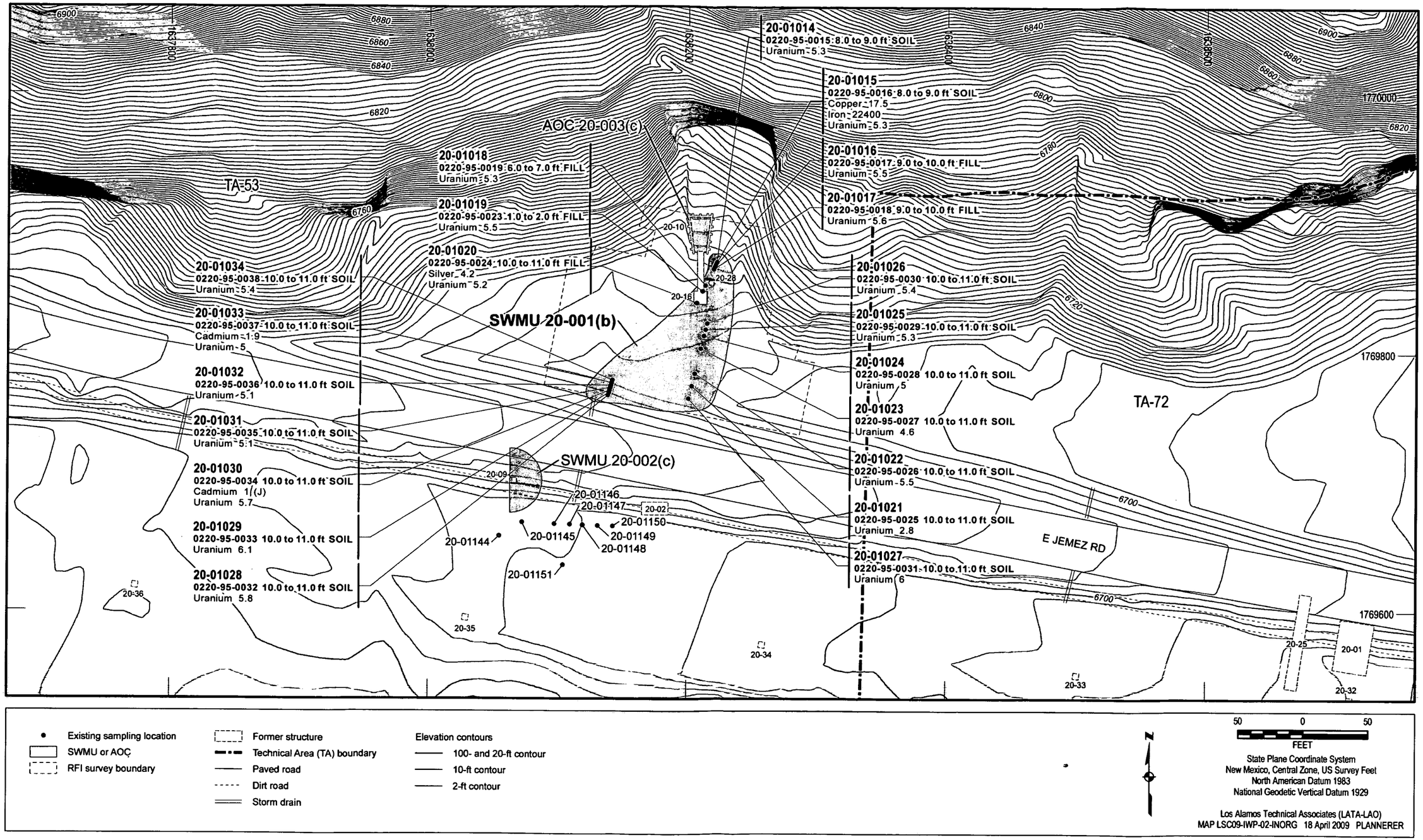


Figure 2.2-2 Inorganic chemicals detected above BVs at SWMU 20-001(b)

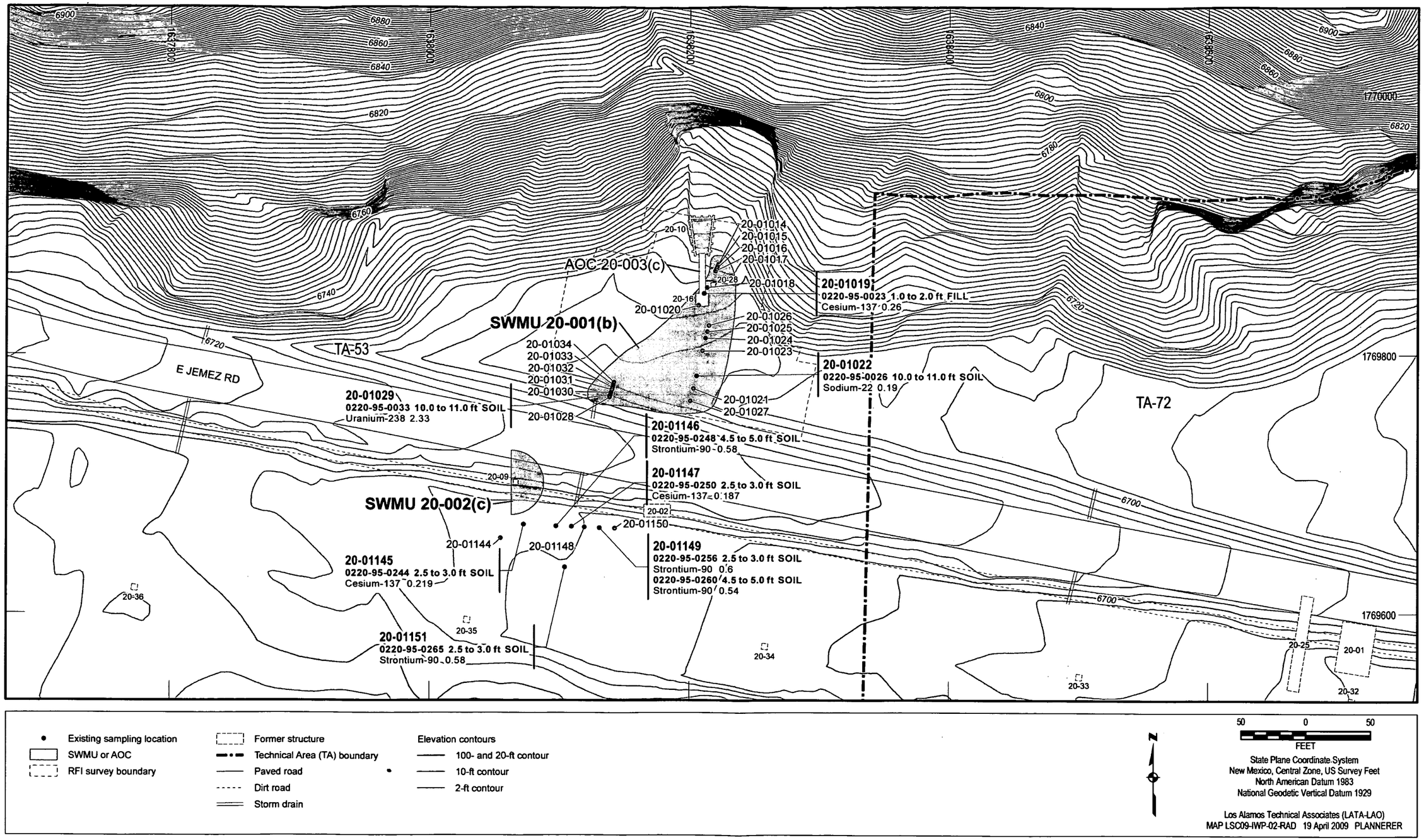


Figure 2.2-3 Radionuclides detected or detected above BVs/FVs at SWMUs 20-001(b) and 20-002(c)

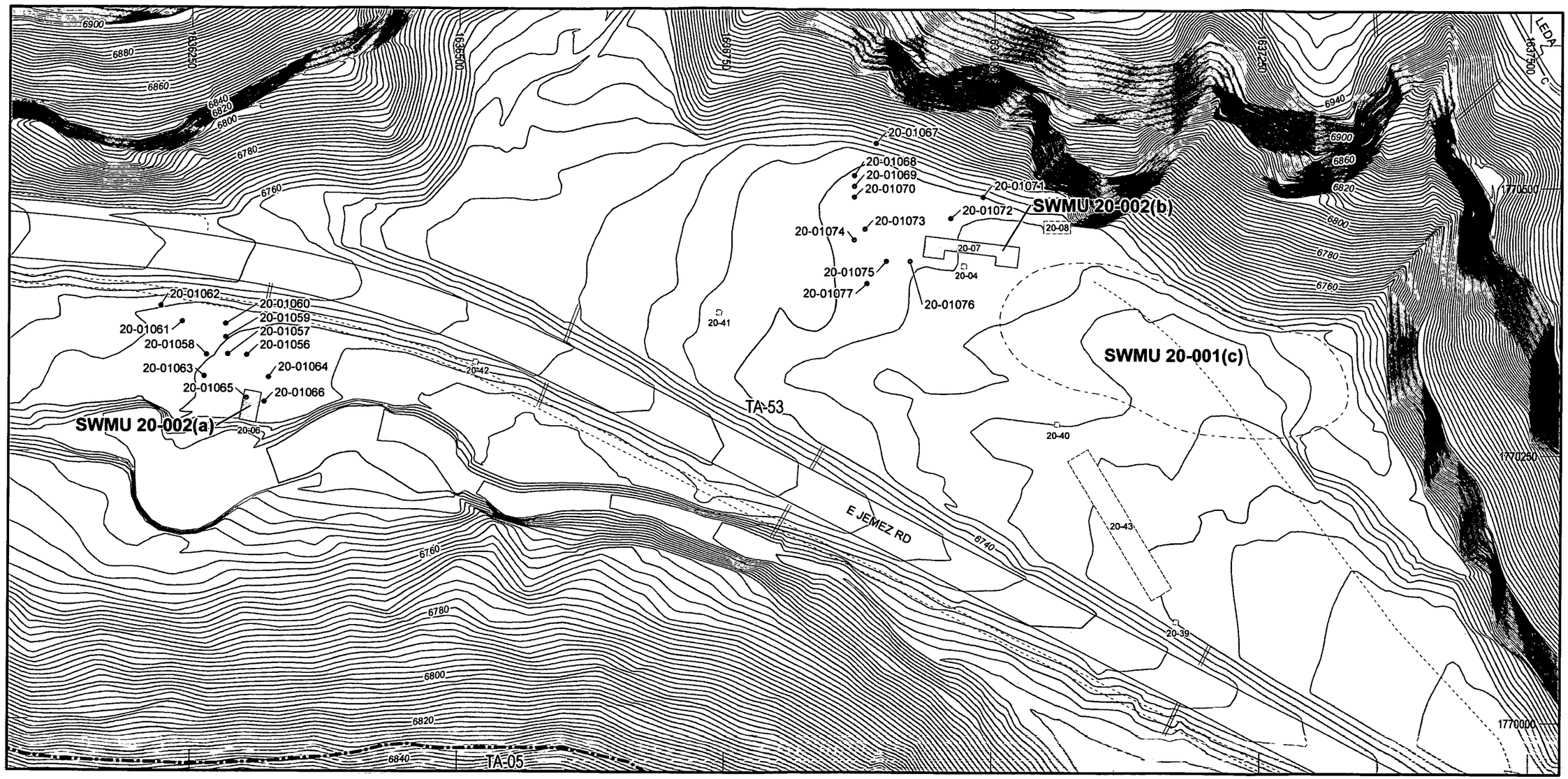


Figure 2.3-1 Site features and historical sampling locations for SWMUs 20-001(c), 20-002(a), and 20-002(b)

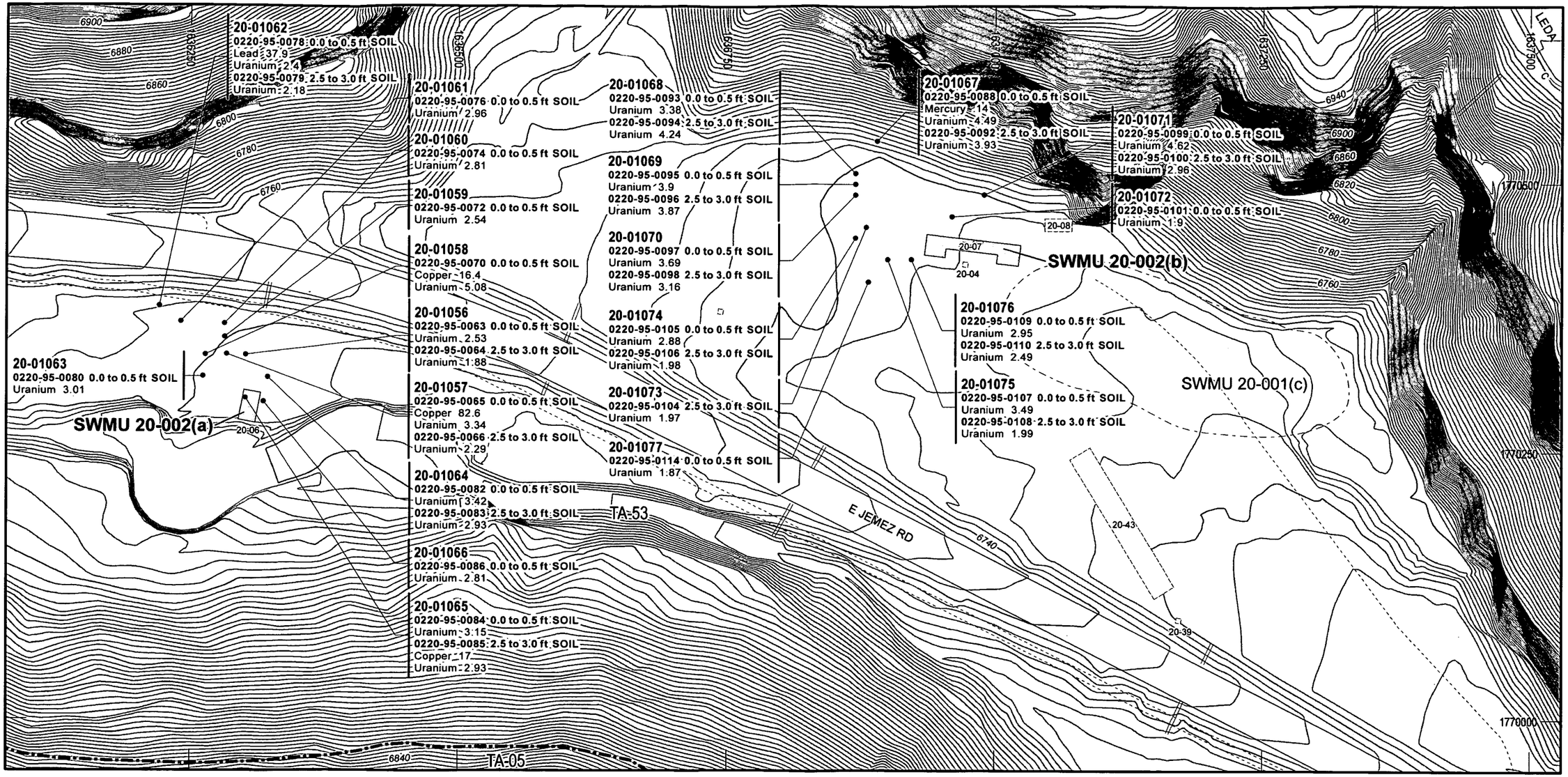


Figure 2.4-1 Inorganic chemicals detected above BVs at SWMUs 20-002(a) and 20-002(b)

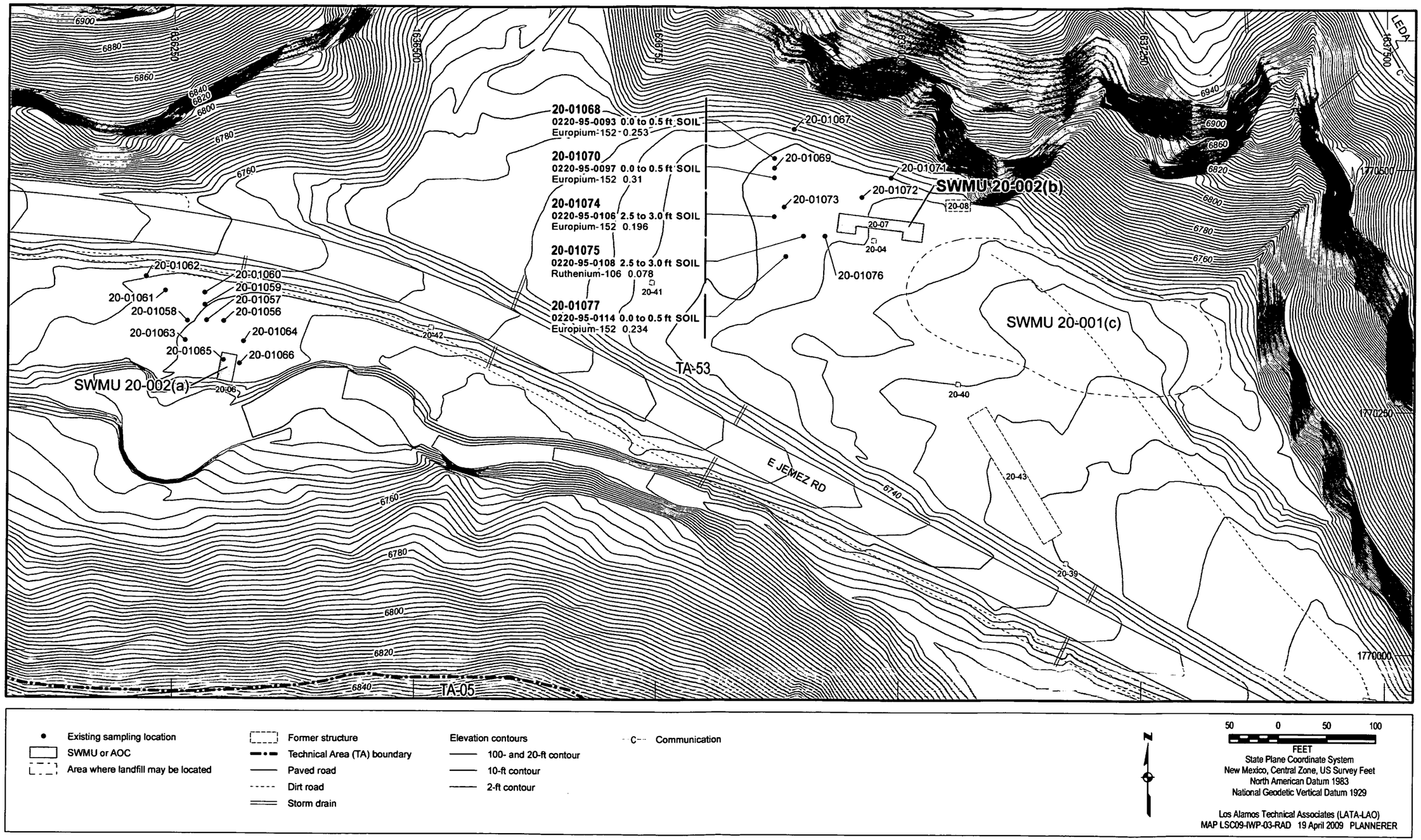


Figure 2.5-1 Radionuclides detected or detected above BVs/FVs at SWMU 20-002(b)

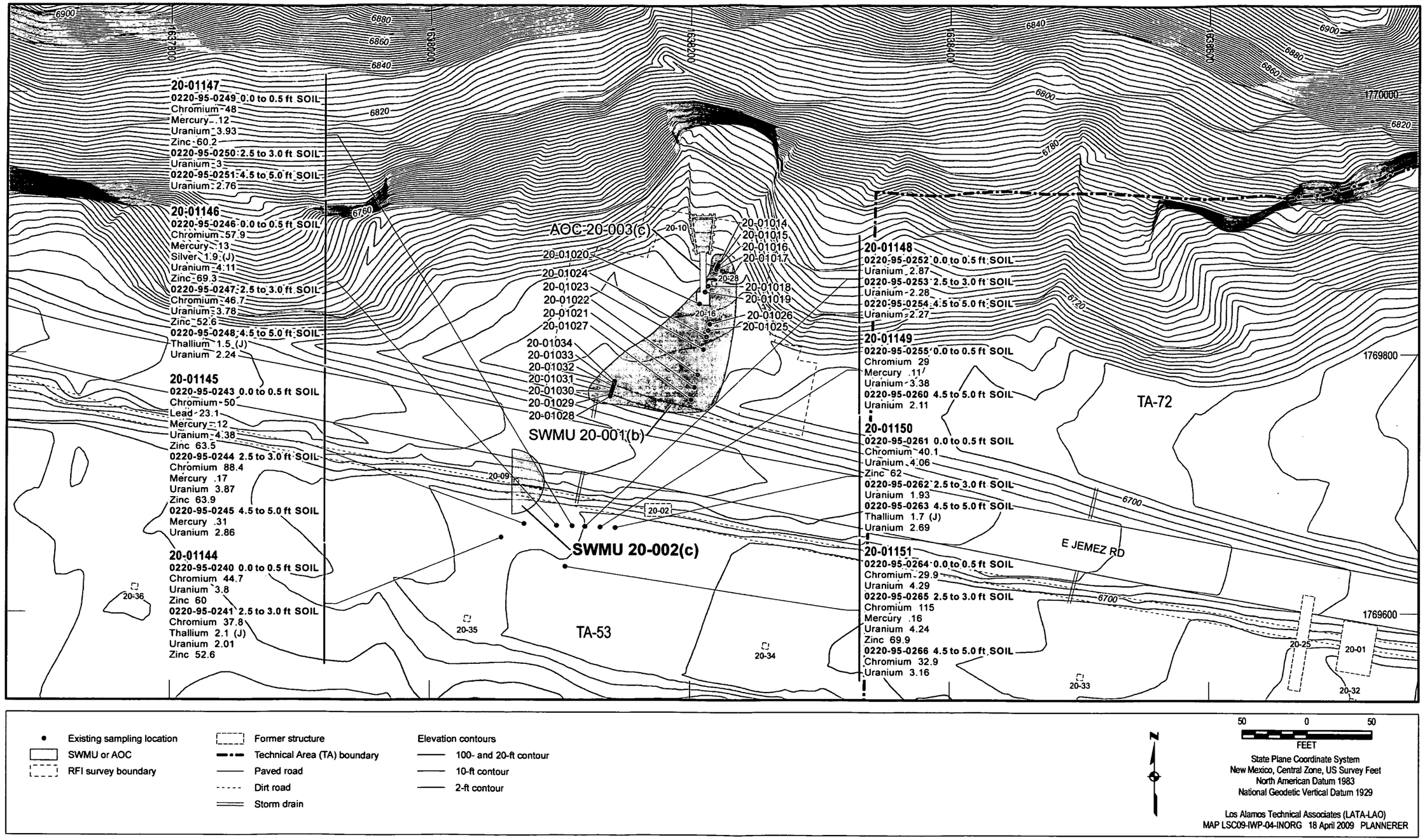


Figure 2.6-1 Inorganic chemicals detected above BVs at SWMU 20-002(c)

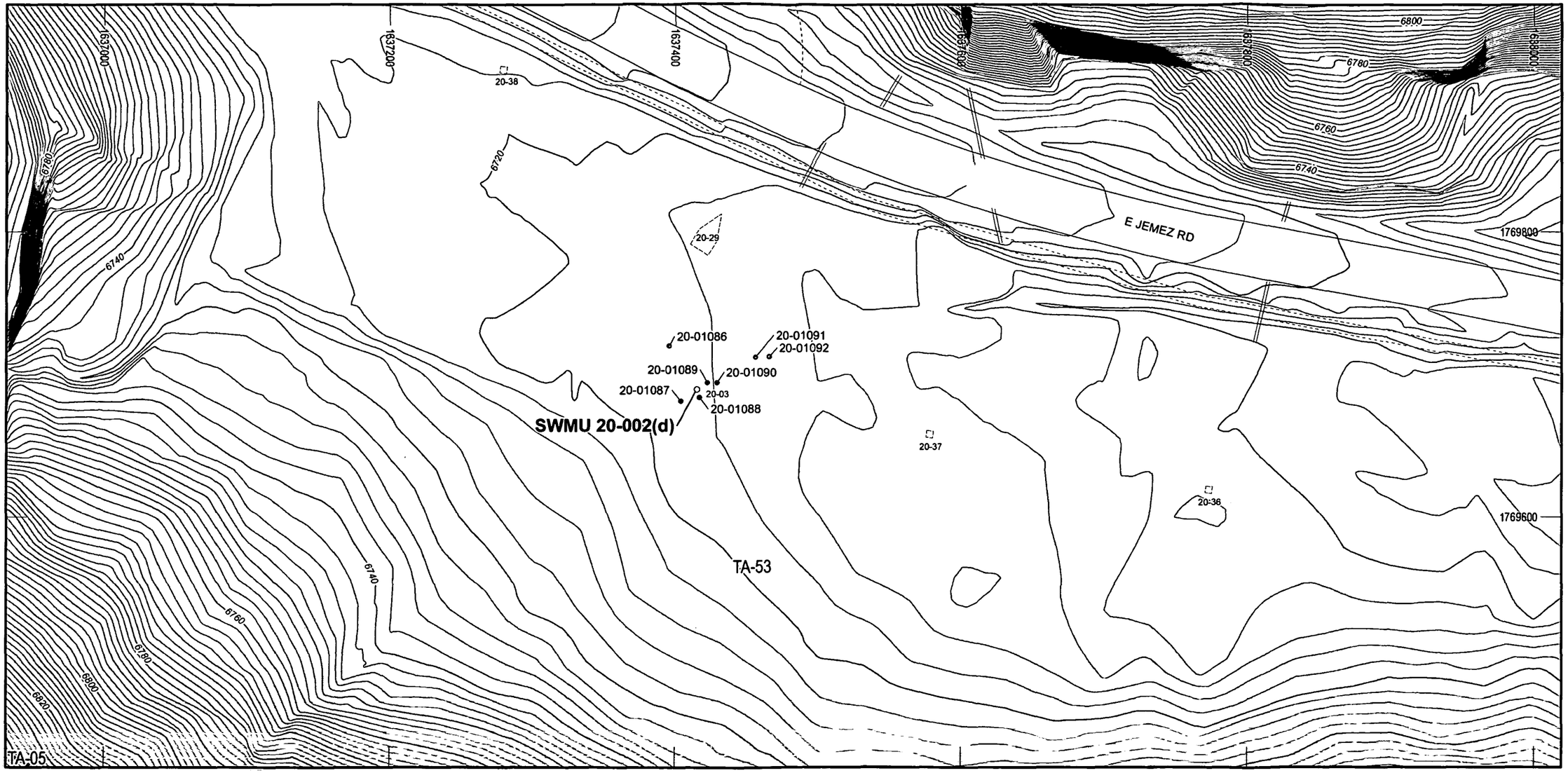


Figure 2.7-1 Site features and historical sampling locations for SWMU 20-002(d)

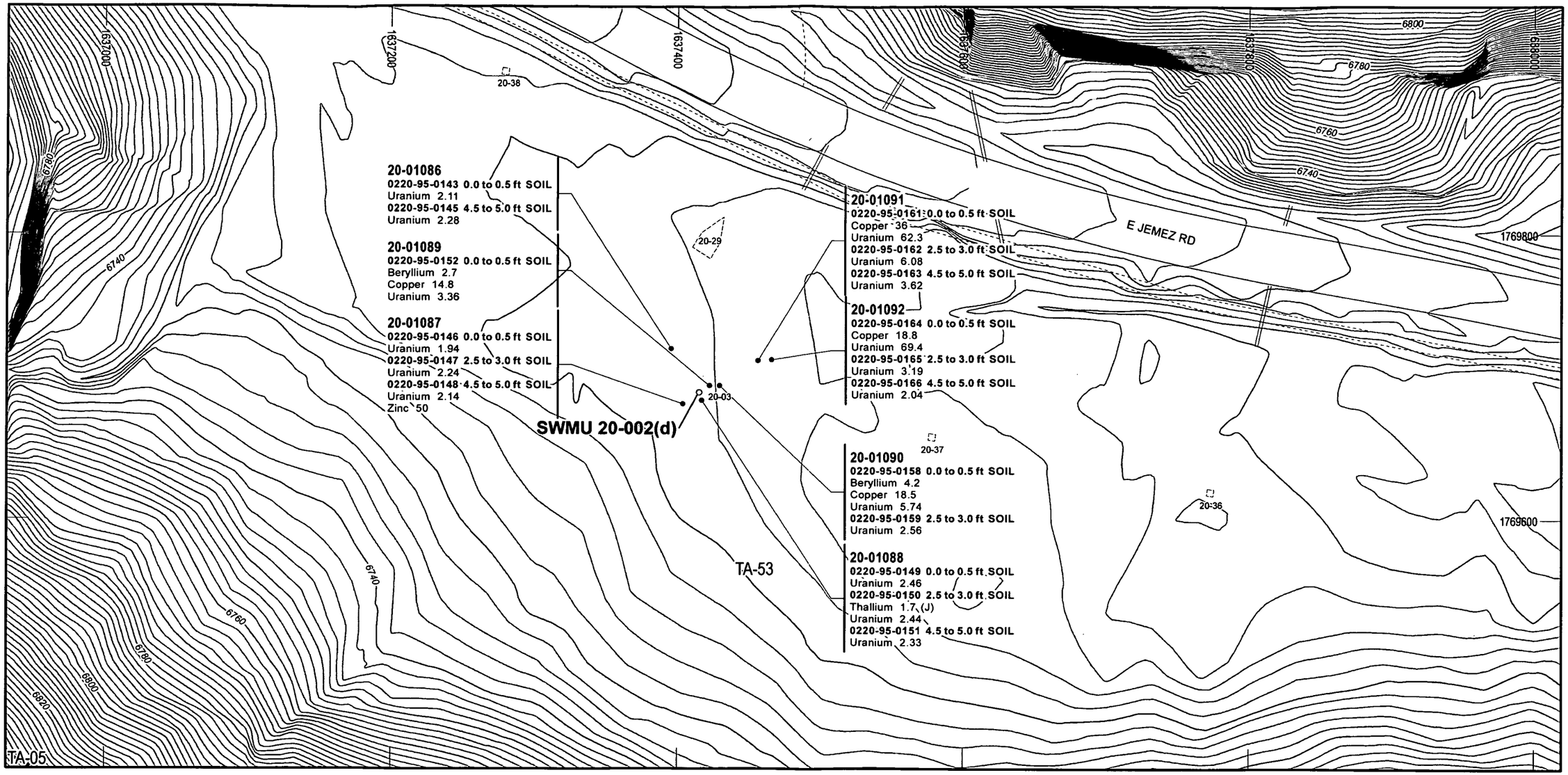


Figure 2.7-2 Inorganic chemicals detected above BVs at SWMU 20-002(d)

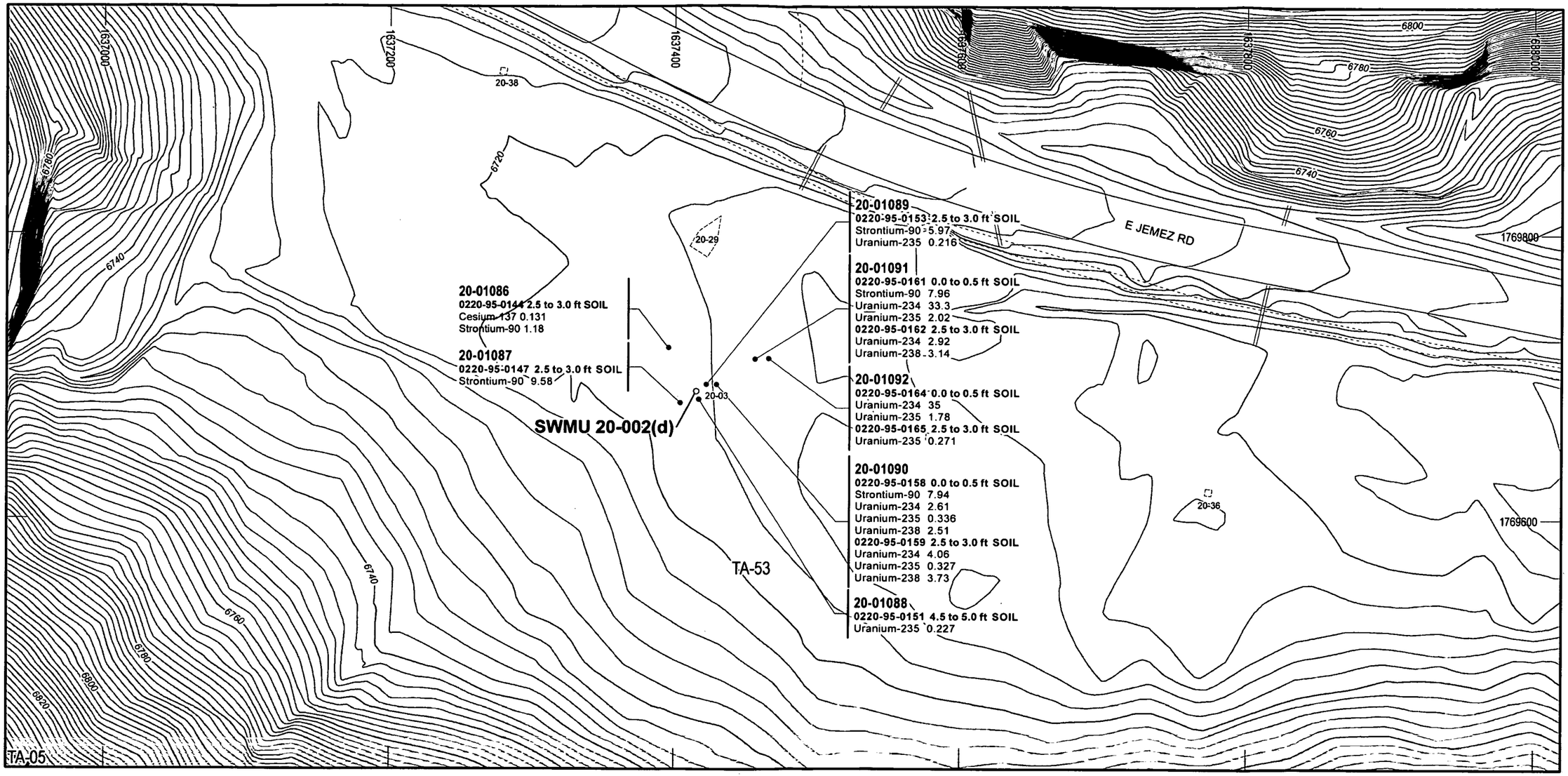


Figure 2.7-3 Radionuclides detected or detected above BVs/FVs at SWMU 20-002(d)

