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Historical Investigation Report for Upper Mortandad Canyon Aggregate Area

Los Alamos
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EXECUTIVE SUMMARY

The Upper Mortandad Canyon Aggregate Area includes a total 119 solid waste management units and areas of concern located in Technical Areas (TAs) 03, 42, 48, 50, 55, and 60 at Los Alamos National Laboratory. Of these 119 sites, 56 have been previously investigated and/or remediated and have been approved for no further action (NFA); therefore, only brief descriptions of these sites are provided along with the approval document for NFA. For the remaining 63 sites under investigation, 20 are located in TA-03, 6 are in TA-42, 17 are in TA-48, 19 are in TA-50, and 1 is in TA-55. 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 Upper Mortandad Canyon Aggregate Area investigation work plan.

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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 the 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 (Figure 1.0-1), 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 Upper Mortandad Canyon Aggregate Area is located north of Pajarito Road and south of East Jemez Road. The location of Upper Mortandad Canyon Aggregate Area with respect to the Laboratory technical areas (TAs) is shown in Figure 1.0-2.

The Laboratory's Environmental Programs (EP) Directorate, which includes the former Environmental Restoration (ER) Project, is participating in a national effort by DOE to clean up sites and facilities formerly involved in weapons research and development. The goal of EP 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 the SWMUs and AOCs in TA-03, -42, -48, -50, and -55 within the Upper Mortandad Canyon Aggregate Area. One site in TA-60, AOC C-60-002, is also one of the sites within the Upper Mortandad Canyon Aggregate Area. This site has been approved no further action (NFA) status. All the sites addressed in this HIR are potentially contaminated with both hazardous and 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 Compliance Order on Consent (the Consent Order) signed on March 1, 2005. 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). The NMED has authority under the NMHWA over cleanup of hazardous wastes and hazardous constituents.

The purpose of this HIR is to provide supporting information for the activities necessary to complete the investigation as presented in the Upper Mortandad Canyon Aggregate Area investigation work plan (LANL 2007, 098954). The SWMUs and AOCs are presented in this document on the basis of their regulatory status, with sites that are under investigation discussed first in numerical order, then sites that have been approved for NFA are summarized. Table 1.0-1 provides a summary of all sites within the aggregate area and their regulatory status.

Section 2.0 through 6.0 of this HIR provide site descriptions and operational histories, previous investigations, and analytical data for site(s) that are under investigation in TA-03, -42, -48, -50, and -55, 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. Figure 1.0-3 shows the locations of the sites that are under investigation in the Upper Mortandad Canyon Aggregate Area.

In Section 7.0, the sites that have been approved for NFA are referred to Table 1.0-1 where a brief site description and the approval document of site completion are presented.

Appendix A includes a list of acronyms and abbreviations, a glossary, a metric conversion table, and a table for data-qualifier definitions. Appendix B presents analytical data from past investigations (included on compact disk).

1.1 Data Quality

Data evaluated in this report include historical data collected from 1993 through 2005 as part of Resource Conservation and Recover Act (RCRA) RCRA facility investigation (RFI) and other corrective actions. In EP's database, all data records include a vintage code field denoting how and where samples were submitted for analyses. In the early years of the ER Project, the samples were submitted to the Laboratory's Chemical Science and Technology (CST) Division. They were either analyzed at a CST laboratory (on-site) or shipped to one of several off-site contract laboratories. Samples analyzed at a CST laboratory are identified by the vintage code "CST Onsite." Samples shipped by CST Division to off-site laboratories are identified by the vintage code "CST Offsite." From late 1995 until the present, samples have been shipped through the Sample Management Office (SMO) to off-site contract laboratories. These samples are identified by the vintage code "SMO." All historical data evaluated in this report are validated or re-validated by current quality control metrics. These decision-level data provide supporting information for the investigation activities proposed in the work plan (LANL 2007, 098954).

2.0 SITES UNDER INVESTIGATION IN TA-03

TA-03 contains the core of operational facilities at the laboratory, including the principal administration buildings, library, the Chemistry and Metallurgy Research (CMR) Building, Beryllium Technology Facility, a gas-fired electrical generating plant, and a sewage treatment plant. Figure 2.0-1 shows the site features for TA-03. Previous sampling locations for each SWMU, AOC, and consolidated unit at TA-03 within the Upper Mortandad Canyon Aggregate Area are shown in Figures 2.0-2 and 2.0-3.

2.1 AOC 03-003(e)—Storage Area (transformers)—PCB only site

AOC 03-003(e) is an area in the basement of the CMR Building (03-0029) where 13 polychlorinated biphenyl (PCB)-containing transformers were formerly located. The transformers, which had PCB ID numbers 85.5567 through 85.5579, contained PCB concentrations greater than 500,000 parts per million (ppm) and were, therefore, regulated under the Toxic Substances Control Act (TSCA). The PCB transformers were removed in 1989 and 1990 in accordance with the DOE/Albuquerque Operations Office Environmental Restoration and Waste Management Five-Year Plan (LANL 1995, 057590). Under this plan, any evidence of leakage was to be sampled and cleaned up in accordance with TSCA regulations [40 Code of Federal Regulations (CFR) 761]. Because no stains were visible on the concrete basement floor after the transformers were removed, the area was considered free of contamination and no swipe samples were taken for PCB analyses (LANL 1995, 057590).

The site map of AOC 03-003(e) is shown in Figure 2.0-2.

2.1.1 Previous Investigations for AOC 03-003(e)

No RFI activities have been conducted at this AOC.

2.1.2 Analytical Data for AOC 03-003(e)

There are no decision-level data available for this AOC.

2.2 AOC 03-003(i)—Storage Area (Transformers)—PCB only site

AOC 03-003(i) is the former location of a PCB-containing transformer in a vault beneath the Cryogenics Building (03-0032). The transformer, which had PCB ID number 85.5551, contained PCB concentrations greater than 500,000 ppm and, therefore, was regulated under TSCA. In September 1992, the PCB transformer was removed in accordance with the DOE/Albuquerque Operations Office Environmental Restoration and Waste Management Five-Year Plan (LANL 1995, 057590). Under this plan, any evidence of leakage was to be sampled and cleaned up in accordance with TSCA regulations (40 CFR 761). Following the removal of the transformer, three large concrete slabs and three 55-gal. drums of soil and debris were also removed from the vault and were taken to the Laboratory's waste disposal site at TA-54, Area G. Swipes of the concrete collected by Laboratory’s Environmental Management Division (EM-8) revealed PCB concentrations up to 94 micrograms/100 square centimeters. However, a soil sample collected below the concrete slabs contained PCBs at a concentration of 0.27 ppm, which is below the TSCA cleanup standard of 10 ppm (LANL 1995, 057590).

The site map of AOC 03-003(i) is shown in Figure 2.0-3.

2.2.1 Previous Investigations for AOC 03-003(i)

No RFI activities have been conducted at this AOC.

2.2.2 Analytical Data for AOC 03-003(i)

There are no decision-level data available for this AOC.

2.3 AOC 03-004(c)—Storage Area

AOC 03-004(c) is an active 85 ft × 50 ft dumpster storage area at the main loading dock of the CMR Building (03-0029). The area is level and paved with asphalt. Two dumpsters occupy the area. The dumpsters are used to stage boxed, low-level waste (LLW) before disposal. The waste is generated from offices and material-handling areas in the CMR Building. One dumpster receives compactable waste, and the other receives noncompactable waste. Waste consists of gloves, paper products, glass, plastic, and metal. Runoff from the dumpster area flows to a storm drain inlet grate about 50 ft southwest of the area. The storm drain eventually discharges to an outfall [the outfall is AOC 03-054(e)] in upper Mortandad Canyon (LANL 1995, 057590).

The site map of AOC 03-004(c) is shown in Figure 2.0-2.

2.3.1 Previous Investigations for AOC 03-004(c)

- 1997: An RFI was conducted. Samples were collected and field screened for organic chemicals and radioactivity. Screening results were negative for organic chemicals, and radioactivity was at or below background. Samples were analyzed for target analyte list (TAL) metals, isotopic plutonium, isotopic uranium, semivolatile organic compounds (SVOCs), and volatile organic compounds (VOCs). The RFI activities and results were presented in the RFI report (LANL 1997, 056660.289). The RFI report included the results of five asphalt samples that were analyzed for isotopic plutonium and isotopic uranium (LANL 1997, 056660.289). These results are not included in this HIR because the samples are engineered material.

2.3.2 Analytical Data for AOC 03-004(c)

Five samples were collected from five locations during the RFI in 1997 with depths ranging between 0.33 and 1.5 ft, and were analyzed for TAL metals, SVOCs, and VOCs. Table 2.3-1 presents the analytical suite for each sample. Figure 2.0-2 shows the sampling locations.

All five samples were analyzed for TAL metals. Table 2.3-2 summarizes the inorganic chemicals above background values (BVs) at AOC 03-004(c). Figure 2.3-1 shows the analytical results and their locations. Antimony, cadmium, calcium, and silver were either detected above the BVs or had detection limits above the BVs.

- Antimony, cadmium, and silver were not detected, but the detection limits were above the BVs at all five locations. The detection limits of antimony were above the maximum background concentration. The detection limits of cadmium were below the maximum background concentration.
- Calcium was detected above the BV but below the maximum background concentration at one location.

All five samples were analyzed for SVOCs, and the sample at location 03-03305 was also analyzed for VOCs. Table 2.3-3 presents the organic chemicals detected at AOC 03-004(c). Figure 2.3-2 shows the analytical results and their locations.

- Benzo(b)fluoranthene, benzo(k)fluoranthene, fluoranthene, phenanthrene, and pyrene were detected at location 03-03303.

2.4 AOC 03-004(d)—Storage Area

AOC 03-004(d) is a former 75 ft × 20 ft dumpster storage area located on a level, 75 ft × 20 ft asphalt-covered surface, located south of the steps at the west end of Wing 9 of the CMR Building (03-0029). Runoff from this AOC flows to a storm drain inlet grate located approximately 100 ft west of the area. The storm drain ultimately discharges at an outfall [AOC 03-054(e)] into upper Mortandad Canyon. The dumpster located at AOC 03-004(d) was relocated in 1992 to inside Wing 9 of the CMR Building. When the dumpster was located at the AOC site, it typically received contact-handled waste generated from Wing 9 hot cell operations. The waste was comprised of rags, small hardware, paper, machine-shop waste, cleaning materials, and, occasionally, a decontaminated hot-cell item. All waste was bagged and boxed before it was placed in the dumpster (LANL 1995, 057590).

The site map of AOC 03-004(d) is shown in Figure 2.0-2.

2.4.1 Previous Investigations for AOC 03-004(d)

- 1997: An RFI was conducted. Samples were collected and field screened for organic chemicals and radioactivity. Screening results were negative for organic chemicals, and radioactivity was at or below background. Samples were analyzed for TAL metals, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, SVOCs, and VOCs. The RFI activities and results were presented in the RFI report (LANL 1997, 056660.289).

2.4.2 Analytical Data for AOC 03-004(d)

Fifteen samples were collected from seven locations during the RFI in 1997 with depths ranging between 0 and 4 ft, and were analyzed for TAL metals, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, SVOCs, and VOCs. Table 2.4-1 presents the analytical suite for each sample. Figure 2.0-2 shows the sample locations.

Eight samples from six locations were analyzed for TAL metals. Table 2.4-2 presents the inorganic chemicals above BVs at AOC 03-004(d). Figure 2.3-1 shows the analytical results and their locations. Antimony, cadmium, calcium, chromium, lead, silver, thallium, and zinc were either detected above the BVs or had detection limits above the BVs.

- Antimony was not detected, but the detection limits were above the BV and the maximum background concentration at all six locations.
- Cadmium was detected above the BV but below the maximum background concentration in the two samples collected at location 03-03294. Concentrations increased with depth at this location. Cadmium was not detected, but the detection limits were above the BV but below the maximum background concentration at the other five locations.
- Calcium, chromium, lead, and silver were detected above the BVs in fill in the surface sample at location 03-03294. Concentrations of calcium and chromium were below the maximum background concentrations; the concentration of lead was above the maximum background concentration; and silver has no background dataset in fill. Calcium, chromium, lead, and silver were detected below the BVs in the sample at depth (3–4 ft) at this location.
- Thallium was not detected, but the detection limits were above the BV and the maximum background concentration at four locations.
- Zinc was detected above the BV in the surface samples at two locations. Zinc was detected above the maximum background concentration at location 03-03294 and below the maximum background concentration at location 03-03296. Zinc was detected below the BV in the samples at depth (3–4 ft) at both locations.