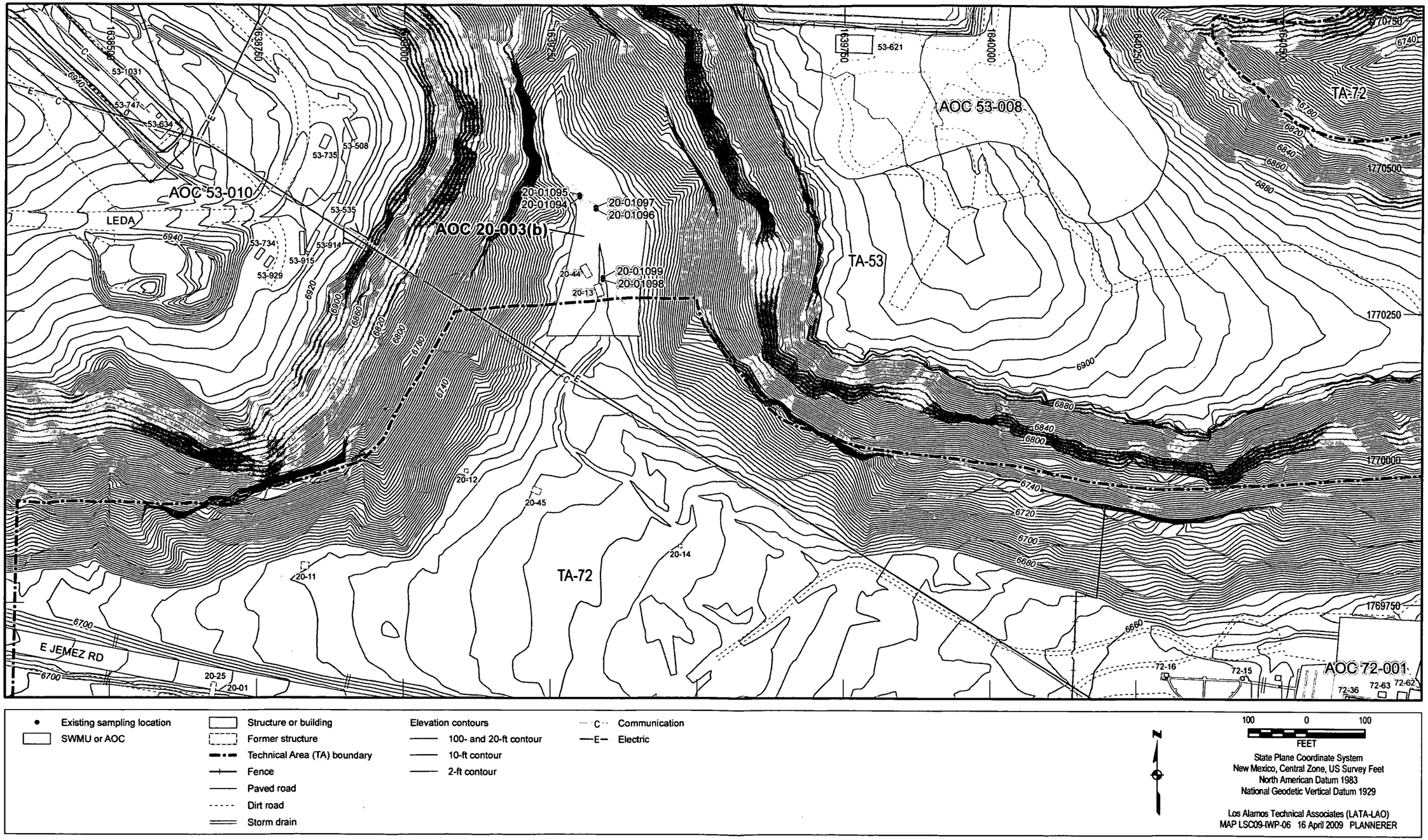


Figure 2.8-1 Site features and historical sampling locations for AOC 20-003(b)

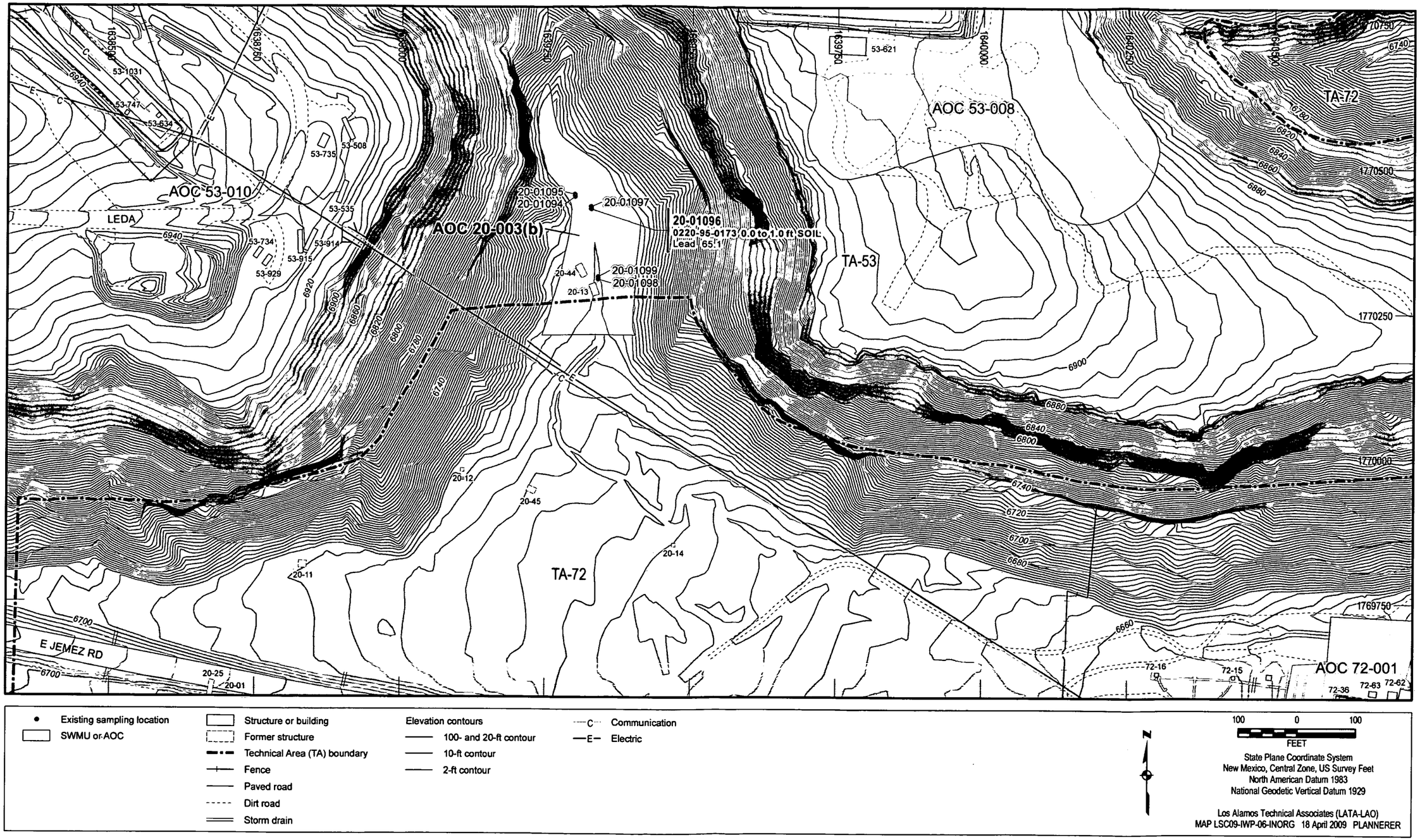


Figure 2.8-2 Inorganic chemicals detected above BVs at AOC 20-003(b)

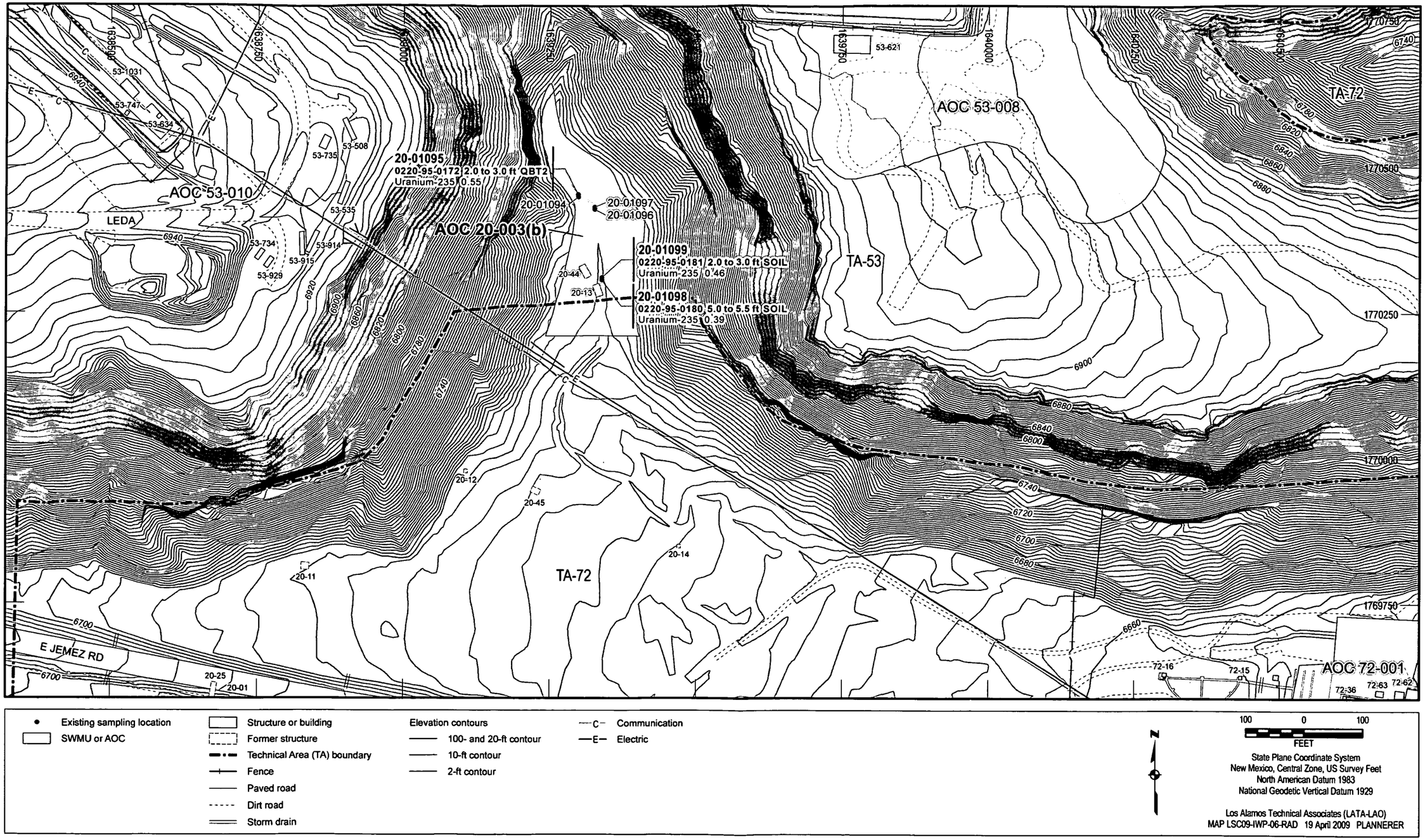


Figure 2.8-3 Radionuclides detected or detected above BVs/FVs at AOC 20-003(b)

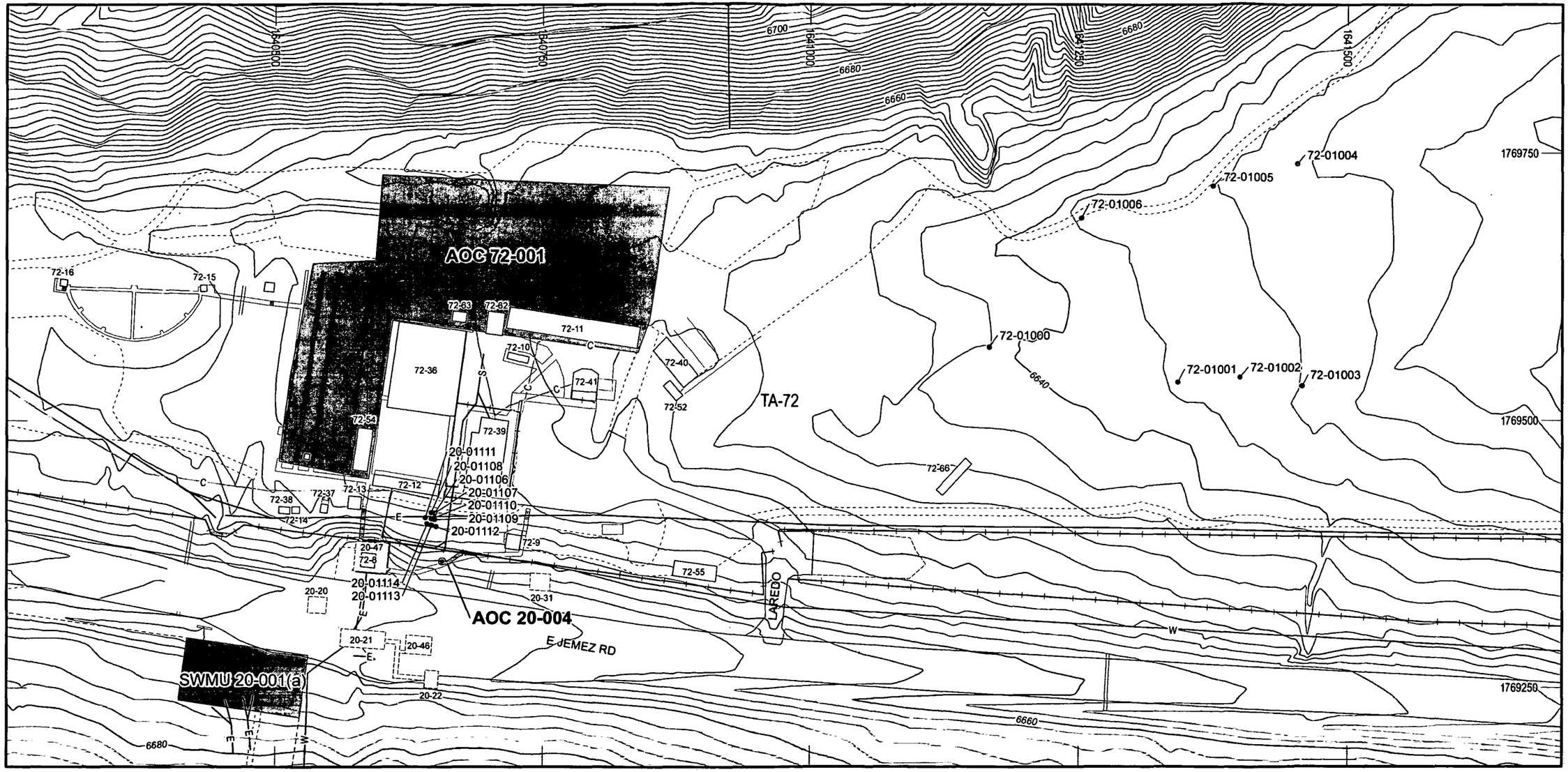


Figure 2.10-1 Site features and historical sampling locations for AOCs 20-004 and 72-001

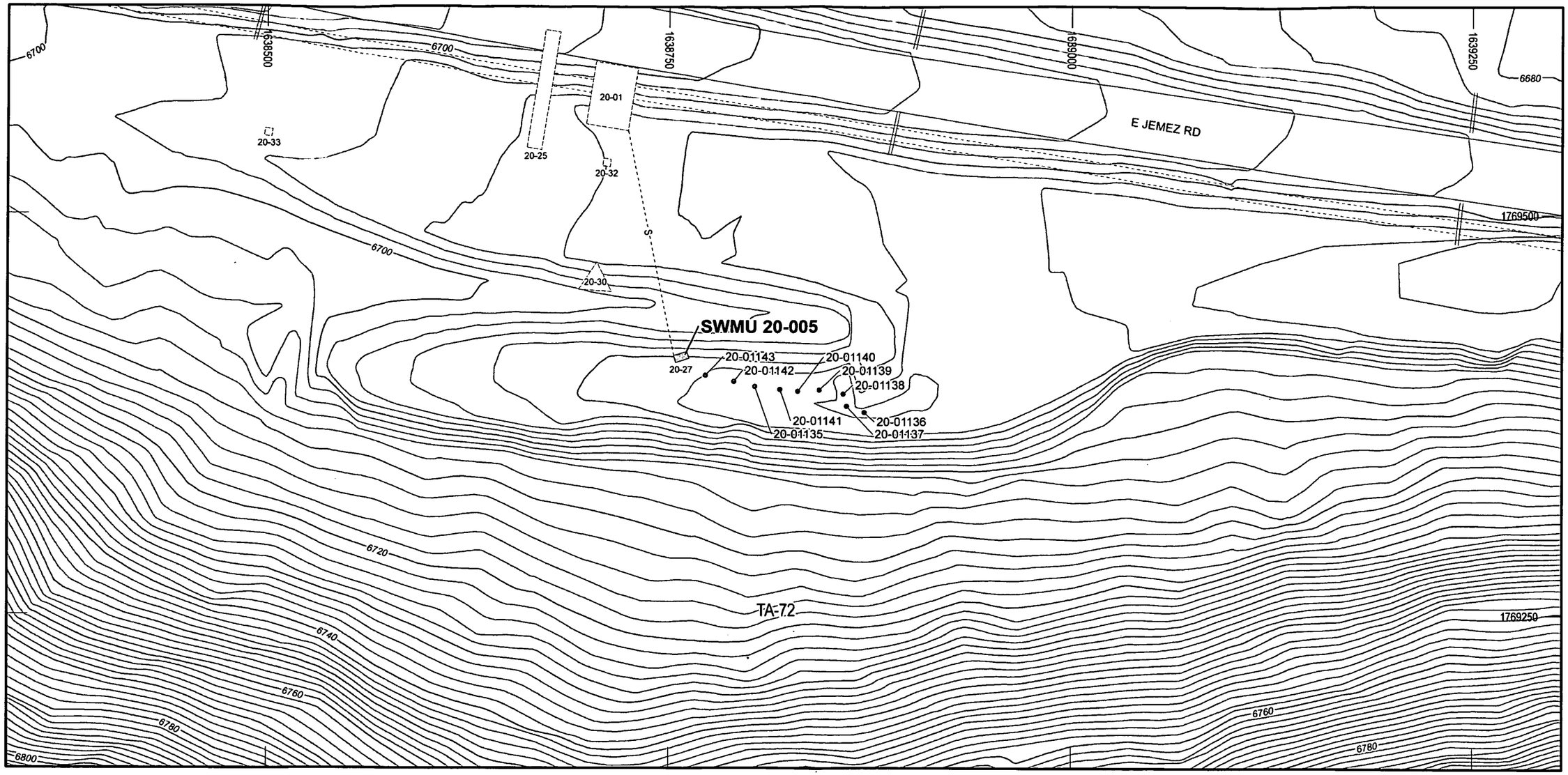


Figure 2.11-1 Site features and historical sampling locations for SWMU 20-005

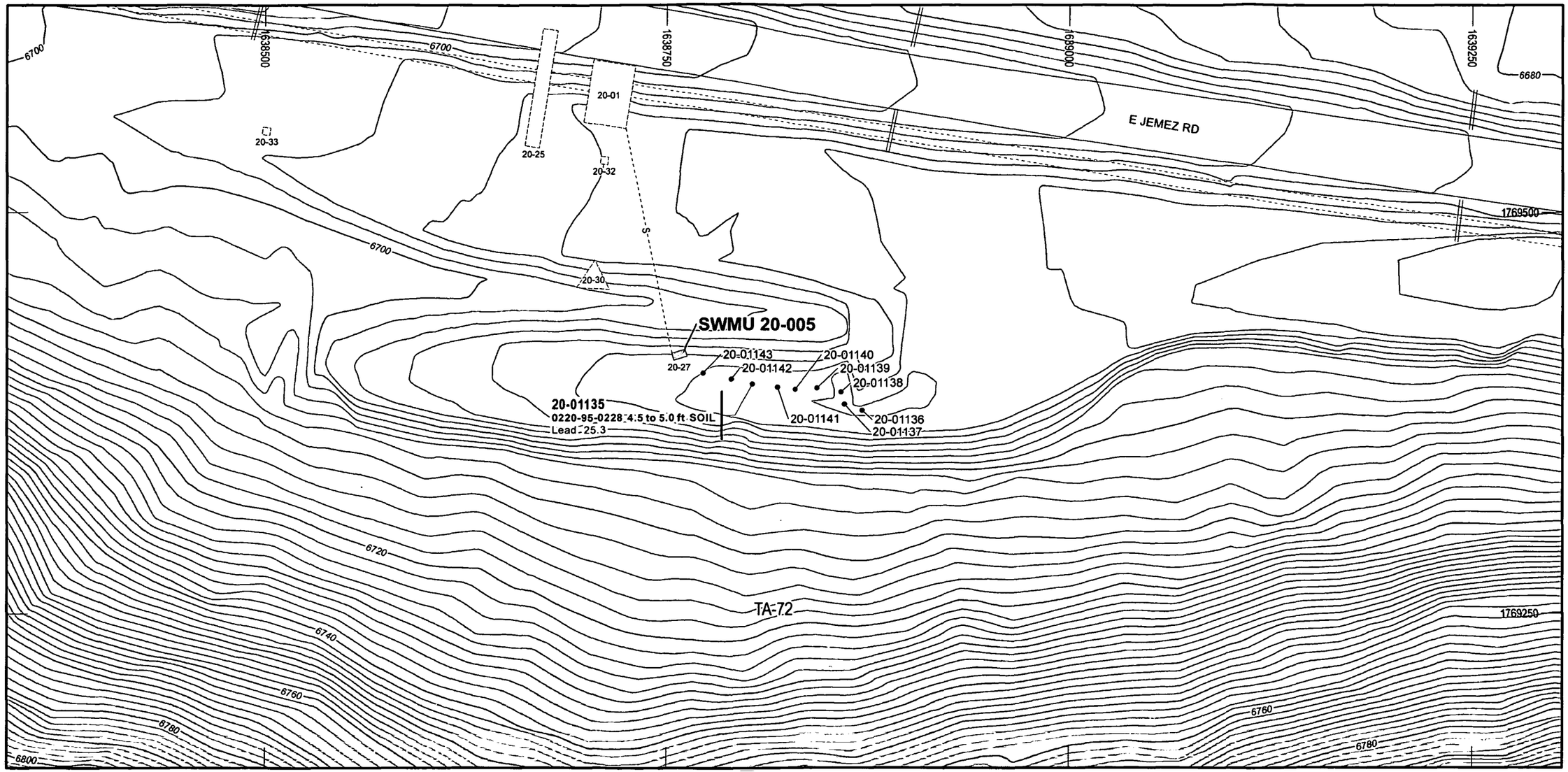


Figure 2.11-2 Inorganic chemicals detected above BVs at SWMU 20-005

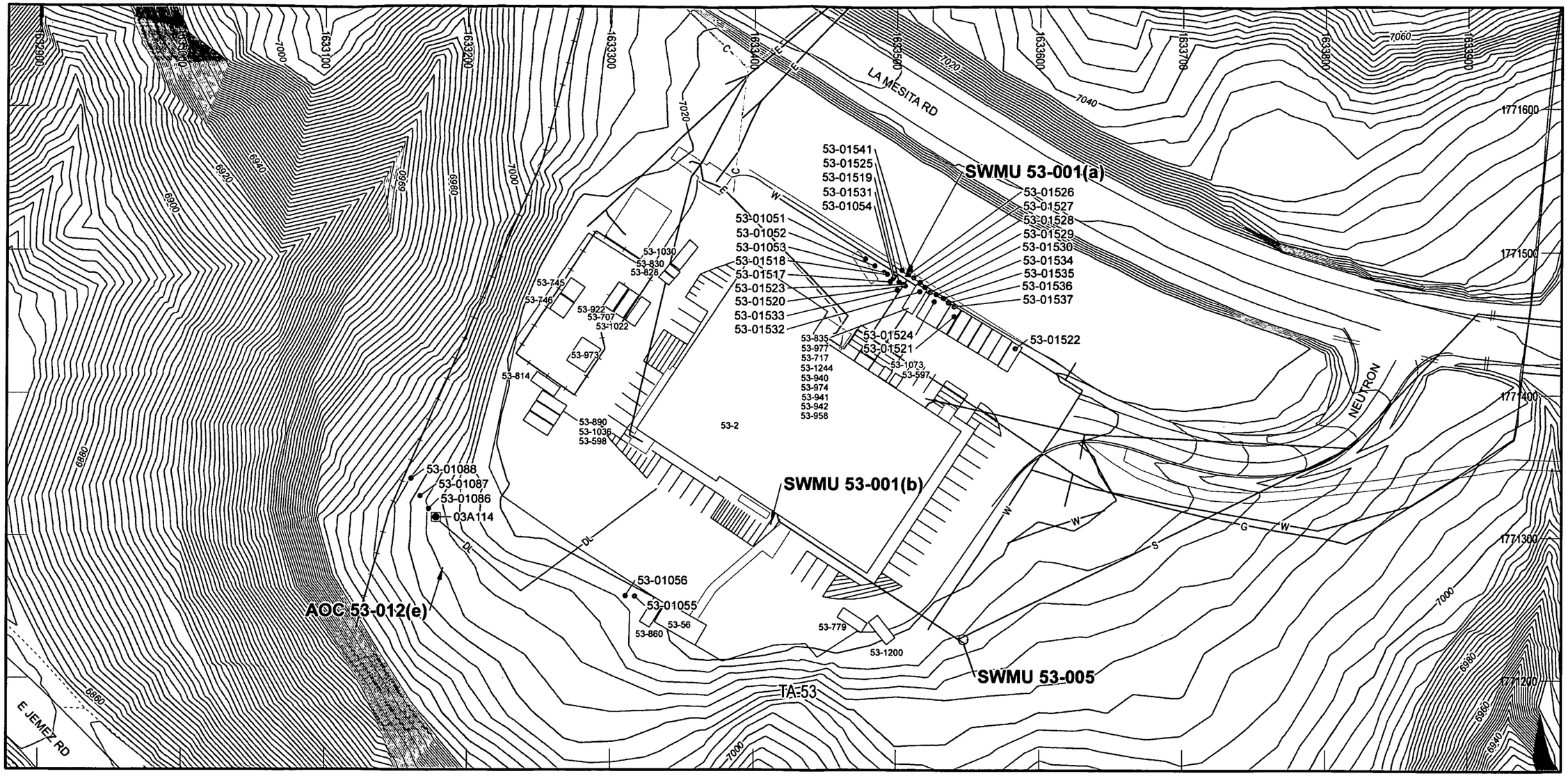


Figure 3.1-1 Site features and historical sampling locations for SWMUs 53-001(a), 53-001(b), and 53-005 and AOC 53-012(e)

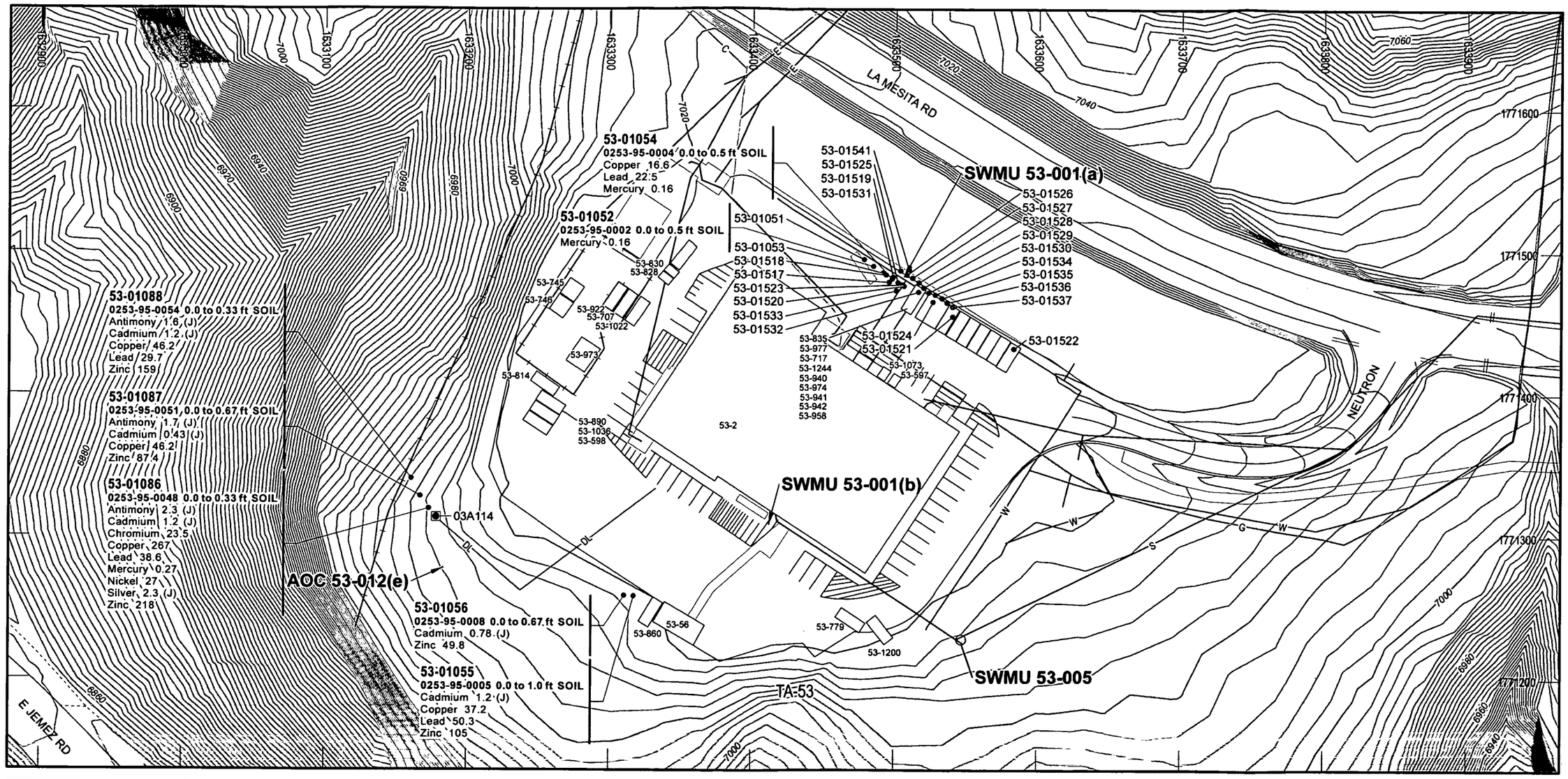


Figure 3.1-2 Inorganic chemicals detected above BVs at SWMUs 53-001(a), 53-001(b), and 53-005 and AOC 53-012(e)

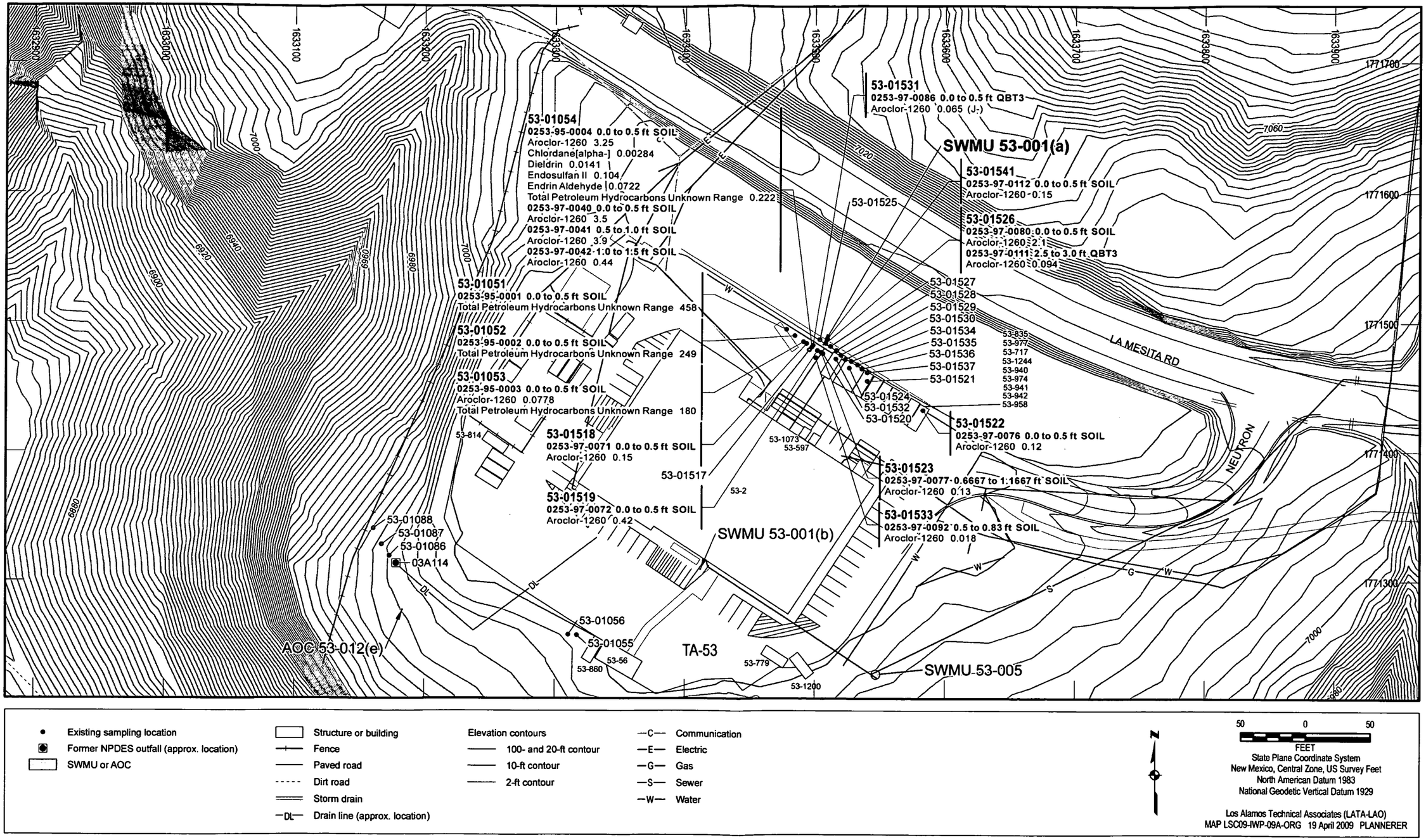
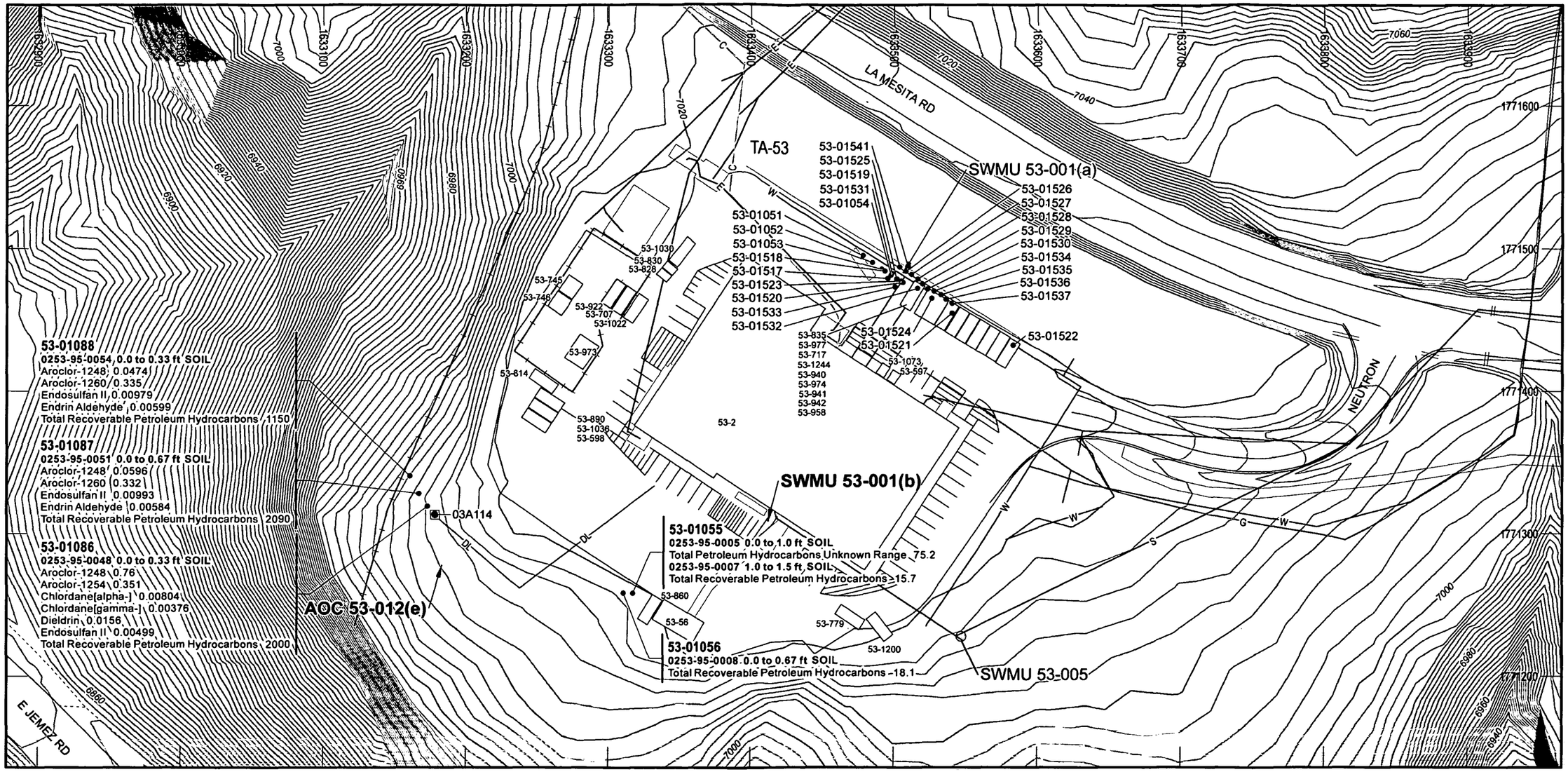


Figure 3.1-3 Organic chemicals detected at SMWU 53-001(a)



Existing sampling location
Former NPDES outfall (approx. location)
SWMU or AOC
Structure or building
Fence
Paved road
Dirt road
Storm drain
DL Drain line (approx. location)
Elevation contours
100- and 20-ft contour
10-ft contour
2-ft contour
C Communication
E Electric
G Gas
S Sewer
W Water

N

50 0 50
FEET
State Plane Coordinate System
New Mexico, Central Zone, US Survey Feet
North American Datum 1983
National Geodetic Vertical Datum 1929

Los Alamos Technical Associates (LATA-LAO)
MAP LSC09-IWP-09-ORG 19 April 2009 PLANNERER

Figure 3.2-1 Organic chemicals detected at SWMUs 53-001(b) and AOC 53-012(e)

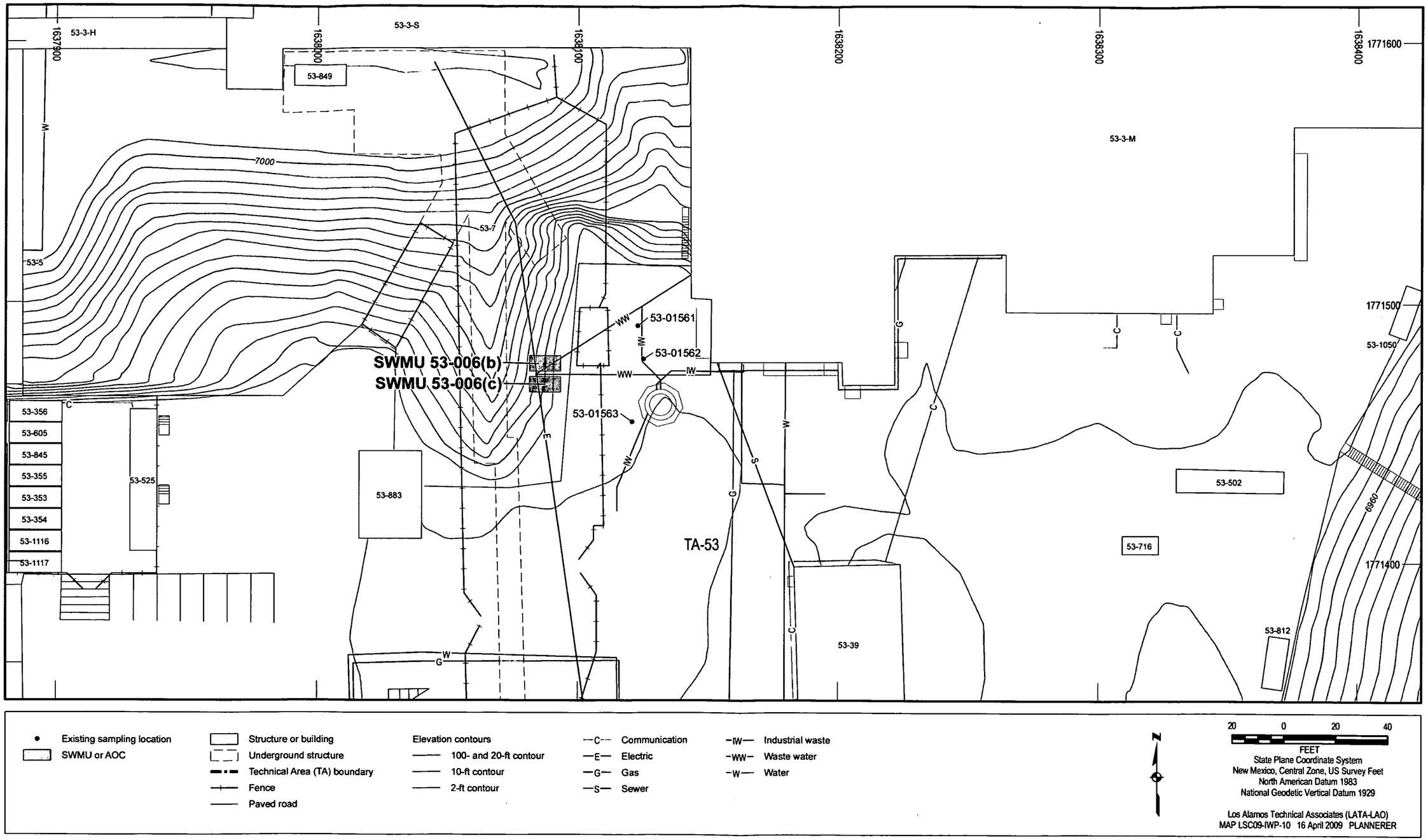


Figure 3.4-1 Site features and historical sampling locations for SWMUs 53-006(b) and 53-006(c)

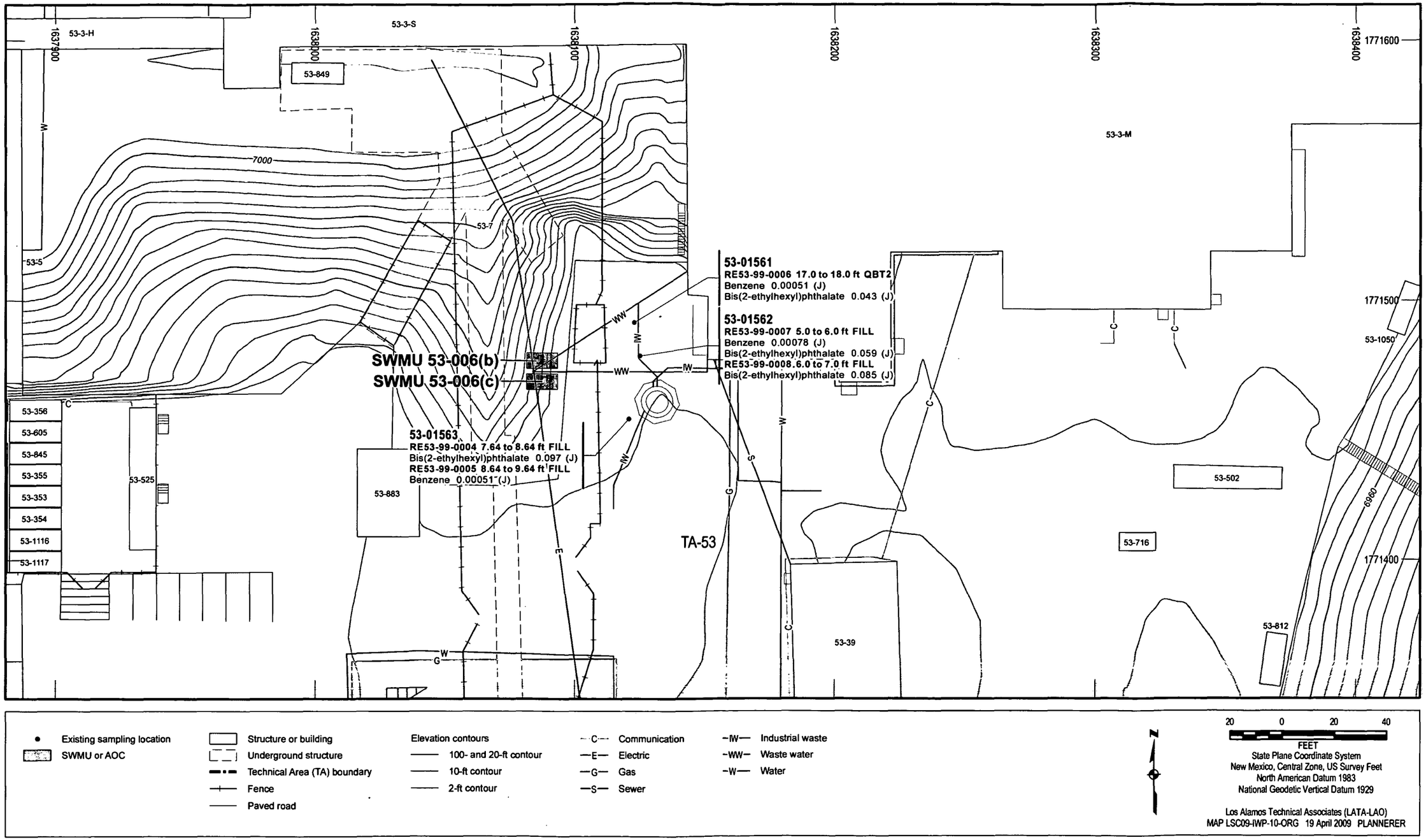


Figure 3.4-2 Organic chemicals detected at SWMUs 53-006(b) and 53-006(c)

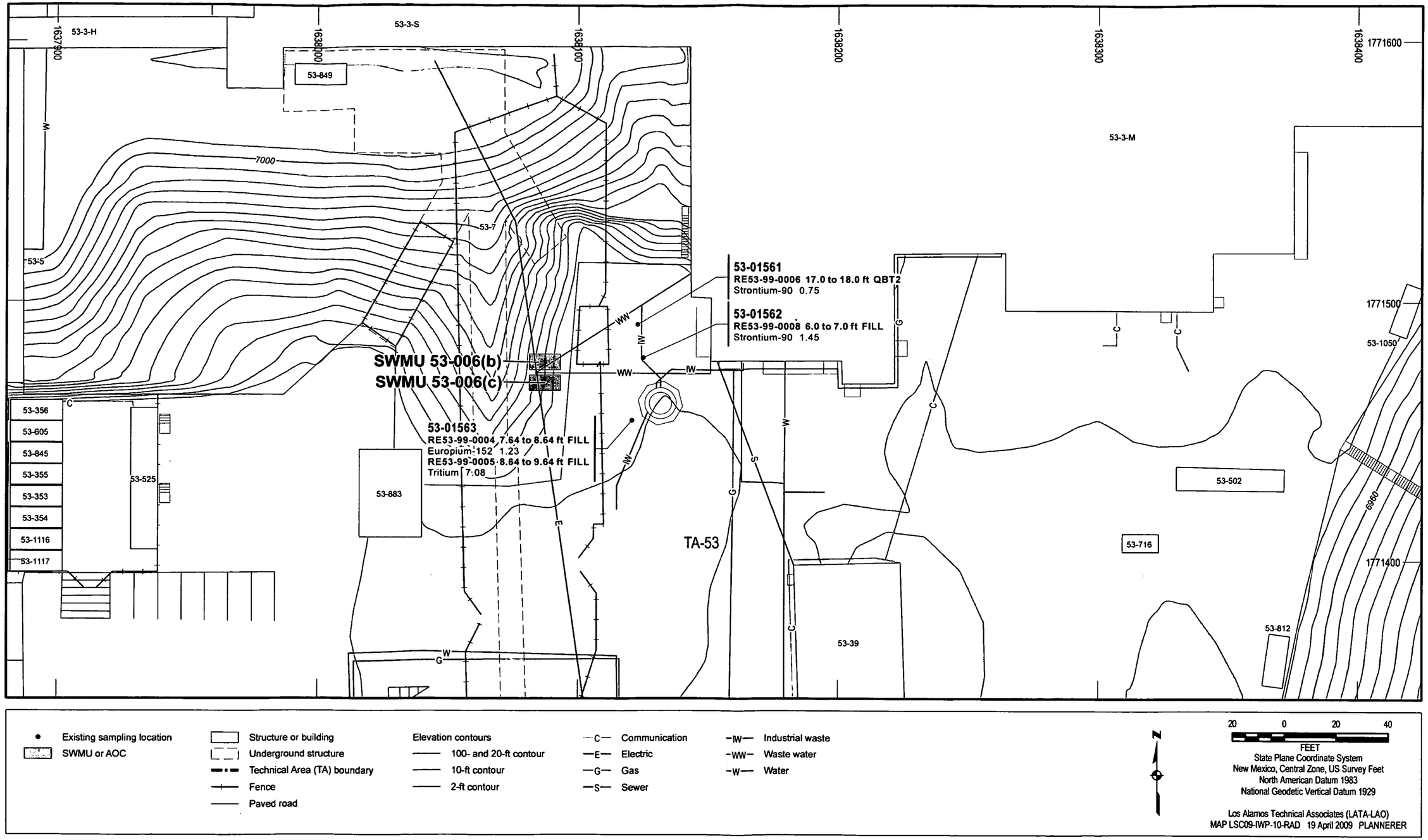


Figure 3.4-3 Radionuclides detected or detected above BVs/FVs at SWMUs 53-006(b) and 53-006(c)

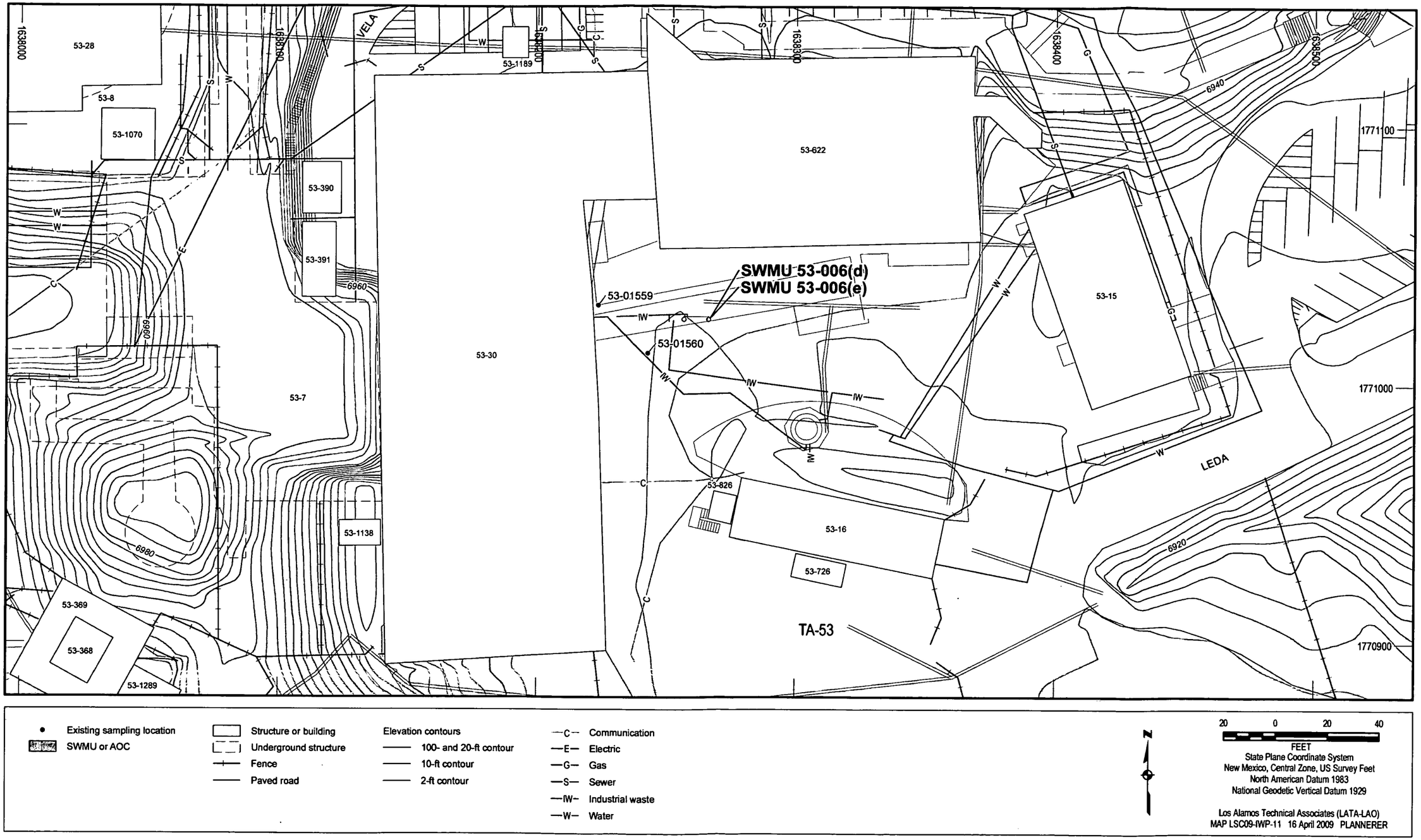


Figure 3.5-1 Site features and historical sampling locations for SWMUs 53-006(d) and 53-006(e)

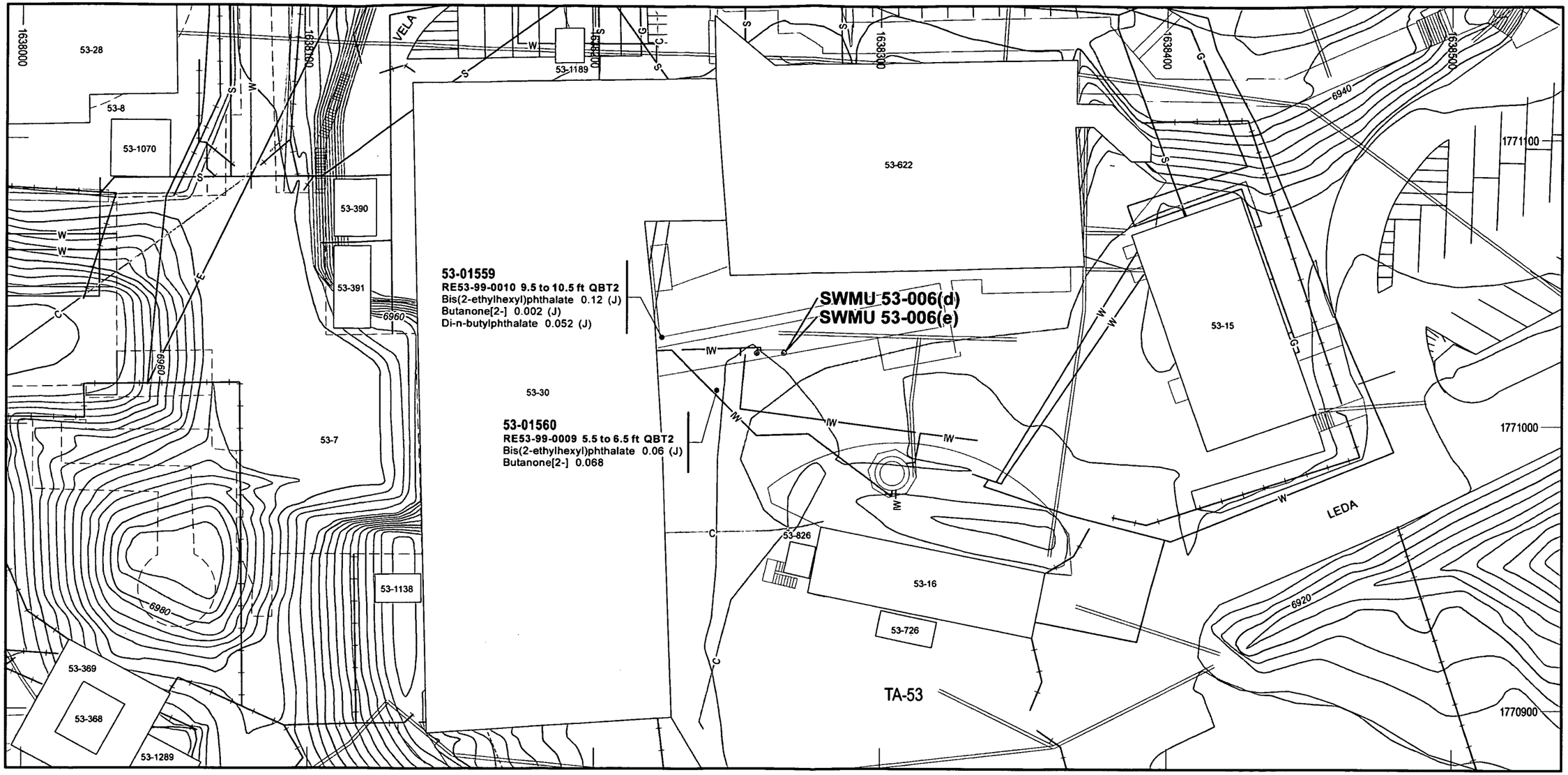


Figure 3.5-2 Organic chemicals detected at SWMUs 53-006(d) and 53-006(e)

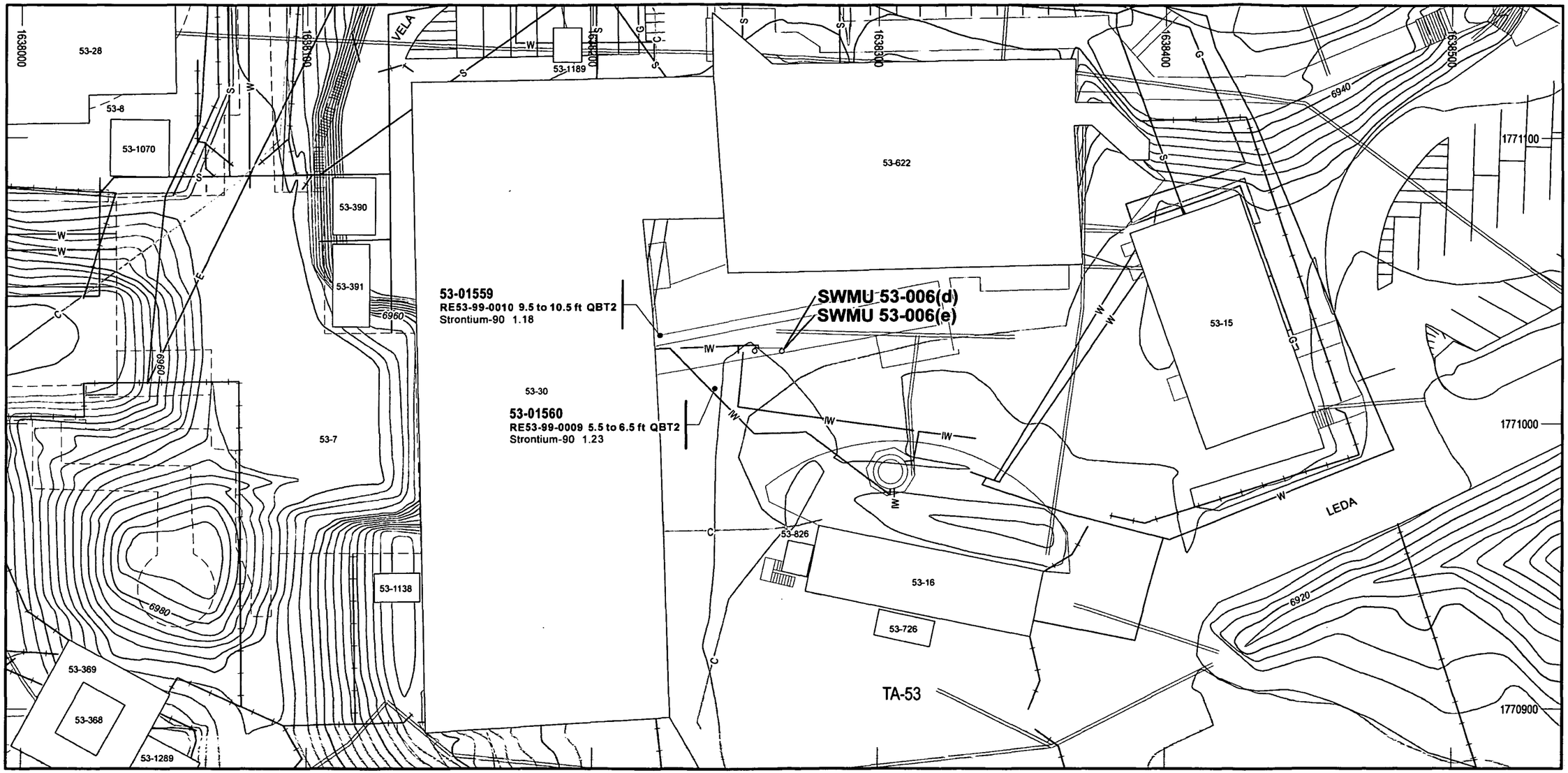


Figure 3.5-3 Radionuclides detected or detected above BVs/FVs at SWMUs 53-006(d) and 53-006(e)

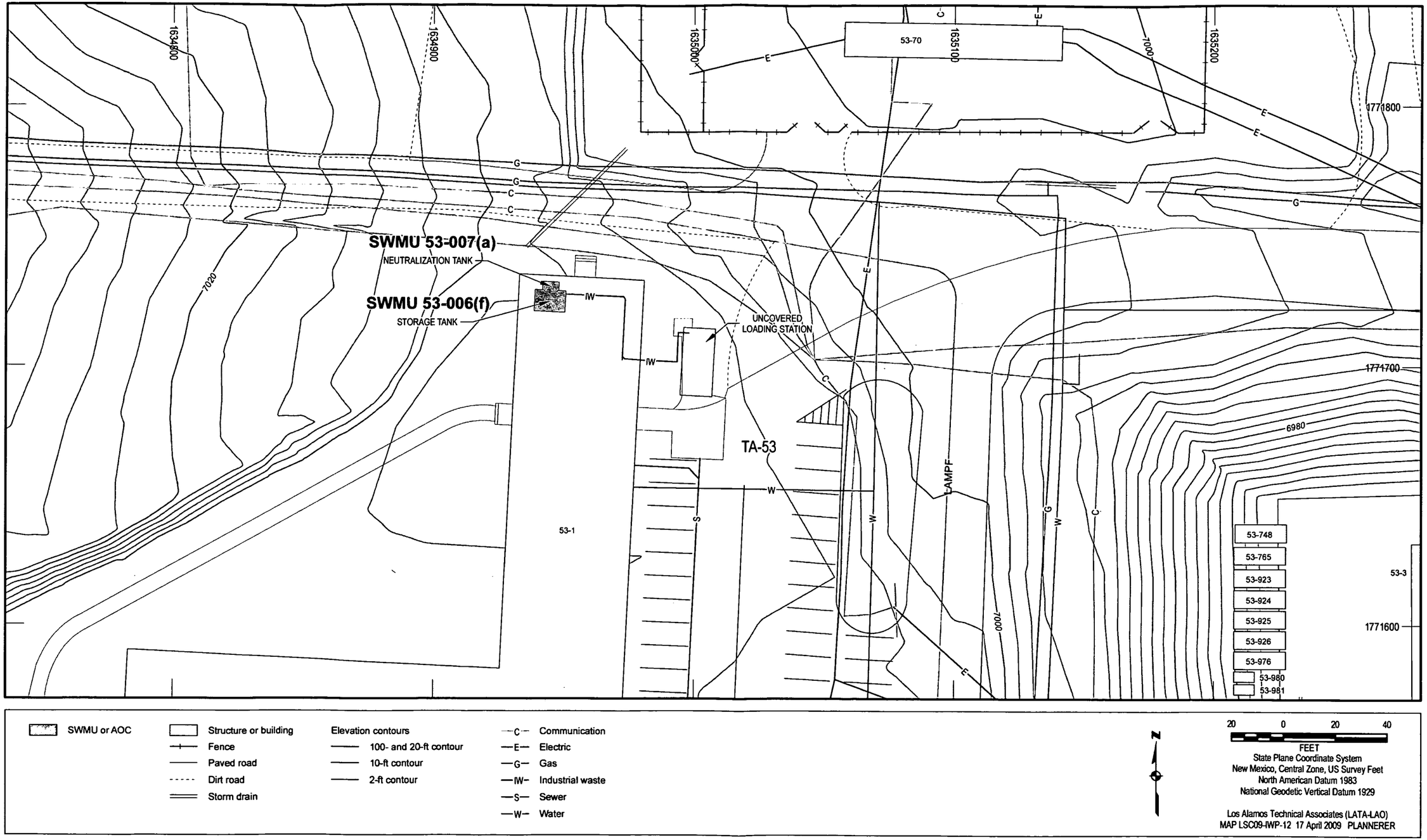


Figure 3.6-1 Site features and historical sampling locations for SWMUs 53-006(f) and 53-007(a)

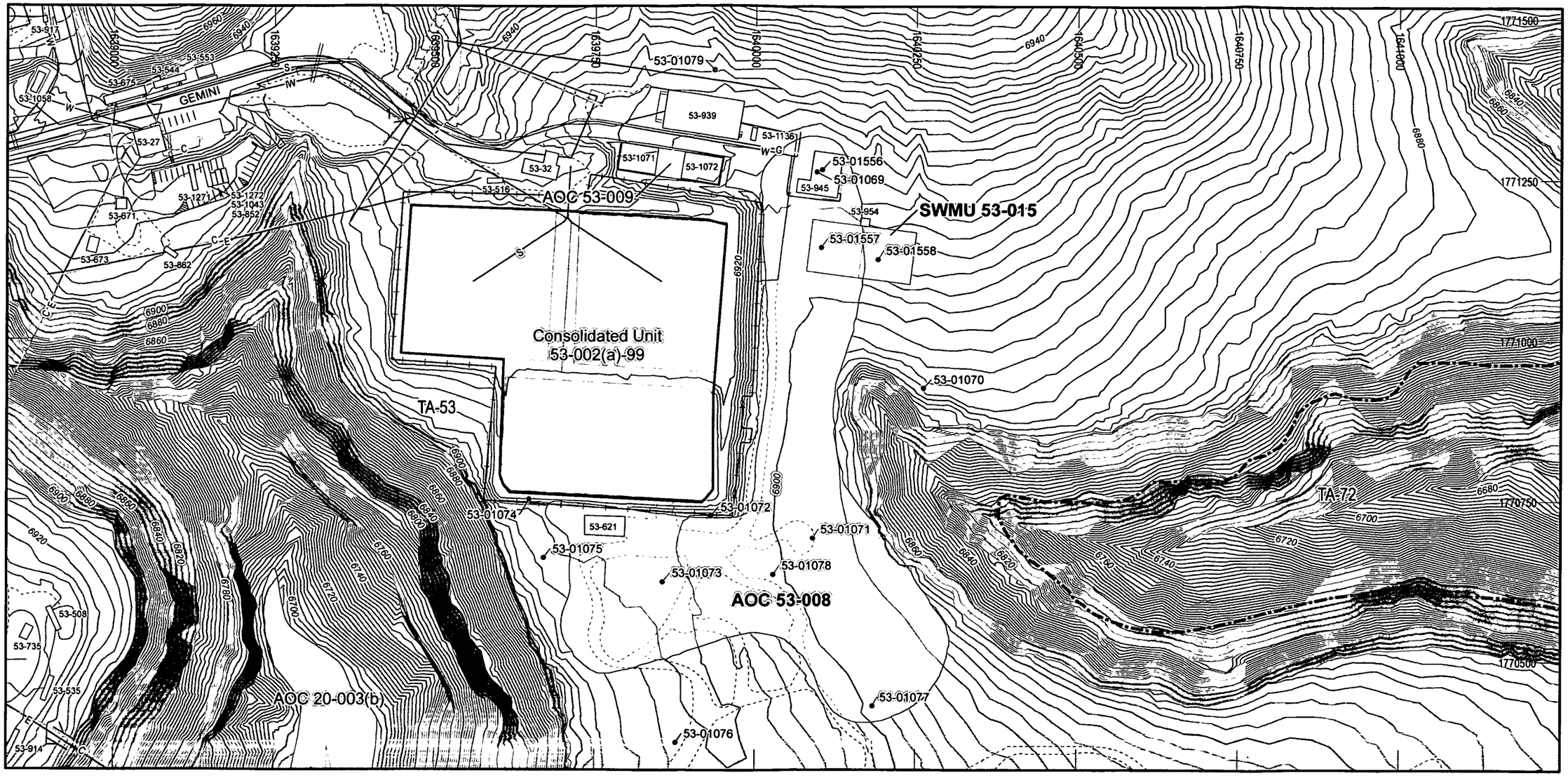
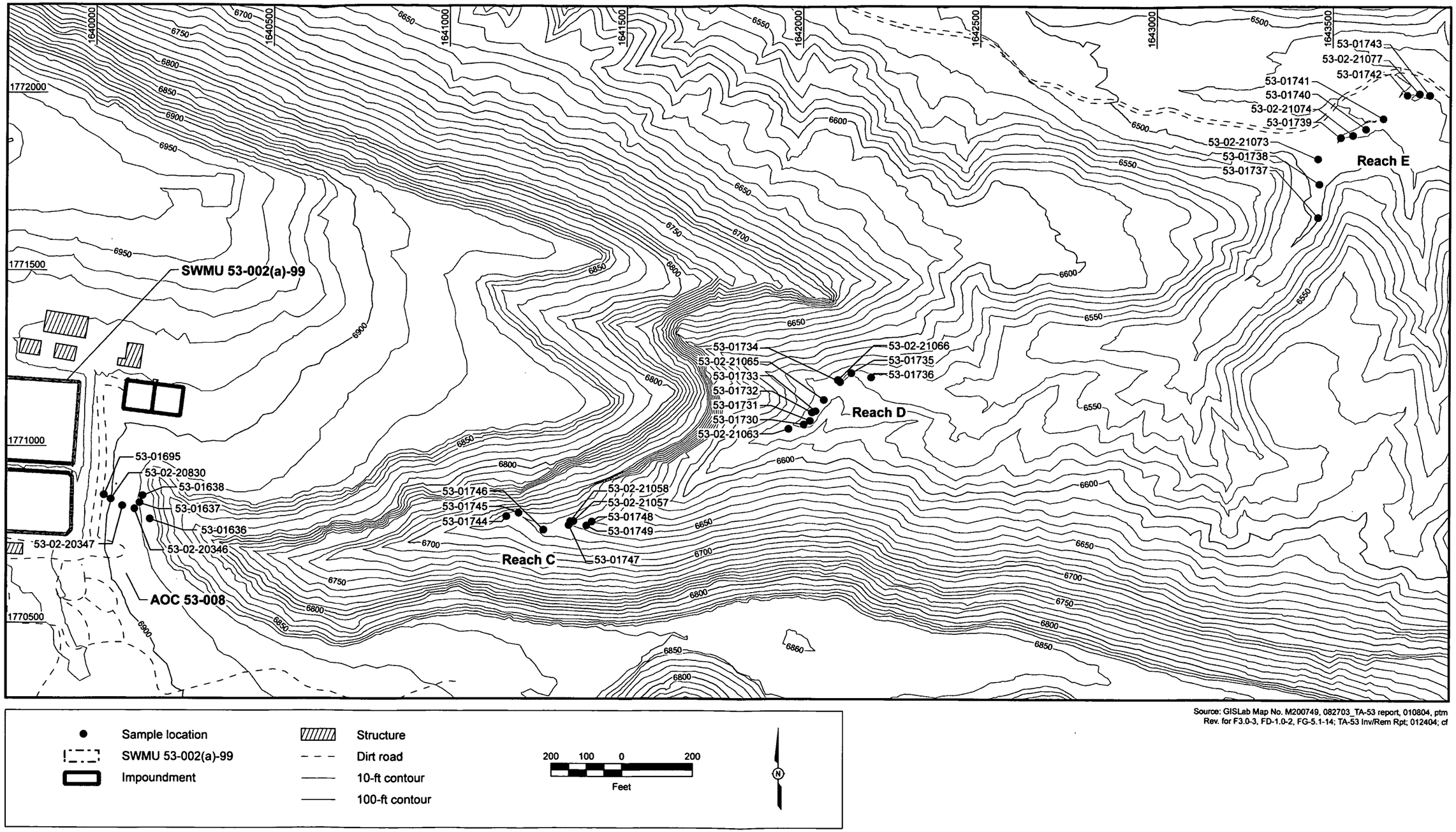