Seven samples from seven locations were analyzed for gamma-emitting radionuclides, isotopic plutonium, and isotopic uranium. Table 2.4-3 presents the radionuclides detected at AOC 03-004(d). Figure 2.4-1 shows the analytical results and their locations. Cesium-137, plutonium-238, and plutonium-239/plutonium-240 were detected at depths where the FVs do not apply.

- Cesium-137 was detected at surface at three locations.
- Plutonium-238 was detected at surface at three locations.
- Plutonium-239/plutonium-240 was detected at five locations.

Eight samples from six locations were analyzed for SVOCs, and the sample at depth (3–4 ft) at location 03-03294 was also analyzed for VOCs. Table 2.4-4 presents the organic chemicals detected at AOC 03-004(d). Figure 2.3-2 shows the analytical results and their locations. Anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, carbazole, chrysene, fluoranthene, indeno(1,2,3-cd)pyrene, phenanthrene, and pyrene were detected.

- All were detected in the surface sample at location 03-03296 and not in the sample at depth (3–4 ft) at this location.
- Pyrene was detected in the only depth interval sampled at two other locations.

2.5 AOC 03-007—Firing Site

AOC 03-007 is a decommissioned firing site located southwest of the Beryllium Technology Facility (03-141) within the security fence at the Sigma Complex. This AOC includes a containment building for explosive experiments (03-0159) and a personnel safety barrier (structure 03-0160). Building 03-0159 sits on an 8-square-ft concrete slab and has 6-in.-thick × 8-ft-high walls. An opening on one side serves as an entrance. Structure 03-0160 sits on a concrete slab and has two 8-ft-high × 4-ft-wide × 6-in.-thick walls. From 1970 to 1975, approximately 50 to 75 explosive shot experiments were detonated within building 03-0159. The structure was rinsed with water after each shot. Wash-down water from within building 03-0159 was released to the environment (soil immediately surrounding the building) from engineered gaps between the concrete floor and structure walls. The rinse water drained into small drainage pathways and catchment areas and eventually migrated into a thin sheet flow exiting into Mortandad Canyon. The site was remediated in the late 1970s, and no explosive compounds were detected (LANL 1995, 057590). In the mid-1980s, building 03-0159 was modified to serve as a storage building for thoria (oxide) and thorium (metal), which were containerized within the building (LANL 1995, 057590).

The site map of AOC 03-007 is shown in Figure 2.0-3.

2.5.1 Previous Investigations for AOC 03-007

- 1997: An RFI was conducted. Samples were collected on the north, east, and south sides of structure 03-0159 and were field screened for organic chemicals and radioactivity. Screening results were negative for organic chemicals, and radioactivity was at or below background. Samples were analyzed for TAL metals, gamma-emitting radionuclides, isotopic thorium, explosive compounds, SVOCs, and VOCs. The RFI activities and results were presented in the RFI report (LANL 1997, 056660.289).

2.5.2 Analytical Data for AOC 03-007

Four samples were collected from four locations during the RFI in 1997 from 0–1 ft, and were analyzed for TAL metals, gamma-emitting radionuclides, isotopic thorium, explosive compounds, SVOCs, and VOCs. Table 2.5-1 presents the analytical suite for each sample. Figure 2.0-3 shows the sample locations.

All four samples were analyzed for TAL metals. Table 2.5-2 presents the inorganic chemicals above BVs at AOC 03-007. Figure 2.5-1 shows the analytical results and their locations. Antimony, cadmium, and silver were either detected above the BV (for cadmium) or had detection limits above the BVs.

- Antimony and silver were not detected, but the detection limits were above the BVs at all four locations. The detection limits of antimony were above the maximum background concentration. Silver has no background dataset in fill.
- Cadmium was detected above the BV but below the maximum background concentration at one location. Cadmium was not detected at the other three locations. The detection limits were above the BV but below the maximum background concentration at these locations.

All four samples were analyzed for isotopic thorium, and the sample at location 03-03313 was also analyzed for gamma-emitting radionuclides. Table 2.5-3 presents the radionuclides detected at AOC 03-007. Figure 2.5-2 shows the analytical result and its location.

- Cesium-137 was detected at location 03-03313.

All four samples were analyzed for explosive compounds and SVOCs, and two samples from locations 03-03311 and 03-03314 were also analyzed for VOCs. Table 2.5-4 presents the organic chemicals detected at AOC 03-007. Figure 2.5-3 shows the analytical result and its location.

- Benzoic acid was detected at location 03-03313.

2.6 AOC 03-014(w)—Floor Drain in CMR Building

AOC 03-014(w) is an inactive floor drain in the CMR Building (03-0029). The drain was installed in 1953 and became inactive in 1991. Effluent from the CMR Building darkroom operations, including spent photographic solutions, may have been discharged to this floor drain (LANL 1993, 020947). The drain was connected to the sanitary sewer and former TA-03 Waste Water Treatment Plant (WWTP). Currently, the floor drain is plugged.

The site map of AOC 03-014(w) is shown in Figure 2.0-2.

2.6.1 Previous Investigations for AOC 03-014(w)

- 1994: During RFI activities at the WWTP, four SWMUs [03-014 (a, e, b2, and c2)] believed to be the most likely to have received and retained any potential contaminants from the WWTP were sampled. However, AOC 03-014(w) was not sampled because it was considered in conjunction with SWMUs 03-014(a, e, and b2). The RFI activities and results were presented in the RFI report (LANL 1996, 052930).

2.6.2 Analytical Data for AOC 03-014(w)

There are no decision-level data available for this AOC.

2.7 AOC 03-014(x)—Floor Drain in Sigma Building

AOC 03-014(x) is an active floor drain in the Sigma Building (03-0066). The drain was installed in 1959. Effluent from the Sigma Building may have included spent photo processing solutions. The drain was connected to the sanitary sewer and former TA-03 WWTP. The TA-03 WWTP was taken offline in 1992 when the TA-46 Sanitary Waste Systems Consolidation (SWSC) plant came online. All sewer lines currently flow to SWSC (LANL 1993, 020947).

The site map of AOC 03-014(x) is shown in Figure 2.0-3.

2.7.1 Previous Investigations for AOC 03-014(x)

- 1994: During RFI activities at the WWTP, four SWMUs [03-014 (a, e, b2, and c2)] believed to be the most likely to have received and retained any potential contaminants from the WWTP were sampled. However, AOC 03-014(x) was not sampled because it was considered in conjunction with SWMUs 03-014(a, e, and b2). The RFI activities and results were presented in the RFI report (LANL 1996, 052930).

2.7.2 Analytical Data for AOC 03-014(x)

There are no decision-level data available for this AOC.

2.8 AOC 03-026(a)—Sump

AOC 03-026(a) is an active sump located in the southeast corner of an open pump pit directly adjacent to and west of the SWMU 03-037 holding tanks. The sump was installed to contain any liquid accumulated in the pump pit, and any liquid in the sump was/is pumped to the acid waste line. The pump pit contains two electrically driven pumps that are used to remove waste fluids from the holding tanks. The pump pit measures 12-ft long × 10.7-ft wide × 8.5-ft deep, with 8-in.-thick concrete walls. The west edge of the pump pit is about 3 ft from the west wall of the Sigma Building (03-0066). There are no reported releases from the sump (LANL 1993, 020947).

The site map of AOC 03-026(a) is shown in Figure 2.0-3.

2.8.1 Previous Investigations for AOC 03-026(a)

No RFI activities have been conducted at this AOC.

2.8.2 Analytical Data for AOC 03-026(a)

There are no decision-level data available for this AOC.

2.9 SWMU 03-026(c)—Aboveground Holding Tanks

SWMU 03-026(c) is identified in the 1990 SWMU report as 11 sumps located at the base of the cooling towers in the CMR Building (03-0029) that receive blow-down from the cooling tower (LANL 1990, 007511). These sumps are described as receiving blow-down water from the cooling towers. However, SWMU 03-026(c) is actually composed of aboveground holding tanks in the basement of the CMR Building (LANL 1995, 057590). The tanks are associated with chilled water systems in Wings 2, 3, 4, 5 and 7. The water chillers are located on the first floor. Chilled water is piped to each laboratory for circulation in equipment. Returning water is piped to the basement where it empties into aboveground tanks. There are five holding tanks in each wing, each approximately 16 ft long and 4 ft in diameter. Adjacent to each holding tank are two pumps that recirculate the water to the chillers. Pipes run from the tanks to floor drains connected to the radioactive liquid waste (RLW) line. Each tank is designed to discharge to the RLW line via the floor drain if both of the tank's recirculating pumps fail.

The site map of SWMU 03-026(c) is shown in Figure 2.0-3.

2.9.1 Previous Investigations for SWMU 03-026(c)

No RFI activities have been conducted at this SWMU.

2.9.2 Analytical Data for SWMU 03-026(c)

There are no decision-level data available for this SWMU.

2.10 SWMU 03-031—Radioactive Liquid Waste System in CMR Building

SWMU 03-031 is a RLW system in the CMR Building (03-0029). The system consists of double-encased stainless-steel vaults, tanks, and drainlines that discharge to the RLW line for treatment at TA-50. Operations at the CMR Building drain liquid radioactive waste through sumps and tanks to the RLW line. Two 10,800-gal. concrete tanks and associated sumps are located in the basement. Engineering drawings illustrating the construction of the CMR Building show two 10,800-gal. tanks sited in the basement of each of five wings. The tanks in each wing are adjacent to each other and are made of 6-in. thick concrete walls. The tanks are 10 ft long × 6 ft wide × 6 ft high. Although the tanks are designed as holding tanks, they are used more as a pass-through system. The valve at the bottom of each tank is always in the open position to allow all liquids drain directly to the RLW line. The tanks serve as holding tanks if the inflow to the tank is greater than the rate of the outflow. From 1953 to 1982, liquid waste from the CMR Building was carried through the RLW line to pumping station 03-700 and then pumped to the Radioactive Liquid Waste Treatment Facility (RLWTF) at TA-50. Pumping station 03-700 was removed in early 1980s. The present RLW system in the CMR Building, which routes RLW directly to the TA-50 RLWTF, began operation in 1982 (LANL 1995, 057590).

The site map of SWMU 03-031 is shown in Figure 2.0-2.

2.10.1 Previous Investigations for SWMU 03-031

No RFI activities have been conducted at this SWMU.

2.10.2 Analytical Data for SWMU 03-031

There are no decision-level data available for this SWMU.

2.11 SWMU 03-034(a)—Pump House and Associated Radioactive Liquid Waste Tanks

SWMU 03-034(a) is an inactive pump house (building 03-0154) and the associated underground RLW storage tanks (two stainless-steel tanks and two concrete tanks) located partially beneath the pump house. Building 03-0154 was constructed in 1961 to house operating equipment of the four storage tanks that received radioactive waste from Wing 9 of the CMR Building (03-0029). SWMU 03-034(a) is located approximately 7 ft west of Wing 9.

From 1961 to 1983, the underground storage tanks received RLW (fission products from the destructive testing of reactor fuel rods) from the hot cell of Wing 9 of the CMR Building. The RLW originally was routed to the stainless-steel tanks and stored to allow decay of short-lived radionuclides. The RLW was pumped through a series of stainless-steel transfer lines into the concrete storage tanks. The liquid was processed through ion exchange columns, which resulted in lower-activity RLW. The two cylindrical stainless-steel storage tanks located below grade beneath the north part of building 03-0154 are accessible from individual manholes outside the building. Each tank is 7 ft long and 5 ft in diameter, with a maximum capacity of approximately 1000 gal., and is located inside a concrete vault. The concrete vaults share a common wall, and each concrete vault contains pumps and stainless-steel piping associated with the tanks. Each concrete tank is approximately 17-ft-long × 9-ft-wide × 6-ft-high, with a maximum capacity of 4900 gal. A single, gravity-outflow sump pit, which served both concrete tanks, is located on the south side of the tanks and was used to drain liquid waste to the RLW line, which was pumped to TA-50.