Figure 3.8-1 Site features and historical sampling locations for SWMU 53-015 and AOC 53-008



Source: GISLab Map No. M200749, 082703_TA-53 report, 010804, ptm
Rev. for F3.0-3, FD-1.0-2, FG-5.1-14; TA-53 Inv/Rem Rpt; 012404; cf

Figure 3.8-2 Sampling locations at head of drainage and in downstream reaches

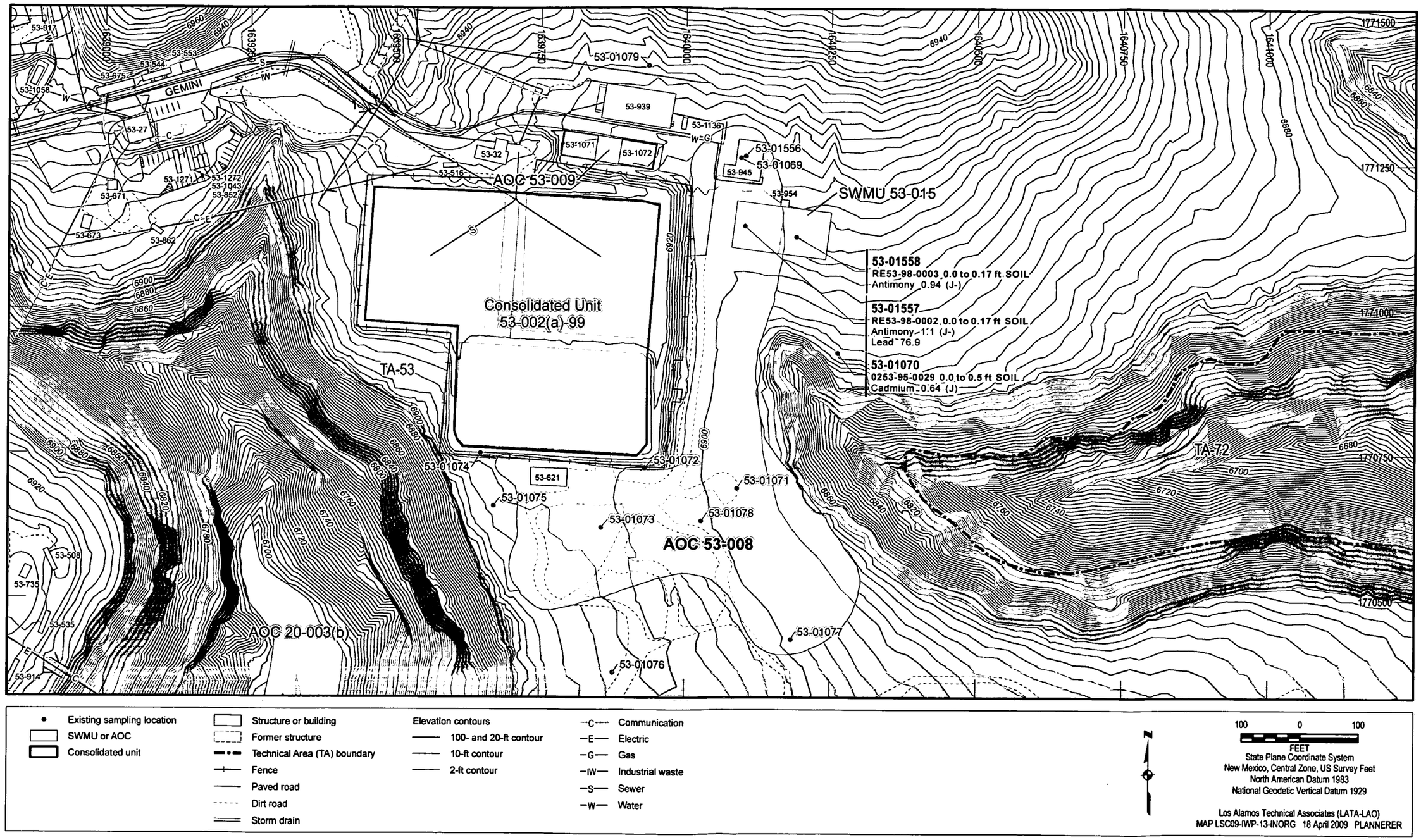
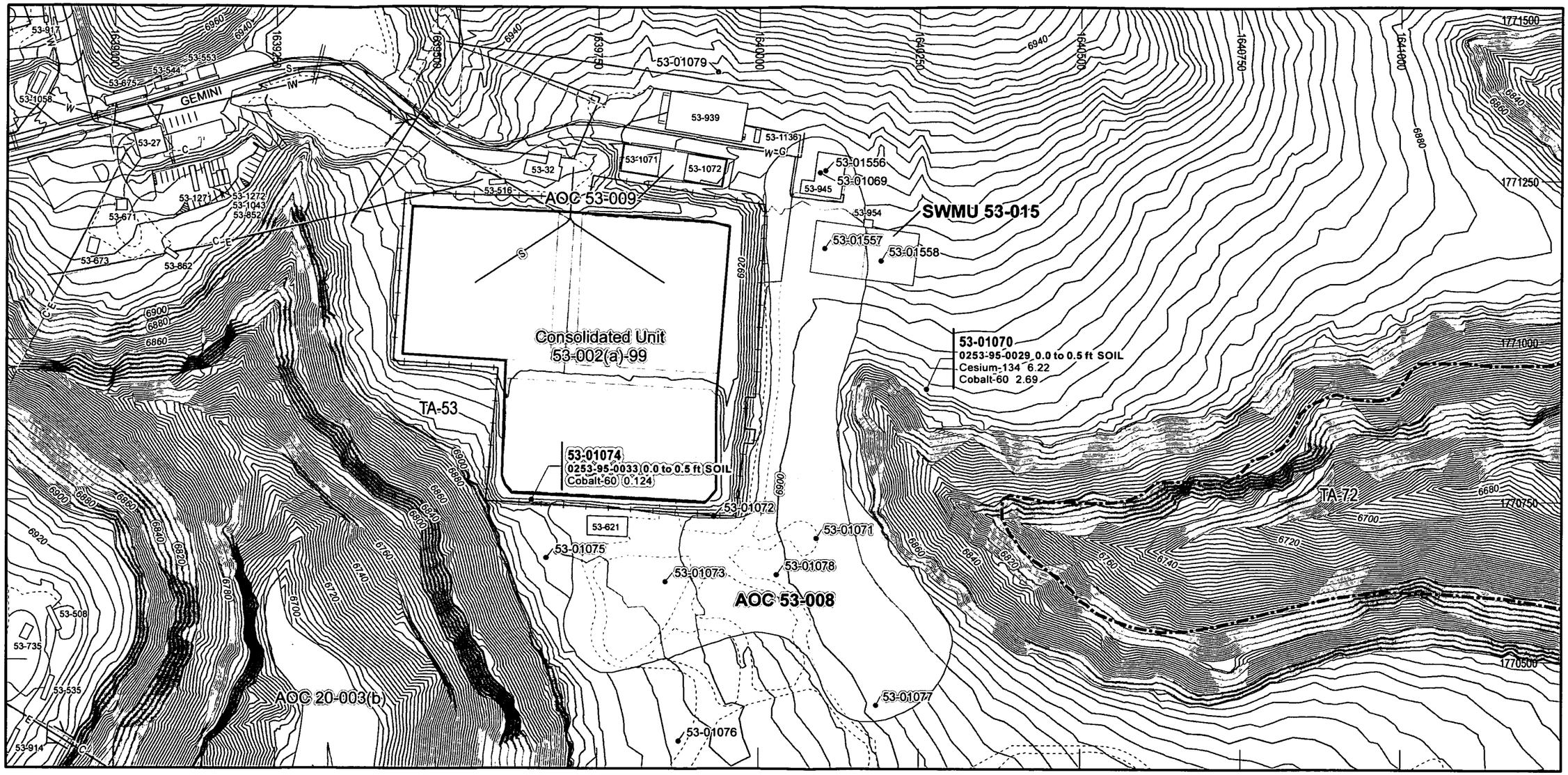


Figure 3.8-3 Inorganic chemicals detected above BVs at AOC 53-008



- Existing sampling location
- SWMU or AOC
- Consolidated unit
- Structure or building
- Former structure
- Technical Area (TA) boundary
- Fence
- Paved road
- Dirt road
- Storm drain

Elevation contours
- 100- and 20-ft contour
- 10-ft contour
- 2-ft contour

- C Communication
- E Electric
- G Gas
- IW Industrial waste
- S Sewer
- W Water

100 0 100
FEET
State Plane Coordinate System
New Mexico, Central Zone, US Survey Feet
North American Datum 1983
National Geodetic Vertical Datum 1929

Los Alamos Technical Associates (LATA-LAO)
MAP LSC09-IWP-13-RAD 19 April 2009 PLANNERER

Figure 3.8-4 Radionuclides detected or detected above BVs/FVs for AOC 53-008

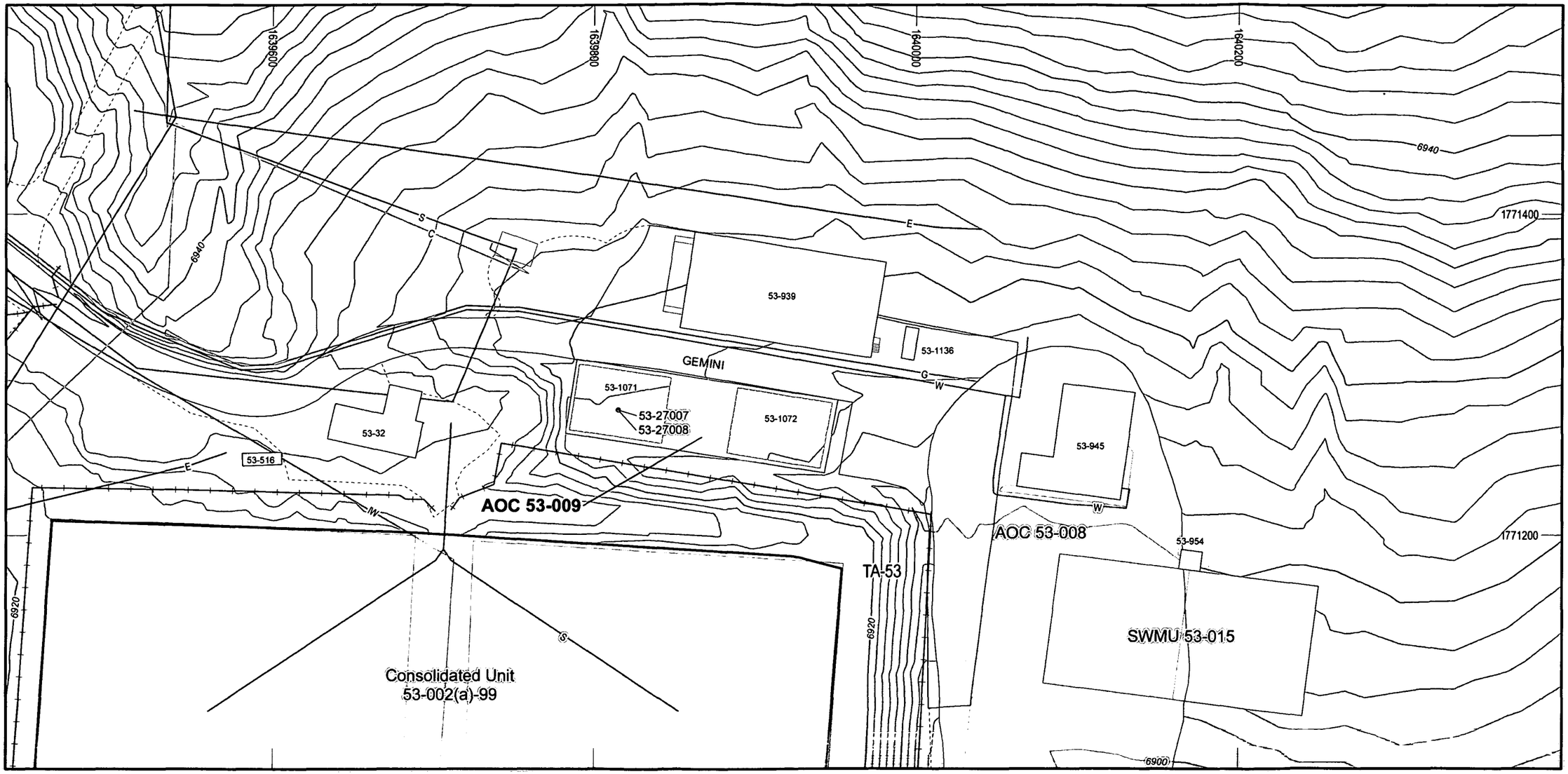


Figure 3.9-1 Site features and historical sampling locations for AOC 53-009

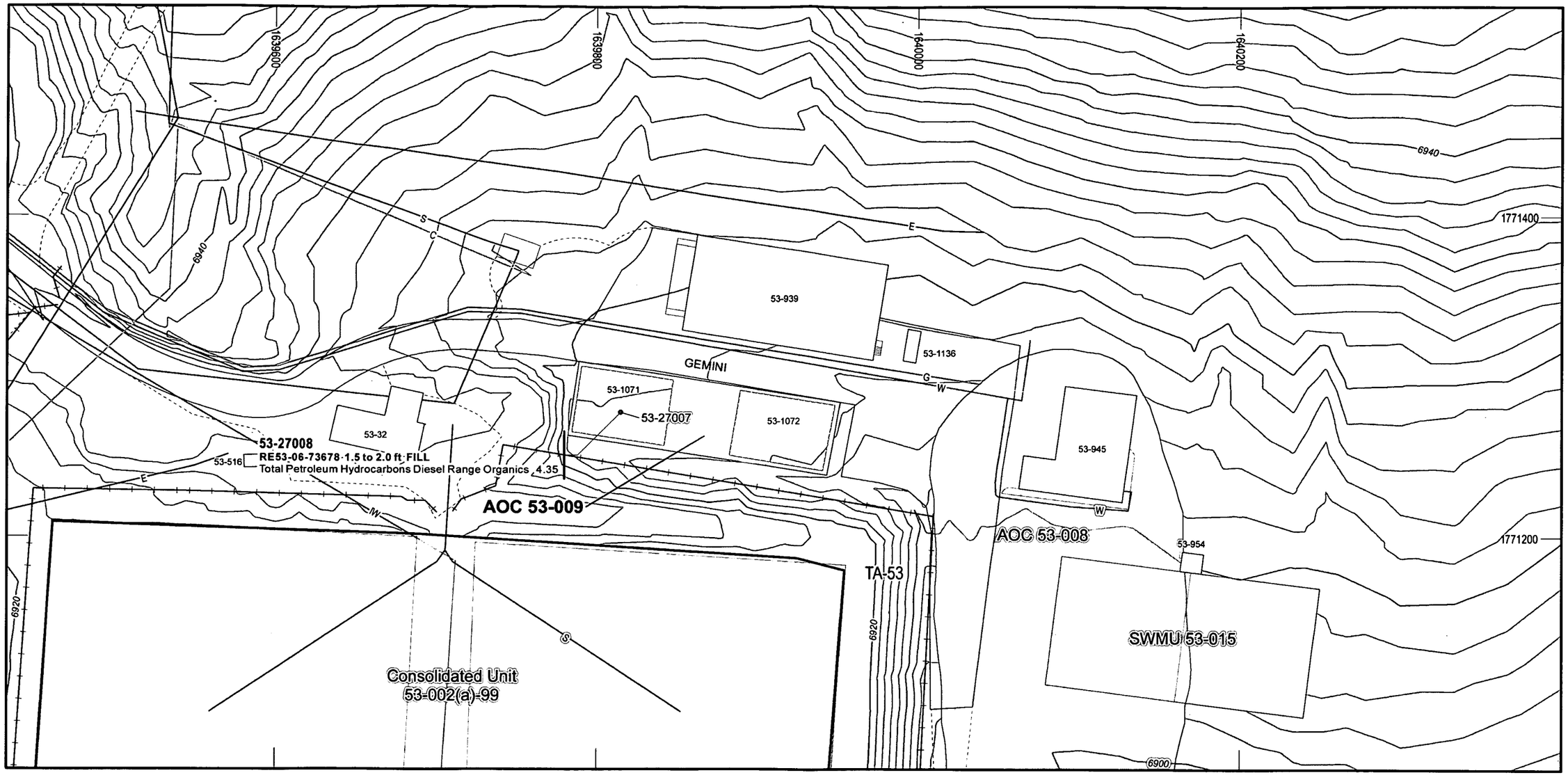


Figure 3.9-2 Organic chemicals detected at AOC 53-009

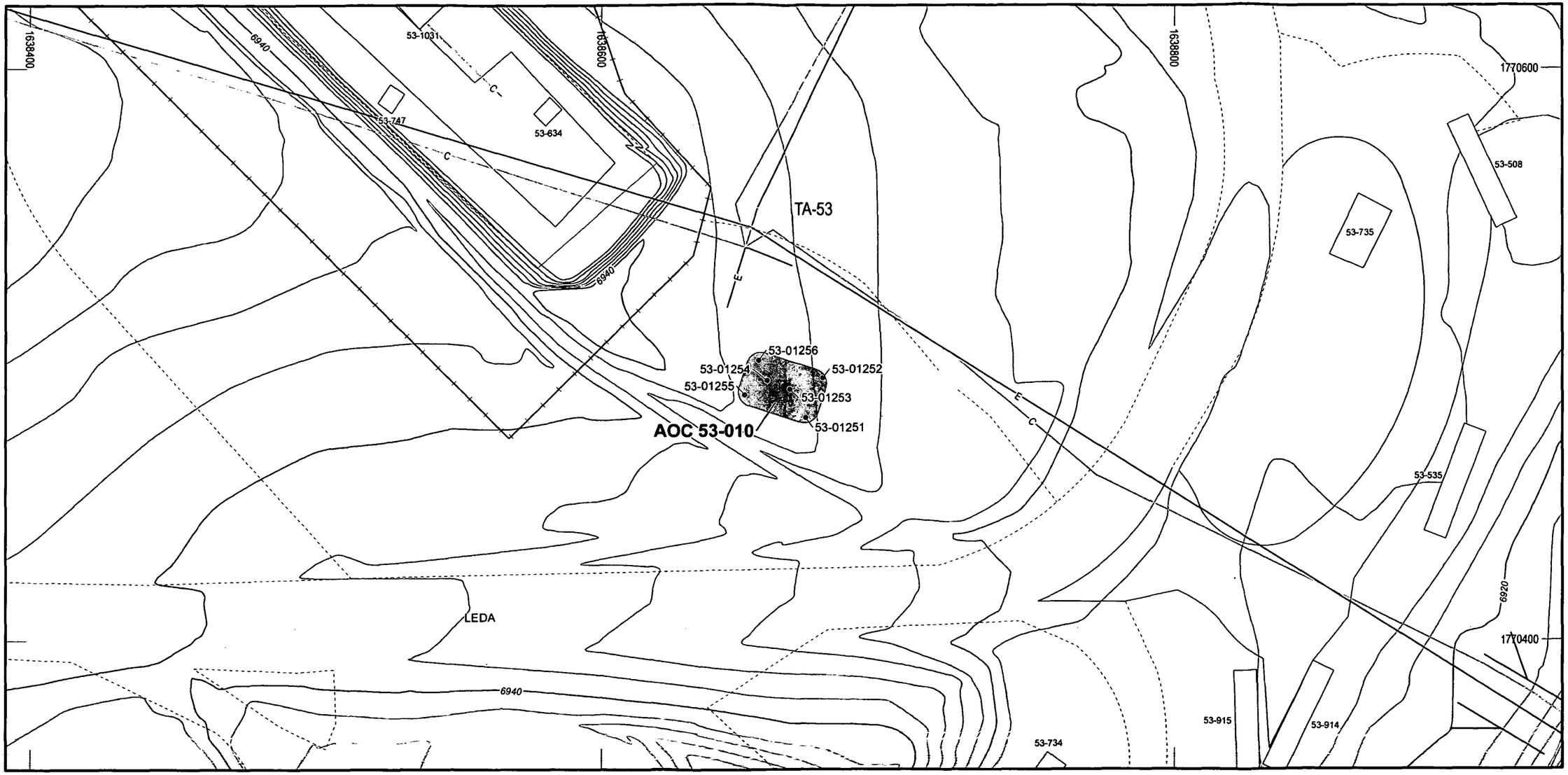


Figure 3.10-1 Site features and historical sampling locations for AOC 53-010

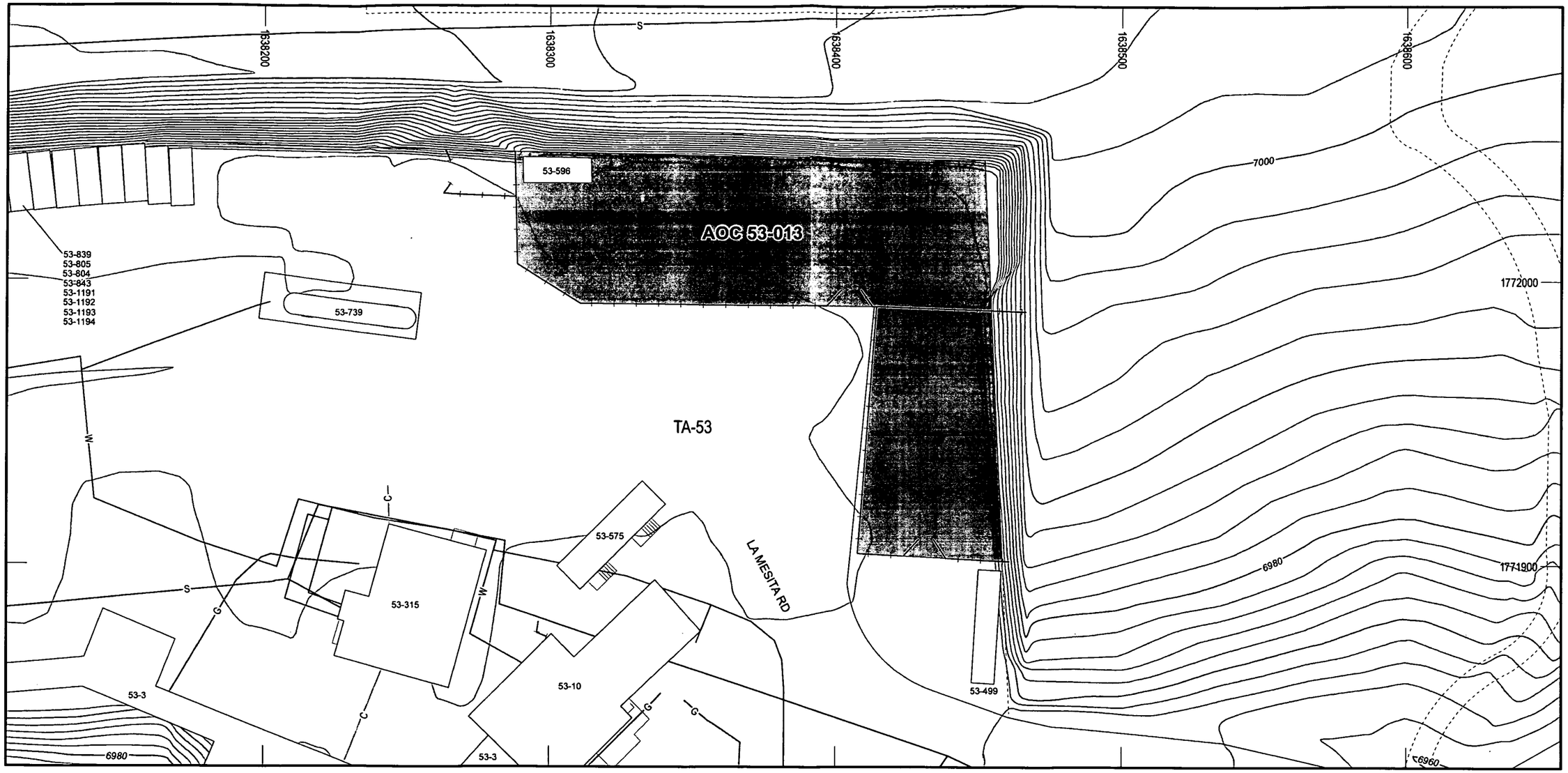


Figure 3.12-1 Site features and historical sampling locations for AOC 53-013

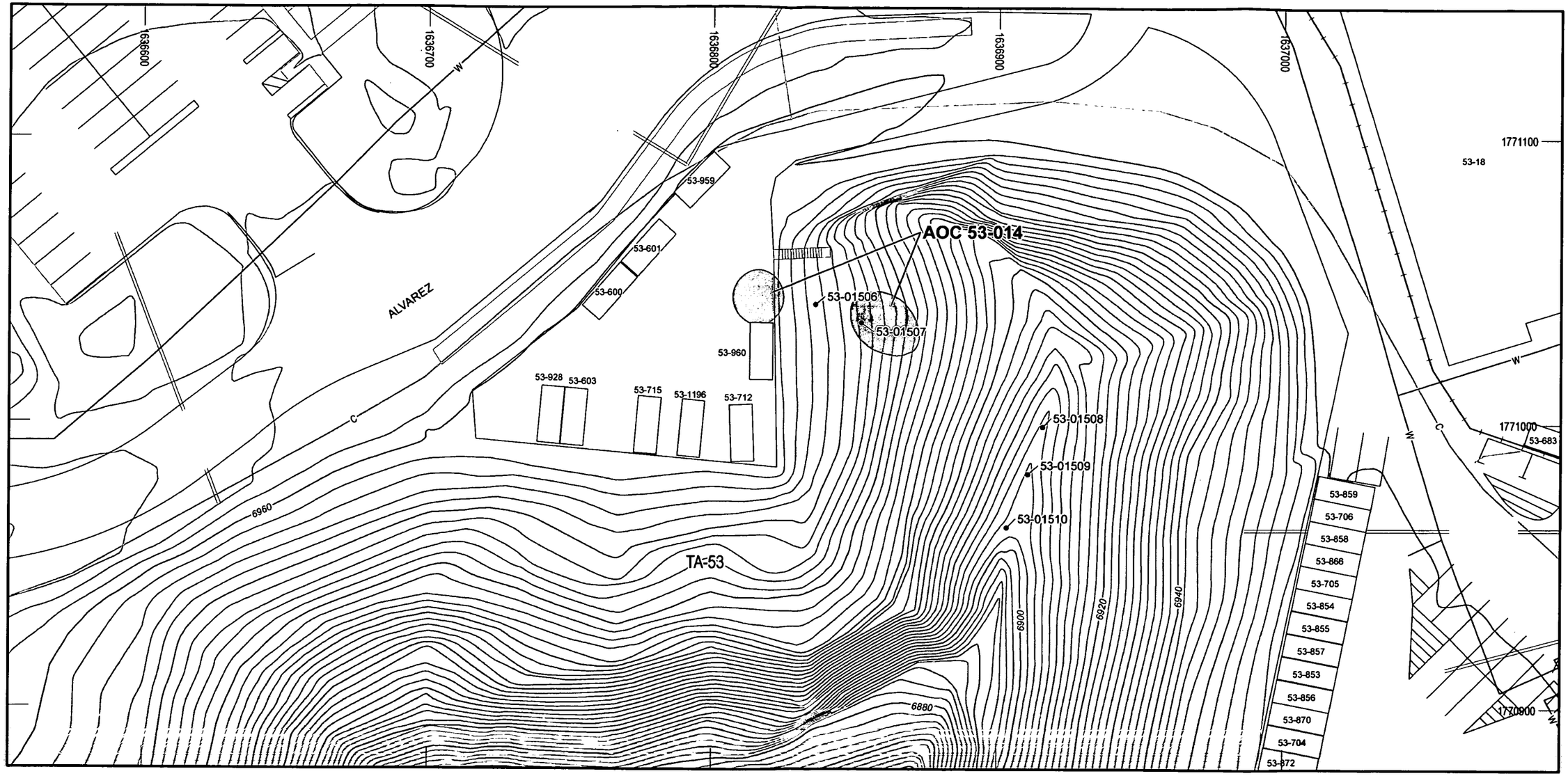


Figure 3.13-1 Site features and historical sampling locations for AOC 53-014

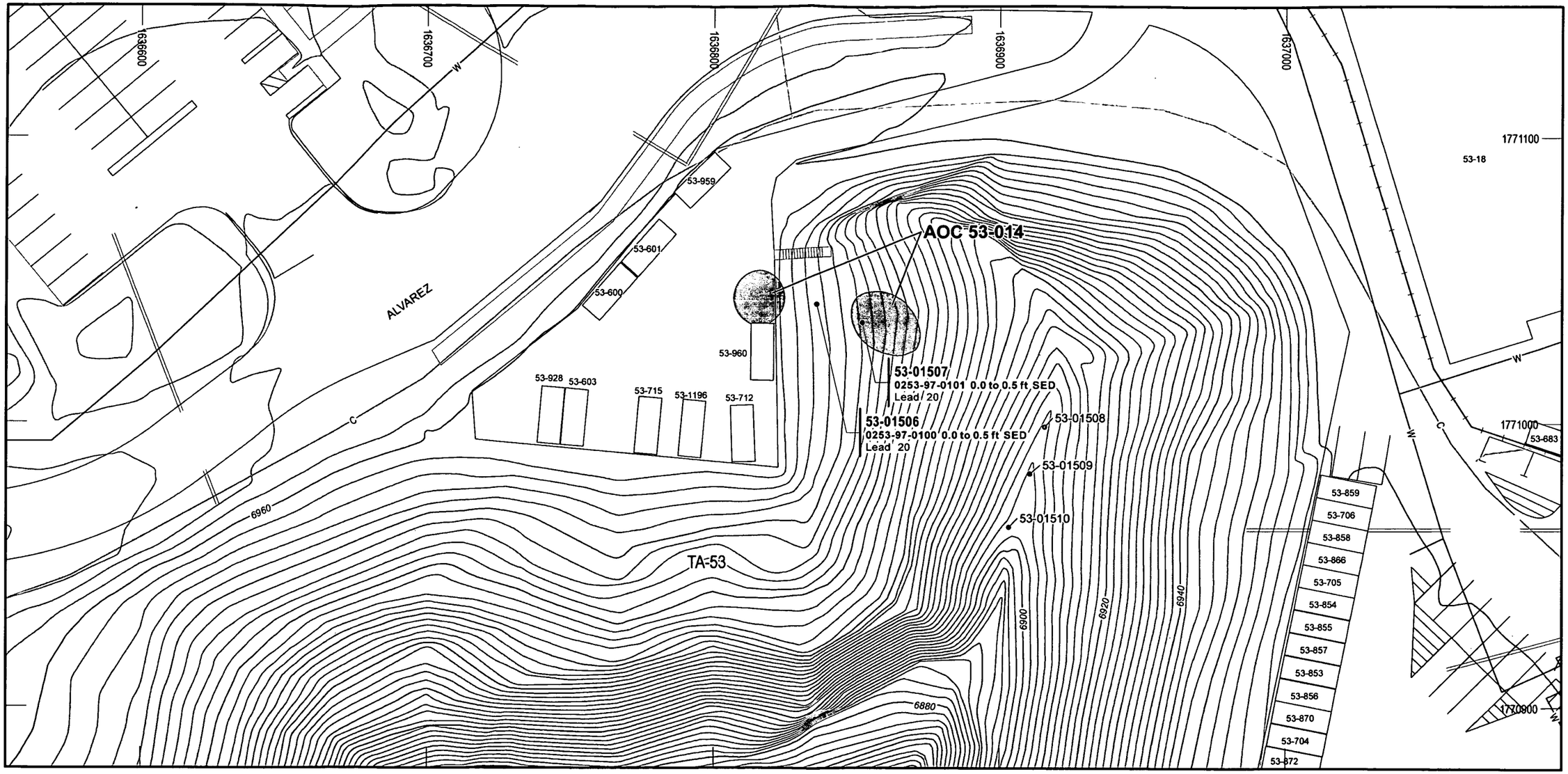


Figure 3.13-2 Inorganic chemicals detected above BVs at AOC 53-014

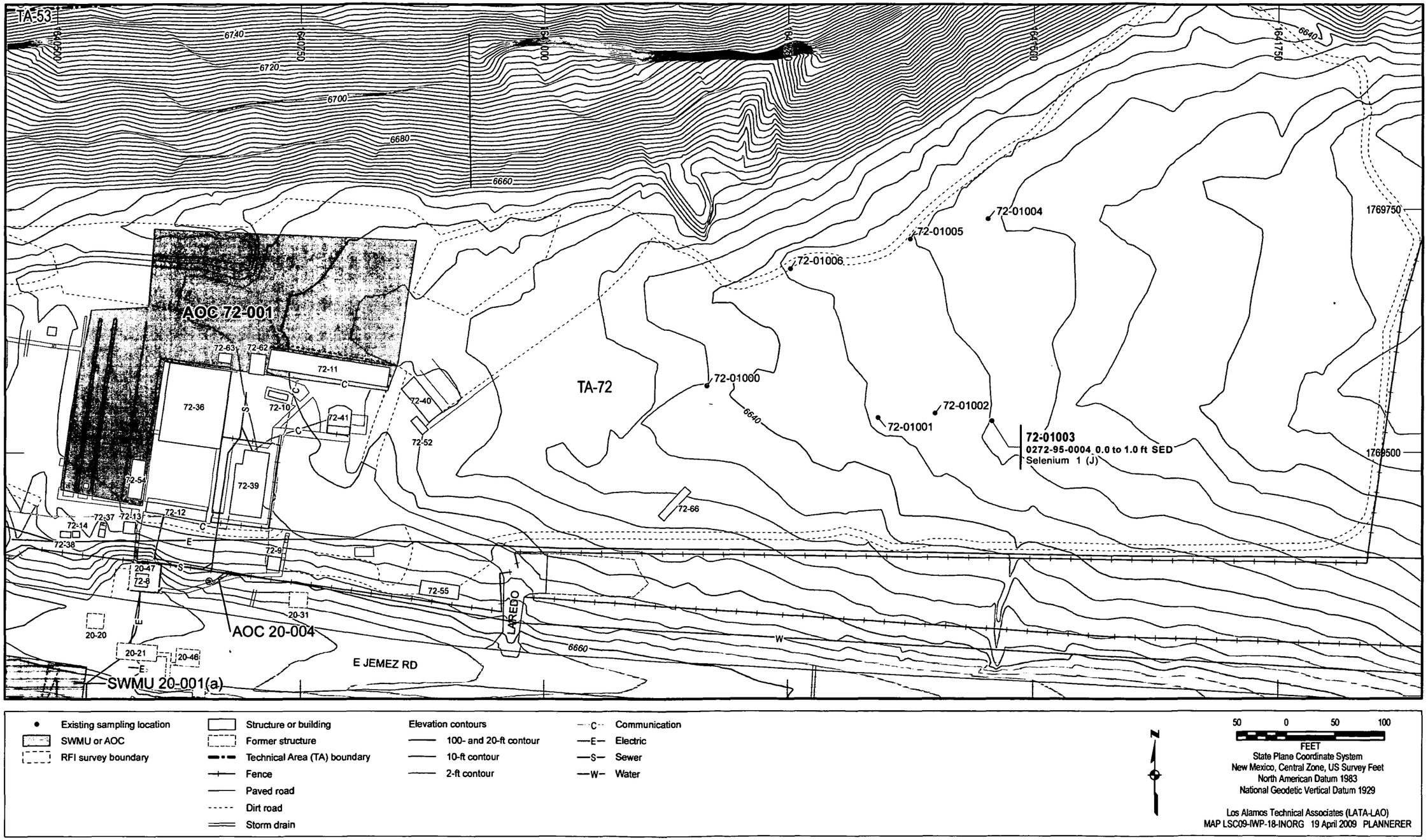


Figure 4.1-1 Inorganic chemicals detected above BVs at AOC 72-001

Table 1.1-1
Status of SWMUs and AOCs in Lower Sandia Canyon Aggregate Area

Consolidated Unit	Site ID	Brief Description	Site Status	Reference
Former TA-20				
	SWMU 20-001(a)	Landfill	Under Investigation	Work plan section 4.1.1
20-001(b)-00	SWMU 20-001(b)	Landfill	Under Investigation	Work plan section 4.1.2
	SWMU 20-002(c)	Former firing point	Under Investigation	Work plan section 4.1.6
	AOC 20-003(c)	Former U.S. Navy gun site	Under Investigation	Work plan section 4.1.9
20-001(c)-00	SWMU 20-001(c)	Landfill	Under Investigation	Work plan section 4.1.3
	SWMU 20-002(a)	Former firing pit	Under Investigation	Work plan section 4.1.4
	SWMU 20-002(b)	Former steel tanks (firing site)	Under Investigation	Work plan section 4.1.5
	SWMU 20-002(d)	Former firing site	Under Investigation	Work plan section 4.1.7
	SWMU 20-003(a)	Soil contamination associated with former firing site control building	Removed from Module VIII Hazardous Waste Facility Permit (HWFP) 04/22/07	NMED 2007, 095495
	AOC 20-003(b)	Former 20-mm gun firing site	Under Investigation	Work plan section 4.1.8
	AOC 20-003(d)	Firing site	NFA Approved, 01/21/05	EPA 2005, 088464
	AOC 20-004	Septic system	Under Investigation	Work plan section 4.1.10
	SWMU 20-005	Septic system	Under Investigation	Work plan section 4.1.11
	AOC C-20-001	Former storage building	NFA Approved, 01/21/05	EPA 2005, 088464
	AOC C-20-002	Former storage building	NFA Approved, 01/21/05	EPA 2005, 088464
	AOC C-20-003	Former building	NFA Approved, 01/21/05	EPA 2005, 088464
TA-53				
	SWMU 53-001(a)	Storage area	Under Investigation	Work plan section 4.2.1
	SWMU 53-001(b)	Storage area	Under Investigation	Work plan section 4.2.2
	AOC 53-001(c)	Storage area	NFA Approved, 01/21/05	EPA 2005, 088464
	AOC 53-001(d)	Storage area	NFA Approved, 01/21/05	EPA 2005, 088464
	AOC 53-001(e)	Storage area	NFA Approved, 01/21/05	EPA 2005, 088464
	AOC 53-001(f)	Storage area	NFA Approved, 01/21/05	EPA 2005, 088464
	AOC 53-001(g)	Storage area	NFA Approved, 01/21/05	EPA 2005, 088464