The stainless-steel and concrete storage tanks were not used after 1983. Both sets of tanks were taken offline in 1985 when the former waste line was removed. The tanks were not reconnected to the new waste line that was installed at that time. There have been no reported releases from the SWMU 03-034(a) tanks. Only RLW is documented as having passed through the SWMU 03-034(a) system (LANL 1995, 057590).

The site map of SWMU 03-034(a) is shown in Figure 2.0-2.

2.11.1 Previous Investigations for SWMU 03-034(a)

- 1997: Samples were collected and analyzed for TAL metals, SVOCs, gamma-emitting radionuclides, isotopic plutonium, and isotopic uranium. Sample results are discussed below.

2.11.2 Analytical Data for SWMU 03-034(a)

Five samples were collected from three locations in 1997 from 0–0.5 ft or 0–0.83 ft, and were analyzed for TAL metals, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, and SVOCs. Table 2.11-1 presents the analytical suite for each sample. Figure 2.0-2 shows the sample locations.

Two samples from two locations were analyzed for TAL metals. Table 2.11-2 presents the inorganic chemicals above BVs at SWMU 03-034(a). Figure 2.3-1 shows the analytical results and their locations. Antimony, cadmium, and thallium had detection limits above the BVs.

- Antimony and thallium were not detected, but the detection limits were above the BVs and the maximum background concentrations at these two locations.
- Cadmium was not detected, but the detection limits were above the BV but below the maximum background concentration at these two locations.

Three samples from three locations were analyzed for gamma-emitting radionuclides, isotopic plutonium, and isotopic uranium. Table 2.11-3 presents the radionuclides detected at SWMU 03-034(a). Figure 2.4-1 shows the analytical results and their locations. Cesium-137, plutonium-238, and plutonium-239/plutonium-240 were detected at depths where the FVs do not apply.

- Cesium-137 and plutonium-239/plutonium-240 were detected at two locations.
- Plutonium-238 was detected at location 03-03298.

Two samples from two locations were analyzed for SVOCs. Table 2.11-4 presents the organic chemicals detected at SWMU 03-034(a). Figure 2.3-2 shows the analytical results and their locations.

- Pyrene was detected at both locations.

2.12 SWMU 03-034(b)—Active Industrial Waste Sump

SWMU 03-034(b) is a 10-ft-long × 10-ft-wide × 11-ft-deep active industrial waste sump located on the west side of the Beryllium Technology Facility (building 03-0141). The concrete sump is an underground pit that provides secondary containment for a 50-gal. tank that processes water and liquid waste. The tank and the sump were installed in the 1960s and have been active since that time. The liquids may contain small quantities of radionuclides and acid wastes that are pumped into the RLW line from the tank for treatment at the TA-50 RLWTF (LANL 1995, 057590).

The site map of SWMU 03-034(b) is shown in Figure 2.0-3.

2.12.1 Previous Investigations for SWMU 03-034(b)

No RFI activities have been conducted at this SWMU.

2.12.2 Analytical Data for SWMU 03-034(b)

There are no decision-level data available for this SWMU.

2.13 AOC 03-041—Underground Tank

AOC 03-041 is an active unloading station (building 03-1264) and is designed as a holding tank for industrial low-level radioactive wastewater. It is located in a below-grade concrete-lined vault approximately 140 ft southwest of the Sigma Building (03-0066). The tank itself is 15-ft-long × 20-ft-wide × 15-ft-high, double-walled fiberglass, and has a capacity of 2000 gal. It is corrosion-proof and has a leak-detection system. The holding tank connects to the industrial waste line. The tank was installed in 1982 to serve as a holding chamber for liquid waste collected from sites that were not connected to the industrial waste line. Although the unloading station is currently on active status, it has never been used. If used, the unloading station 03-1264 would act as an introduction point for waste into the industrial waste line (LANL 1995, 057590).

The site map of AOC 03-041 is shown in Figure 2.0-3.

2.13.1 Previous Investigations for AOC 03-041

No RFI activities have been conducted at this AOC.

2.13.2 Analytical Data for AOC 03-041

There are no decision-level data available for this AOC.

2.14 Consolidated Unit 03-045(h)-00—Drainlines and Outfalls

Consolidated Unit 03-045(h)-00 consists of SWMUs 03-045(h) and 03-049(a). SWMU 03-045(h) is a former National Pollutant Discharge Elimination System (NPDES) permitted outfall (03A024, removed from permit in August 2007). SWMU 03-049(a) is a currently permitted NPDES outfall (03A022). Both outfalls are associated with cooling towers.

SWMU 03-045(h) consists of a cooling tower outlet pipe that discharged to a storm drain at the north perimeter of the TA-03 Sigma Complex security fence, approximately 50 ft north of a cooling tower (structure 03-0187). The cooling tower outlet pipe is a former NPDES-permitted outfall (03A024) that was removed from the NPDES permit on August 1, 2007 (EPA 2007, 099009). This outlet pipe discharged treated cooling water onto a small area of ground surface that drained into a buried corrugated metal storm drain that trended northheast of structure 03-0187 where it eventually combined with additional stormwater runoff from surrounding areas. The drainage continued northeast and joined a channel north of Eniwetok Drive that ultimately drained into Sandia Canyon. The cooling tower outlet pipe was active from 1953 until the late 1980s. The pipe was reactivated in early 1995 and remained active until it was plugged in February 1997. Routine water treatment began in 1968. Treatment included biocides and fungicides to reduce algae growth and chelating agents (such as ethylenediaminetetraacetic acid) to inhibit corrosion.

In addition, it is possible that the buried corrugated storm drain into which the cooling tower outlet pipe drained may not have been able to handle the large flow of storm water that results during sporadic and heavy storm events. The overflow could have drained due south across asphalt pavement to a drainage located to the southwest of building 03-0066 that discharges into Upper Mortandad Canyon.

SWMU 03-049(a) is an outfall that is located south of the Sigma Building (building 03-0066). The outfall discharges treated cooling water from a cooling tower (structure 03-0127), which serves building 03-0066, and runoff from six roof drains at building 03-0066. The cooling tower has operated since 1960. From 1984 to 1990, the outfall also received discharge from rinse tanks associated with the electroplating operation in building 03-0066. The tanks contained the final rinse from electroplating and surface-finishing experimental components. Although the rinse tanks were flushed continually with tap water to preclude contaminant buildup, trace amounts of metals, acids, cyanide, and depleted uranium were introduced into the rinse water. The NPDES permit allowed discharge of 4680 gal./d of treated cooling water and 24,000 gal./d of electroplating rinse water. Since 1990, the outfall has received only treated cooling water and roof-drain runoff. The outfall discharges to Mortandad Canyon (LANL 1995, 057590).

The site map of Consolidated Unit 03-045(h)-00 is shown in Figure 2.0-3.

2.14.1 Previous Investigations for Consolidated Unit 03-045(h)-00

- No RFI activities have been conducted at SWMU 03-045(h).
- 1997: An RFI was conducted at SWMU 03-049(a). The investigation evaluated the point of discharge for the outfall and four associated sediment catchment basins through which the discharge flows before draining into Mortandad Canyon. Field activities included a site survey, geodetic survey, field screening, and sample collection. Sediment samples were collected from each of the sediment basins. Two water samples were collected. One was collected at the NPDES outfall pipe before it entered the sediment catchment basin and the other from flowing water exiting the last sediment catchment basin before it entered Mortandad Canyon. Screening results were negative for organic chemicals, and radioactivity was at or below background. Sediment samples were analyzed for hexavalent chromium, TAL metals, cyanide, isotopic uranium, and VOCs. The RFI activities and results were presented in the RFI report (LANL 1997, 056660.289).

2.14.2 Analytical Data for Consolidated Unit 03-045(h)-00

Seven samples were collected from seven locations at SWMU 03-049(a) during the RFI in 1997 from 0–0.33 ft, and were analyzed for TAL metals, hexavalent chromium, total cyanide, isotopic uranium, and VOCs. Table 2.14-1 presents the analytical suite for each sample. Figure 2.0-3 shows the sample locations.

All seven samples were analyzed for TAL metals, chromium (hexavalent ion), and total cyanide. Table 2.14-2 presents the inorganic chemicals above BVs at Consolidated Unit 03-045(h)-00. Figure 2.5-1 shows the analytical results and their locations. Antimony, arsenic, barium, calcium, chromium, cobalt, copper, iron, lead, manganese, nickel, selenium, silver, thallium, vanadium, and zinc were either detected above the BVs or had detection limits above the BVs.

- Antimony was not detected, but the detection limits were above the BV at all seven locations. The detection limits were above the maximum background concentration at six locations.
- Arsenic, barium, cobalt, and manganese were detected above the BVs and the maximum background concentrations at location 03-03237.
- Calcium and vanadium were detected above the BVs and the maximum background concentrations at locations 03-03233 and 03-03237.
- Chromium, nickel, and zinc were detected above the BVs and the maximum background concentrations at six locations (except at location 03-03238).

- Copper was detected above the BV and the maximum background concentration at all seven locations.
- Iron was detected above the BV and the maximum background concentration at locations 03-03233, 03-03234, and 03-03237.
- Lead was detected above the BV at six locations. Concentrations were above the maximum background concentration at locations 03-03233. 03-03236, 03-03237, and 03-03239, and was detected below the maximum background concentration at two locations.
- Selenium was not detected, but the detection limits were above the BV and the maximum background concentration at all seven locations.
- Silver was detected above the BV and the maximum background concentration at location 03-03233. Silver was not detected, but the detection limit was above the BV and the maximum background concentration at one location.
- Thallium was detected above the BV at location 03-03231. Thallium was not detected, but the detection limits were above the BV at five locations.

All seven samples were analyzed for isotopic uranium. Table 2.14-3 presents the radionuclide detected above the BV at Consolidated Unit 03-045(h)-00. Figure 2.5-2 shows the analytical results and their locations.

- Uranium-238 was detected above the BV at locations 03-03233 and 03-03237.

Two samples from two locations were analyzed for VOCs. Table 2.14-4 presents the organic chemicals detected at Consolidated Unit 03-045(h)-00. Figure 2.5-3 shows the analytical results and their locations.

- 2-Butanone was detected at location 03-03231.
- Methylene chloride was detected at both locations.

2.15 Consolidated Unit 03-049(b)-00—Miscellaneous

Consolidated Unit 03-049(b)-00 consists of SWMU 03-049(b) and AOC C-03-014. These units were consolidated because surface water drainage from both sites collects in the same locations and regrading and paving operations may have distributed contamination from one site to the other.

SWMU 03-049(b) is a 50 ft long × 20 ft wide discharge area at the south wall of the press building (03-0035). It is associated with an inactive vacuum pump that served furnaces in building 03-0035. The press building was built in 1953. The vacuum pump evacuated oil from furnaces in the building used for experiments. Experiments included fabricating enriched uranium-loaded graphite and carbide fuel elements. Also, enriched uranium was processed in the north part of the press building’s first floor. The outlet is located about 8 ft above the ground on the south wall of the press building. The vacuum pump was deactivated in the late 1980s; at about the same time, a 10 ft × 8 ft area under the exhaust pipe outlet was paved with asphalt. Runoff from this area drains southwest toward low-lying areas. The press building was declared surplus in November 1991 but was reactivated in 1995 (LANL 1995, 057590).

AOC C-03-014 is a 125 ft × 100 ft equipment-storage area located southwest of the press building (03-0035). The area is bounded by security fences to the north, south, and west and by building 03-0035 to the east. Most of the area is paved except for a 15-ft-wide strip of grass along the southern security fence that widens to 30 ft southwest of building 03-35. Various equipment and molds from building 03-0035 were stored at AOC C-03-014 for salvage or because of the building’s space limitations.

Equipment is no longer stored outside the building. The northern portion of the building floor is contaminated with uranium-235 (LANL 1995, 057590).

The site map of Consolidated Unit 03-049(b)-00 is shown in Figure 2.0-3.

2.15.1 Previous Investigations for Consolidated Unit 03-049(b)-00

- 1997: An RFI was conducted. Field activities included a site survey, geodetic survey, field screening, and sample collection. Screening results were negative for organic chemicals, and radioactivity was at or below background. Samples were collected and analyzed for TAL metals, isotopic uranium, PCBs, total petroleum hydrocarbons–diesel range organics (TPH-DRO), and VOCs. Sample results are discussed in this report. Asphalt samples were also collected at AOC C-03-014 and were analyzed for isotopic uranium. No isotopic uranium exceeded soil background values. These results are not included in this report because the samples are engineered material. The RFI activities and results were presented in the RFI report (LANL 1997, 056660.289).