Table 1.1-1 (continued)

Consolidated Unit	Site ID	Brief Description	Site Status	Reference
	AOC 53-001(h)	Storage area	NFA Approved, 01/21/05	EPA 2005, 088464
	AOC 53-001(i)	Storage area	NFA Approved, 01/21/05	EPA 2005, 088464
	AOC 53-001(j)	Storage area	NFA Approved, 01/21/05	EPA 2005, 088464
	AOC 53-001(k)	Storage area	NFA Approved, 01/21/05	EPA 2005, 088464
	AOC 53-001(l)	Storage area	NFA Approved, 01/21/05	EPA 2005, 088464
	AOC 53-001(m)	Storage area	NFA Approved, 01/21/05	EPA 2005, 088464
	AOC 53-001(n)	Storage area	NFA Approved, 01/21/05	EPA 2005, 088464
	AOC 53-001(o)	Storage area	NFA Approved, 01/21/05	EPA 2005, 088464
53-002(a)-99	SWMU 53-002(a)	Former surface impoundments	Corrective Action Complete with Controls, 09/13/06	NMED 2006, 095421
	SWMU 53-002(b)	Former surface impoundment	Corrective Action Complete with Controls, 09/13/06	NMED 2006, 095421
	AOC 53-003	Sanitary waste holding tank	NFA Approved, 01/21/05	EPA 2005, 088464
	AOC 53-004	Bead blaster	NFA Approved, 01/21/05	EPA 2005, 088464
	SWMU 53-005	Former waste disposal pit	Under Investigation	Work plan section 4.2.3
53-006(b)-99	AOC 53-006(a)	Underground Tank	NFA Approved, 01/21/05	EPA 2005, 088464
	SWMU 53-006(b)	Underground storage tank	Under Investigation	Work plan section 4.2.4
	SWMU 53-006(c)	Underground storage tank	Under Investigation	Work plan section 4.2.4
53-006(d)-99	SWMU 53-006(d)	Underground storage tank	Under Investigation	Work plan section 4.2.5
	SWMU 53-006(e)	Underground storage tank	Under Investigation	Work plan section 4.2.5
	SWMU 53-006(f)	Underground storage tanks	Under Investigation	Work plan section 4.2.6
	SWMU 53-007(a)	Aboveground treatment tank	Under Investigation	Work plan section 4.2.7
	SWMU 53-007(b)	Aboveground storage tanks	Removed from Module VIII HWFP, 12/23/98	NMED 1998, 063042
	AOC 53-008	Storage area	Under Investigation	Work plan section 4.2.8
	AOC 53-009	Former storage area	Under Investigation	Work plan section 4.2.9
	AOC 53-010	Former storage area	Under Investigation	Work plan section 4.2.10
	AOC 53-011(a)	Transformer	NFA Approved, 01/21/05	EPA 2005, 088464

Table 1.1-1 (continued)

Consolidated Unit	Site ID	Brief Description	Site Status	Reference
	AOC 53-011(b)	Transformer	NFA Approved, 01/21/05	EPA 2005, 088464
	AOC 53-011(c)	Transformer	NFA Approved, 01/21/05	EPA 2005, 088464
	AOC 53-011(d)	Transformer	NFA Approved, 01/21/05	EPA 2005, 088464
	AOC 53-011(e)	Transformer	NFA Approved, 01/21/05	EPA 2005, 088464
	AOC 53-012(d)	Outfall	NFA Approved, 01/21/05	EPA 2005, 088464
	AOC 53-012(e)	Drainline and outfall	Under Investigation	Work plan section 4.2.11
	AOC 53-012(f)	Outfall	NFA Approved, 01/21/05	EPA 2005, 088464
	AOC 53-012(g)	Outfall	NFA Approved, 01/21/05	EPA 2005, 088464
	AOC 53-012(h)	Outfall	NFA Approved, 01/21/05	EPA 2005, 088464
	AOC 53-013	Lead spill site	Under Investigation	Work plan section 4.2.12
	AOC 53-014	Lead spill site	Under Investigation	Work plan section 4.2.13
	SWMU 53-015	Wastewater treatment facility	Not subject to corrective actions	DOE 1999, 098985
	AOC C-53-001	Transformer	NFA Approved, 01/21/05	EPA 2005, 088464
	AOC C-53-002	Transformer	NFA Approved, 01/21/05	EPA 2005, 088464
	AOC C-53-003	Transformer	NFA Approved, 01/21/05	EPA 2005, 088464
	AOC C-53-004	Transformer	NFA Approved, 01/21/05	EPA 2005, 088464
	AOC C-53-005	Transformer	NFA Approved, 01/21/05	EPA 2005, 088464
	AOC C-53-006	Transformer	NFA Approved, 01/21/05	EPA 2005, 088464
	AOC C-53-007	Transformer	NFA Approved, 01/21/05	EPA 2005, 088464
	AOC C-53-008	Transformer	NFA Approved, 01/21/05	EPA 2005, 088464
	AOC C-53-009	Transformer	NFA Approved, 01/21/05	EPA 2005, 088464
	AOC C-53-010	Transformer	NFA Approved, 01/21/05	EPA 2005, 088464
	AOC C-53-011	Transformer	NFA Approved, 01/21/05	EPA 2005, 088464

Table 1.1-1 (continued)

Consolidated Unit	Site ID	Brief Description	Site Status	Reference
	AOC C-53-012	Transformer	NFA Approved, 01/21/05	EPA 2005, 088464
	AOC C-53-013	Transformer	NFA Approved, 01/21/05	EPA 2005, 088464
	AOC C-53-014	Transformer	NFA Approved, 01/21/05	EPA 2005, 088464
	AOC C-53-015	Transformer	NFA Approved, 01/21/05	EPA 2005, 088464
	AOC C-53-016	Transformer	NFA Approved, 01/21/05	EPA 2005, 088464
	AOC C-53-018	One-time spill	NFA Approved, 01/21/05	EPA 2005, 088464
	AOC C-53-019	One-time spill	NFA Approved, 01/21/05	EPA 2005, 088464
TA-72				
	AOC 72-001	Small arms firing range	Under Investigation	Work plan section 4.3.1
	AOC 72-002	Suspected mortar impact area	NFA Approved, 01/21/05	EPA 2005, 088464
	AOC 72-003(a)	Septic system	NFA Approved, 01/21/05	EPA 2005, 088464
	AOC 72-003(b)	Septic system	NFA Approved, 01/21/05	EPA 2005, 088464

Note: Shading denotes NFA approved or complete with controls.

Table 2.0-1
Summary of Historical Samples Collected and Analyses Requested at Former TA-20

Sample ID	Location ID	Depth (ft)	Media	Gamma Spectroscopy	High Explosives	Isotopic Uranium	Metals	Strontium-90	SVOCs	Uranium	VOCs	Cyanide
SWMU 20-001(a)												
0220-95-0001	20-01000	10.0–11.0	Fill	297[a]	295	297	296	297	—[b]	297	—	—
0220-95-0008	20-01007	10.0–11.0	Fill	297	295	297	296	297	—	297	—	—
0220-95-0009	20-01008	10.0–11.0	Fill	297	295	297	296	297	—	297	—	—
0220-95-0010	20-01009	10.0–11.0	Fill	297	295	297	296	297	—	297	—	—
0220-95-0011	20-01010	10.0–11.0	Fill	297	295	297	296	297	—	297	—	—
0220-95-0012	20-01011	10.0–11.0	Fill	297	295	297	296	297	—	297	—	—
0220-95-0013	20-01012	10.0–11.0	Fill	297	295	297	296	297	—	297	—	—
0220-95-0014	20-01013	10.0–11.0	Fill	297	295	297	296	297	—	297	—	—
SWMU 20-001(b)												
0220-95-0015	20-01014	8.0–9.0	Soil	360	358	360	359, 360	360	—	—	—	—
0220-95-0016	20-01015	8.0–9.0	Soil	360	358	360	359, 360	360	—	—	—	—
0220-95-0017	20-01016	9.0–10.0	Fill	360	358	360	359, 360	360	—	—	—	—
0220-95-0018	20-01017	9.0–10.0	Fill	360	358	360	359, 360	360	—	—	—	—
0220-95-0019	20-01018	6.0–7.0	Fill	360	358	360	359, 360	360	—	—	—	—
0220-95-0023	20-01019	1.0–2.0	Fill	360	358	360	359, 360	360	—	—	—	—
0220-95-0024	20-01020	10.0–11.0	Fill	360	358	360	359, 360	360	—	—	—	—
0220-95-0025	20-01021	10.0–11.0	Soil	319	312	319	318, 319	319	—	—	—	—
0220-95-0026	20-01022	10.0–11.0	Soil	319	312	319	318, 319	319	—	—	—	—
0220-95-0027	20-01023	10.0–11.0	Soil	319	312	319	318, 319	319	—	—	—	—
0220-95-0028	20-01024	10.0–11.0	Soil	319	312	319	318, 319	319	—	—	—	—
0220-95-0029	20-01025	10.0–11.0	Soil	319	312	319	318, 319	319	—	—	—	—
0220-95-0030	20-01026	10.0–11.0	Soil	319	312	319	318, 319	319	—	—	—	—

Table 2.0-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Gamma Spectroscopy	High Explosives	Isotopic Uranium	Metals	Strontium-90	SVOCs	Uranium	VOCs	Cyanide
0220-95-0031	20-01027	10.0–11.0	Soil	319	312	319	318, 319	319	—	—	—	—
0220-95-0032	20-01028	10.0–11.0	Soil	319	312	319	318, 319	319	—	—	—	—
0220-95-0033	20-01029	10.0–11.0	Soil	319	312	319	318, 319	319	—	—	—	—
0220-95-0034	20-01030	10.0–11.0	Soil	319	312	319	318, 319	319	—	—	—	—
0220-95-0035	20-01031	10.0–11.0	Soil	319	312	319	318, 319	319	—	—	—	—
0220-95-0036	20-01032	10.0–11.0	Soil	319	312	319	318, 319	319	—	—	—	—
0220-95-0037	20-01033	10.0–11.0	Soil	319	312	319	318, 319	319	—	—	—	—
0220-95-0038	20-01034	10.0–11.0	Soil	319	312	319	318, 319	319	—	—	—	—
SWMU 20-001(c)												
0220-95-0039	20-01035	10.0–10.0	Fill	360	358	360	359, 360	360	—	—	—	—
0220-95-0040	20-01036	10.0–10.0	Fill	360	358	360	359, 360	360	—	—	—	—
0220-95-0041	20-01037	10.0–10.0	Fill	360	358	360	359, 360	360	—	—	—	—
0220-95-0042	20-01038	10.0–10.0	Fill	360	358	360	359, 360	360	—	—	—	—
0220-95-0045	20-01039	0.0–0.5	Soil	360	358	360	359, 360	360	—	—	—	—
0220-95-0043	20-01039	10.0–10.0	Fill	360	358	360	359, 360	360	—	—	—	—
0220-95-0047	20-01040	10.0–10.0	Fill	360	358	360	359, 360	360	—	—	—	—
0220-95-0048	20-01041	10.0–10.0	Fill	360	358	360	359, 360	360	—	—	—	—
0220-95-0049	20-01042	10.0–10.0	Fill	360	358	360	359, 360	360	—	—	—	—
0220-95-0050	20-01043	10.0–10.0	Fill	360	358	360	359, 360	360	—	—	—	—
0220-95-0051	20-01044	10.0–10.0	Fill	360	358	360	359, 360	360	—	—	—	—
0220-95-0052	20-01045	10.0–10.0	Fill	360	358	360	359, 360	360	—	—	—	—
0220-95-0053	20-01046	10.0–10.0	Fill	360	358	360	359, 360	360	—	—	—	—
0220-95-0054	20-01047	10.0–10.0	Fill	360	358	360	359, 360	360	—	—	—	—
0220-95-0055	20-01048	10.0–10.0	Fill	360	358	360	359, 360	360	—	—	—	—

Table 2.0-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Gamma Spectroscopy	High Explosives	Isotopic Uranium	Metals	Strontium-90	SVOCs	Uranium	VOCs	Cyanide
0220-95-0056	20-01049	10.0–10.0	Fill	353	352	353	353, 354	353	—	—	—	—
0220-95-0057	20-01050	10.0–10.0	Fill	353	352	353	353, 354	353	—	—	—	—
0220-95-0058	20-01051	10.0–10.0	Fill	353	352	353	353, 354	353	—	—	—	—
0220-95-0059	20-01052	10.0–10.0	Fill	353	352	353	353, 354	353	—	—	—	—
0220-95-0060	20-01053	10.0–10.0	Fill	353	352	353	353, 354	353	—	—	—	—
0220-95-0061	20-01054	10.0–10.0	Fill	353	352	353	353, 354	353	—	—	—	—
0220-95-0062	20-01055	10.0–10.0	Fill	353	352	353	353, 354	353	—	—	—	—
SWMU 20-002(a)												
0220-95-0063	20-01056	0.0–0.5	Soil	283	264	283	265	283	—	283	—	—
0220-95-0064	20-01056	2.5–3.0	Soil	283	264	283	265	283	—	283	—	—
0220-95-0065	20-01057	0.0–0.5	Soil	283	264	283	265	283	—	283	—	—
0220-95-0066	20-01057	2.5–3.0	Soil	283	264	283	265	283	—	283	—	—
0220-95-0070	20-01058	0.0–0.5	Soil	283	264	283	265	283	—	283	—	—
0220-95-0071	20-01058	2.5–3.0	Soil	283	264	283	265	283	—	283	—	—
0220-95-0072	20-01059	0.0–0.5	Soil	283	264	283	265	283	—	283	—	—
0220-95-0073	20-01059	2.5–3.0	Soil	283	264	283	265	283	—	283	—	—
0220-95-0074	20-01060	0.0–0.5	Soil	283	264	283	265	283	—	283	—	—
0220-95-0075	20-01060	2.5–3.0	Soil	283	264	283	265	283	—	283	—	—
0220-95-0076	20-01061	0.0–0.5	Soil	283	264	283	265	283	—	283	—	—
0220-95-0077	20-01061	2.5–3.0	Soil	283	264	283	265	283	—	283	—	—
0220-95-0078	20-01062	0.0–0.5	Soil	283	264	283	265	283	—	283	—	—
0220-95-0079	20-01062	2.5–3.0	Soil	283	264	283	265	283	—	283	—	—
0220-95-0080	20-01063	0.0–0.5	Soil	283	264	283	265	283	—	283	—	—
0220-95-0081	20-01063	2.5–3.0	Soil	283	264	283	265	283	—	283	—	—

Table 2.0-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Gamma Spectroscopy	High Explosives	Isotopic Uranium	Metals	Strontium-90	SVOCs	Uranium	VOCs	Cyanide
0220-95-0082	20-01064	0.0–0.5	Soil	283	264	283	265	283	—	283	—	—
0220-95-0083	20-01064	2.5–3.0	Soil	283	264	283	265	283	—	283	—	—
0220-95-0084	20-01065	0.0–0.5	Soil	283	264	283	265	283	—	283	—	—
0220-95-0085	20-01065	2.5–3.0	Soil	283	264	283	265	283	—	283	—	—
0220-95-0086	20-01066	0.0–0.5	Soil	283	264	283	265	283	—	283	—	—
0220-95-0087	20-01066	2.5–3.0	Soil	283	264	283	265	283	—	283	—	—
SWMU 20-002(b)												
0220-95-0088	20-01067	0.0–0.5	Soil	427	423	427	425	427	—	427	—	—
0220-95-0092	20-01067	2.5–3.0	Soil	427	423	427	425	427	—	427	—	—
0220-95-0093	20-01068	0.0–0.5	Soil	427	423	427	425	427	—	427	—	—
0220-95-0094	20-01068	2.5–3.0	Soil	427	423	427	425	427	—	427	—	—
0220-95-0095	20-01069	0.0–0.5	Soil	427	423	427	425	427	—	427	—	—
0220-95-0096	20-01069	2.5–3.0	Soil	427	423	427	425	427	—	427	—	—
0220-95-0097	20-01070	0.0–0.5	Soil	427	423	427	425	427	—	427	—	—
0220-95-0098	20-01070	2.5–3.0	Soil	427	423	427	425	427	—	427	—	—
0220-95-0099	20-01071	0.0–0.5	Soil	427	423	427	425	427	—	427	—	—
0220-95-0100	20-01071	2.5–3.0	Soil	427	423	427	425	427	—	427	—	—
0220-95-0101	20-01072	0.0–0.5	Soil	427	423	427	425	427	—	427	—	—
0220-95-0102	20-01072	2.5–3.0	Soil	427	423	427	425	427	—	427	—	—
0220-95-0103	20-01073	0.0–0.5	Soil	427	423	427	425	427	—	427	—	—
0220-95-0104	20-01073	2.5–3.0	Soil	427	423	427	425	427	—	427	—	—
0220-95-0105	20-01074	0.0–0.5	Soil	427	423	427	425	427	—	427	—	—
0220-95-0106	20-01074	2.5–3.0	Soil	427	423	427	425	427	—	427	—	—
0220-95-0107	20-01075	0.0–0.5	Soil	427	423	427	425	427	—	427	—	—

Table 2.0-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Gamma Spectroscopy	High Explosives	Isotopic Uranium	Metals	Strontium-90	SVOCs	Uranium	VOCs	Cyanide
0220-95-0108	20-01075	2.5–3.0	Soil	427	423	427	425	427	—	427	—	—
0220-95-0109	20-01076	0.0–0.5	Soil	427	423	427	425	427	—	427	—	—
0220-95-0110	20-01076	2.5–3.0	Soil	427	423	427	425	427	—	427	—	—
0220-95-0114	20-01077	0.0–0.5	Soil	427	423	427	425	427	—	427	—	—
0220-95-0115	20-01077	2.5–3.0	Soil	427	423	427	425	427	—	427	—	—
SWMU 20-002(c)												
0220-95-0240	20-01144	0.0–0.5	Soil	443	444	443	445	443	—	443	—	—
0220-95-0241	20-01144	2.5–3.0	Soil	443	444	443	445	443	—	443	—	—
0220-95-0242	20-01144	4.5–5.0	Soil	443	444	443	445	443	—	443	—	—
0220-95-0243	20-01145	0.0–0.5	Soil	443	444	443	445	443	—	443	—	—
0220-95-0244	20-01145	2.5–3.0	Soil	443	444	443	445	443	—	443	—	—
0220-95-0245	20-01145	4.5–5.0	Soil	443	444	443	445	443	—	443	—	—
0220-95-0246	20-01146	0.0–0.5	Soil	443	444	443	445	443	—	443	—	—
0220-95-0247	20-01146	2.5–3.0	Soil	443	444	443	445	443	—	443	—	—
0220-95-0248	20-01146	4.5–5.0	Soil	443	444	443	445	443	—	443	—	—
0220-95-0249	20-01147	0.0–0.5	Soil	443	444	443	445	443	—	443	—	—
0220-95-0250	20-01147	2.5–3.0	Soil	443	444	443	445	443	—	443	—	—
0220-95-0251	20-01147	4.5–5.0	Soil	443	444	443	445	443	—	443	—	—
0220-95-0252	20-01148	0.0–0.5	Soil	443	444	443	445	443	—	443	—	—
0220-95-0253	20-01148	2.5–3.0	Soil	443	444	443	445	443	—	443	—	—
0220-95-0254	20-01148	4.5–5.0	Soil	443	444	443	445	443	—	443	—	—
0220-95-0255	20-01149	0.0–0.5	Soil	443	444	443	445	443	—	443	—	—
0220-95-0256	20-01149	2.5–3.0	Soil	443	444	443	445	443	—	443	—	—
0220-95-0260	20-01149	4.5–5.0	Soil	443	444	443	445	443	—	443	—	—

Table 2.0-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Gamma Spectroscopy	High Explosives	Isotopic Uranium	Metals	Strontium-90	SVOCs	Uranium	VOCs	Cyanide
0220-95-0261	20-01150	0.0–0.5	Soil	443	444	443	445	443	—	443	—	—
0220-95-0262	20-01150	2.5–3.0	Soil	443	444	443	445	443	—	443	—	—
0220-95-0263	20-01150	4.5–5.0	Soil	443	444	443	445	443	—	443	—	—
0220-95-0264	20-01151	0.0–0.5	Soil	443	444	443	445	443	—	443	—	—
0220-95-0265	20-01151	2.5–3.0	Soil	443	444	443	445	443	—	443	—	—
0220-95-0266	20-01151	4.5–5.0	Soil	443	444	443	445	443	—	443	—	—
SWMU 20-002(d)												
0220-95-0143	20-01086	0.0–0.5	Soil	436	428	436	426	436	—	436	—	—
0220-95-0144	20-01086	2.5–3.0	Soil	436	428	436	426	436	—	436	—	—
0220-95-0145	20-01086	4.5–5.0	Soil	436	428	436	426	436	—	436	—	—
0220-95-0146	20-01087	0.0–0.5	Soil	436	428	436	426	436	—	436	—	—
0220-95-0147	20-01087	2.5–3.0	Soil	436	428	436	426	436	—	436	—	—
0220-95-0148	20-01087	4.5–5.0	Soil	436	428	436	426	436	—	436	—	—
0220-95-0149	20-01088	0.0–0.5	Soil	436	428	436	426	436	—	436	—	—
0220-95-0150	20-01088	2.5–3.0	Soil	436	428	436	426	436	—	436	—	—
0220-95-0151	20-01088	4.5–5.0	Soil	436	428	436	426	436	—	436	—	—
0220-95-0152	20-01089	0.0–0.5	Soil	436	428	436	426	436	—	436	—	—
0220-95-0153	20-01089	2.5–3.0	Soil	436	428	436	426	436	—	436	—	—
0220-95-0154	20-01089	4.5–5.0	Soil	436	428	436	426	436	—	436	—	—
0220-95-0158	20-01090	0.0–0.5	Soil	436	428	436	426	436	—	436	—	—
0220-95-0159	20-01090	2.5–3.0	Soil	436	428	436	426	436	—	436	—	—
0220-95-0160	20-01090	4.5–5.0	Soil	436	428	436	426	436	—	436	—	—
0220-95-0161	20-01091	0.0–0.5	Soil	436	428	436	426	436	—	436	—	—
0220-95-0162	20-01091	2.5–3.0	Soil	436	428	436	426	436	—	436	—	—

Table 2.0-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Gamma Spectroscopy	High Explosives	Isotopic Uranium	Metals	Strontium-90	SVOCs	Uranium	VOCs	Cyanide
0220-95-0163	20-01091	4.5–5.0	Soil	436	428	436	426	436	—	436	—	—
0220-95-0164	20-01092	0.0–0.5	Soil	436	428	436	426	436	—	436	—	—
0220-95-0165	20-01092	2.5–3.0	Soil	436	428	436	426	436	—	436	—	—
0220-95-0166	20-01092	4.5–5.0	Soil	436	428	436	426	436	—	436	—	—
0220-95-0167	20-01093	0.0–0.5	Soil	436	428	436	426	436	—	436	—	—
0220-95-0168	20-01093	2.5–3.0	Soil	436	428	436	426	436	—	436	—	—
0220-95-0169	20-01093	4.5–5.0	Soil	436	428	436	426	436	—	436	—	—
AOC 20-003(b)												
0220-95-0170	20-01094	0.0–1.0	Soil	463	—	—	462	463	—	—	—	—
0220-95-0171	20-01094	5.0–5.5	Qbt 2	463	—	—	462	463	—	—	—	—
0220-95-0172	20-01095	2.0–3.0	Qbt 2	463	—	—	462	463	—	—	—	—
0220-95-0173	20-01096	0.0–1.0	Soil	463	—	—	462	463	—	—	—	—
0220-95-0174	20-01096	5.0–5.5	Soil	463	—	—	462	463	—	—	—	—
0220-95-0175	20-01097	2.0–3.0	Soil	463	—	—	462	463	—	—	—	—
0220-95-0176	20-01098	0.0–1.0	Soil	463	—	—	462	463	—	—	—	—
0220-95-0180	20-01098	5.0–5.5	Soil	463	—	—	462	463	—	—	—	—
0220-95-0181	20-01099	2.0–3.0	Soil	463	—	—	462	463	—	—	—	—
AOC 20-003(c)												
0220-95-0116	20-01078	0.0–0.5	Soil	293	292	293	291	293	—	293	—	—
0220-95-0117	20-01078	2.5–3.0	Soil	293	292	293	291	293	—	293	—	—
0220-95-0118	20-01078	4.5–5.0	Qbt 2	293	292	293	291	293	—	293	—	—
0220-95-0119	20-01079	0.0–0.5	Soil	293	292	293	291	293	—	293	—	—
0220-95-0120	20-01079	2.5–3.0	Fill	293	292	293	291	293	—	293	—	—
0220-95-0121	20-01079	4.5–5.0	Fill	293	292	293	291	293	—	293	—	—

Table 2.0-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Gamma Spectroscopy	High Explosives	Isotopic Uranium	Metals	Strontium-90	SVOCs	Uranium	VOCs	Cyanide
0220-95-0122	20-01080	0.0–0.5	Soil	293	292	293	291	293	—	293	—	—
0220-95-0123	20-01080	2.5–3.0	Fill	293	292	293	291	293	—	293	—	—
0220-95-0124	20-01080	4.5–5.0	Fill	293	292	293	291	293	—	293	—	—
0220-95-0125	20-01081	0.0–0.5	Soil	293	292	293	291	293	—	293	—	—
0220-95-0126	20-01081	2.5–3.0	Fill	293	292	293	291	293	—	293	—	—
0220-95-0127	20-01081	4.5–5.0	Fill	293	292	293	291	293	—	293	—	—
0220-95-0128	20-01082	0.0–0.5	Soil	293	292	293	291	293	—	293	—	—
0220-95-0129	20-01082	2.5–3.0	Fill	293	292	293	291	293	—	293	—	—
0220-95-0130	20-01082	4.5–5.0	Fill	293	292	293	291	293	—	293	—	—
0220-95-0131	20-01083	0.0–0.5	Soil	293	292	293	291	293	—	293	—	—
0220-95-0132	20-01083	2.5–3.0	Fill	293	292	293	291	293	—	293	—	—
0220-95-0136	20-01083	4.5–5.0	Fill	293	292	293	291	293	—	293	—	—
0220-95-0137	20-01084	0.0–0.5	Soil	293	292	293	291	293	—	293	—	—
0220-95-0138	20-01084	2.5–3.0	Fill	293	292	293	291	293	—	293	—	—
0220-95-0139	20-01084	4.5–5.0	Fill	293	292	293	291	293	—	293	—	—
0220-95-0140	20-01085	0.0–0.5	Soil	293	292	293	291	293	—	293	—	—
0220-95-0141	20-01085	2.5–3.0	Fill	293	292	293	291	293	—	293	—	—
0220-95-0142	20-01085	4.5–5.0	Fill	293	292	293	291	293	—	293	—	—
AOC 20-004												
0220-95-0194	20-01106	0.0–0.5	Soil	—	—	—	362	—	361	—	361	—
0220-95-0195	20-01107	2.5–3.0	Soil	—	—	—	362	—	361	—	361	—
0220-95-0196	20-01108	2.5–3.0	Soil	—	—	—	362	—	361	—	361	—
0220-95-0197	20-01109	0.0–0.5	Soil	—	—	—	362	—	361	—	361	—
0220-95-0198	20-01110	1.0–1.33	Soil	—	—	—	362	—	361	—	361	—

Table 2.0-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Gamma Spectroscopy	High Explosives	Isotopic Uranium	Metals	Strontium-90	SVOCs	Uranium	VOCs	Cyanide
0220-95-0199	20-01111	2.5–2.83	Soil	—	—	—	362	—	361	—	361	—
0220-95-0200	20-01112	0.0–0.5	Soil	—	—	—	362	—	361	—	361	—
0220-95-0201	20-01113	1.0–1.33	Soil	—	—	—	362	—	361	—	361	—
0220-95-0202	20-01114	2.5–3.0	Soil	—	—	—	362	—	361	—	361	—
SWMU 20-005												
0220-95-0228	20-01135	4.5–5.0	Soil	—	—	—	430	—	—	—	—	430
0220-95-0232	20-01136	4.5–5.0	Soil	—	—	—	430	—	—	—	—	430
0220-95-0233	20-01137	4.5–5.0	Soil	—	—	—	430	—	—	—	—	430
0220-95-0234	20-01138	4.5–5.0	Soil	—	—	—	430	—	—	—	—	430
0220-95-0235	20-01139	4.5–5.0	Soil	—	—	—	430	—	—	—	—	430
0220-95-0236	20-01140	4.5–5.0	Soil	—	—	—	430	—	—	—	—	430
0220-95-0237	20-01141	4.5–5.0	Soil	—	—	—	430	—	—	—	—	430
0220-95-0238	20-01142	4.5–5.0	Soil	—	—	—	430	—	—	—	—	430
0220-95-0239	20-01143	4.5–5.0	Soil	—	—	—	430	—	—	—	—	430

[a] Request number.

[b] — = Analysis not requested.