2.15.2 Analytical Data for Consolidated Unit 03-049(b)-00

A total of 13 samples were collected from 13 locations during the RFI in 1997 from 0–0.83, 0–0.92, or 0–1 ft, and were analyzed for TAL metals, isotopic uranium, PCBs, TPH-DRO, and VOCs. Table 2.15-1 presents the analytical suite for each sample. Figure 2.0-3 shows the sample locations.

All 13 samples were analyzed for TAL metals. Table 2.15-2 presents the inorganic chemicals above BVs at Consolidated Unit 03-049(b)-00. Figure 2.15-1 shows the analytical results and their locations. Antimony, cadmium, cobalt, copper, lead, manganese, and zinc were either detected above the BVs or had detection limits above the BVs.

- Antimony was not detected, but the detection limits were above the BV and the maximum background concentration at all 13 locations.
- Cadmium was not detected, but the detection limits were above the BV but below the maximum background concentration at 12 locations.
- Cobalt and manganese were detected above the BVs but below the maximum background concentrations at one location.
- Copper was detected above the BV and the maximum background concentration at locations 03-03251, 03-03252, and 03-03253.
- Lead and zinc were detected above the BVs and the maximum background concentrations at locations 03-03251 and 03-03252.

Four samples from four locations were analyzed for isotopic uranium. No isotopic uranium was detected above the BVs.

All 13 samples were analyzed for PCBs and TPH-DRO, and three samples from three locations were also analyzed for VOCs. Table 2.15-3 presents the organic chemicals detected at Consolidated Unit 03-049(b)-00. Figure 2.15-2 shows the analytical results and their locations. Aroclor-1254, 4-isopropyltoluene, toluene, and TPH-DRO were detected.

- Aroclor-1254 was detected at six locations.

- 4-Isopropyltoluene and toluene were detected at location 03-03252.
- TPH-DRO was detected at all 13 locations.

2.16 SWMU 03-049(e)—Outfall

SWMU 03-049(e) is identified in the 1990 SWMU report as an area potentially contaminated by an outfall pipe of unknown origin, located south of the Sigma Building (03-0066). The 1990 SWMU report also states that the outfall discharged to Mortandad Canyon (LANL 1990, 007511). Subsequent investigation at the Sigma Building determined that three of the building's roof drains connect to a single pipe and discharge to the outfall area of SWMU 03-049(e) (LANL 1995, 057590).

The site map of SWMU 03-049(e) is shown in Figure 2.0-3.

2.16.1 Previous Investigations for SWMU 03-049(e)

- 2001: Samples were collected from the area of the outfall and analyzed for anions and TAL metals.

2.16.2 Analytical Data for SWMU 03-049(e)

Four samples were collected from four locations in 2001 from 0–1 ft, and were analyzed for anions and TAL metals. Table 2.16-1 presents the analytical suite for each sample. Figure 2.0-3 shows the sample locations.

All four samples were analyzed for anions and TAL metals. Table 2.16-2 presents the inorganic chemicals detected above BVs at SWMU 03-049(e). Figure 2.5-1 shows the analytical results and their locations. Antimony, arsenic, cadmium, chromium, cobalt, copper, iron, lead, manganese, nickel, and zinc were detected above the BVs.

- Antimony, cobalt, iron, manganese, and nickel were detected above the BVs at location 03-14466. Antimony, iron, and nickel were detected above the maximum background concentrations at this location. Cobalt and manganese were detected below the maximum background concentrations at this location.
- Arsenic, chromium, copper, and lead were detected above the BVs at locations 03-14466, 03-14467, and 03-14468. Arsenic and copper were detected above the maximum background concentrations at these locations. Chromium was detected above the maximum background concentration at location 03-14466. Lead was detected above the maximum background concentration at locations 03-14466 and 03-144467.
- Cadmium was detected above the BV but below the maximum background concentration at two locations.
- Zinc was detected above the BV and the maximum background concentration at all four locations.

2.17 SWMU 03-054(e)—Outfall

SWMU 03-054(e) is an outfall located in upper Mortandad Canyon. The outfall typically discharges a steady, low-volume flow of effluent that originates from several sources at the CMR Building (03-0029).

These sources include drainage from roofs over the west wing, where towers vent filtered exhaust, and surface water runoff from the asphalt area around the building.

SWMU 03-054(e) received effluent from an unintentional one-time release in 1974 from an industrial waste manhole (AOC C-03-006). The overflow resulted from a plug in the industrial waste line and was estimated to be between 500 gal. to 1000 gal. of RLW. The overflow spilled to the surrounding paved area, traveled north along Diamond Drive, flowed into the storm sewer through a storm drain gate, and ultimately discharged into upper Mortandad Canyon through the SWMU 03-054(e) outfall. A small dam was built in the streambed at the base of the canyon to contain the effluent. Subsequent cleanup action, based on residual radioactive contamination cleanup levels of 25 pCi/g, removed approximately 142 cubic ft of contaminated soil from Mortandad Canyon (LANL 1995, 057590).

The site map of SWMU 03-054(e) is shown in Figure 2.0-3.

2.17.1 Previous Investigations for SWMU 03-054(e)

- 1995: An RFI was conducted at SWMU 03-054(e). Screening results were negative for organic chemicals, and radioactivity was at or below background. Samples were collected from the outfall area and were analyzed for inorganic chemicals, radionuclides, and organic chemicals. The RFI activities and results were presented in the RFI report (LANL 1997, 072611).

2.17.2 Analytical Data for SWMU 03-054(e)

Eight samples were collected from six locations during the RFI in 1995 from depths ranging between 0 and 2.33 ft, and were analyzed for TAL metals, total cyanide, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, tritium, PCBs, SVOCs, and VOCs. Table 2.17-1 presents the analytical suite for each sample. Figure 2.0-3 shows the sample locations.

All eight samples were analyzed for TAL metals and total cyanide. Table 2.17-2 presents the inorganic chemicals above BVs at SWMU 03-054(e). Figure 2.15-1 shows the analytical results and their locations. Total cyanide, mercury, thallium, and zinc were either detected above the BVs or had detection limits above the BVs.

- Total cyanide, mercury, and thallium were not detected, but the detection limits were above the BVs at all six locations. Total cyanide has no background dataset in soil. All the detections limits of mercury and thallium were similar to or above the maximum background concentrations.
- Zinc was detected above the BV but below the maximum background concentration at four locations. Zinc was detected above the maximum background concentration in the only depth interval sampled at location 03-02716.

All eight samples were analyzed for gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, and tritium. Table 2.17-3 presents the radionuclides detected or detected above FVs at SWMU 03-054(e). Figure 2.17-1 shows the analytical results and their locations. Europium-152, plutonium-238, plutonium-239/plutonium-240, and sodium-22 were detected or detected above the FVs.

- Europium-152 was detected in the only depth interval sampled at location 03-02719.
- Plutonium-238 was detected above the FV or at depths where the FV does not apply at five locations (03-02715 through 03-02719). Activities increased slightly with depth at location 03-02715, and did not change substantially with depth at location 03-02718. Plutonium-238 was detected in the only depth interval sampled at locations 03-02716, 03-02717, and 03-02719.

- Plutonium-239/plutonium-240 was detected at depths where the FV does not apply at three locations. Plutonium-239/plutonium-240 was detected in the surface sample at location 03-02715, and not in the sample at depth (1.67–2.33 ft) at this location. It was detected in the only depth interval sampled at location 03-02716. It was detected in the two depth intervals sampled at location 03-02718. Activities did not change substantially with depth at this location.
- Sodium-22 was detected in the only depth interval sampled at location 03-02720.

All eight samples were analyzed for PCBs and SVOCs, and four samples from locations 03-02715 and 03-02718 were also analyzed for VOCs. Table 2.17-4 presents the organic chemicals detected at SWMU 03-054(e). Figure 2.15-2 shows the analytical results and their locations. Aroclor-1260, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, diethylphthalate, fluoranthene, and pyrene were detected.

- Aroclor-1260 was detected at locations 03-02715, 03-02716, 03-02717, and 03-02719. Concentrations increased slightly with depth at location 03-02715. Aroclor-1260 was detected in the only depth interval sampled at locations 03-02716, 03-02717, and 03-02719.
- Benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, diethylphthalate, fluoranthene, and pyrene were detected in the only depth interval sampled at location 03-02717.

2.18 AOC C-03-006—One-time Spill

AOC C-03-006 is the site of a unintentional release from a manhole connected to the industrial waste line. The manhole is located near the corner of Diamond Drive and Pajarito Road. The manhole is part of the liquid industrial waste collection system that runs from TA-03 to the RLWTF at TA-50. In 1974, the manhole overflowed to a storm sewer in TA-03 [see SWMU 03-054(e)] and discharged to upper Mortandad Canyon. The overflow resulted from a plug in the industrial waste line and was estimated to be between 500 to 1000 gal. of RLW. The overflow spilled to the surrounding paved area, traveled north along Diamond Drive, flowed into the storm sewer via a storm drain gate, and ultimately discharged into upper Mortandad Canyon through an outfall [SWMU 03-054(e)]. A cleanup of the overflow-impacted area began the day following the release. A collection and pumping system was used to flush the contaminated storm drain. Approximately 176 cubic meters of pavement were cut to the depth of the base course, excavated, and disposed of at Area G at TA-54. Newly exposed surfaces were monitored and one section of curbing with radioactivity levels exceeding background levels was removed. Additional surveys and subsequent confirmation sampling determined that no radioactivity exceeding the decontamination criteria was present in the base-course material. The area was restored by repaving and replacing the curb along Diamond Drive and around the manhole, removing the dam built in the stream bed at the base of the canyon, and installing engineering controls (LANL 1995, 057590).

The site map of AOC C-03-006 is shown in Figure 2.0-1.

2.18.1 Previous Investigations for AOC C-03-006

- 1991: An investigation was conducted to address the potential for contamination in upper Mortandad Canyon before construction of the SWSC line that runs along Pajarito Road to TA-46. During the investigation, surface and subsurface soil samples were collected from the area around AOC C-03-006, the location of the new storm drainline on the east side of Diamond Drive, and the new manhole located in the old storm-drain system before the Mortandad Canyon discharge point. Soil samples were analyzed for metals, radionuclides, VOCs, SVOCs, and PCBs

(LANL 1997, 072611). After sampling activities were completed, the area surrounding AOC C-03-006 was repaved.

- 1995: Because remediation was previously completed around AOC C-03-006, the RFI sampling was limited to the outfall and canyon area associated with SWMU 03-054(e). The RFI activities and results were presented in the RFI report (LANL 1997, 072611).

2.18.2 Analytical Data for AOC C-03-006

Analytical results for SWMU 03-054(e) discussed above are applicable to this AOC because this AOC has been remediated and paved, and SWMU 03-054(e) is the outfall area from this AOC.

3.0 SITE UNDER INVESTIGATION IN TA-42

Former TA-42 was located north of Pajarito Road and Pecos Drive. The site is located on a narrow mesa formed between Mortandad Canyon on the north and Two Mile Canyon, a branch of Pajarito Canyon, on the south. It is near the north edge of the mesa adjacent to the steep slope of the Mortandad Canyon wall. The elevation at TA-42 is about 7250 ft. In 1951, an incinerator was built at this site for volume reduction of low-level plutonium-contaminated wastes. The incinerator, which was never fully operational, was shut down in 1952, and all structures associated with the facility were removed in 1978 decontamination and decommissioning (D&D) activities (LANL 1990, 007513). The site has since remained undeveloped. Figure 3.0-1 shows the site features and previous sample locations for TA-42.

3.1 Consolidated Unit 42-001(a)-99—TA-42 Incinerator Complex

Consolidated Unit 42-001(a)-99 consists of SWMUs 42-001(a, b, and c), 42-002(b), 42-003, and AOC 42-002(a). These sites are associated with the TA-42 radioactive waste incinerator that operated in 1951 and 1952. From 1957 to 1969, this incinerator facility was used to store and decontaminate radioactively contaminated equipment. In 1969, an unsuccessful attempt was made to reactivate the incinerator to burn uncontaminated classified wastes. By 1970, all operations were discontinued, and all combustibles were removed from the building. The facility was decommissioned in 1977, and the site was decontaminated in 1978 (LANL 1990, 007513).