Table 2.0-2
Inorganic Chemicals Detected above BVs at Former TA-20

Sample ID	Location ID	Depth (ft bgs)	Media	Antimony	Beryllium	Cadmium	Calcium	Chromium	Copper	Cyanide (Total)	Iron	Lead	Mercury	Selenium	Silver	Thallium	Uranium	Zinc
Soil BV[a]				**0.83**	**1.83**	**0.4**	**6120**	**19.3**	**14.7**	**0.5**	**21500**	**22.3**	**0.1**	**1.52**	**1**	**0.73**	**1.82**	**48.8**
Qbt 2, 3, 4 BV[a]				**0.5**	**1.21**	**1.63**	**2200**	**7.14**	**4.66**	**0.5**	**14500**	**11.2**	**0.1**	**0.3**	**1**	**1.1**	**2.4**	**63.5**
SWMU 20-001(a)																		
0220-95-0001	20-01000	10.0–11.0	Fill	—[b]	—	—	—	—	—	NA[c]	—	—	0.11 (U)	—	1.6 (U)	1.3 (U)	3.88	—
0220-95-0008	20-01007	10.0–11.0	Fill	—	—	—	—	—	—	NA	—	—	—	—	1.5 (U)	1.2 (U)	3.77	—
0220-95-0009	20-01008	10.0–11.0	Fill	—	—	—	—	—	—	NA	—	—	—	—	1.5 (U)	1.2 (U)	3.9	—
0220-95-0010	20-01009	10.0–11.0	Fill	—	—	—	—	—	—	NA	—	—	—	—	1.6 (U)	1.3 (U)	4.31	—
0220-95-0011	20-01010	10.0–11.0	Fill	—	—	—	—	—	—	NA	—	—	—	—	1.5 (U)	1.3 (U)	3.81	—
0220-95-0012	20-01011	10.0–11.0	Fill	—	—	—	—	—	—	NA	—	—	—	—	1.6 (U)	1.3 (U)	3.75	—
0220-95-0013	20-01012	10.0–11.0	Fill	—	—	—	—	—	—	NA	—	—	—	—	1.5 (U)	1.3 (U)	3.33	—
0220-95-0014	20-01013	10.0–11.0	Fill	—	—	—	—	—	—	NA	—	—	—	—	1.6 (U)	1.3 (U)	3.44	—
SWMU 20-001(b)																		
0220-95-0015	20-01014	8.0–9.0	Soil	5.6 (U)	—	0.74 (U)	—	—	—	NA	—	—	—	—	—	—	5.3	—
0220-95-0016	20-01015	8.0–9.0	Soil	5.6 (U)	—	0.74 (U)	—	—	17.5	NA	22400	—	—	—	—	—	5.3	—
0220-95-0017	20-01016	9.0–10.0	Fill	5.4 (U)	—	0.71 (U)	—	—	—	NA	—	—	—	—	—	—	5.5	—
0220-95-0018	20-01017	9.0–10.0	Fill	5.4 (U)	—	0.71 (U)	—	—	—	NA	—	—	—	—	—	—	5.6	—
0220-95-0019	20-01018	6.0–7.0	Fill	5.4 (U)	—	0.72 (U)	—	—	—	NA	—	—	—	—	—	—	5.3	—
0220-95-0023	20-01019	1.0–2.0	Fill	5.9 (U)	—	0.78 (U)	—	—	—	NA	—	—	—	—	—	—	5.5	—
0220-95-0024	20-01020	10.0–11.0	Fill	5.8 (U)	—	0.76 (U)	—	—	—	NA	—	—	—	—	4.2	—	5.2	—
0220-95-0025	20-01021	10.0–11.0	Soil	5.7 (U)	—	0.75 (U)	—	—	—	NA	—	—	—	—	—	—	2.8	—
0220-95-0026	20-01022	10.0–11.0	Soil	6.2 (U)	—	0.81 (U)	—	—	—	NA	—	—	—	—	—	—	5.5	—
0220-95-0027	20-01023	10.0–11.0	Soil	NA	NA	NA	NA	NA	NA	NA	NA	NA	—	NA	NA	NA	4.6	NA
0220-95-0028	20-01024	10.0–11.0	Soil	5.6 (U)	—	0.74 (U)	—	—	—	NA	—	—	—	—	—	—	5	—
0220-95-0029	20-01025	10.0–11.0	Soil	5.6 (U)	—	0.74 (U)	—	—	—	NA	—	—	—	—	—	—	5.3	—
0220-95-0030	20-01026	10.0–11.0	Soil	5.6 (U)	—	0.74 (U)	—	—	—	NA	—	—	—	—	—	—	5.4	—
0220-95-0031	20-01027	10.0–11.0	Soil	6.1 (U)	—	0.8 (U)	—	—	—	NA	—	—	—	—	—	—	6	—
0220-95-0032	20-01028	10.0–11.0	Soil	6.3 (U)	—	0.83 (U)	—	—	—	NA	—	—	—	—	—	—	5.8	—
0220-95-0033	20-01029	10.0–11.0	Soil	6.4 (U)	—	84 (U)	—	—	—	NA	—	—	—	—	—	—	6.1	—
0220-95-0034	20-01030	10.0–11.0	Soil	6.2 (U)	—	1 (J)	—	—	—	NA	—	—	—	—	—	—	5.7	—
0220-95-0035	20-01031	10.0–11.0	Soil	6 (U)	—	0.79 (U)	—	—	—	NA	—	—	—	—	—	—	5.1	—
0220-95-0036	20-01032	10.0–11.0	Soil	6.1 (U)	—	0.8 (U)	—	—	—	NA	—	—	—	—	—	—	5.1	—
0220-95-0037	20-01033	10.0–11.0	Soil	6.1 (U)	—	1.9	—	—	—	NA	—	—	—	—	—	—	5	—

Table 2.0-2 (continued)

Sample ID	Location ID	Depth (ft bgs)	Media	Antimony	Beryllium	Cadmium	Calcium	Chromium	Copper	Cyanide (Total)	Iron	Lead	Mercury	Selenium	Silver	Thallium	Uranium	Zinc
Soil BV[a]				**0.83**	**1.83**	**0.4**	**6120**	**19.3**	**14.7**	**0.5**	**21500**	**22.3**	**0.1**	**1.52**	**1**	**0.73**	**1.82**	**48.8**
Qbt 2, 3, 4 BV[a]				**0.5**	**1.21**	**1.63**	**2200**	**7.14**	**4.66**	**0.5**	**14500**	**11.2**	**0.1**	**0.3**	**1**	**1.1**	**2.4**	**63.5**
0220-95-0038	20-01034	10.0–11.0	Soil	6.1 (U)	—	0.81 (U)	—	—	—	NA	—	—	—	—	—	—	5.4	—
SWMU 20-002(a)																		
0220-95-0063	20-01056	0.0–0.5	Soil	—	—	—	—	—	—	NA	—	—	0.11 (U)	—	1.4 (U)	1.4 (U)	2.53	—
0220-95-0064	20-01056	2.5–3.0	Soil	—	—	—	—	—	—	NA	—	—	—	—	1.4 (U)	1.4 (U)	1.88	—
0220-95-0065	20-01057	0.0–0.5	Soil	—	—	—	—	—	82.6	NA	—	—	0.11 (U)	—	1.4 (U)	1.4 (U)	3.34	—
0220-95-0066	20-01057	2.5–3.0	Soil	—	—	—	—	—	—	NA	—	—	0.11 (U)	—	1.4 (U)	1.4 (U)	2.29	—
0220-95-0070	20-01058	0.0–0.5	Soil	—	—	—	—	—	16.4	NA	—	—	—	—	1.4 (U)	1.4 (U)	5.08	—
0220-95-0071	20-01058	2.5–3.0	Soil	—	—	—	—	—	—	NA	—	—	—	—	1.5 (U)	1.6 (U)	—	—
0220-95-0072	20-01059	0.0–0.5	Soil	—	—	—	—	—	—	NA	—	—	—	—	1.4 (U)	1.4 (U)	2.54	—
0220-95-0073	20-01059	2.5–3.0	Soil	—	—	—	—	—	—	NA	—	—	—	—	1.3 (U)	1.3 (U)	—	—
0220-95-0074	20-01060	0.0–0.5	Soil	—	—	—	—	—	—	NA	—	—	—	—	1.3 (U)	1.3 (U)	2.81	—
0220-95-0075	20-01060	2.5–3.0	Soil	—	—	—	—	—	—	NA	—	—	—	—	1.3 (U)	1.3 (U)	—	—
0220-95-0076	20-01061	0.0–0.5	Soil	—	—	—	—	—	—	NA	—	—	—	—	1.3 (U)	1.4 (U)	2.96	—
0220-95-0077	20-01061	2.5–3.0	Soil	—	—	—	—	—	—	NA	—	—	—	—	1.3 (U)	1.3 (U)	—	—
0220-95-0078	20-01062	0.0–0.5	Soil	—	—	—	—	—	—	NA	—	37.9	—	—	1.3 (U)	1.3 (U)	2.4	—
0220-95-0079	20-01062	2.5–3.0	Soil	—	—	—	—	—	—	NA	—	—	0.11 (U)	—	1.6 (U)	1.6 (U)	2.18	—
0220-95-0080	20-01063	0.0–0.5	Soil	—	—	—	—	—	—	NA	—	—	—	—	1.3 (U)	1.4 (U)	3.01	—
0220-95-0081	20-01063	2.5–3.0	Soil	—	—	—	—	—	—	NA	—	—	0.11 (U)	—	1.3 (U)	1.4 (U)	—	—
0220-95-0082	20-01064	0.0–0.5	Soil	—	—	—	—	—	—	NA	—	—	—	—	1.4 (U)	1.4 (U)	3.42	—
0220-95-0083	20-01064	2.5–3.0	Soil	—	—	—	—	—	—	NA	—	—	0.11 (U)	—	1.4 (U)	1.4 (U)	2.93	—
0220-95-0084	20-01065	0.0–0.5	Soil	—	—	—	—	—	—	NA	—	—	—	—	1.3 (U)	1.3 (U)	3.15	—
0220-95-0085	20-01065	2.5–3.0	Soil	—	—	—	—	—	17	NA	—	—	—	—	1.4 (U)	1.4 (U)	2.93	—
0220-95-0086	20-01066	0.0–0.5	Soil	—	—	—	—	—	—	NA	—	—	—	—	1.4 (U)	1.4 (U)	2.81	—
0220-95-0087	20-01066	2.5–3.0	Soil	—	—	—	—	—	—	NA	—	—	—	—	1.3 (U)	1.4 (U)	—	—
SWMU 20-002(b)																		
0220-95-0088	20-01067	0.0–0.5	Soil	5.1 (U)	—	0.77 (U)	—	—	—	NA	—	—	0.14	—	1.7 (U)	1.4 (U)	4.49	—
0220-95-0092	20-01067	2.5–3.0	Soil	5.3 (U)	—	0.8 (U)	—	—	—	NA	—	—	—	—	1.8 (U)	1.5 (U)	3.93	—
0220-95-0093	20-01068	0.0–0.5	Soil	5.2 (U)	—	0.79 (U)	—	—	—	NA	—	—	0.11 (U)	—	1.8 (U)	1.4 (U)	3.38	—
0220-95-0094	20-01068	2.5–3.0	Soil	5.5 (U)	—	0.83 (U)	—	—	—	NA	—	—	0.12 (U)	—	1.8 (U)	1.5 (U)	4.24	—
0220-95-0095	20-01069	0.0–0.5	Soil	5.9 (U)	—	0.89 (U)	—	—	—	NA	—	—	0.12 (U)	—	2 (U)	1.6 (U)	3.9	—
0220-95-0096	20-01069	2.5–3.0	Soil	5.6 (U)	—	0.84 (U)	—	—	—	NA	—	—	—	—	1.9 (U)	1.5 (U)	3.87	—
0220-95-0097	20-01070	0.0–0.5	Soil	5.1 (U)	—	0.77 (U)	—	—	—	NA	—	—	0.11 (U)	—	1.7 (U)	1.4 (U)	3.69	—
0220-95-0098	20-01070	2.5–3.0	Soil	4.9 (U)	—	0.74 (U)	—	—	—	NA	—	—	—	—	1.6 (U)	1.3 (U)	3.16	—

Table 2.0-2 (continued)

Sample ID	Location ID	Depth (ft bgs)	Media	Antimony	Beryllium	Cadmium	Calcium	Chromium	Copper	Cyanide (Total)	Iron	Lead	Mercury	Selenium	Silver	Thallium	Uranium	Zinc
Soil BV[a]				**0.83**	**1.83**	**0.4**	**6120**	**19.3**	**14.7**	**0.5**	**21500**	**22.3**	**0.1**	**1.52**	**1**	**0.73**	**1.82**	**48.8**
Qbt 2, 3, 4 BV[a]				**0.5**	**1.21**	**1.63**	**2200**	**7.14**	**4.66**	**0.5**	**14500**	**11.2**	**0.1**	**0.3**	**1**	**1.1**	**2.4**	**63.5**
0220-95-0099	20-01071	0.0–0.5	Soil	5.3 (U)	—	0.79 (U)	—	—	—	NA	—	—	0.11 (U)	—	1.8 (U)	1.4 (U)	4.62	—
0220-95-0100	20-01071	2.5–3.0	Soil	5 (U)	—	0.75 (U)	—	—	—	NA	—	—	—	—	1.7 (U)	1.4 (U)	2.96	—
0220-95-0101	20-01072	0.0–0.5	Soil	4.9 (U)	—	0.74 (U)	—	—	—	NA	—	—	—	—	1.7 (U)	1.4 (U)	1.9	—
0220-95-0102	20-01072	2.5–3.0	Soil	4.8 (U)	—	0.72 (U)	—	—	—	NA	—	—	—	—	1.6 (U)	1.3 (U)	—	—
0220-95-0103	20-01073	0.0–0.5	Soil	5 (U)	—	0.75 (U)	—	—	—	NA	—	—	—	—	1.7 (U)	1.4 (U)	—	—
0220-95-0104	20-01073	2.5–3.0	Soil	5 (U)	—	0.75 (U)	—	—	—	NA	—	—	—	—	1.7 (U)	1.4 (U)	1.97	—
0220-95-0105	20-01074	0.0–0.5	Soil	5.1 (U)	—	0.76 (U)	—	—	—	NA	—	—	—	—	1.7 (U)	1.4 (U)	2.88	—
0220-95-0106	20-01074	2.5–3.0	Soil	5.6 (U)	—	0.85 (U)	—	—	—	NA	—	—	—	—	1.9 (U)	1.5 (U)	1.98	—
0220-95-0107	20-01075	0.0–0.5	Soil	5.6 (U)	—	0.83 (U)	—	—	—	NA	—	—	—	—	1.9 (U)	1.5 (U)	3.49	—
0220-95-0108	20-01075	2.5–3.0	Soil	5.3 (U)	—	0.79 (U)	—	—	—	NA	—	—	0.11 (U)	—	1.8 (U)	1.5 (U)	1.99	—
0220-95-0109	20-01076	0.0–0.5	Soil	5.2 (UJ)	—	0.78 (U)	—	—	—	NA	—	—	—	—	1.7 (U)	1.4 (U)	2.95	—
0220-95-0110	20-01076	2.5–3.0	Soil	5.4 (UJ)	—	0.81 (U)	—	—	—	NA	—	—	0.12 (U)	—	1.8 (U)	1.5 (U)	2.49	—
0220-95-0114	20-01077	0.0–0.5	Soil	4.9 (UJ)	—	0.74 (U)	—	—	—	NA	—	—	—	—	1.7 (U)	1.4 (U)	1.87	—
0220-95-0115	20-01077	2.5–3.0	Soil	5.1 (UJ)	—	0.76 (U)	—	—	—	NA	—	—	—	—	1.7 (U)	1.4 (U)	—	—
SWMU 20-002(c)																		
0220-95-0240	20-01144	0.0–0.5	Soil	5.1 (U)	—	0.77 (U)	—	44.7	—	NA	—	—	—	—	1.7 (U)	1.4 (U)	3.8	60
0220-95-0241	20-01144	2.5–3.0	Soil	7.1 (U)	—	1.1 (U)	—	37.8	—	NA	—	—	0.15 (U)	—	2.4 (U)	2.1 (J)	2.01	52.6
0220-95-0242	20-01144	4.5–5.0	Soil	4.9 (U)	—	0.73 (U)	—	—	—	NA	—	—	—	—	1.6 (U)	1.3 (U)	—	—
0220-95-0243	20-01145	0.0–0.5	Soil	5.3 (U)	—	0.79 (U)	—	50	—	NA	—	23.1	0.12	—	1.8 (U)	1.4 (U)	4.38	63.5
0220-95-0244	20-01145	2.5–3.0	Soil	5.4 (U)	—	0.81 (U)	—	88.4	—	NA	—	—	0.17	—	1.8 (U)	1.5 (U)	3.87	63.9
0220-95-0245	20-01145	4.5–5.0	Soil	4.9 (U)	—	0.73 (U)	—	—	—	NA	—	—	0.31	—	1.6 (U)	1.3 (U)	2.86	—
0220-95-0246	20-01146	0.0–0.5	Soil	5.1 (U)	—	0.77 (U)	—	57.9	—	NA	—	—	0.13	—	1.9 (J)	1.4 (U)	4.11	69.3
0220-95-0247	20-01146	2.5–3.0	Soil	5.2 (U)	—	0.78 (U)	—	46.7	—	NA	—	—	0.11 (U)	—	1.7 (U)	1.4 (U)	3.78	52.6
0220-95-0248	20-01146	4.5–5.0	Soil	4.8 (U)	—	0.72 (U)	—	—	—	NA	—	—	—	—	1.6 (U)	1.5 (J)	2.24	—
0220-95-0249	20-01147	0.0–0.5	Soil	5.1 (U)	—	0.76 (U)	—	48	—	NA	—	—	0.12	—	1.7 (U)	1.4 (U)	3.93	60.2
0220-95-0250	20-01147	2.5–3.0	Soil	5 (U)	—	0.75 (U)	—	—	—	NA	—	—	—	—	1.7 (U)	1.4 (U)	3	—
0220-95-0251	20-01147	4.5–5.0	Soil	5 (U)	—	0.75 (U)	—	—	—	NA	—	—	—	—	1.7 (U)	1.4 (U)	2.76	—
0220-95-0252	20-01148	0.0–0.5	Soil	5 (U)	—	0.75 (U)	—	—	—	NA	—	—	—	—	1.7 (U)	1.4 (U)	2.87	—
0220-95-0253	20-01148	2.5–3.0	Soil	5 (U)	—	0.75 (U)	—	—	—	NA	—	—	—	—	1.7 (U)	1.4 (U)	2.28	—
0220-95-0254	20-01148	4.5–5.0	Soil	5.1 (U)	—	0.77 (U)	—	—	—	NA	—	—	0.11 (U)	—	1.7 (U)	1.4 (U)	2.27	—
0220-95-0255	20-01149	0.0–0.5	Soil	4.9 (U)	—	0.74 (U)	—	29	—	NA	—	—	0.11	—	1.6 (U)	1.4 (U)	3.38	—
0220-95-0256	20-01149	2.5–3.0	Soil	4.8 (U)	—	0.73 (U)	—	—	—	NA	—	—	—	—	1.6 (U)	1.3 (U)	—	—
0220-95-0260	20-01149	4.5–5.0	Soil	5.1 (U)	—	0.77 (U)	—	—	—	NA	—	—	0.11 (U)	—	1.7 (U)	1.4 (U)	2.11	—

Table 2.0-2 (continued)

Sample ID	Location ID	Depth (ft bgs)	Media	Antimony	Beryllium	Cadmium	Calcium	Chromium	Copper	Cyanide (Total)	Iron	Lead	Mercury	Selenium	Silver	Thallium	Uranium	Zinc
Soil BV[a]				**0.83**	**1.83**	**0.4**	**6120**	**19.3**	**14.7**	**0.5**	**21500**	**22.3**	**0.1**	**1.52**	**1**	**0.73**	**1.82**	**48.8**
Qbt 2, 3, 4 BV[a]				**0.5**	**1.21**	**1.63**	**2200**	**7.14**	**4.66**	**0.5**	**14500**	**11.2**	**0.1**	**0.3**	**1**	**1.1**	**2.4**	**63.5**
0220-95-0261	20-01150	0.0–0.5	Soil	5.1 (U)	—	0.76 (U)	—	40.1	—	NA	—	—	0.11 (U)	—	1.7 (U)	1.4 (U)	4.06	62
0220-95-0262	20-01150	2.5–3.0	Soil	5 (U)	—	0.75 (U)	—	—	—	NA	—	—	—	—	1.7 (U)	1.4 (U)	1.93	—
0220-95-0263	20-01150	4.5–5.0	Soil	5.2 (U)	—	0.78 (U)	—	—	—	NA	—	—	0.11 (U)	—	1.7 (U)	1.7 (J)	2.69	—
0220-95-0264	20-01151	0.0–0.5	Soil	5.4 (U)	—	0.81 (U)	—	29.9	—	NA	—	—	0.12 (U)	—	1.8 (U)	1.5 (U)	4.29	—
0220-95-0265	20-01151	2.5–3.0	Soil	5.4 (U)	—	0.8 (U)	—	115	—	NA	—	—	0.16	—	1.8 (U)	1.5 (U)	4.24	69.9
0220-95-0266	20-01151	4.5–5.0	Soil	5.1 (U)	—	0.76 (U)	—	32.9	—	NA	—	—	—	—	1.7 (U)	1.4 (U)	3.16	—
SWMU 20-002(d)																		
0220-95-0143	20-01086	0.0–0.5	Soil	4.9 (U)	—	0.74 (U)	—	—	—	NA	—	—	—	—	1.7 (U)	1.4 (U)	2.11	—
0220-95-0144	20-01086	2.5–3.0	Soil	5.1 (U)	—	0.77 (U)	—	—	—	NA	—	—	0.11 (U)	—	1.7 (U)	1.4 (U)	—	—
0220-95-0145	20-01086	4.5–5.0	Soil	5.1 (U)	—	0.76 (U)	—	—	—	NA	—	—	—	—	1.7 (U)	1.4 (U)	2.28	—
0220-95-0146	20-01087	0.0–0.5	Soil	5.2 (U)	—	0.78 (U)	—	—	—	NA	—	—	0.11 (U)	—	1.7 (U)	1.4 (U)	1.94	—
0220-95-0147	20-01087	2.5–3.0	Soil	5.4 (U)	—	0.81 (U)	—	—	—	NA	—	—	0.11 (U)	—	1.8 (U)	1.5 (U)	2.24	—
0220-95-0148	20-01087	4.5–5.0	Soil	5.3 (U)	—	0.79 (U)	—	—	—	NA	—	—	0.11 (U)	—	1.8 (U)	1.5 (U)	2.14	50
0220-95-0149	20-01088	0.0–0.5	Soil	5.1 (U)	—	0.76 (U)	—	—	—	NA	—	—	—	—	1.7 (U)	1.4 (U)	2.46	—
0220-95-0150	20-01088	2.5–3.0	Soil	5.2 (U)	—	0.79 (U)	—	—	—	NA	—	—	—	—	1.8 (U)	1.7 (J)	2.44	—
0220-95-0151	20-01088	4.5–5.0	Soil	5.3 (U)	—	0.79 (U)	—	—	—	NA	—	—	0.11 (U)	—	1.8 (U)	1.5 (U)	2.33	—
0220-95-0152	20-01089	0.0–0.5	Soil	5.2 (U)	2.7	0.78 (U)	—	—	14.8	NA	—	—	0.11 (U)	—	1.7 (U)	1.4 (U)	3.36	—
0220-95-0153	20-01089	2.5–3.0	Soil	5 (U)	—	0.74 (U)	—	—	—	NA	—	—	0.11 (U)	—	1.7 (U)	1.4 (U)	—	—
0220-95-0154	20-01089	4.5–5.0	Soil	4.9 (U)	—	0.73 (U)	—	—	—	NA	—	—	—	—	1.6 (U)	1.3 (U)	—	—
0220-95-0158	20-01090	0.0–0.5	Soil	5 (U)	4.2	0.75 (U)	—	—	18.5	NA	—	—	—	—	1.7 (U)	1.4 (U)	5.74	—
0220-95-0159	20-01090	2.5–3.0	Soil	5.1 (U)	—	0.77 (U)	—	—	—	NA	—	—	—	—	1.7 (U)	1.4 (U)	2.56	—
0220-95-0160	20-01090	4.5–5.0	Soil	4.9 (U)	—	0.74 (U)	—	—	—	NA	—	—	0.11 (U)	—	1.6 (U)	1.4 (U)	—	—
0220-95-0161	20-01091	0.0–0.5	Soil	5.1 (U)	—	0.77 (U)	—	—	36	NA	—	—	0.11 (U)	—	1.7 (U)	1.4 (U)	62.3	—
0220-95-0162	20-01091	2.5–3.0	Soil	5.2 (U)	—	0.78 (U)	—	—	—	NA	—	—	0.11 (U)	—	1.7 (U)	1.4 (U)	6.08	—
0220-95-0163	20-01091	4.5–5.0	Soil	5 (U)	—	0.76 (U)	—	—	—	NA	—	—	—	—	1.7 (U)	1.4 (U)	3.62	—
0220-95-0164	20-01092	0.0–0.5	Soil	5 (U)	—	0.76 (U)	—	—	18.8	NA	—	—	—	—	1.7 (U)	1.4 (U)	69.4	—
0220-95-0165	20-01092	2.5–3.0	Soil	5 (U)	—	0.76 (U)	—	—	—	NA	—	—	0.11 (U)	—	1.7 (U)	1.4 (U)	3.19	—
0220-95-0166	20-01092	4.5–5.0	Soil	5.1 (U)	—	0.76 (U)	—	—	—	NA	—	—	—	—	1.7 (U)	1.4 (U)	2.04	—
AOC 20-003(b)																		
0220-95-0171	20-01094	5.0–5.5	Qbt 2	—	—	—	—	—	—	NA	—	—	—	0.38 (U)	—	—	NA	—
0220-95-0172	20-01095	2.0–3.0	Qbt 2	—	—	—	—	—	—	NA	—	—	—	0.37 (U)	—	—	NA	—
0220-95-0173	20-01096	0.0–1.0	Soil	—	—	—	—	—	—	NA	—	65.1	—	—	—	—	NA	—

Table 2.0-2 (continued)

Sample ID	Location ID	Depth (ft bgs)	Media	Antimony	Beryllium	Cadmium	Calcium	Chromium	Copper	Cyanide (Total)	Iron	Lead	Mercury	Selenium	Silver	Thallium	Uranium	Zinc
Soil BV[a]				**0.83**	**1.83**	**0.4**	**6120**	**19.3**	**14.7**	**0.5**	**21500**	**22.3**	**0.1**	**1.52**	**1**	**0.73**	**1.82**	**48.8**
Qbt 2, 3, 4 BV[a]				**0.5**	**1.21**	**1.63**	**2200**	**7.14**	**4.66**	**0.5**	**14500**	**11.2**	**0.1**	**0.3**	**1**	**1.1**	**2.4**	**63.5**
SWMU 20-005																		
0220-95-0228	20-01135	4.5–5.0	Soil	5.5 (U)	—	0.73 (U)	—	—	—	0.52 (U)	—	25.3	—	—	—	—	NA	—
0220-95-0232	20-01136	4.5–5.0	Soil	5.8 (U)	—	0.77 (U)	—	—	—	0.55 (U)	—	—	—	—	—	—	NA	—
0220-95-0233	20-01137	4.5–5.0	Soil	6 (U)	—	NA	—	—	—	0.57 (U)	—	—	—	—	—	—	NA	—
0220-95-0234	20-01138	4.5–5.0	Soil	6.1 (U)	—	0.81 (U)	—	—	—	0.58 (U)	—	—	—	—	—	—	NA	—
0220-95-0235	20-01139	4.5–5.0	Soil	6.3 (U)	—	0.83 (U)	—	—	—	0.59 (U)	—	—	—	—	—	—	NA	—
0220-95-0236	20-01140	4.5–5.0	Soil	6 (U)	—	0.79 (U)	—	—	—	0.57 (U)	—	—	—	—	—	—	NA	—
0220-95-0237	20-01141	4.5–5.0	Soil	5.7 (U)	—	0.76 (U)	—	—	—	0.54 (U)	—	—	—	—	—	—	NA	—
0220-95-0238	20-01142	4.5–5.0	Soil	5.5 (U)	—	0.73 (U)	—	—	—	0.52 (U)	—	—	—	—	—	—	NA	—
0220-95-0239	20-01143	4.5–5.0	Soil	5.7 (U)	—	0.75 (U)	—	—	—	0.53 (U)	—	—	—	—	—	—	NA	—

Notes: Units are mg/kg. Data qualifiers are defined in Appendix A.

[a] BVs from LANL 1998, 059730.

[b] — = Result was not detected or was below the BV.

[c] NA = Not analyzed.

Table 2.0-3
Organic Chemicals Detected at Former TA-20

Sample ID	Location ID	Depth (ft bgs)	Media	Benzoic Acid	Butylbenzylphthalate	Tetryl
SWMU 20-001(a)						
0220-95-0009	20-01008	10.0–11.0	Fill	NA*	NA	0.65

Notes: Units are mg/kg. Data qualifiers are defined in Appendix A.
*NA = Sample not analyzed for this chemical.

Table 2.0-4
Radionuclides Detected or Detected above BVs/FVs at Former TA-20

Sample ID	Location ID	Depth (ft bgs)	Media	Cesium-137	Europium-152	Ruthenium-106	Sodium-22	Strontium-90	Uranium-234	Uranium-235	Uranium-238
Soil BV/FV[a]				**1.65**	**na[b]**	**na**	**na**	**1.31**	**2.59**	**0.20**	**2.29**
Qbt 2, 3, 4 BV/FV[a]				**na**	**na**	**na**	**na**	**na**	**1.98**	**0.09**	**1.93**
SWMU 20-001(a)											
0220-95-0009	20-01008	10.0–11.0	Fill	—[c]	0.143	—	—	—	—	—	—
0220-95-0011	20-01010	10.0–11.0	Fill	—	0.161	—	—	—	—	—	—
0220-95-0012	20-01011	10.0–11.0	Fill	—	0.195	—	—	—	—	—	—
0220-95-0013	20-01012	10.0–11.0	Fill	0.033	—	—	—	—	—	—	—
0220-95-0014	20-01013	10.0–11.0	Fill	—	0.194	—	—	1.52	—	—	—
SWMU 20-001(b)											
0220-95-0023	20-01019	1.0–2.0	Fill	0.26	NA[d]	—	—	—	—	—	—
0220-95-0026	20-01022	10.0–11.0	Soil	—	NA	—	0.19	—	—	—	—
0220-95-0033	20-01029	10.0–11.0	Soil	—	NA	—	—	—	—	—	2.33
SWMU 20-002(b)											
0220-95-0093	20-01068	0.0–0.50	Soil	—	0.253	—	—	—	—	—	—
0220-95-0097	20-01070	0.0–0.50	Soil	—	0.31	—	—	—	—	—	—
0220-95-0106	20-01074	2.50–3.0	Soil	—	0.196	—	—	—	—	—	—
0220-95-0108	20-01075	2.50–3.0	Soil	—	—	0.078	—	—	—	—	—
0220-95-0114	20-01077	0.0–0.50	Soil	—	0.234	—	—	—	—	—	—
SWMU 20-002(c)											
0220-95-0244	20-01145	2.50–3.0	Soil	0.219	—	—	—	—	—	—	—
0220-95-0248	20-01146	4.50–5.0	Soil	—	—	—	—	0.58	—	—	—
0220-95-0250	20-01147	2.50–3.0	Soil	0.187	—	—	—	—	—	—	—
0220-95-0256	20-01149	2.50–3.0	Soil	—	—	—	—	0.6	—	—	—

Table 2.0-4 (continued)

Sample ID	Location ID	Depth (ft bgs)	Media	Cesium-137	Europium-152	Ruthenium-106	Sodium-22	Strontium-90	Uranium-234	Uranium-235	Uranium-238
Soil BV/FV[a]				**1.65**	**na[b]**	**na**	**na**	**1.31**	**2.59**	**0.20**	**2.29**
Qbt 2, 3, 4 BV/FV[a]				**na**	**na**	**na**	**na**	**na**	**1.98**	**0.09**	**1.93**
0220-95-0260	20-01149	4.50–5.0	Soil	—	—	—	—	0.54	—	—	—
0220-95-0265	20-01151	2.50–3.0	Soil	—	—	—	—	0.58	—	—	—
SWMU 20-002(d)											
0220-95-0144	20-01086	2.50–3.0	Soil	0.131	NA	NA	NA	1.18	—	—	—
0220-95-0147	20-01087	2.50–3.0	Soil	NA	NA	NA	NA	9.58	—	—	—
0220-95-0151	20-01088	4.50–5.0	Soil	NA	NA	NA	NA	—	—	0.227	—
0220-95-0153	20-01089	2.50–3.0	Soil	NA	NA	NA	NA	5.97	—	0.216	—
0220-95-0158	20-01090	0.0–0.50	Soil	—	NA	NA	NA	7.94	2.61	0.336	2.51
0220-95-0159	20-01090	2.50–3.0	Soil	NA	NA	NA	NA	—	4.06	0.327	3.73
0220-95-0161	20-01091	0.0–0.50	Soil	—	NA	NA	NA	7.96	33.3	2.02	—
0220-95-0162	20-01091	2.50–3.0	Soil	NA	NA	NA	NA	—	2.92	—	3.14
0220-95-0164	20-01092	0.0–0.50	Soil	—	NA	NA	NA	—	35	1.78	—
0220-95-0165	20-01092	2.50–3.0	Soil	NA	NA	NA	NA	—	—	0.271	—
AOC 20-003(b)											
0220-95-0172	20-01095	2.0–3.0	Qbt 2	—	NA	—	—	—	NA	0.55	NA
0220-95-0180	20-01098	5.0–5.50	Soil	—	NA	—	—	—	NA	0.39	NA
0220-95-0181	20-01099	2.0–3.0	Soil	—	NA	—	—	—	NA	0.46	NA

Note: Units are pCi/g.

[a] BVs/FVs from LANL 1998, 059730.

[b] na = Not available.

[c] — = Result was not detected or was below the BV/FV.

[d] NA = Sample was not analyzed for this radionuclide.

Table 3.0-1
Summary of Historical Samples Collected and Analyses Requested at TA-53

Sample ID	Location ID	Depth (ft)	Media	Gamma Spectroscopy	Gross Alpha/Beta Radioactivity	Tritium	Isotopic Plutonium	Isotopic Uranium	Metals	PCBs	Pesticides/ PCBs	Strontium-90	SVOCs	TPH	TPH-DRO	Uranium	VOCs	Cyanide
SWMU 53-001(a)																		
0253-95-0001	53-01051	0.0–0.5	Soil	—[a]	—	—	—	—	185[b]	—	184	—	—	184	—	—	184	—
0253-95-0375	53-01051	0.0–0.5	Fill	—	—	—	—	—	—	—	—	—	77057	—	—	—	—	—
0253-95-0002	53-01052	0.0–0.5	Soil	—	—	—	—	—	185	—	184	—	—	184	—	—	184	—
0253-95-0376	53-01052	0.0–0.5	Fill	—	—	—	—	—	—	—	—	—	77057	—	—	—	—	—
0253-95-0003	53-01053	0.0–0.5	Soil	—	—	—	—	—	185	—	184	—	—	184	—	—	184	—
0253-95-0377	53-01053	0.0–0.5	Fill	—	—	—	—	—	—	—	—	—	77057	—	—	—	—	—
0253-95-0004	53-01054	0.0–0.5	Soil	—	—	—	—	—	185	—	184	—	—	184	—	—	184	—
0253-95-0378	53-01054	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	77057	—	—	—	—	—
0253-97-0040	53-01054	0.0–0.5	Soil	—	—	—	—	—	—	—	3367R	—	—	—	—	—	—	—
0253-97-0041	53-01054	0.5–1.0	Soil	—	—	—	—	—	—	—	3367R	—	—	—	—	—	—	—
0253-97-0042	53-01054	1.0–1.5	Soil	—	—	—	—	—	—	—	3367R	—	—	—	—	—	—	—
0253-97-0070	53-01517	1.0–1.5	Qbt 3	—	—	—	—	—	—	3476R	—	—	—	—	—	—	—	—
0253-97-0071	53-01518	0.0–0.5	Soil	—	—	—	—	—	—	3476R	—	—	—	—	—	—	—	—
0253-97-0072	53-01519	0.0–0.5	Soil	—	—	—	—	—	—	3476R	—	—	—	—	—	—	—	—
0253-97-0074	53-01520	0.0–0.5	Soil	—	—	—	—	—	—	3476R	—	—	—	—	—	—	—	—
0253-97-0075	53-01521	0.0–0.5	Soil	—	—	—	—	—	—	3476R	—	—	—	—	—	—	—	—
0253-97-0076	53-01522	0.0–0.5	Soil	—	—	—	—	—	—	3476R	—	—	—	—	—	—	—	—
0253-97-0077	53-01523	0.67–1.17	Soil	—	—	—	—	—	—	3682R	—	—	—	—	—	—	—	—
0253-97-0078	53-01524	0.67–1.17	Qbt 3	—	—	—	—	—	—	3682R	—	—	—	—	—	—	—	—
0253-97-0079	53-01525	0.0–0.5	Soil	—	—	—	—	—	—	3682R	—	—	—	—	—	—	—	—
0253-97-0080	53-01526	0.0–0.5	Soil	—	—	—	—	—	—	3682R	—	—	—	—	—	—	—	—
0253-97-0111	53-01526	2.5–3.0	Qbt 3	—	—	—	—	—	—	3730R	—	—	—	—	—	—	—	—
0253-97-0081	53-01527	0.0–0.5	Soil	—	—	—	—	—	—	3682R	—	—	—	—	—	—	—	—
0253-97-0082	53-01528	0.0–0.5	Soil	—	—	—	—	—	—	3682R	—	—	—	—	—	—	—	—
0253-97-0083	53-01529	0.0–0.5	Soil	—	—	—	—	—	—	3682R	—	—	—	—	—	—	—	—
0253-97-0084	53-01530	0.0–0.5	Soil	—	—	—	—	—	—	3682R	—	—	—	—	—	—	—	—
0253-97-0086	53-01531	0.0–0.5	Qbt 3	—	—	—	—	—	—	3682R	—	—	—	—	—	—	—	—
0253-97-0087	53-01531	2.5–3.0	Qbt 3	—	—	—	—	—	—	3682R	—	—	—	—	—	—	—	—
0253-97-0088	53-01531	5.5–6.0	Qbt 3	—	—	—	—	—	—	3682R	—	—	—	—	—	—	—	—
0253-97-0089	53-01532	0.0–0.5	Qbt 3	—	—	—	—	—	—	3682R	—	—	—	—	—	—	—	—
0253-97-0090	53-01532	2.5–3.0	Qbt 3	—	—	—	—	—	—	3682R	—	—	—	—	—	—	—	—
0253-97-0091	53-01532	5.5–6.0	Qbt 3	—	—	—	—	—	—	3682R	—	—	—	—	—	—	—	—

Table 3.0-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Gamma Spectroscopy	Gross Alpha/Beta Radioactivity	Tritium	Isotopic Plutonium	Isotopic Uranium	Metals	PCBs	Pesticides/ PCBs	Strontium-90	SVOCs	TPH	TPH-DRO	Uranium	VOCs	Cyanide
0253-97-0092	53-01533	0.5–0.83	Soil	—	—	—	—	—	—	3682R	—	—	—	—	—	—	—	—
0253-97-0093	53-01533	0.83–1.25	Soil	—	—	—	—	—	—	3682R	—	—	—	—	—	—	—	—
0253-97-0105	53-01534	0.0–0.5	Soil	—	—	—	—	—	—	3682R	—	—	—	—	—	—	—	—
0253-97-0106	53-01535	0.0–0.5	Soil	—	—	—	—	—	—	3682R	—	—	—	—	—	—	—	—
0253-97-0107	53-01536	0.0–0.5	Soil	—	—	—	—	—	—	3682R	—	—	—	—	—	—	—	—
0253-97-0108	53-01537	0.0–0.5	Soil	—	—	—	—	—	—	3682R	—	—	—	—	—	—	—	—
0253-97-0112	53-01541	0.0–0.5	Soil	—	—	—	—	—	—	3730R	—	—	—	—	—	—	—	—
SWMU 53-001(b)																		
0253-95-0390	53-01055	0.0–0.33	Fill	—	—	—	—	—	—	—	—	—	77057	—	—	—	—	—
0253-95-0391	53-01055	0.0–0.66	Fill	—	—	—	—	—	—	—	—	—	77057	—	—	—	—	—
0253-95-0005	53-01055	0.0–1.0	Soil	—	—	—	—	—	211	210	—	—	—	210	—	—	210	—
0253-95-0007	53-01055	1.0–1.5	Soil	—	—	—	—	—	211	210	—	—	—	210	—	—	210	—
0253-95-0392	53-01056	0.0–0.33	Fill	—	—	—	—	—	—	—	—	—	77057	—	—	—	—	—
0253-95-0008	53-01056	0.0–0.67	Soil	—	—	—	—	—	211	210	—	—	—	210	—	—	210	—
0253-95-0393	53-01056	0.33–0.66	Fill	—	—	—	—	—	—	—	—	—	77057	—	—	—	—	—
SWMUs 53-006(b,c)																		
RE53-99-0003	53-01561	15.0–15.5	Soil	5529R	—	5529R	5529R	5529R	5528R	—	—	5529R	5527R	—	—	—	5527R	5528R
RE53-99-0006	53-01561	17.0–18.0	Qbt 2	5921R	—	5921R	5921R	5921R	5920R	—	—	5921R	5919R	—	—	—	5919R	5920R
RE53-99-0007	53-01562	5.0–6.0	Fill	5921R	—	5921R	5921R	5921R	5920R	—	—	5921R	5919R	—	—	—	5919R	5920R
RE53-99-0008	53-01562	6.0–7.0	Fill	5921R	—	5921R	5921R	5921R	5920R	—	—	5921R	5919R	—	—	—	5919R	5920R
RE53-99-0004	53-01563	7.64–8.64	Fill	5921R	—	5921R	5921R	5921R	5920R	—	—	5921R	5919R	—	—	—	5919R	5920R
RE53-99-0005	53-01563	8.64–9.64	Fill	5921R	—	5921R	5921R	5921R	5920R	—	—	5921R	5919R	—	—	—	5919R	5920R
SWMUs 53-006(d,e)																		
RE53-99-0001	53-01559	7.5–8.5	Soil	5409R	—	5409R	5409R	5409R	5408R	—	—	5409R	5407R	—	—	—	5407R	5408R
RE53-99-0010	53-01559	9.5–10.5	Qbt 2	5921R	—	5921R	5921R	5921R	5920R	—	—	5921R	5919R	—	—	—	5919R	5920R
RE53-99-0002	53-01560	3.5–4.5	Soil	5409R	—	5409R	5409R	5409R	5408R	—	—	5409R	5407R	—	—	—	5407R	5408R
RE53-99-0009	53-01560	5.5–6.5	Qbt 2	5921R	—	5921R	5921R	5921R	5920R	—	—	5921R	5919R	—	—	—	5919R	5920R
AOC 53-008																		
0253-95-0028	53-01069	0.0–0.5	Soil	221	—	—	—	—	220	—	—	—	—	—	—	—	—	—
0253-95-0029	53-01070	0.0–0.5	Soil	221	—	—	—	—	220	—	—	—	—	—	—	—	—	—
0253-95-0030	53-01071	0.0–0.5	Soil	221	—	—	—	—	220	—	—	—	—	—	—	—	—	—
0253-95-0031	53-01072	0.0–0.5	Soil	221	—	—	—	—	220	—	—	—	—	—	—	—	—	—
0253-95-0032	53-01073	0.0–0.5	Soil	221	—	—	—	—	220	—	—	—	—	—	—	—	—	—
0253-95-0033	53-01074	0.0–0.5	Soil	221	—	—	—	—	220	—	—	—	—	—	—	—	—	—

Table 3.0-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Gamma Spectroscopy	Gross Alpha/Beta Radioactivity	Tritium	Isotopic Plutonium	Isotopic Uranium	Metals	PCBs	Pesticides/ PCBs	Strontium-90	SVOCs	TPH	TPH-DRO	Uranium	VOCs	Cyanide
0253-95-0034	53-01075	0.0–0.5	Soil	221	—	—	—	—	220	—	—	—	—	—	—	—	—	—
0253-95-0035	53-01076	0.0–0.5	Soil	221	—	—	—	—	220	—	—	—	—	—	—	—	—	—
0253-95-0036	53-01077	0.0–0.5	Soil	221	—	—	—	—	220	—	—	—	—	—	—	—	—	—
0253-95-0037	53-01078	0.0–0.5	Soil	221	—	—	—	—	220	—	—	—	—	—	—	—	—	—
0253-95-0038	53-01079	0.0–0.5	Soil	221	—	—	—	—	220	—	—	—	—	—	—	—	—	—
RE53-98-0001	53-01556	0.0–0.17	Soil	5011R	5011R	—	—	—	5010R	—	—	—	—	—	—	—	—	—
RE53-98-0002	53-01557	0.0–0.17	Soil	5011R	5011R	—	—	—	5010R	—	—	—	—	—	—	—	—	—
RE53-98-0003	53-01558	0.0–0.17	Soil	5011R	5011R	—	—	—	5010R	—	—	—	—	—	—	—	—	—
AOC 53-009																		
RE53-06-73677	53-27007	2.0–2.5	Fill	—	—	—	—	—	—	—	—	—	6242S	—	6242S	—	6242S	—
RE53-06-73678	53-27008	1.5–2.0	Fill	—	—	—	—	—	—	—	—	—	6242S	—	6242S	—	6242S	—
AOC 53-010																		
0253-95-0039	53-01080	0.0–0.33	Fill	—	—	—	—	—	—	—	—	—	219	219	—	—	—	—
0253-95-0043	53-01081	0.0–0.33	Fill	—	—	—	—	—	—	—	—	—	219	219	—	—	—	—
0253-95-0044	53-01082	0.0–0.33	Fill	—	—	—	—	—	—	—	—	—	219	219	—	—	—	—
0253-95-0045	53-01083	0.0–0.33	Fill	—	—	—	—	—	—	—	—	—	219	219	—	—	—	—
0253-95-0046	53-01084	0.0–0.17	Fill	—	—	—	—	—	—	—	—	—	219	219	—	—	—	—
0253-95-0047	53-01085	0.0–0.17	Fill	—	—	—	—	—	—	—	—	—	219	219	—	—	—	—
VCXX-95-0069	53-01251	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	72999	—
VCXX-95-0070	53-01252	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	72999	—
VCXX-95-0071	53-01253	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	72999	—
VCXX-95-0072	53-01254	0.0–0.08	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	72999	—
VCXX-95-0073	53-01255	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	72999	—
VCXX-95-0074	53-01256	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	72999	—
SWMU 53-012(e)																		
0253-95-0048	53-01086	0.0–0.33	Soil	—	—	—	—	—	185	—	184	—	—	184	—	—	184	—
0253-95-0387	53-01086	0.0–0.33	Fill	—	—	—	—	—	—	—	—	—	77057	—	—	—	—	—
0253-95-0388	53-01087	0.0–0.66	Fill	—	—	—	—	—	—	—	—	—	77057	—	—	—	—	—
0253-95-0051	53-01087	0.0–0.67	Soil	—	—	—	—	—	185	—	184	—	—	184	—	—	184	—
0253-95-0054	53-01088	0.0–0.33	Soil	—	—	—	—	—	185	—	184	—	—	184	—	—	184	—
0253-95-0389	53-01088	0.0–0.33	Fill	—	—	—	—	—	—	—	—	—	77057	—	—	—	—	—
AOC 53-014																		
0253-97-0100	53-01506	0.0–0.5	Sed	—	—	—	—	—	2969	—	—	—	—	—	—	—	—	—
0253-97-0101	53-01507	0.0–0.5	Sed	—	—	—	—	—	2969	—	—	—	—	—	—	—	—	—

Table 3.0-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Gamma Spectroscopy	Gross Alpha/Beta Radioactivity	Tritium	Isotopic Plutonium	Isotopic Uranium	Metals	PCBs	Pesticides/ PCBs	Strontium-90	SVOCs	TPH	TPH-DRO	Uranium	VOCs	Cyanide
0253-97-0102	53-01508	0.0–0.5	Sed	—	—	—	—	—	2969	—	—	—	—	—	—	—	—	—
0253-97-0103	53-01509	0.0–0.5	Sed	—	—	—	—	—	2969	—	—	—	—	—	—	—	—	—
0253-97-0104	53-01510	0.0–0.5	Sed	—	—	—	—	—	2969	—	—	—	—	—	—	—	—	—

Note: Shading indicates samples were excavated during VCA.

[a] — = Analysis not requested.

[b] Request number.

Table 3.0-2
Inorganic Chemicals Detected above BVs at TA-53

Sample ID	Location ID	Depth (ft)	Media	Antimony	Cadmium	Calcium	Chromium	Copper	Cyanide (Total)	Lead	Mercury	Nickel	Selenium	Silver	Thallium	Zinc
Soil BV[a]				**0.83**	**0.4**	**6120**	**19.3**	**14.7**	**0.5**	**22.3**	**0.1**	**15.4**	**1.52**	**1**	**0.73**	**48.8**
Sediment BV[a]				**0.83**	**0.4**	**4420**	**10.5**	**11.2**	**0.82**	**19.7**	**0.1**	**9.38**	**0.3**	**1**	**0.73**	**60.2**
Qbt 2, 3, 4 BV[a]				**0.5**	**1.63**	**2200**	**7.14**	**4.66**	**0.5**	**11.2**	**0.1**	**6.58**	**0.3**	**1**	**1.1**	**63.5**
SWMU 53-001(a)																
0253-95-0001	53-01051	0.0–0.5	Soil	—[b]	—	—	—	—	NA[c]	—	0.12 (U)	—	—	1.5 (U)	1.5 (U)	—
0253-95-0002	53-01052	0.0–0.5	Soil	—	—	—	—	—	NA	—	0.16	—	—	1.5 (U)	1.5 (U)	—
0253-95-0003	53-01053	0.0–0.5	Soil	—	—	—	—	—	NA	—	—	—	—	1.5 (U)	1.5 (U)	—
0253-95-0004	53-01054	0.0–0.5	Soil	—	—	—	—	16.6	NA	22.5	0.16	—	—	1.5 (U)	1.6 (U)	—
SWMU 53-001(b)																
0253-95-0005	53-01055	0.0–1.0	Soil	6 (U)	1.2 (J)	—	—	37.2	NA	50.3	0.23 (U)	—	—	—	—	105
0253-95-0007	53-01055	1.0–1.5	Soil	5.8 (U)	0.7 (U)	—	—	—	NA	—	0.23 (U)	—	—	—	—	—
0253-95-0008	53-01056	0.0–0.67	Soil	6.1 (U)	0.78 (J)	—	—	—	NA	—	0.25 (U)	—	—	—	—	49.8
SWMUs 53-006(b,c)																
RE53-99-0003	53-01561	15.0–15.5	Soil	—	—	—	—	—	0.52 (U)	—	—	—	—	—	—	—
RE53-99-0006	53-01561	17.0–18.0	Qbt 2	0.54 (UJ)	—	—	—	—	0.54 (U)	—	—		0.43 (UJ)	—	—	—
RE53-99-0007	53-01562	5.0–6.0	Fill	—	—	—	—	—	0.53 (U)	—	—	—	—	—	—	—
RE53-99-0008	53-01562	6.0–7.0	Fill	—	—	—	—	—	0.53 (U)	—	—	—	—	—	—	—
RE53-99-0004	53-01563	7.6–8.6	Fill	—	—	—	—	—	0.52 (U)	—	—	—	—	—	—	—
RE53-99-0005	53-01563	8.6–9.6	Fill	—	—	—	—	—	0.52 (U)	—	—	—	—	—	—	—
SWMUs 53-006(d,e)																
RE53-99-0001	53-01559	7.5–8.5	Soil	—	—	—	—	—	0.52 (U)	—	—	—	—	—	—	—
RE53-99-0010	53-01559	9.5–10.5	Qbt 2	—	—	—	—	—	0.6 (U)	—	0.12 (U)	—	0.48 (UJ)	—	—	—
RE53-99-0002	53-01560	3.5–4.5	Soil	0.85 (UJ)	—	—	—	—	0.53 (U)	—	0.11 (U)	—	—	—	—	—
RE53-99-0009	53-01560	5.5–6.5	Qbt 2	0.58 (UJ)	—	—	—	—	0.58 (U)	—	0.12 (U)	—	0.47 (UJ)	—	—	—
AOC 53-008																
0253-95-0028	53-01069	0.0–0.5	Soil	5 (U)	0.61 (U)	—	—	—	NA	—	0.21 (U)	—	—	—	—	—
0253-95-0029	53-01070	0.0–0.5	Soil	5.3 (U)	0.64 (J)	—	—	—	NA	—	0.17 (U)	—	—	—	—	—
0253-95-0030	53-01071	0.0–0.5	Soil	5.3 (U)	0.64 (U)	—	—	—	NA	—	0.22 (U)	—	—	—	—	—
0253-95-0031	53-01072	0.0–0.5	Soil	5.3 (U)	0.64 (U)	—	—	—	NA	—	0.22 (U)	—	—	—	—	—
0253-95-0032	53-01073	0.0–0.5	Soil	5.1 (U)	0.62 (U)	—	—	—	NA	—	0.21 (U)	—	—	—	—	—
0253-95-0033	53-01074	0.0–0.5	Soil	5 (U)	0.6 (U)	—	—	—	NA	—	0.21 (U)	—	—	—	—	—
0253-95-0034	53-01075	0.0–0.5	Soil	5.1 (U)	0.61 (U)	—	—	—	NA	—	0.2 (U)	—	—	—	—	—
0253-95-0035	53-01076	0.0–0.5	Soil	5 (U)	0.6 (U)	—	—	—	NA	—	0.19 (U)	—	—	—	—	—
0253-95-0036	53-01077	0.0–0.5	Soil	5.1 (U)	0.61 (U)	—	—	—	NA	—	0.21 (U)	—	—	—	—	—

Table 3.0-2 (continued)

Sample ID	Location ID	Depth (ft)	Media	Antimony	Cadmium	Calcium	Chromium	Copper	Cyanide (Total)	Lead	Mercury	Nickel	Selenium	Silver	Thallium	Zinc
Soil BV[a]				**0.83**	**0.4**	**6120**	**19.3**	**14.7**	**0.5**	**22.3**	**0.1**	**15.4**	**1.52**	**1**	**0.73**	**48.8**
Sediment BV[a]				**0.83**	**0.4**	**4420**	**10.5**	**11.2**	**0.82**	**19.7**	**0.1**	**9.38**	**0.3**	**1**	**0.73**	**60.2**
Qbt 2, 3, 4 BV[a]				**0.5**	**1.63**	**2200**	**7.14**	**4.66**	**0.5**	**11.2**	**0.1**	**6.58**	**0.3**	**1**	**1.1**	**63.5**
0253-95-0037	53-01078	0.0–0.5	Soil	5.4 (U)	0.65 (U)	—	—	—	NA	—	0.21 (U)	—	—	—	—	—
0253-95-0038	53-01079	0.0–0.5	Soil	5.3 (U)	0.63 (U)	—	—	—	NA	—	0.21 (U)	—	—	—	—	—
RE53-98-0002	53-01557	0.0–0.17	Soil	1.1 (J-)	—	—	—	—	NA	76.9	—	—	—	—	—	—
RE53-98-0003	53-01558	0.0–0.17	Soil	0.94 (J-)	—	—	—	—	NA	—	—	—	—	—	—	—
SWMU 53-012(e)																
0253-95-0048	53-01086	0.0–0.33	Soil	2.3 (J)	1.2 (J)	—	23.5	267	NA	38.6	0.27	27	—	2.3 (J)	1.7 (U)	218
0253-95-0051	53-01087	0.0–0.67	Soil	1.7 (J)	0.43 (J)	—	—	46.2	NA	—	0.11 (U)	—	—	1.5 (U)	1.5 (U)	87.4
0253-95-0054	53-01088	0.0–0.33	Soil	1.6 (J)	1.2 (J)	—	—	46.2	NA	29.7	0.11 (U)	—	—	1.5 (U)	1.5 (U)	159
AOC 53-014																
0253-97-0100	53-01506	0.0–0.5	Sed	NA	NA	NA	NA	NA	NA	20	NA	NA	NA	NA	NA	NA
0253-97-0101	53-01507	0.0–0.5	Sed	NA	NA	NA	NA	NA	NA	20	NA	NA	NA	NA	NA	NA

Notes: Units are mg/kg. Data qualifiers are defined in Appendix A. Shading indicates samples were excavated during VCA.

[a] BVs from LANL 1998, 059730.

[b] — = Result was not detected or was below the BV

[c] NA = Not analyzed.

Table 3.0-3
Organic Chemicals Detected at TA-53

Sample ID	Location ID	Depth (ft)	Media	Aroclor-1248	Aroclor-1254	Aroclor-1260	Benzene	Bis(2-ethylhexyl)phthalate	Butanone[2-]	Chlordane[alpha-]	Chlordane[gamma-]	Dieldrin	Di-n-butylphthalate	Endosulfan II	Endrin Aldehyde	TPH-DRO	TPH Unknown Range	Total Recoverable Petroleum Hydrocarbons
SWMU 53-001(a)																		
0253-95-0001	53-01051	0.0–0.5	Soil	—[a]	—	—	—	NA[b]	—	—	—	—	NA	—	—	NA	458	NA
0253-95-0002	53-01052	0.0–0.5	Soil	—	—	—	—	NA	—	—	—	—	NA	—	—	NA	249	NA
0253-95-0003	53-01053	0.0–0.5	Soil	—	—	0.0778	—	NA	—	—	—	—	NA	—	—	NA	180	NA
0253-95-0004	53-01054	0.0–0.5	Soil	—	—	3.25	—	NA	—	0.00284	—	0.0141	NA	0.104	0.0722	NA	0.222	NA
0253-97-0040	53-01054	0.0–0.5	Soil	—	—	3.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0253-97-0041	53-01054	0.5–1.0	Soil	—	—	3.9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0253-97-0042	53-01054	1.0–1.5	Soil	—	—	0.44	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0253-97-0071	53-01518	0.0–0.5	Soil	—	—	0.15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0253-97-0072	53-01519	0.0–0.5	Soil	—	—	0.42	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0253-97-0076	53-01522	0.0–0.5	Soil	—	—	0.12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0253-97-0077	53-01523	0.67–1.17	Soil	—	—	0.13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0253-97-0080	53-01526	0.0–0.5	Soil	—	—	2.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0253-97-0111	53-01526	2.5–3.0	Qbt 3	—	—	0.094	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0253-97-0086	53-01531	0.0–0.5	Qbt 3	—	—	0.065 (J-)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0253-97-0092	53-01533	0.5–0.83	Soil	—	—	0.018	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0253-97-0112	53-01541	0.0–0.5	Soil	—	—	0.15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SWMU 53-001(b)																		
0253-95-0005	53-01055	0.0–1.0	Soil	—	—	—	—	NA	—	NA	NA	NA	NA	NA	NA	NA	75.2	NA
0253-95-0007	53-01055	1.0–1.5	Soil	—	—	—	—	NA	—	NA	NA	NA	NA	NA	NA	NA	NA	15.7
0253-95-0008	53-01056	0.0–0.67	Soil	—	—	—	—	NA	—	NA	NA	NA	NA	NA	NA	NA	NA	18.1
SWMUs 53-006(b,c)																		
RE53-99-0006	53-01561	17.0–18.0	Qbt 2	NA	NA	NA	0.00051 (J)	0.043 (J)	—	NA	NA	NA	—	NA	NA	NA	NA	NA
RE53-99-0007	53-01562	5.0–6.0	Fill	NA	NA	NA	0.00078 (J)	0.059 (J)	—	NA	NA	NA	—	NA	NA	NA	NA	NA
RE53-99-0008	53-01562	6.0–7.0	Fill	NA	NA	NA	—	0.085 (J)	—	NA	NA	NA	—	NA	NA	NA	NA	NA
RE53-99-0004	53-01563	7.6–8.6	Fill	NA	NA	NA	—	0.097 (J)	—	NA	NA	NA	—	NA	NA	NA	NA	NA
RE53-99-0005	53-01563	8.6–9.6	Fill	NA	NA	NA	0.00051 (J)	—	—	NA	NA	NA	—	NA	NA	NA	NA	NA
SWMUs 53-006(d,e)																		
RE53-99-0010	53-01559	9.5–10.5	Qbt 2	NA	NA	NA	—	0.12 (J)	0.002 (J)	NA	NA	NA	0.052 (J)	NA	NA	NA	NA	NA
RE53-99-0009	53-01560	5.5–6.5	Qbt 2	NA	NA	NA	—	0.06 (J)	0.068	NA	NA	NA	—	NA	NA	NA	NA	NA

Table 3.0-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Aroclor-1248	Aroclor-1254	Aroclor-1260	Benzene	Bis(2-ethylhexyl)phthalate	Butanone[2-]	Chlordane[alpha-]	Chlordane[gamma-]	Dieldrin	Di-n-butylphthalate	Endosulfan II	Endrin Aldehyde	TPH-DRO	TPH Unknown Range	Total Recoverable Petroleum Hydrocarbons
AOC 53-009																		
RE53-06-73678	53-27008	1.5–2.0	Fill	NA	NA	NA	—	NA	—	NA	NA	NA	NA	NA	NA	4.35	NA	NA
AOC 53-010																		
0253-95-0039	53-01080	0.0–0.33	Fill	NA	NA	NA	NA	—	NA	NA	NA	NA	—	NA	NA	NA	NA	10.3 (J)
0253-95-0043	53-01081	0.0–0.33	Fill	NA	NA	NA	NA	—	NA	NA	NA	NA	—	NA	NA	NA	NA	13.2
0253-95-0044	53-01082	0.0–0.33	Fill	NA	NA	NA	NA	—	NA	NA	NA	NA	—	NA	NA	NA	NA	7.93 (J)
0253-95-0045	53-01083	0.0–0.33	Fill	NA	NA	NA	NA	—	NA	NA	NA	NA	—	NA	NA	NA	NA	3440
0253-95-0046	53-01084	0.0–0.17	Fill	NA	NA	NA	NA	—	NA	NA	NA	NA	—	NA	NA	NA	NA	3520
0253-95-0047	53-01085	0.0–0.17	Fill	NA	NA	NA	NA	—	NA	NA	NA	NA	—	NA	NA	NA	NA	5100
SWMU 53-012(e)																		
0253-95-0048	53-01086	0.0–0.33	Soil	0.76	0.351	—	—	NA	—	0.00804	0.00376	0.0156	NA	0.00499	—	NA	NA	2000
0253-95-0051	53-01087	0.0–0.67	Soil	0.0596	—	0.332	—	NA	—	—	—	—	NA	0.00993	0.00584	NA	NA	2090
0253-95-0054	53-01088	0.0–0.33	Soil	0.0474	—	0.335	—	NA	—	—	—	—	NA	0.00979	0.00599	NA	NA	1150

Notes: Units are mg/kg. Data qualifiers are defined in Appendix A. Shading indicates samples were excavated during VCA.

[a] — = Result was not detected.

[b] NA = Not analyzed.

Table 3.0-4
Radionuclides Detected or Detected above BVs/FVs at TA-53

Sample ID	Location ID	Depth (ft)	Media	Cesium-134	Cobalt-60	Europium-152	Gross Alpha	Gross Beta	Gross Gamma	Strontium-90	Tritium
Soil BV/FV[a]				**na[b]**	**na**	**na**	**na**	**na**	**na**	**1.31**	**na**
Qbt 2, 3, 4 BV/FV[a]				**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**
SWMUs 53-006(b,c)											
RE53-99-0006	53-01561	17.0–18.0	Qbt 2	—[c]	—	—	NA[d]	NA	NA	0.75	—
RE53-99-0008	53-01562	6.0–7.0	Fill	—	—	—	NA	NA	NA	1.45	—
RE53-99-0004	53-01563	7.6–8.6	Fill	—	—	1.23	NA	NA	NA	—	—
RE53-99-0005	53-01563	8.6–9.6	Fill	—	—	—	NA	NA	NA	—	7.08
SWMUs 53-006(d,e)											
RE53-99-0010	53-01559	9.5–10.5	Qbt 2	—	—	—	NA	NA	NA	1.18	—
RE53-99-0009	53-01560	5.5–6.5	Qbt 2	—	—	—	NA	NA	NA	1.23	—
AOC 53-008											
0253-95-0029	53-01070	0.0–0.5	Soil	6.22	2.69	NA	NA	NA	NA	NA	NA
0253-95-0033	53-01074	0.0–0.5	Soil	—	0.124	NA	NA	NA	NA	NA	NA

Note: Units are pCi/g.

[a] BVs/FVs from LANL 1998, 059730.

[b] na = Not available.

[c] — = Result was not detected or was below the BV/FV.

[d] NA = Sample was not analyzed for this radionuclide.

Table 3.8-1
Summary of Historical Samples Collected and Analyses Requested at and Downgradient of AOC 53-008 during Investigation and Cleanup of Consolidated Unit 53-002(a)-99

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Gamma Spectroscopy	Tritium	Herbicides	Hexavalent Chromium	Isotopic Plutonium	Isotopic Uranium	Metals	PAHs	PCBs	Pesticides	Pesticides/PCBs	Strontium-90	SVOCs	VOCs
Head of Drainage																		
RE53-99-0224	53-01636	0.0–0.3	Soil	—[a]	5907R[b]	5907R	—	—	5907R	5907R	5906R	—	5905R	—	—	5907R	5905R	—
RE53-99-0225	53-01637	0.0–0.5	Soil	—	5907R	5907R	—	—	5907R	5907R	5906R	—	5905R	—	—	5907R	5905R	—
RE53-99-0226	53-01638	0.0–0.25	Soil	—	5907R	5907R	—	—	5907R	5907R	5906R	—	5905R	—	—	5907R	5905R	—
RE53-99-0310	53-01695	1.0–2.0	Qbt 2	—	6015R	6015R	—	—	6015R	6015R	6014R	—	6013R	—	—	6015R	6013R	6013R
RE53-99-0311	53-01695	4.0–5.0	Qbt 2	—	6015R	6015R	—	—	6015R	6015R	6014R	—	6013R	—	—	6015R	6013R	6013R
RE53-99-0312	53-01695	14.0–15.0	Qbt 2	—	6015R	6015R	—	—	6015R	6015R	6014R	—	6013R	—	—	6015R	6013R	6013R
RE53-02-46713	53-02-20830	0.3–0.8	Qbt 2	—	1111S	—	—	—	—	—	—	—	—	—	—	—	—	—
RE53-02-46714	53-02-20830	28.9–30.0	Qbt 2	—	1111S	1111S	—	—	—	—	1110S	—	1109S	—	—	1111S	1109S	—
RE53-02-46715	53-02-20830	49.0–50.0	Qbt 2	—	1111S	1111S	—	—	—	—	1110S	—	1109S	—	—	1111S	1109S	—
RE53-02-46744	53-02-20846	0.0–0.5	Qbt 2	—	1148S	—	—	—	—	—	—	—	—	—	—	—	—	—
RE53-02-46745	53-02-20847	0.0–0.3	Qbt 2	—	1148S	—	—	—	—	—	—	—	—	—	—	—	—	—
Reach C																		
RE53-01-0018	53-01744	0.39–0.76	Sed	—	9704R	9704R	—	—	9704R	9704R	9703R	—	9702R	—	—	9704R	9702R	9702R
RE53-02-49303	53-01744	0.75–1.42	Sed	1147S	1147S	—	—	—	—	—	1146S	1145S	1145S	1145S	—	—	—	1145S
RE53-01-0019	53-01745	0.2–0.46	Sed	—	9704R	9704R	—	—	9704R	9704R	9703R	—	9702R	—	—	9704R	9702R	9702R
RE53-02-49304	53-01746	0.0–0.29	Sed	1147S	1147S	—	—	—	—	—	1146S	1145S	1145S	1145S	—	—	—	1145S
RE53-01-0002	53-01746	0.29–0.59	Sed	—	9704R	9704R	9702R	9703R	9704R	9704R	9703R	—	—	9702R	9702R	9704R	9702R	9702R
RE53-01-0020	53-01747	0.23–0.62	Sed	—	9704R	9704R	—	—	9704R	9704R	9703R	—	9702R	—	—	9704R	9702R	9702R
RE53-02-49305	53-01747	0.62–1.02	Sed	1147S	1147S	—	—	—	—	—	1146S	1145S	1145S	1145S	—	—	—	1145S
RE53-02-49308	53-01748	0.0–0.23	Sed	1147S	1147S	—	—	—	—	—	1146S	1145S	1145S	1145S	—	—	—	1145S
RE53-02-49309	53-01748	0.062–0.92	Sed	1147S	1147S	—	—	—	—	—	1146S	1145S	1145S	1145S	—	—	—	1145S
RE53-01-0022	53-01748	0.36–0.62	Sed	—	9704R	9704R	—	—	9704R	9704R	9703R	—	9702R	—	—	9704R	9702R	9702R
RE53-01-0023	53-01749	0.0–0.20	Sed	—	9704R	9704R	—	—	9704R	9704R	9703R	—	9702R	—	—	9704R	9702R	9702R
RE53-02-49306	53-02-21057	0.0–0.26	Sed	1147S	1147S	—	—	—	—	—	1146S	1145S	1145S	1145S	—	—	—	1145S
RE53-02-49307	53-02-21058	0.33–0.65	Sed	1147S	1147S	—	—	—	—	—	1146S	1145S	1145S	1145S	—	—	—	1145S
Reach D																		
RE53-01-0047	53-01730	0.0–0.13	Sed	—	9672R	9672R	—	—	9672R	9672R	9671R	—	9670R	—	—	9672R	9670R	9670R
RE53-01-0048	53-01731	0.39–0.69	Sed	—	9672R	9672R	—	—	9672R	9672R	9671R	—	9670R	—	—	9672R	9670R	9670R
RE53-01-0051	53-01732	0.0–0.39	Sed	—	9672R	9672R	—	—	9672R	9672R	9671R	—	9670R	—	—	9672R	9670R	9670R
RE53-02-49310	53-01732	0.40–0.56	Sed	1147S	1147S	—	—	—	—	—	1146S	1145S	1145S	1145S	—	—	—	1145S
RE53-01-0050	53-01733	0.0–0.32	Sed	—	9672R	9672R	—	—	9672R	9672R	9671R	—	9670R	—	—	9672R	9670R	9670R
RE53-01-0012	53-01733	0.46–0.72	Sed	—	9690R	9690R	9688R	9689R	9690R	9690R	9689R	—	—	—	9688R	9690R	9688R	9688R
RE53-02-49311	53-01733	0.72–0.85	Sed	1147S	1147S	—	—	—	—	—	1146S	1145S	1145S	1145S	—	—	—	1145S

Table 3.8-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Gamma Spectroscopy	Tritium	Herbicides	Hexavalent Chromium	Isotopic Plutonium	Isotopic Uranium	Metals	PAHs	PCBs	Pesticides	Pesticides/PCBs	Strontium-90	SVOCs	VOCs
RE53-01-0052	53-01734	0.0–0.59	Sed	—	9672R	9672R	—	—	9672R	9672R	9671R	—	9670R	—	—	9672R	9670R	9670R
RE53-01-0049	53-01735	0.0–0.2	Sed	—	9672R	9672R	—	—	9672R	9672R	9671R	—	9670R	—	—	9672R	9670R	9670R
RE53-02-49317	53-01735	0.19–0.59	Sed	1147S	1147S	—	—	—	—	—	1146S	1145S	1145S	1145S	—	—	—	1145S
RE53-02-49318	53-01735	1.21–1.70	Sed	1147S	1147S	—	—	—	—	—	1146S	1145S	1145S	1145S	—	—	—	1145S
RE53-01-0045	53-01736	0.0–0.42	Sed	—	9672R	9672R	—	—	9672R	9672R	9671R	—	9670R	—	—	9672R	9670R	9670R
RE53-01-0046	53-01736	0.69–0.85	Sed	—	9672R	9672R	—	—	9672R	9672R	9671R	—	9670R	—	—	9672R	9670R	9670R
RE53-02-49319	53-01736	0.98–1.38	Sed	1147S	1147S	—	—	—	—	—	1146S	1145S	1145S	1145S	—	—	—	1145S
RE53-02-49312	53-02-21063	0.0–1.02	Sed	1147S	1147S	—	—	—	—	—	1146S	1145S	1145S	1145S	—	—	—	1145S
RE53-02-49313	53-02-21063	1.02–1.44	Sed	1147S	1147S	—	—	—	—	—	1146S	1145S	1145S	1145S	—	—	—	1145S
RE53-02-49314	53-02-21065	0.0–0.29	Sed	1147S	1147S	—	—	—	—	—	1146S	1145S	1145S	1145S	—	—	—	1145S
RE53-02-49315	53-02-21066	0.062–0.36	Sed	1147S	1147S	—	—	—	—	—	1146S	1145S	1145S	1145S	—	—	—	1145S
RE53-02-49316	53-02-21066	0.36–0.65	Sed	1147S	1147S	—	—	—	—	—	1146S	1145S	1145S	1145S	—	—	—	1145S
Reach E																		
RE53-01-0001	53-01737	0.0–0.36	Sed	—	9675R	9675R	9673R	9674R	9675R	9675R	9674R	—	—	—	9673R	9675R	9673R	9673R
RE53-02-49320	53-01737	0.36–0.65	Sed	1147S	1147S	—	—	—	—	—	1146S	1145S	1145S	1145S	—	—	—	1145S
RE53-01-0017	53-01738	0.0–0.083	Sed	—	9675R	9675R	—	—	9675R	9675R	9674R	—	9673R	—	—	9675R	9673R	9673R
RE53-01-0016	53-01738	0.08–0.23	Sed	—	9675R	9675R	—	—	9675R	9675R	9674R	—	9673R	—	—	9675R	9673R	9673R
RE53-02-49321	53-01738	0.23–0.36	Sed	1147S	1147S	—	—	—	—	—	1146S	1145S	1145S	1145S	—	—	—	1145S
RE53-01-0014	53-01739	0.0–0.23	Sed	—	9675R	9675R	—	—	9675R	9675R	9674R	—	9673R	—	—	9675R	9673R	9673R
RE53-01-0015	53-01740	0.0–0.26	Sed	—	9675R	9675R	—	—	9675R	9675R	9674R	—	9673R	—	—	9675R	9673R	9673R
RE53-02-49324	53-01740	0.27–0.96	Sed	1147S	1147S	—	—	—	—	—	1146S	1145S	1145S	1145S	—	—	—	1145S
RE53-01-0024	53-01741	0.0–0.29	Sed	—	9704R	9704R	—	—	9704R	9704R	9703R	—	9702R	—	—	9704R	9702R	9702R
RE53-02-49325	53-01741	0.29–0.60	Sed	1147S	1147S	—	—	—	—	—	1146S	1145S	1145S	1145S	—	—	—	1145S
RE53-01-0025	53-01742	0.36–0.49	Sed	—	9704R	9704R	—	—	9704R	9704R	9703R	—	9702R	—	—	9704R	9702R	9702R
RE53-01-0026	53-01743	0.0–0.13	Sed	—	9704R	9704R	—	—	9704R	9704R	9703R	—	9702R	—	—	9704R	9702R	9702R
RE53-02-49322	53-02-21073	0.0–0.27	Sed	1147S	1147S	—	—	—	—	—	1146S	1145S	1145S	1145S	—	—	—	1145S
RE53-02-49323	53-02-21074	0.0–0.27	Sed	1147S	1147S	—	—	—	—	—	1146S	1145S	1145S	1145S	—	—	—	1145S
RE53-02-49326	53-02-21077	0.0–0.33	Sed	1147S	1147S	—	—	—	—	—	1146S	1145S	1145S	1145S	—	—	—	1145S

[a] — = Analysis not requested.