SWMU 42-001(a) is the historical location of building 42-1 that housed the incinerator. Building 42-1 was a 2000-ft^2 steel-frame structure covered with corrugated metal. The incinerator operated in 1951 and 1952. The building contained the incinerator, a cyclone dust collector, a spray cooler, a Venturi scrubber, a filter bank, and an ash separator. Combustion products passed through an off-gas cleanup system before being emitted through an exhaust stack. The off-gas system consisted of a Venturi scrubber, a filter bank, and an ash separator. Ash trapped in the off-gas system and incinerator was transported by underground drainlines to two holding tanks [SWMUs 42-001(b and c)] located immediately north of the incinerator (LANL 1992, 007666).

SWMUs 42-001(b and c) are the historical locations of two former ash holding tanks (structures 42-0002 and 42-0003) associated with the incinerator complex. Each tank was 22 ft in diameter and approximately 13 ft high, with a volume of 37,000 gal. The tanks were built in 1951 and removed in 1978. When the tanks were decommissioned in 1978, the contents were assayed and measured for plutonium. Contaminated sludge was removed, mixed with cement, and taken to Material Disposal Area (MDA) G for storage. The tanks were excavated and disposed of at TA-54. The tank drainlines were filled with hot asphalt to contain radioactive contamination. It is not known if the drainlines were removed (LANL 1992, 007666).

AOC 42-002(a) is the historical location of an indoor storage and decontamination area, and SWMU 42-002(b) is the location of a historical outdoor decontamination area. Between 1956 and 1969, the main floor of building 42-1 was used to store and decontaminate equipment. During D&D, a vacublaster removed radionuclides and other contaminants from various pieces of equipment. The process generated wastes, some of which are believed to have been discharged to the building's septic system (SWMU 42-003). It is believed that wastes in the form of fine solid residues were bagged and disposed of at an MDA. Objects (such as vehicles) that were too large to take inside the building were decontaminated at the end of the asphalt driveway located west and north of building 42-1. Wash water from this activity flowed down an embankment on the northwest side of the parking lot. Potentially contaminated soil in that area was not addressed during the 1978 D&D activities (LANL 1992, 007666).

SWMU 42-003 is the historical location of a septic system that served incinerator building 42-1. The septic system was installed in 1951 and consisted of a 565-gal. septic tank (structure 42-0004), a drainline from building 42-1 to the tank, a filter trench, a tile leach field, and an outfall to Mortandad Canyon. The septic tank received RLW from building 42-1. According to the Operable Unit (OU) 1129 work plan, the system probably also received solvents, acids, and grease (LANL 1992, 007666). Radioactively contaminated liquids periodically were removed from the septic tank and disposed of at pit 4 at MDA L. Samples collected in Mortandad Canyon in 1952 downstream of TA-42 showed radioactive contamination in the canyon. In 1973, the septic tank was observed to contain water and possibly may have overflowed. Also in 1973, the tank slurry was sampled and was found to be radioactively contaminated. The septic system and associated contaminated soil were removed as part of 1978 D&D activities (Harper and Garde 1981, 006286). Before tank removal, liquid in the tank was pumped and treated at 50-1, the RLWTF [SWMU 50-001(a)]. Tank sludge was solidified by adding cement, and the tank and sludge were disposed of at Area G at TA-54. Contaminated soil around the tank also was disposed of at Area G at TA-54, and the excavated area was backfilled. In addition, contaminated soil in the drain field was excavated (LANL 1992, 007666).

The site map of Consolidated Unit 42-001(a)-99 is shown in Figure 3.0-1.

3.1.1 Previous Investigations for Consolidated Unit 42-001(a)-99

- 1978: After the D&D activities at the site, soil samples were collected and analyzed for radionuclides. Although low levels of radionuclides were found, the concentrations met regulatory standards at that time. After concurrence from DOE's Los Alamos Area Office (LAAO), the area was contoured and revegetated to minimize erosion.
- 1991: A reconnaissance study was conducted, and soils samples were collected and analyzed for radionuclides, PCBs, SVOCs, VOCs, and metals. These results do not meet current data quality validation standard and are not discussed below.
- 1992: An RFI was conducted at the historical locations of Consolidated Unit 42-001(a)-99. The purpose of the RFI was to determine whether potential contamination at the site would be exposed during construction of a new facility. Sample locations were selected to bound the extent of contaminants detected during the 1991 reconnaissance study and to include locations where construction activities might adversely affect residual contamination around proposed structures or utility lines. Surface and subsurface soil samples were collected and field screened for organic chemicals and radionuclides. The RFI activities and results were presented in the RFI report (LANL 1995, 050056).

3.1.2 Analytical Data for Consolidated Unit 42-001(a)-99

A total of 40 samples were collected from 16 locations during the RFI in 1992 from depths ranging between 0 and 28 ft, and were analyzed for TAL metals, americium-241, isotopic plutonium, isotopic thorium, and isotopic uranium. Table 3.1-1 presents the analytical suite for each sample. Figure 3.0-1 shows the sampling locations.

Ten samples from five locations were analyzed for TAL metals. Table 3.1-2 presents the inorganic chemical above the BV at Consolidated Unit 42-001(a)-99. Figure 3.1-1 shows the analytical result and the location. Lead was detected above the BV and the maximum background concentration in the deeper sample at location 42-01023, and was detected below the BV in the surface sample at this location.

A total of 36 samples from 14 locations were analyzed for americium-241 and isotopic plutonium. Five samples from three locations were analyzed for isotopic thorium. Two samples from two locations were analyzed for isotopic uranium. Table 3.1-3 presents the radionuclides detected at Consolidated Unit 42-001(a)-99. Figure 3.1-2 shows the analytical results and their locations. Americium-241, plutonium-238, and plutonium-239/plutonium-240 were detected.

- Americium-241 was detected at six locations at depths where the FV does not apply. Americium-241 was detected in the deeper sample but not in the shallower sample at locations 42-01023, 42-01024, and 42-01026. Activities did not change substantially with depth at location 42-01030. Activities decreased with depth at locations 42-01031 and 42-01034.
- Plutonium-238 was detected at three locations at depths where the FV does not apply. Activities increased with depth at location 42-01021. Plutonium-238 was detected in the deeper sample but not in the shallower sample at location 42-01023. Activities decreased with depth at location 42-01030.
- Plutonium-239/plutonium-240 was detected at five locations at depths where the FV does not apply. Plutonium-239/plutonium-240 was detected in the deeper sample but not in the shallower sample at locations 42-01023, 42-01024, and 42-01027. Activities decreased with depth at locations 42-01028 and 42-01030.

4.0 SITES UNDER INVESTIGATION IN TA-48

TA-48 is located north of Pajarito Road and northwest of TA-55. The site is situated on Mesita del Buey (the southern finger of South Mesa) between Mortandad Canyon on the north and Two Mile Canyon on the south. The elevation of TA-48 ranges from approximately 7100 to 7320 ft. TA-48 was established in 1957. The site is currently used for chemical and radiochemical analyses, radioactive waste disposal research, and radioisotope production for nuclear medicine (LANL 1992, 007666). Figure 4.0-1 shows the site features for TA-48. Previous sampling locations are shown in Figure 4.0-2.

4.1 AOC 48-001—Air Exhaust System

AOC 48-001 consists of the air exhaust system at the main radiochemistry laboratory in building 48-0001 at TA-48 and surface and near surface soils potentially impacted by contaminant deposition from the stack emissions. The radiochemistry laboratory in building 48-0001 was constructed in 1957 for analysis of samples collected from nuclear weapons tests. Currently, radiochemical analyses are conducted there to support a variety of programs. The building 48-0001 exhaust system is comprised of nine stacks. Three stacks exhaust unfiltered discharges from chemical hoods, three stacks are associated with combustion boilers, one stack exhausts individually filtered glove boxes, one stack exhausts filtered air from hot cell laboratories, and one exhausts air from a welding and degreasing booth. Discharges from the chemical hoods are not filtered because the chemicals used in the hoods (e.g., perchloric acid) degrade filters. However, these hoods are equipped with wet scrubbers. The glove box stack (stack FE54) is permitted and monitored under the National Emissions Standards for Hazardous Air Pollutants Program of the Clean Air Act. According to the RFI work plan, monitoring data are available for stack FE54 beginning in 1967 for plutonium and beginning in 1974 for uranium and fission products (LANL 1992, 007666). These data indicate past releases of plutonium, uranium, and fission products, principally cesium-137, cerium-144, and strontium-90.

The site map of AOC 48-001 is shown in Figure 4.0-1.

4.1.1 Previous Investigations for AOC 48-001

- 1991: In January 1991, surface and subsurface soil samples were collected immediately outside the security fence east of building 48-0001 at the site of a proposed parking lot. These samples contained elevated alpha radioactivity, with surface samples slightly exceeding DOE guideline levels.
- 1991: In April 1991, surface and subsurface samples were collected northwest of building 48-0001 at the site of a proposed building.
- 1993: A Phase I RFI was conducted at AOC 48-001 to determine the presence of soil contamination associated with discharges from the air exhaust system. The AIRDOS-EPA computer model was used to estimate the areal extent of potential contamination, based on historical stack release data. This area was surveyed for radioactivity and organic vapors. Radiation levels were at background levels, and no organic vapors were detected. Surface and subsurface soil samples were collected to the north and east of building 48-0001. All samples were field screened for radioactivity and organic chemicals and were submitted for analysis of inorganic chemicals, radionuclides, and organic chemicals using a combination of fixed and mobile laboratories. The RFI activities and results were presented in the RFI report (LANL 1995, 050289).

4.1.2 Analytical Data for AOC 48-001

A total of 115 samples were collected from 48 locations in 1993, 1995, and 1997 with depths ranging between 0 and 25 ft, and were analyzed for TAL metals, americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic thorium, isotopic uranium, strontium-90, SVOCs, and VOCs. Table 4.1-1 presents the analytical suite for each sample. Figure 4.0-2 shows the sampling locations.

A total of 24 samples from 13 locations were analyzed for TAL metals. Table 4.1-2 presents the inorganic chemical above BVs at AOC 48-001. Figure 4.1-1 shows the analytical results and their locations. Antimony, arsenic, barium, cadmium, calcium, chromium, copper, lead, mercury, nickel, selenium, silver, thallium, and zinc were either detected above the BVs or had detection limits above the BVs.

- Antimony was detected above the BV but below the maximum background concentration in the only depth interval sampled at one location. Antimony was not detected, but the detection limits were above the BVs and the maximum background concentrations at nine locations.
- Arsenic was detected above the BV but below the maximum background concentration in the deepest depth interval sampled at one location.

- Barium and calcium were detected above the BVs and the maximum background concentrations in the deepest depth interval sampled at location 48-02159.
- Cadmium was not detected, but the detection limits were above the BV but below the maximum background concentration in soil; the detection limits were above the BV and the maximum background concentration in sediment at seven locations.
- Chromium was detected above the BV but below the maximum background concentration at one location. Concentrations decreased with depth at this location. Chromium was detected above the BVs and the maximum background concentrations in the deepest depth interval sampled at location 48-02159 (in tuff) and at location 48-02161 (in soil). Chromium was detected above the BVs and the maximum background concentrations at locations 48-02162 and 48-02172. Concentrations increased with depth at location 48-02162 and decreased with depth at location 48-02172.
- Copper was detected above the BVs and the maximum background concentrations at locations 48-02159, 48-02171, and 48-02172. Concentrations increased with depth at location 48-02159 and decreased with depth at locations 48-02171 and 48-02172.
- Lead was detected above the BV but below the maximum background concentration in the surface sample at one location.
- Mercury was detected above the BV and the maximum background concentration at locations 48-02133, 48-02134, 48-02171, and 48-02172. Mercury was detected in the only depth interval sampled at locations 48-02133 and 48-02134. Concentrations decreased with depth at locations 48-02171 and 48-02172.
- Nickel was detected above the BVs and the maximum background concentrations at locations 48-02159, 48-02161, and 48-02162. Concentrations increased with depth at these locations.
- Selenium was not detected, but the detection limits were above the BVs and the maximum background concentrations at three locations.
- Silver was not detected, but the detection limits were above the BV at one location.
- Thallium was not detected, but the detection limits were above the BV and the maximum background concentration at two locations.
- Zinc was detected above the BV and above the maximum background concentration in the surface sample at location 48-02171. Concentrations decreased with depth at this location. Zinc was detected above the BV but below the maximum background concentration at two locations.

A total of 30 samples from 13 locations were analyzed for americium-241. A total of 90 samples from 40 locations were analyzed for gamma-emitting radionuclides. A total of 78 samples from 30 locations were analyzed for isotopic plutonium. A total of 89 samples from 34 locations were analyzed for isotopic thorium. A total of 90 samples from 35 locations were analyzed for isotopic uranium. A total of 41 samples from 17 locations were analyzed for strontium-90. Table 4.1-3 presents the radionuclides detected at AOC 48-001. Figure 4.1-2 shows the analytical results and their locations. Americium-241, cesium-137, plutonium-238, plutonium-239/plutonium-240, strontium-90, thorium-227, thorium-230, uranium-234, uranium-235, and uranium-238 were detected or detected above the BVs/FVs.

- Americium-241 was detected above the FV or at depths where the FV does not apply at five locations. It was detected above the FV in the only depth interval sampled at location 48-02020. Activities decreased with depth at locations 48-02026 and 48-02158. Activities did not change substantially with depth at location 48-02054. Activities slightly increased with depth at location 48-02055.

- Cesium-137 was detected at five locations at depths where the FV does not apply. Activities decreased with depth at locations 48-02153, 48-02167, and 48-02172. Cesium-137 was detected in the deepest depth interval sampled at locations 48-02155 and 48-02170.
- Plutonium-238 was detected above the FV or at depths where the FV does not apply at nine locations. Activities decreased with depth at locations 48-02014, 48-02026, 48-02067, 48-02157, and 48-02158. Activities increased with depth at location 48-02155. Plutonium-238 was detected in the only depth interval sampled at locations 48-02020, 48-02068, and 48-02080.
- Plutonium-239/plutonium-240 was detected above the FV or at depths where the FV does not apply at nine locations. Activities decreased with depth at locations 48-02014, 48-02026, 48-02054, 48-02055, 48-02157, and 48-02158. Plutonium-239/plutonium-240 was detected in the only depth interval sampled at locations 48-02020 and 48-02080. Activities increased with depth at location 48-02155.
- Strontium-90 was detected at four locations at depths where the FV does not apply. Stronium-90 was detected in the deeper sample, and was detected below FV in the surface sample at location 48-02136. Activities decreased with depth at this location. Activities did not change substantially with depth at location 48-02150. Activities decreased with depth at locations 48-02157 and 48-02158.
- Thorium-227 was detected at three locations. Thorium-227 was detected in the deeper sample but not in the shallower sample at locations 48-02159 and 48-02162. Activities did not change substantially with depth at location 48-02161.
- Thorium-230 was detected above the BVs at four locations. Activities decreased with depth at locations 48-02006, 48-02024, and 48-02025. Thorium-230 was detected in the deepest depth interval sampled at location 48-02054.
- Uranium-234 was detected above the BVs at three locations. Uranium-234 was detected in the deepest depth interval sampled at location 48-02026. Activities decreased with depth at locations 48-02054 and 48-02055.
- Uranium-235 was detected above the BV in the deeper sample but not in the surface sample at locations 48-02164 and 48-02166.
- Uranium-238 was detected above the BVs at locations 48-02054 and 48-02055. Activities decreased with depth at both locations.

A total of 27 samples from 14 locations were analyzed for SVOCs. A total of 19 samples from 8 locations were analyzed for VOCs. Table 4.1-4 presents the organic chemicals detected at AOC 48-001. Figure 4.1-3 shows the analytical results and their locations. Acenaphthene, acetone, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, bis(2-ethylhexyl)phthalate, 2-butanone, butylbenzylphthalate, carbazole, chrysene, di-n-butylphthalate, di-n-octylphthalate, fluoranthene, fluorene, 4-isopropyltoluene, methylene chloride, phenanthrene, pyrene, toluene, trichlorofluoromethane, and 1,2,4-trimethylbenzene were detected.

- Acenaphthene, anthracene, carbazole, and fluorene were detected at location 48-02161. Concentrations decreased with depth at this location.
- Acetone was detected at three locations. Concentrations did not change substantially with depth at locations 48-02142 and 48-02148. Concentrations decreased with depth at location 48-02155.

- Benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, and chrysene were detected at five locations. They were detected in the only depth interval sampled at location 48-02134. Concentrations of these four organic chemicals decreased with depth at locations 48-02159, 48-02161, 48-02171, and 48-02172.
- Benzo(k)fluoranthene was detected at locations 48-02159 and 48-02161. Concentrations decreased with depth at both locations.
- Bis(2-ethylhexyl)phthalate was detected three locations. Concentrations decreased with depth at locations 48-02142 and 48-02155. Concentrations increased with depth at location 48-02148.
- 2-Butanone and 4-isopropyltoluene were detected in the deeper sample but not in the shallower sample at location 48-02171.
- Butylbenzylphthalate, di-n-butylphthalate, and di-n-octylphthalate were detected at location 48-02155. Concentrations decreased with depth.
- Fluoranthene and pyrene were detected at six locations. Both were detected in the only depth interval sampled at locations 48-02133 and 48-02134. Concentrations decreased with depth at location 48-02159, 48-02161, 48-02171, and 48-02172.
- Methylene chloride was detected at three locations. Methylene chloride was detected in the deeper sample but not in the shallower sample at locations 48-02142 and 48-02148. Concentrations decreased with depth at location 48-02162.
- Phenanthrene was detected at five locations. Phenanthrene was detected in the only depth interval sampled at locations 48-02133 and 48-02134. Concentrations decreased with depth at location 48-02159, 48-02161, and 48-02172.
- Toluene was detected at location 48-02159. Concentrations decreased with depth at this location.
- Trichlorofluoromethane was detected at three locations. Concentrations decreased with depth at location 48-02159. Concentrations did not change substantially with depth at location 48-02161. Concentrations increased with depth at location 48-02162.
- 1,2,4-Trimethylbenzene was detected at location 48-02172. Concentrations decreased with depth at this location.

4.2 SWMU 48-002(a)—Container Storage Area

SWMU 48-002(a) consists of a former container storage area located at the southwest corner of the main radiochemistry laboratory in building 48-0001 at TA-48. The storage area was located against the south wall of building 48-0001, on an area of soil between the building and an asphalt roadway. An inspection of SWMU 48-002(a) in 1986 noted the presence of approximately 200 rusty flasks in decayed and broken wooden frame holders (Perkins 1986, 000808). Each of the flasks reportedly held about 2 qt of high purity mercury. The flasks are estimated to have been present at SWMU 48-002(a) since about 1976. They were removed from the site in 1989 (LANL 1990, 007513). The RFI work plan reports that available documentation contained no indication of any spills or leaks associated with this site (LANL 1992, 007666).

SWMU 48-002(a) is located approximately 50 ft west of SWMU 48-002(b), another former storage area associated with building 48-0001. The site map of SWMU 48-002(a) is shown in Figure 4.0-1.

4.2.1 Previous Investigations for SWMU 48-002(a)

- 1993: A Phase I RFI was conducted at SWMU 48-002(a and b). Five boreholes were hand-augered to 8 ft, and soil samples were collected at 1-ft intervals. In addition, one surface soil sample was collected. All samples were submitted for analysis of metals, radionuclides, SVOCs, and VOCs using a combination of fixed and mobile laboratories. Surface soil samples were collected to evaluate possible mercury migration from the SWMUs. Based on the results of the Phase I sampling for SWMU 48-002(a and b), an expedited cleanup (EC) plan was prepared (LANL 1995, 046092).
- 1995: An EC was implemented at SWMUs 48-002(a and b). The EC involved development of soil cleanup levels for mercury and polycyclic aromatic hydrocarbons (PAHs), soil sampling and analysis to delineate the area above cleanup levels, excavation of soil contaminated above cleanup levels, confirmation sampling, and site restoration (backfilling, grading, and revegetation). The area of soil excavated during the cleanup was to the east of SWMU 48-002(a) and did not include the area encompassed by the three RFI boreholes for SWMU 48-002(a).

4.2.2 Analytical Data for SWMU 48-002(a)

Ten samples were collected from three locations during the RFI in 1993 and the EC in 1995 from depths ranging between 0 and 8 ft, and were analyzed for TAL metals, gamma-emitting radionuclides, isotopic plutonium, isotopic thorium, isotopic uranium, and SVOCs. Table 4.2-1 presents the analytical suite for each sample. Figure 4.0-2 shows the sampling locations.

Two samples from two locations were analyzed for TAL metals. Table 4.2-2 presents the inorganic chemical detected above BVs at SWMU 48-002(a). Figure 4.1-1 shows the analytical results and their locations. Antimony and mercury were detected above the BVs.

- Antimony was detected above the BV but below the maximum background concentration in the only depth interval sampled at location 48-02133.
- Mercury was detected above the BV and the maximum background concentration in the only depth interval sampled at locations 48-02133 and 48-02134.

Eight samples at location 48-02006 were analyzed for gamma-emitting radionuclides, isotopic plutonium, isotopic thorium, and isotopic uranium. Table 4.2-3 presents the radionuclides detected above the BV at SWMU 48-002(a). Figure 4.1-2 shows the analytical results and the location. Thorium-230 was detected above the BV.

- Thorium-230 was detected above the BV at location 48-02006. Activities decreased with depth at this location.

Two samples from two locations were analyzed for SVOCs. Table 4.2-4 presents the organic chemical detected at SWMU 48-002(a). Figure 4.1-3 shows the analytical results and their locations. Benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, chrysene, fluoranthene, phenanthrene, and pyrene were detected.

- Benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, chrysene, fluoranthene, phenanthrene, and pyrene were detected in the only depth interval sampled at location 48-02134.
- Fluoranthene, phenanthrene, and pyrene were detected in the only depth interval sampled at location 48-02133.

4.3 SWMU 48-002(b)—Container Storage Area

SWMU 48-002(b) consists of a former container storage area located at a loading dock on the south side of the main radiochemistry laboratory in building 48-0001 at TA-48. The storage area was located against the south wall of building 48-0001, near the southeast corner of the building. An inspection of SWMU 48-002(b) in 1986 noted the presence of labeled and unlabeled drums and evidence of spills and leaks (Perkins 1986, 000808). Spills from leaky drums were also observed at the site during a November 1988 field survey (LANL 1990, 007513). The date materials began to be stored at this site is unknown, and there is no evidence that the site was ever managed 1as a formal container storage area. All materials were reportedly removed from the site by July 1991 (LANL 1992, 007666).

SWMU 48-002(b) is located approximately 50 ft east of SWMU 48-002(a), another storage area associated with building 48-0001. The site map of SWMU 48-002(b) is shown in Figure 4.0-1.

4.3.1 Previous Investigations for SWMU 48-002(b)

- 1993: A Phase I RFI was conducted at SWMU 48-002(a and b) (see Section 4.2.1).
- 1995: An expedited cleanup was implemented at SWMUs 48-002(a and b) (see Section 4.2.1). The area of soil excavated during the cleanup included the area surrounded by one of the RFI boreholes and one of the RFI surface samples for SWMU 48-002(b). The area excavated was approximately 18 ft × 12 ft and the depth excavated ranging from 0.5 ft to 4 ft. A total of 28 55-gal. drums of soil were excavated during the cleanup.

4.3.2 Analytical Data for SWMU 48-002(b)

Analytical results for SWMU 48-002(a) discussed above are applicable to this SWMU because sampling was conducted in the general area of both SWMUs.

4.4 AOC 48-002(e)—Container Storage Area

AOC 48-002(e) consists of a storage area located on the east side of the main radiochemistry laboratory in building 48-0001. This storage area was located against the east wall of building 48-0001, just north of building 48-0017. The storage area was located almost entirely on asphalt pavement, except one small section (several square ft) that consists of unpaved soil to allow access to underground utilities. The RFI work plan states that AOC 48-002(e) was used for many years (possibly as early as 1957 when building 48-0001 was constructed) to store solvents (LANL 1992, 007666). The 1990 SWMU report states that this area operated as a satellite accumulation area from the late 1980s (LANL 1990, 007513). The area was no longer used for the storage of solvents after approximately 1989 or 1990 (LANL 1992, 007666). Since 1992, the area has been used to store a tank containing liquid nitrogen and cylinders containing compressed gas.