[b] Request number.

Table 3.8-2
Inorganic Chemicals Detected above BVs in Samples Collected at and Downgradient of AOC 53-008 during Investigation and Cleanup of Consolidated Unit 53-002(a)-99

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Cadmium	Calcium	Chromium	Copper	Lead	Magnesium	Selenium	Zinc
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**0.4**	**6120**	**19.3**	**14.7**	**22.3**	**4610**	**1.52**	**48.8**
Sediment BV[a]				**15400**	**0.83**	**3.98**	**127**	**0.4**	**4420**	**10.5**	**11.2**	**19.7**	**2370**	**0.3**	**60.2**
Qbt 2, 3, 4 BV[a]				**7340**	**0.5**	**2.79**	**46**	**1.63**	**2200**	**7.14**	**4.66**	**11.2**	**1690**	**0.3**	**63.5**
Head of Drainage															
RE53-99-0224	53-01636	0.0–0.3	Soil	—[b]	—	—	—	—	9300	—	—	—	—	—	49 (J+)
RE53-99-0310	53-01695	1.0–2.0	Qbt 2	12000	—	3.4	110	—	6400	8.8	4.9	—	1900	0.79 (J)	—
RE53-99-0311	53-01695	4.0–5.0	Qbt 2	—	—	—	—	—	—	—	—	—	—	0.42 (UJ)	—
RE53-99-0312	53-01695	14.0–15.0	Qbt 2	—	—	—	—	—	—	—	—	—	—	0.42 (UJ)	—
RE53-02-46714	53-02-20830	28.9–30.0	Qbt 2	—	—	—	—	—	—	—	—	—	—	0.36 (J-)	—
RE53-02-46715	53-02-20830	49.0–50.0	Qbt 2	—	—	—	—	—	—	—	—	—	—	0.31 (J-)	—
Reach C															
RE53-01-0018	53-01744	0.39–0.76	Sed	—	—	—	—	—	—	—	—	21.5 (J)	—	0.38 (J)	—
RE53-02-49303	53-01744	0.75–1.42	Sed	—	—	—	—	—	—	—	—	—	—	0.495 (U)	—
RE53-01-0019	53-01745	0.20–0.46	Sed	—	—	—	—	—	—	—	—	29.6 (J)	—	—	—
RE53-02-49304	53-01746	0.0–0.29	Sed	—	—	—	—	—	—	—	—	44.7	—	—	—
RE53-01-0002	53-01746	0.29–0.59	Sed	—	—	—	—	—	—	—	—	54 (J)	—	0.35 (J)	—
RE53-01-0020	53-01747	0.23–0.62	Sed	—	—	—	—	—	—	—	—	26.1 (J)	—	—	—
RE53-02-49305	53-01747	0.62–1.02	Sed	—	—	—	—	—	—	—	—	—	—	0.506 (U)	—
RE53-02-49308	53-01748	0.0–0.23	Sed	—	—	—	—	—	—	—	—	33.6	—	0.484 (U)	—
RE53-02-49309	53-01748	0.062–0.92	Sed	—	—	—	—	—	—	—	—	—	—	0.526 (U)	—
RE53-02-49306	53-02-21057	0.0–0.26	Sed	—	—	—	—	—	—	—	—	—	—	0.39 (J)	—
RE53-02-49307	53-02-21058	0.33–0.65	Sed	—	—	—	—	—	—	—	—	—	—	0.496 (U)	—
Reach D															
RE53-02-49310	53-01732	0.40–0.56	Sed	—	—	—	—	—	—	—	—	—	—	0.502 (U)	—
RE53-01-0050	53-01733	0.0–0.32	Sed	—	—	—	—	—	—	—	—	20.1	—	—	—
RE53-01-0012	53-01733	0.46–0.72	Sed	—	—	—	—	—	—	—	—	—	—	0.33 (J)	—
RE53-02-49311	53-01733	0.72–0.85	Sed	—	—	—	—	—	—	—	—	—	—	0.459 (U)	—
RE53-01-0049	53-01735	0.0–0.2	Sed	—	—	—	—	—	—	—	—	23.3	—	—	—
RE53-02-49317	53-01735	0.19–0.59	Sed	—	—	—	—	—	—	—	—	—	—	0.458 (U)	—
RE53-02-49318	53-01735	1.21–1.70	Sed	—	7.91 (J-)	—	—	—	—	—	—	—	—	0.456 (U)	—
RE53-01-0046	53-01736	0.69–0.85	Sed	—	—	—	—	—	—	—	12.1	—	—	0.32 (J)	—
RE53-02-49319	53-01736	0.98–1.38	Sed	—	—	—	—	—	—	—	—	—	—	0.461 (U)	—
RE53-02-49312	53-02-21063	0.0–1.02	Sed	—	—	—	—	—	—	—	—	—	—	0.46 (U)	—
RE53-02-49313	53-02-21063	1.02–1.44	Sed	—	—	—	—	—	—	—	—	—	—	0.499 (U)	—

Table 3.8-2 (continued)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Cadmium	Calcium	Chromium	Copper	Lead	Magnesium	Selenium	Zinc
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**0.4**	**6120**	**19.3**	**14.7**	**22.3**	**4610**	**1.52**	**48.8**
Sediment BV[a]				**15400**	**0.83**	**3.98**	**127**	**0.4**	**4420**	**10.5**	**11.2**	**19.7**	**2370**	**0.3**	**60.2**
Qbt 2, 3, 4 BV[a]				**7340**	**0.5**	**2.79**	**46**	**1.63**	**2200**	**7.14**	**4.66**	**11.2**	**1690**	**0.3**	**63.5**
RE53-02-49314	53-02-21065	0.0–0.29	Sed	—	—	—	—	—	—	—	—	30.3	—	0.492 (U)	—
RE53-02-49315	53-02-21066	0.062–0.36	Sed	—	—	—	—	0.49 (U)	—	—	—	—	—	0.49 (U)	—
RE53-02-49316	53-02-21066	0.36–0.65	Sed	—	—	—	—	—	—	—	—	—	—	0.472 (U)	—
Reach E															
RE53-02-49320	53-01737	0.356–0.65	Sed	—	—	—	—	—	—	—	—	—	—	0.518 (U)	—
RE53-01-0017	53-01738	0.0–0.083	Sed	—	—	—	—	—	—	—	—	20.3	—	—	—
RE53-02-49321	53-01738	0.23–0.36	Sed	—	—	—	—	—	—	—	—	—	—	0.46 (U)	—
RE53-02-49324	53-01740	0.27–0.96	Sed	—	—	—	—	—	—	—	—	—	—	0.466 (U)	—
RE53-01-0024	53-01741	0.0–0.29	Sed	—	—	—	—	—	—	—	—	—	—	0.32 (J)	—
RE53-02-49325	53-01741	0.29–0.60	Sed	—	—	—	—	—	—	—	—	—	—	0.479 (U)	—
RE53-02-49322	53-02-21073	0.0–0.27	Sed	—	—	—	—	—	—	—	—	—	—	0.489 (U)	—
RE53-02-49323	53-02-21074	0.0–0.27	Sed	—	—	—	—	—	—	—	—	22.2	—	0.487 (U)	—
RE53-02-49326	53-02-21077	0.0–0.33	Sed	—	—	—	—	0.488 (U)	—	—	—	—	—	0.488 (U)	—

Notes: Units are mg/kg. Data qualifiers are defined in Appendix A.

[a] BVs from LANL 1998, 059730.

[b] — = Result was not detected or was below the BV.

Table 3.8-3
Organic Chemicals Detected in Samples Collected at and Downgradient of AOC 53-008 during Investigation and Cleanup of Consolidated Unit 53-002(a)-99

Sample ID	Location ID	Depth (ft)	Media	Acetone	Aroclor-1254	Aroclor-1260	Benzoic Acid	Benzyl Alcohol	Bis(2-ethylhexyl)phthalate	Bromomethane	Chlorotoluene[2-]	D[2,4-]	Dalapon	DB[2,4-]	DDE[4,4'-]	DDT[4,4'-]	Dichlorobenzene[1,2-]
Head of Drainage																	
RE53-99-0224	53-01636	0.0–0.3	Soil	NA[a]	—[b]	—	—	—	0.063 (J)	NA	NA	NA	NA	NA	NA	NA	NA
RE53-99-0310	53-01695	1.0–2.0	Qbt 2	—	—	—	—	0.025 (J)	—	—	—	NA	NA	NA	NA	NA	—
RE53-99-0312	53-01695	14.0–15.0	Qbt 2	—	—	—	—	—	—	—	—	NA	NA	NA	NA	NA	—
Reach C																	
RE53-01-0018	53-01744	0.39–0.76	Sed	—	0.073	—	0.11 (J)	—	—	—	0.0052 (J)	NA	NA	NA	NA	NA	—
RE53-02-49303	53-01744	0.75–1.42	Sed	—	0.0126	—	NA	NA	NA	—	—	NA	NA	NA	—	—	—
RE53-01-0019	53-01745	0.20–0.46	Sed	NA	0.037	—	—	—	—	NA	NA	NA	NA	NA	NA	NA	—
RE53-02-49304	53-01746	0.0–0.29	Sed	—	0.0067	0.0089	NA	NA	NA	—	—	NA	NA	NA	—	—	—
RE53-01-0002	53-01746	0.29–0.59	Sed	NA	0.052	0.034	0.13 (J)	—	—	—	NA	—	—	—	—	—	—
RE53-01-0020	53-01747	0.23–0.62	Sed	—	0.039	—	—	—	—	—	—	NA	NA	NA	NA	NA	—
RE53-02-49305	53-01747	0.62–1.02	Sed	—	0.0069	—	NA	NA	NA	—	—	NA	NA	NA	—	—	—
RE53-02-49308	53-01748	0.0–0.23	Sed	—	0.0089	0.0052	NA	NA	NA	—	—	NA	NA	NA	—	—	—
RE53-02-49309	53-01748	0.062–0.92	Sed	—	0.0071	—	NA	NA	NA	—	—	NA	NA	NA	—	—	—
RE53-01-0022	53-01748	0.36–0.62	Sed	—	0.17	—	—	—	—	—	—	NA	NA	NA	NA	NA	—
RE53-01-0023	53-01749	0.0–0.2	Sed	—	—	—	—	—	—	—	—	NA	NA	NA	NA	NA	—
RE53-02-49306	53-02-21057	0.0–0.26	Sed	—	0.0077	—	NA	NA	NA	—	—	NA	NA	NA	—	—	—
RE53-02-49307	53-02-21058	0.33–0.65	Sed	—	0.0023 (J)	—	NA	NA	NA	—	—	NA	NA	NA	0.00079 (J)	—	—
Reach D																	
RE53-01-0047	53-01730	0.0–0.13	Sed	—	—	—	—	—	—	—	—	NA	NA	NA	NA	NA	—
RE53-01-0051	53-01732	0.0–0.39	Sed	—	—	—	—	—	—	—	—	NA	NA	NA	NA	NA	—
RE53-01-0012	53-01733	0.46–0.72	Sed	—	—	—	—	—	—	—	—	—	0.22	—	—	—	—
RE53-02-49317	53-01735	0.19–0.59	Sed	—	0.0053	—	NA	NA	NA	—	—	NA	NA	NA	—	—	—
RE53-02-49318	53-01735	1.22–1.70	Sed	—	0.0028 (J)	—	NA	NA	NA	—	—	NA	NA	NA	0.0029	—	—
RE53-01-0046	53-01736	0.69–0.85	Sed	—	—	—	—	—	—	—	—	NA	NA	NA	NA	NA	—
RE53-02-49319	53-01736	0.98–1.38	Sed	—	—	0.0046	NA	NA	NA	—	—	NA	NA	NA	—	—	—
RE53-02-49312	53-02-21063	0.0–1.02	Sed	0.0171	—	—	NA	NA	NA	—	—	NA	NA	NA	—	—	—
RE53-02-49313	53-02-21063	1.02–1.44	Sed	0.0113	0.0047	—	NA	NA	NA	—	—	NA	NA	NA	—	—	—
RE53-02-49314	53-02-21065	0.0–0.29	Sed	—	0.0056	—	NA	NA	NA	—	—	NA	NA	NA	—	—	—
RE53-02-49315	53-02-21066	0.062–0.36	Sed	—	0.0033 (J)	—	NA	NA	NA	—	—	NA	NA	NA	—	—	—

Table 3.8-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Acetone	Aroclor-1254	Aroclor-1260	Benzoic Acid	Benzyl Alcohol	Bis(2-ethylhexyl)phthalate	Bromomethane	Chlorotoluene[2-]	D[2,4-]	Dalapon	DB[2,4-]	DDE[4,4'-]	DDT[4,4'-]	Dichlorobenzene[1,2-]
RE53-02-49316	53-02-21066	0.36–0.65	Sed	—	0.003 (J)	—	NA	NA	NA	—	—	NA	NA	NA	—	—	—
Reach E																	
RE53-01-0001	53-01737	0.0–0.36	Sed	—	—	—	—	—	—	—	—	0.16 (J+)	—	0.2 (J+)	—	—	0.0022 (J)
RE53-01-0017	53-01738	0.0–0.083	Sed	NA	—	—	—	—	—	—	NA	NA	NA	NA	NA	NA	—
RE53-02-49321	53-01738	0.23–0.36	Sed	—	0.0031 (J)	—	NA	NA	NA	—	—	NA	NA	NA	—	—	—
RE53-01-0014	53-01739	0.0–0.23	Sed	—	—	—	—	—	—	—	—	NA	NA	NA	NA	NA	—
RE53-01-0015	53-01740	0.0–0.26	Sed	—	—	—	—	—	—	0.0012 (J)	—	NA	NA	NA	NA	NA	0.00057 (J)
RE53-02-49324	53-01740	0.27–0.96	Sed	0.037	—	—	NA	NA	NA	—	—	NA	NA	NA	0.00081 (J-)	0.00052 (J-)	—
RE53-01-0024	53-01741	0.0–0.29	Sed	—	—	—	—	—	—	—	—	NA	NA	NA	NA	NA	—
RE53-02-49325	53-01741	0.29–0.60	Sed	—	—	—	NA	NA	NA	—	—	NA	NA	NA	0.00058 (J-)	0.0017 (J-)	—
RE53-01-0025	53-01742	0.36–0.49	Sed	—	—	—	—	—	—	—	—	NA	NA	NA	NA	NA	—
RE53-02-49322	53-02-21073	0.0–0.27	Sed	—	0.0044	0.0045	NA	NA	NA	—	—	NA	NA	NA	—	—	—
RE53-02-49323	53-02-21074	0.0–0.27	Sed	0.0075 (J)	0.0054 (J-)	—	NA	NA	NA	—	—	NA	NA	NA	—	—	—
RE53-02-49326	53-02-21077	0.0–0.33	Sed	—	—	—	NA	NA	NA	—	—	NA	NA	NA	0.0044 (J-)	0.002 (J-)	—

Table 3.8-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Dichlorobenzene[1,3-]	Dichlorobenzene[1,4-]	Dichlorodifluoromethane	Dichloroethene[cis/trans-1,2-]	Fluoranthene	Hexachlorobenzene	Isopropyltoluene[4-]	Phenol	Pyrene	Tetrachloroethene	Toluene	Trichloroethene	Trichlorotrifluoroethane	Xylene (Total)
Head of Drainage																	
RE53-99-0224	53-01636	0.0–0.3	Soil	NA	NA	NA	NA	—	—	NA	—	—	NA	NA	NA	NA	NA
RE53-99-0310	53-01695	1.0–2.0	Qbt 2	—	—	—	—	—	—	—	0.029 (J)	—	—	—	—	—	—
RE53-99-0312	53-01695	14.0–15.0	Qbt 2	—	—	0.006 (J)	—	—	—	—	—	—	—	—	—	—	—
Reach C																	
RE53-01-0018	53-01744	0.39–0.76	Sed	0.0052 (J)	0.0025 (J)	—	0.0052 (J)	—	—	—	—	—	—	0.00063 (J)	—	—	—
RE53-02-49303	53-01744	0.75–1.42	Sed	—	—	—	NA	—	NA	—	—	—	—	—	—	NA	NA
RE53-01-0019	53-01745	0.20–0.46	Sed	—	—	NA	NA	—	—	NA	—	—	NA	NA	NA	NA	NA
RE53-02-49304	53-01746	0.0–0.29	Sed	—	—	—	NA	—	NA	—	—	—	—	0.0011 (J)	—	NA	NA
RE53-01-0002	53-01746	0.29–0.59	Sed	—	0.0031 (J)	NA	NA	0.088 (J)	—	NA	—	—	NA	NA	NA	0.0052 (J)	0.0052 (J)
RE53-01-0020	53-01747	0.23–0.62	Sed	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE53-02-49305	53-01747	0.62–1.02	Sed	—	—	—	NA	—	NA	—	—	—	—	—	—	NA	NA
RE53-02-49308	53-01748	0.0–0.23	Sed	—	—	—	NA	—	NA	—	—	—	—	0.0008 (J)	—	NA	NA
RE53-02-49309	53-01748	0.062–0.92	Sed	—	—	—	NA	—	NA	—	—	—	—	—	—	NA	NA
RE53-01-0022	53-01748	0.36–0.62	Sed	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE53-01-0023	53-01749	0.0–0.2	Sed	—	—	—	—	—	—	—	—	—	—	—	0.00057 (J)	—	—
RE53-02-49306	53-02-21057	0.0–0.26	Sed	—	—	—	NA	—	NA	—	—	—	—	0.0007 (J)	—	NA	NA
RE53-02-49307	53-02-21058	0.33–0.65	Sed	—	—	—	NA	—	NA	—	—	—	—	—	—	NA	NA
Reach D																	
RE53-01-0047	53-01730	0.0–0.13	Sed	—	—	—	—	—	0.23 (J)	—	—	—	—	—	—	—	—
RE53-01-0051	53-01732	0.0–0.39	Sed	—	—	—	—	—	—	0.0016 (J+)	—	—	0.00073 (J+)	0.0051 (J+)	—	—	—
RE53-01-0012	53-01733	0.46–0.72	Sed	—	—	—	—	—	—	0.0063	—	—	—	—	—	NA	—
RE53-02-49317	53-01735	0.19–0.59	Sed	—	—	—	NA	—	NA	0.344	—	—	—	0.0013 (J)	—	NA	NA
RE53-02-49318	53-01735	1.22–1.70	Sed	—	—	—	NA	—	NA	—	—	—	—	0.00053 (J)	—	NA	NA
RE53-01-0046	53-01736	0.69–0.85	Sed	—	—	—	—	—	—	—	—	—	—	0.00091 (J)	—	—	—
RE53-02-49319	53-01736	0.98–1.38	Sed	—	—	—	NA	—	NA	—	—	—	—	—	—	NA	NA
RE53-02-49312	53-02-21063	0.0–1.02	Sed	—	—	—	NA	—	NA	—	—	—	—	—	—	NA	NA
RE53-02-49313	53-02-21063	1.02–1.44	Sed	—	—	—	NA	—	NA	—	—	—	—	0.001 (J)	—	NA	NA
RE53-02-49314	53-02-21065	0.0–0.29	Sed	—	—	—	NA	—	NA	—	—	—	—	—	—	NA	NA
RE53-02-49315	53-02-21066	0.062–0.36	Sed	—	—	—	NA	—	NA	—	—	—	—	0.00068 (J)	—	NA	NA
RE53-02-49316	53-02-21066	0.36–0.65	Sed	—	—	—	NA	—	NA	—	—	—	—	0.00065 (J)	—	NA	NA

Table 3.8-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Dichlorobenzene[1,3-]	Dichlorobenzene[1,4-]	Dichlorodifluoromethane	Dichloroethene[cis/trans-1,2-]	Fluoranthene	Hexachlorobenzene	Isopropyltoluene[4-]	Phenol	Pyrene	Tetrachloroethene	Toluene	Trichloroethene	Trichlorotrifluoroethane	Xylene (Total)
Reach E																	
RE53-01-0001	53-01737	0.0–0.36	Sed	—	0.01 (J)	—	—	—	—	—		—	—	—	—	—	—
RE53-01-0017	53-01738	0.0–0.083	Sed	0.0012 (J+)	0.0031 (J)	NA	NA	—	—	NA	—	—	NA	NA	0.00081 (J+)	NA	NA
RE53-02-49321	53-01738	0.23–0.36	Sed	—	—	—	NA	—	NA	—	—	—	—	—	—	NA	NA
RE53-01-0014	53-01739	0.0–0.23	Sed	—	—	—	—	—	—	—	—	—	—	—	0.0019 (J)	NA	—
RE53-01-0015	53-01740	0.0–0.26	Sed	0.00069 (J)	—	—	—	—	—	—	—	—	—	—	0.00061 (J)	NA	—
RE53-02-49324	53-01740	0.27–0.96	Sed	—	—	—	NA	—	NA	0.0303	—	—	—	0.0028	—	NA	NA
RE53-01-0024	53-01741	0.0–0.29	Sed	—	—	—	—	—	—	—	—	—	—	—	—	—	0.0015 (J)
RE53-02-49325	53-01741	0.29–0.60	Sed	—	—	—	NA	—	NA	—	—	0.0101	—	0.00082 (J)	—	NA	NA
RE53-01-0025	53-01742	0.36–0.49	Sed	—	0.0049 (J)	—	—	—	—	—	—	—	—	—	—	—	—
RE53-02-49322	53-02-21073	0.0–0.27	Sed	—	—	—	NA	—	NA	—	—	—	—	—	—	NA	NA
RE53-02-49323	53-02-21074	0.0–0.27	Sed	—	—	—	NA	—	NA	—	—	—	—	0.00099 (J)	—	NA	NA
RE53-02-49326	53-02-21077	0.0–0.33	Sed	—	—	—	NA	—	NA	—	—	—	—	—	—	NA	NA

Notes: Units are mg/kg. Data qualifiers are defined in Appendix A.

[a] NA = Not analyzed.

[b] — = Result was not detected.

Table 3.8-4
Radionuclides Detected or Detected above BVs/FVs in Samples Collected at and Downgradient of AOC 53-008 during Investigation and Cleanup of Consolidated Unit 53-002(a)-99

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cesium-134	Cesium-137	Cobalt-60	Sodium-22	Strontium-90
Soil BV/FV[a]				**0.013**	**na[b]**	**1.65**	**na**	**na**	**1.31**
Sediment BV/FV[a]				**0.04**	**na**	**0.9**	**na**	**na**	**1.04**
Qbt 2, 3, 4 BV/FV[a]				**na**	**na**	**na**	**na**	**na**	**na**
Head of Drainage									
RE53-99-0224	53-01636	0.0–0.3	Soil	NA[c]	—[d]	—	0.74	—	4.98
RE53-99-0225	53-01637	0.0–0.5	Soil	NA	—	—	0.28	—	1.45
RE53-99-0226	53-01638	0.0–0.25	Soil	NA	0.71	—	3.7	—	2.64
RE53-99-0310	53-01695	1.0–2.0	Qbt 2	NA	—	—	0.13	0.28	1.65
RE53-99-0311	53-01695	4.0–5.0	Qbt 2	NA	—	—	—	—	1.48
RE53-99-0312	53-01695	14.0–15.0	Qbt 2	NA	—	—	—	—	2.08
RE53-02-46744	53-02-20846	0.0–0.5	Qbt 2	NA	0.44	—	2.7	NA	NA
Reach C									
RE53-01-0018	53-01744	0.39–0.76	Sed	0.163	1.95	0.989	5.83	—	—
RE53-02-49303	53-01744	0.75–1.42	Sed	—	NA	—	0.922	—	NA
RE53-01-0019	53-01745	0.2–0.46	Sed	—	1.25	—	2.86	—	—
RE53-02-49304	53-01746	0.0–0.29	Sed	—	0.388	—	0.942	—	NA
RE53-01-0002	53-01746	0.29–0.59	Sed	0.107	1.24	—	2.3	—	—
RE53-01-0020	53-01747	0.23–0.62	Sed	—	1.16	—	2.04	—	—
RE53-02-49305	53-01747	0.62–1.02	Sed	—	0.368	—	0.982	—	NA
RE53-02-49308	53-01748	0.0–0.23	Sed	—	0.667	—	1.35	—	NA
RE53-02-49309	53-01748	0.062–0.92	Sed	—	0.0797	—	0.253	—	NA
RE53-01-0022	53-01748	0.36–0.62	Sed	—	0.619	—	3.99	—	—
RE53-01-0023	53-01749	0.0–0.2	Sed	—	0.131	—	0.246	—	—
RE53-02-49307	53-02-21058	0.33–0.65	Sed	—	0.0618	—	0.249	—	NA

Table 3.8-4 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cesium-134	Cesium-137	Cobalt-60	Sodium-22	Strontium-90
Soil BV/FV[a]				**0.013**	**na[b]**	**1.65**	**na**	**na**	**1.31**
Sediment BV/FV[a]				**0.04**	**na**	**0.9**	**na**	**na**	**1.04**
Qbt 2, 3, 4 BV/FV[a]				**na**	**na**	**na**	**na**	**na**	**na**
Reach D									
RE53-02-49311	53-01733	0.72–0.85	Sed	—	—	—	0.303	—	NA
RE53-02-49317	53-01735	0.19–0.59	Sed	—	0.309	—	0.871	—	NA
RE53-02-49318	53-01735	1.21–1.70	Sed	—	—	—	0.0999	—	NA
RE53-02-49319	53-01736	0.98–1.38	Sed	—	—	—	0.332	—	NA
RE53-02-49312	53-02-21063	0.0–1.02	Sed	—	0.0699	—	0.197	—	NA
RE53-02-49314	53-02-21065	0.0–0.29	Sed	—	0.46	—	1.17	—	NA
RE53-02-49315	53-02-21066	0.062–0.36	Sed	—	0.151	—	0.407	—	NA
RE53-02-49316	53-02-21066	0.36–0.65	Sed	—	0.0424	—	0.29	—	NA
Reach E									
RE53-02-49321	53-01738	0.23–0.36	Sed	—	0.326	—	0.728	—	NA
RE53-02-49324	53-01740	0.27–0.96	Sed	—	—	1.02	—	—	NA
RE53-01-0024	53-01741	0.0–0.29	Sed	—	0.247	—	0.294	—	—
RE53-01-0025	53-01742	0.36–0.49	Sed	—	0.101	—	—	—	—
RE53-01-0026	53-01743	0.0–0.13	Sed	—	0.197	—	0.247	—	—
RE53-02-49322	53-02-21073	0.0–0.27	Sed	—	0.21	—	0.582	—	NA
RE53-02-49323	53-02-21074	0.0–0.27	Sed	—	0.306	—	0.783	—	NA
RE53-02-49326	53-02-21077	0.0–0.33	Sed	—	0.0877	—	0.246	—	NA

Note: Units are pCi/g.

[a] BVs/FVs from LANL 1998, 059730.

[b] na = Not available.

[c] NA = Sample was not analyzed for this radionuclide.

[d] — = Result was not detected or was below the BV/FV.

Table 4.0-1
Summary of Historical Samples
Collected and Analyses Requested at TA-72

Sample ID	Location ID	Depth (ft)	Media	Metals
0272-95-0001	72-01000	0.0–1.0	Sed	265*
0272-95-0002	72-01001	0.0–1.0	Sed	265
0272-95-0003	72-01002	0.0–1.0	Sed	265
0272-95-0004	72-01003	0.0–1.0	Sed	265
0272-95-0005	72-01004	0.0–1.0	Sed	265
0272-95-0009	72-01005	0.0–1.0	Sed	265
0272-95-0010	72-01006	0.0–1.0	Sed	265

*Request number.

Table 4.0-2
Inorganic Chemicals Detected above BVs at TA-72

Sample ID	Location ID	Depth (ft)	Media	Mercury	Selenium	Silver	Thallium
Sediment BV[a]				**0.1**	**0.3**	**1**	**0.73**
0272-95-0001	72-01000	0.0–1.0	Sed	—[b]	0.97 (U)	1.3 (U)	1.3 (U)
0272-95-0002	72-01001	0.0–1.0	Sed	—	0.99 (U)	1.3 (U)	1.3 (U)
0272-95-0003	72-01002	0.0–1.0	Sed	—	0.98 (U)	1.3 (U)	1.3 (U)
0272-95-0004	72-01003	0.0–1.0	Sed	—	1.0 (J)	1.3 (U)	1.3 (U)
0272-95-0005	72-01004	0.0–1.0	Sed	—	0.99 (U)	1.3 (U)	1.4 (U)
0272-95-0009	72-01005	0.0–1.0	Sed	0.11 (U)	1.0 (U)	1.3 (U)	1.4 (U)
0272-95-0010	72-01006	0.0–1.0	Sed	—	0.98 (U)	1.3 (U)	1.3 (U)

Notes: Units are mg/kg. Data qualifiers are defined in Appendix A.
[a] BVs from LANL 1998, 059730.
[b] — = Result was not detected or was below the BV.

Appendix A

Acronyms and Abbreviations,
Metric Conversion Table, and Data Qualifier Definitions

A-1.0 ACRONYMS AND ABBREVIATIONS

AOC	area of concern
BV	background value
cpm	counts per minute
DB	4-(2,4-dichlorophenoxy)butyric acid
DDE	dichlorophenyltrichloroethylene
DDT	dichlorodiphenyltrichloroethane
DOE	Department of Energy (U.S.)
DRO	diesel range organics
EP	Environmental Programs Directorate
FV	fallout value
HE	high explosives
HIC	high-integrity container
HIR	historical investigation report
HWFP	Hazardous Waste Facility Permit
LANL	Los Alamos National Laboratory
LANSCE	Los Alamos Neutron Science Center
LASL	Los Alamos Scientific Laboratory (Laboratory's name before January 1, 1981)
NFA	no further action
NMED	New Mexico Environment Department
NMEID	New Mexico Environmental Improvement Division (NMED's name before 1991)
NPDES	National Pollutant Discharge Elimination System
OU	operable unit
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl
RCRA	Resource Conservation and Recovery Act
RFI	RCRA facility investigation
RLW	radioactive liquid waste
RPF	Records Processing Facility
SAP	sampling and analysis plan
SMO	Sample Management Office
SVOC	semivolatile organic compound
SWMU	solid waste management unit
TA	technical area

TAL	target analyte list [EPA]
TCE	trichloroethene
TCLP	toxicity characteristic leaching procedure
TPH	total petroleum hydrocarbons
VCA	voluntary corrective action
VOC	volatile organic compound
WAC	waste acceptance criteria
XRF	x-ray fluorescence

A-2.0 METRIC CONVERSION TABLE

Multiply SI (Metric) Unit	by	To Obtain US Customary Unit
kilometers (km)	0.622	miles (mi)
kilometers (km)	3281	feet (ft)
meters (m)	3.281	feet (ft)
meters (m)	39.37	inches (in.)
centimeters (cm)	0.03281	feet (ft)
centimeters (cm)	0.394	inches (in.)
millimeters (mm)	0.0394	inches (in.)
micrometers or microns (µm)	0.0000394	inches (in.)
square kilometers (km2)	0.3861	square miles (mi2)
hectares (ha)	2.5	acres
square meters (m2)	10.764	square feet (ft2)
cubic meters (m3)	35.31	cubic feet (ft3)
kilograms (kg)	2.2046	pounds (lb)
grams (g)	0.0353	ounces (oz)
grams per cubic centimeter (g/cm3)	62.422	pounds per cubic foot (lb/ft3)
milligrams per kilogram (mg/kg)	1	parts per million (ppm)
micrograms per gram (µg/g)	1	parts per million (ppm)
liters (L)	0.26	gallons (gal.)
milligrams per liter (mg/L)	1	parts per million (ppm)
degrees Celsius (°C)	9/5 + 32	degrees Fahrenheit (°F)

A-3.0 DATA QUALIFIER DEFINITIONS

Data Qualifier	Definition
U	The analyte was analyzed for but not detected.
J	The analyte was positively identified, and the associated numerical value is estimated to be more uncertain than would normally be expected for that analysis.
J+	The analyte was positively identified, and the result is likely to be biased high.
J-	The analyte was positively identified, and the result is likely to be biased low.
UJ	The analyte was not positively identified in the sample, and the associated value is an estimate of the sample-specific detection or quantitation limit.
R	The data are rejected as a result of major problems with quality assurance/quality control (QA/QC) parameters.

Appendix B

Analytical Suites and Results
(on CD included with this document)

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Record Title	Media Type	Document Date	Author/Originator	Other Doc. # (e.g. Doc. Catalog #)	Page Count	ERID (RPF only)
Historical Investigation Report for Lower Sandia Canyon Aggregate Area	Paper (letter)	04/30/2009	LANL	EP2009-0101 LA-UR-09-	72	105078
Investigation Work Plan for Lower Sandia Canyon Aggregate Area	Paper (letter)	04/30/2009	LANL	EP2009-0100 LA-UR-09-	90	105079
X-Ref					45	105080

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Plate 1. Lower Sandia Canyon Aggregate Area

- Alluvial groundwater monitoring well
- Water Supply Well
- Paved road
- Unpaved road
- Fence
- Technical Area (TA) boundary
- Land ownership boundary
- Elevation contour, 10 ft interval
- SWMU or AOC
- Structure or building
- Underground structure
- Former structure
- Area where landfill may be located
- Canyon reach
- Lower Sandia Canyon aggregate area
- Existing Sandia Canyon sampling location

N

State Plane Coordinate System
New Mexico, Central Zone, US Foot
North American Datum 1983
National Geodetic Vertical Datum 1929

Feet: 0, 250, 500, 750
Meters: 0, 100, 200

1634000 1636000 1638000 1640000 1642000

1772000 1770000 1768000

TA-21 TA-73 TA-53 TA-72 TA-05

Los Alamos Canyon Sandia Canyon Mortandad Canyon

DP-4 LAO-2 LAO-3a LAO-4 LA-2E LA-2W LAO-1.8 LAO-1.6g

SWMU 53-007(a) SWMU 53-006(f) SWMU 53-001(a) SWMU 53-005 SWMU 53-001(b) AOC 53-012(e) S-3

AOC 53-013 SWMU 53-006(b) SWMU 53-006(c) SWMU 53-015 AOC 53-009 AOC 53-008 AOC 53-014 SWMU 53-006(d) SWMU 53-006(e) AOC 53-010 AOC 20-003(b)

S-4W SCA-2 SWMU 20-002(b) SWMU 20-002(a) SWMU 20-001(c) S-4C SCA-3 AOC 20-003(c) SWMU 20-001(b) SWMU 20-002(d) SWMU 20-002(c) SCA-4 S-4E SCA-5 AOC 72-001 S-5W S-5C SWMU 20-005 SWMU 20-001(a) AOC 20-004

M-3W MCO-6 M-3E TS-3 MCA-2 MCO-7 M-4W MT-1 MCO-7.5 M-4E MT-2 MT-3 MT-4

Lower Sandia Canyon Aggregate Area
Rio Grande
Area of Detail
Los Alamos National Laboratory

Nicholas Pannerer, Los Alamos Technical Associates
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Map LSC-09-PL01A

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