The site map of AOC 48-002(e) is shown in Figure 4.0-1.

4.4.1 Previous Investigations for AOC 48-002(e)

- 1993: A Phase I RFI was conducted at AOC 48-002(e) to determine the presence of contamination at the area of exposed soil. This area was surveyed for radioactivity and organic vapors. Radiation levels were at background screening levels, and no organic vapors were detected. Surface samples were collected at two locations in the area of exposed soil. Two subsurface samples were also collected at one of these locations to a depth of 3 ft. All samples were field screened for radioactivity and organic chemicals and submitted for analysis of inorganic chemicals, radionuclides, and organic chemicals using a combination of fixed and mobile laboratories. The RFI activities and results were presented in the RFI report (LANL 1995, 050289).

- 1997: Additional soil samples were collected based on comments received from NMED's review of the Phase I RFI report (LANL 1996, 054448; LANL 1996, 055064). Samples were submitted for laboratory analysis of radionuclides. The sampling activities and results were presented in the RFI report addendum (LANL 1997, 056565).

4.4.2 Analytical Data for AOC 48-002(e)

Seven samples were collected from three locations in 1993 and 1997 from depths ranging between 0 and 3.25 ft, and were analyzed for americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic thorium, and isotopic uranium. Table 4.4-1 presents the analytical suite for each sample. Figure 4.0-2 shows the sampling locations.

Four samples from locations 48-02037 and 48-02057 were analyzed for americium-241, isotopic plutonium, isotopic thorium, and isotopic uranium. Four samples from locations 48-02037 and 48-02135 were analyzed for gamma-emitting radionuclides. No radionuclides were detected or detected above BVs/FVs at AOC 48-002(e).

4.5 SWMU 48-003—Septic System

SWMU 48-003 consists of a former septic system that served TA-48 from 1957 through 1986. This septic system was comprised of a septic tank (structure 48-0005), a dosing chamber, a filter bed (structure 48-0006), and an outfall that discharged into Mortandad Canyon. The septic tank and dosing chamber were 21 ft, 7 in. long and the filter bed measured 81 ft, 2 in. long × 40 ft, 7 in. wide. The septic system operated until 1986, at which time the septic tank and filter bed were decommissioned and removed (LANL 1990, 007513). A laboratory and diagnostics facility (building 48-0045) was constructed over the site of the septic tank and filter bed. After the septic system was decommissioned, sanitary wastewater from TA-48 was sent to the sanitary lagoons at TA-35 and later to the consolidated treatment plant at TA-46. Although this septic system primarily received sanitary wastewater from TA-48 facilities, the system is believed to have received hazardous and radioactive materials through accidental discharges (LANL 1992, 007666).

The site map of SWMU 48-003 is shown in Figure 4.0-1.

4.5.1 Previous Investigations for SWMU 48-003

- 1988: A site reconnaissance survey was conducted that measured elevated radioactivity near the site of the former filter bed. This reconnaissance survey also located the outfall.
- 1993: A Phase I RFI was conducted to determine the presence of surface and subsurface contamination at the former location of the septic system. A radiation survey determined that radiation levels were at background. Subsurface samples were collected at three or four depth intervals from each of six 15-ft deep boreholes drilled at the location of the former filter bed. Surface samples were collected from five locations along Mortandad Canyon at areas likely to have been impacted by the outfall. Subsurface samples were also collected by hand auger at three or four depth intervals at each of two locations where excavated material from the sand filter had been deposited. All samples were field screened for radioactivity and organic chemicals and

submitted for analysis of inorganic chemicals, radionuclides, and organic chemicals using a combination of fixed and mobile laboratories. The RFI activities and results were presented in the RFI report (LANL 1995, 050289).

- 1997: Based on comments received from NMED's review of the Phase I RFI report (LANL 1996, 054448; LANL 1996, 055064), a sampling and analysis plan (SAP) was prepared to collect additional samples to be analyzed for metals, radionuclides, and SVOCs (LANL 1997, 055326). Sample results are discussed below.

4.5.2 Analytical Data for SWMU 48-003

A total of 32 samples were collected from 15 locations in 1993 and 1997 from depths ranging between 0 and 15 ft, and were analyzed for TAL metals, americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic thorium, isotopic uranium, strontium-90, and SVOCs. Table 4.5-1 presents the analytical suite for each sample. Figure 4.0-2 shows the sampling locations.

Ten samples from five locations were analyzed for TAL metals. Table 4.5-2 presents the inorganic chemical above BVs at SWMU 48-003. Antimony and cadmium were not detected, but the detection limits were above the BVs at all five locations. The detection limits of antimony were above the maximum background concentration. The detection limits of cadmium were below the maximum background concentration.

Twelve samples from seven locations were analyzed for americium-241. A total of 27 samples from 15 locations were analyzed for gamma-emitting radionuclides. All 32 samples were analyzed for isotopic plutonium, isotopic thorium, and isotopic uranium. Ten samples from five locations were analyzed for strontium-90. Table 4.5-3 presents the radionuclides detected or detected above BVs/FVs at SWMU 48-003. Figure 4.1-2 shows the analytical results and their locations. Americium-241, cesium-137, cobalt-60, plutonium-238, plutonium-239/plutonium-240, strontium-90, thorium-230, uranium-234, and uranium-238 were detected or detected above the BVs/FVs.

- Americium-241 was detected above the FV or at depths where the FV does not apply at four locations. Americium-241 was detected above the FV in the only depth interval sampled at locations 48-02019 and 48-02020. Activities increased slightly with depth at locations 48-02054 and 48-02055.
- Cesium-137 was detected above the FV or at depths where the FV does not apply at four locations. Cesium-137 was detected above the FV in the only depth interval sampled at location 48-02019. It was detected in the surface sample but not in the deeper sample at locations 48-02137 and 48-02139. Activities increased with depth at location 48-02140.
- Cobalt-60 was detected in the surface sample but not in the deeper sample at location 48-02140.
- Plutonium-238 was detected in the shallower samples but not in the deepest sample at location 48-02014. Plutonium-238 was detected above the FV in the only depth interval sampled at location 48-02020.
- Plutonium-239/plutonium-240 was detected above the FV or at depths where the FV does not apply at eight locations. Activities decreased with depth at locations 48-02014, 48-02054, 48-02055, 48-02137, and 48-02139. Plutonium-239/plutonium-240 was detected above the FV in the only depth interval sampled at locations 48-02019 and 48-02020. Plutonium-239/plutonium-240 was detected in the deeper sample but not in the shallower sample at location 48-02140.

- Strontium-90 was detected at three locations at depths where the FV does not apply. Strontium-90 was detected in the deeper sample but not in the shallower sample at locations 48-02136 and 48-02140. Strontium-90 was detected in the surface sample but not the deeper sample at location 48-02137.
- Thorium-230 was detected above the BV in the deepest sample at location 48-02054.
- Uranium-234 and uranium-235 were detected above the BVs at three locations. Both were detected in the only depth interval sampled at location 48-02019. Activities decreased with depth at locations 48-02054 and 48-02055.

Ten samples from five locations were analyzed for SVOCs. Table 4.53-4 presents the organic chemical detected at SWMU 48-003. Figure 4.1-3 shows the analytical results and their locations. Benzoic acid and bis(2-ethylhexyl)phthalate were detected.

- Benzoic acid was detected in the surface sample but not in the deeper sample at locations 48-02137 and 48-02138.
- Bis(2-ethylhexyl)phthalate was detected in the deeper samples but not in the surface samples at locations 48-02137 and 48-02139.

4.6 Consolidated Unit 48-004(a)-99—Sumps and Tanks

Consolidated Unit 48-004(a)-99 consists of SWMUs 48-004(a, b, and c). These SWMUs include inactive sumps and tanks formerly used to treat RLW generated in the main radiochemistry laboratory in building 48-0001 at TA-48. These sumps and tanks were part of the neutralization building 48-0001. Caustic (sodium hydroxide) solution was automatically added to the sumps or tanks to neutralize acidic wastewaters, which were pumped from the sumps or tanks to the RLW lines for subsequent treatment at TA-45 or TA-50. The neutralization process caused sludge to precipitate in the sumps or tanks. This sludge was removed and disposed of as radioactive waste. No drainlines or outfalls are associated with these sumps and tanks, which were equipped with automatic level controls to prevent overfilling. The tanks and sumps operated from the late 1950s until the 1970s. Some of the tanks were subsequently removed. The RFI work plan states that there is no documentation of past releases or spills from these sumps and tanks, but that some residual contamination may remain (LANL 1992, 007666).

SWMU 48-004(a) consists of two sumps located below the floor of the shop in building 48-0001, Room 50. One of these sumps is approximately 4 ft × 3 ft × 2 ft deep, and the other is approximately 6 ft × 6 ft × 5 ft deep. The sumps comprising SWMU 48-004(a) were inspected during preparation of the RFI work plan (LANL 1992, 007666). The inspection revealed no physical evidence of releases or external contamination.

SWMU 48-004(b) consists of three sets of tanks located in the south basement of building 48-0001 in Room 80. The numbers and size of the tanks in each set were not reported in the RFI work plan (LANL 1992, 007666). One set of these tanks is located in a pit area where a sump is also present. Precipitates containing radioactive contamination were reportedly removed from the second set of tanks. The tanks comprising SWMU 48-004(b) were inspected during preparation of the RFI work plan (LANL 1992, 007666). The inspection revealed no physical evidence of releases or external contamination.

SWMU 48-004(c) consists of two tanks that contained caustic (sodium hydroxide) solution from the caustic tanks. These tanks and sumps are located in the north basement of building 48-0001. The tanks comprising SWMU 48-004(c) were inspected during preparation of the RFI work plan (LANL 1992, 007666). The inspection revealed no physical evidence of releases or external contamination.

The site map of Consolidated Unit 48-004(a)-99 is shown in Figure 4.0-1.

4.6.1 Previous Investigations for Consolidated Unit 48-004(a)-99

No RFI activities have been conducted at this consolidated unit.

4.6.2 Analytical Data for Consolidated Unit 48-004(a)-99

There are no decision-level data available for this consolidated unit.

4.7 SWMU 48-005—Waste Lines

SWMU 48-005 consists of segments of inactive RLW lines at TA-48 and an associated outfall. From 1957 through 1965, these waste lines were part of the system used to convey RLW from TA-48 to the treatment plant at TA-45 (Consolidated Unit 45-001-00). Beginning in 1963, new waste lines were installed to carry wastes to the new treatment facilities at TA-50. By 1967, the waste lines leading to TA-45 had been decommissioned but remained in place. Some of the waste lines were removed in two campaigns conducted in 1981 and 1984 (LANL 1990, 007513). SWMU 48-005 contains the remaining portions of the waste lines, which are all inside the TA-48 security fence. The remaining waste lines are all 3-in.-diameter cast-iron pipe and consist of a 200-ft section of line 34 running westward from building 48-0001, a 300-ft section of line 36 that runs southward from the north wing of building 48-0001, and a 50-ft section of line 38 that runs southward from building 48-0001. These lines, located at depths of 10 to 11 ft, were not removed because they lie beneath structures, roadways, or utilities. The remaining sections of lines 34 and 36 were surveyed during the line removal activities. Line 34 was found to have low levels of alpha activity, and line 36 had no detectable activity (Elder et al. 1986, 003089). The remaining portion of line 38 was not surveyed. SWMU 48-005 also includes an outfall on the edge of Mortandad Canyon north of building 48-0001 that was the discharge point of line 37. Line 37 was connected to sumps in the north basement of building 48-0001 and was completely removed in 1981 (LANL 1992, 007666).

The site map of SWMU 48-005 is shown in Figure 4.0-1.

4.7.1 Previous Investigations for SWMU 48-005

- 1991: In April 1991, surface and subsurface samples were collected northwest of building 48-0001 at the site of a proposed building. Inorganic chemicals were detected below screening levels, and organic chemicals were detected.
- 1993: A Phase I RFI was conducted to determine the presence of surface and subsurface contamination at SWMU 48-005. Subsurface samples were collected from nine boreholes drilled along the locations of the remaining waste lines. Six of the boreholes were drilled to a depth of 15 ft and three to five samples were collected from each borehole. Two of the boreholes were drilled to a depth of 7 ft, and two samples were collected from each of these boreholes. The remaining borehole was installed to a depth of 8 ft, and one sample was collected from this borehole. Surface samples were collected from 10 locations in Mortandad Canyon below the former outfall. All samples were field screened for radioactivity and organic chemicals and submitted for analysis of inorganic chemicals, radionuclides, and organic chemicals using a combination of fixed and mobile laboratories. The RFI activities and results were presented in the RFI report (LANL 1995, 050289).

- 1997: Based on comments received from NMED's review of the Phase I RFI report (LANL 1996, 054448 and LANL 1996, 055064), a SAP was prepared to collect additional samples to be analyzed for metals, radionuclides, SVOCs, and VOCs (LANL 1997, 055326). Sample results are discussed below.

4.7.2 Analytical Data for SWMU 48-005

A total of 46 samples were collected from 18 locations in 1993 and 1997 from depths ranging between 0 and 25 ft, and were analyzed for TAL metals, americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic thorium, isotopic uranium, strontium-90, SVOCs, and VOCs. Table 4.7-1 presents the analytical suite for each sample. Figure 4.0-2 shows the sampling locations.

Seven samples from three locations were analyzed for TAL metals. Table 4.7-2 presents the inorganic chemical above BVs at SWMU 48-005. Figure 4.1-1 shows the analytical results and their locations. Antimony, cadmium, chromium, mercury, silver, and zinc were either were detected above the BVs or had detection limits above the BVs.

- Antimony and cadmium were not detected, but the detection limits were above the BVs at all three locations. The detection limits of antimony were above the maximum background concentration. The detection limits of cadmium were below the maximum background concentration.
- Chromium and zinc were detected above the BVs but below the maximum background concentrations at one location.
- Mercury and silver were not detected, but the detection limits were above the BVs at one location. The detection limits of mercury were above the maximum background concentration.

Sixteen samples from six locations were analyzed for americium-241. A total of 33 samples from 15 locations were analyzed for gamma-emitting radionuclides. A total of 32 samples from 12 locations were analyzed for isotopic plutonium. A total of 44 samples from 17 locations were analyzed for isotopic thorium and isotopic uranium. A total of 28 samples from 11 were analyzed for strontium-90. Table 4.7-3 presents the radionuclides detected or detected above BVs at SWMU 48-005. Figure 4.1-2 shows the analytical results and their locations. Americium-241, cesium-137, plutonium-238, plutonium-239/plutonium-240, strontium-90, thorium-230, and uranium-234 were detected or detected above the BVs.

- Americium-241 was detected at locations 48-02026 and 48-02158 at depths where the FV does not apply. Activities decreased with depth at both locations.
- Cesium-137 was detected at two locations at depths where the FV does not apply. Cesium-137 was detected in the surface sample but not in the deeper sample at location 48-02153. Cesium-137 was detected in the deepest sample at location 48-02155.
- Plutonium-238 was detected at six locations at depths where the FV does not apply. Activities decreased with depth at locations 48-02026, 48-02067, 48-02157, and 48-02158. Plutonium-238 was detected in the only depth interval sampled at location 48-02068. Activities increased with depth at location 48-02155.
- Plutonium-239/plutonium-240 was detected at four locations at depths where the FV does not apply. Activities decreased with depth at locations 48-02026, 48-02157, and 48-02158. Activities increased slightly with depth at location 48-02155.

- Strontium-90 was detected at locations 48-02150, 48-02157, and 48-02158 at depths where the FV does not apply. Activities decreased with depth at these locations.
- Thorium-230 was detected above the BVs at locations 48-02024 and 48-02025. Activities decreased with depth at both locations.
- Uranium-234 was detected slightly above the BV in the deepest sample at location 48-02026.

Twelve samples from six locations were analyzed for SVOCs. Seven samples from three locations were analyzed for VOCs. Table 4.7-4 presents the organic chemicals detected at SWMU 48-005. Figure 4.1-3 shows the analytical results and their locations. Acetone, bis(2-ethylhexyl)phthalate, butylbenzylphthalate, di-n-butylphthalate, di-n-octylphthalate, methylene chloride, and pyrene were detected.

- Acetone and bis(2-ethylhexyl)phthalate were detected at three locations. Concentrations of acetone increased with depth at locations 48-02142 and 48-02148, and decreased with depth at location 48-02155. Concentrations of bis(2-ethylhexyl)phthalate decreased with depth at locations 48-02142 and 48-02155, and increased with depth at location 48-02148.
- Butylbenzylphthalate, di-n-butylphthalate, di-n-octylphthalate were detected at location 48-02155. Concentrations decreased with depth at this location.
- Methylene chloride was detected in the deeper samples but not in the shallower samples at locations 48-02142 and 48-02148.
- Pyrene was detected at location 48-02155. Concentrations decreased with depth at this location.

4.8 Consolidated Unit 48-007(a)-00—Drainlines and Outfalls

Consolidated Unit 48-007(a)-00 consists of SWMUs 48-007(a and d) and 48-010. These SWMUs include two active stormwater outfalls and a surface impoundment that receives discharges from the outfalls. These SWMUs formerly received wastewater from the main radiochemistry laboratory in building 48-0001 at TA-48.

SWMU 48-007(a) is an outfall formerly used to discharge treated cooling tower blowdown from two cooling towers located on the roof of building 48-0001. This outfall is located east of building 48-0001. Up to 750 gal./h of cooling tower blowdown were discharged from the outfall. Discharge from this outfall flowed to an unlined surface impoundment, SWMU 48-010. Water used in these cooling towers was treated to control scale, corrosion, and biological growth. Additives used include Garratt Callahan (G.C.) Formula 227-L, a corrosion and scaling inhibitor, and G.C. Formula 314-T, a biocide. Specific hazardous chemicals present in these additives, if any, are unknown. Approximately 60 percent of the water in the cooling towers was evaporated, causing the chemical additives to be concentrated in the blowdown. Discharges from this outfall could not have started before building 48-0001 was constructed in 1957. This outfall formerly operated as an NPDES-permitted outfall but was removed from the LANL NPDES permit December 6, 1999, because industrial wastewater discharges to the outfall had been discontinued earlier in the year. Stormwater continues to flow through the outfall.

SWMU 48-007(d) is an outfall formerly used to discharge noncontact cooling water that cooled a vacuum pump housed in the south end of building 48-0001. This outfall is located east of building 48-0001. Up to 4000 gal./d of cooling water were discharged from the outfall. Discharge from this outfall flowed to SWMU 48-010. Discharges from this outfall could not have started before building 48-0001 was constructed in 1957. This outfall operated as an NPDES-permitted outfall, but was removed from the Laboratory's NPDES permit July 20, 1998, because industrial wastewater discharges to the outfall had been discontinued earlier in the year. Stormwater continues to flow through the outfall.

SWMU 48-010 is an unlined surface impoundment constructed in 1978 by excavating directly into the tuff. The surface impoundment is located approximately 300 ft east of building 48-0001 and 150 ft south of building 48-0045. The surface impoundment formerly received cooling tower blowdown discharged from SWMU 48-007(a), noncontact cooling water discharged from SWMU 48-007(d), and stormwater runoff from the parking lot for building 48-0045. Currently, the impoundment receives stormwater only. A wetland has developed around the impoundment. The impoundment and surrounding wetland cover approximately 100 ft by 150 ft. SWMU 48-010 discharges to the east into a side canyon that is a tributary to Mortandad Canyon (LANL 1992, 007666).

The site map of Consolidated Unit 48-007(a)-00 is shown in Figure 4.0-1.

4.8.1 Previous Investigations for Consolidated Unit 48-007(a)-00

- 1993 and 1995: A Phase I RFI was conducted at the SWMU 48-007(a and d) outfalls in 1993. The outfall locations were screened for radiation and organic vapors. The survey determined radiation levels to be at background, and no organic vapors were detected. A parking lot was constructed east of building 48-0001 that required the outfalls to be moved. The discharge from the SWMU 48-007(d) outfall was combined with the discharge from the SWMU 48-007(a) outfall. Samples were, therefore, collected where the combined flows discharge to the impoundment. A surface soil sample and an unfiltered water sample were collected at this location. These samples were field screened for radioactivity and organic chemicals and submitted for analysis of inorganic chemicals and radionuclides using a combination of fixed and mobile laboratories. Because the fixed analytical laboratory was not able to complete all required analyses, soil and water samples were collected again in May 1995. The RFI activities and results were presented in the RFI report (LANL 1995, 050289).
- 1993 and 1995: A Phase I RFI was conducted at SWMU 48-010 in 1993. The locations around the impoundment and wetlands were screened for radiation and organic vapors. The survey determined radiation levels to be at background and no organic vapors were detected. Surface samples were collected at one location on the berm surrounding the impoundment and at two locations within the impoundment. Unfiltered water samples were also collected at two locations in the impoundment. The samples were field screened for radioactivity and organic chemicals and submitted for analysis of inorganic chemicals and radionuclides using a combination of fixed and mobile laboratories. Because the fixed analytical laboratory was not able to complete all required analyses, one additional soil sample and one additional water sample were collected in May 1995. The RFI activities and results were presented in the RFI report (LANL 1995, 050289).
- 1997: Based on comments received from NMED's review of the Phase I RFI report (LANL 1996, 054448; LANL 1996, 055064), a SAP was prepared to collect additional samples to be analyzed for metals, radionuclides, SVOCs, and VOCs (LANL 1997, 055326). Sample results are discussed below.

4.8.2 Analytical Data for Consolidated Unit 48-007(a)-00

A total of 16 samples were collected from 8 locations in 1995 and 1997 from depths ranging between 0 and 7.5 ft, and were analyzed for TAL metals, gamma-emitting radionuclides, isotopic plutonium, isotopic thorium, isotopic uranium, strontium-90, SVOCs, and VOCs. Table 4.8-1 presents the analytical suite for each sample. Figure 4.0-2 shows the sampling locations.

All 16 samples were analyzed for TAL metals. Table 4.8-2 presents the inorganic chemicals above BVs at Consolidated Unit 48-007(a)-00. Figure 4.8-1 shows the analytical results and their locations. Antimony, arsenic, barium, cadmium, calcium, chromium, copper, lead, mercury, nickel, selenium, thallium, and zinc were either detected above the BVs or had detection limits above the BVs.

- Antimony was not detected, but the detection limits were above the BVs and the maximum background concentrations at six locations.
- Arsenic was detected above the BV but below the maximum background concentration at one location. Arsenic was detected above the BV and the maximum background concentration at location 48-02173. Concentrations decreased with depth at this location.
- Barium and calcium were detected above the BVs and the maximum background concentrations at location 40-02159. Concentrations increased with depth at this location.
- Cadmium was not detected, but the detection limits were above the BV and the maximum background concentration at three locations. The detection limits were above the BVs but below the maximum background concentrations at two locations.
- Chromium was detected above the BV and the maximum background concentration at five locations. Concentrations increased with depth at locations 48-02159, 48-02161, and 45-02162, and decreased with depth at locations 48-02172 and 48-02173.
- Copper was detected above the BV and the maximum background concentration at locations 48-02159, 48-02171, 48-02172, and 48-02173. Concentrations decreased with depth at these locations.
- Lead was detected above the BV but below the maximum background concentration at one location. Concentrations decreased with depth at 48-02172.
- Mercury was detected above the BV and the maximum background concentration at locations 48-02171 and 48-02172. Concentrations decreased with depth at both locations.
- Nickel was detected above the BV and the maximum background concentration at locations 48-02159, 48-02161, and 48-02162. Concentrations increased with depth at these locations.
- Selenium was not detected, but the detection limits were above the BV and the maximum background concentration at three locations.
- Thallium was not detected, but the detection limits were above the BV at three locations. The detection limits were above the maximum background concentration at location 48-02171 and below or equal to the maximum background concentration at locations 48-02172 and 48-02173.
- Zinc was detected above the BV at three locations. Zinc was detected above the maximum background concentration at locations 48-02171 and 48-02173. Concentrations decreased with depth at both locations. Zinc was detected below the maximum background concentration at location 48-02172.

Fourteen samples from six locations were analyzed for gamma-emitting radionuclides, isotopic plutonium, isotopic thorium, isotopic uranium, and strontium-90. One more sample at location 48-02080 was analyzed for isotopic plutonium and isotopic uranium. Table 4.8-3 presents the radionuclides detected or detected above FVs at Consolidated Unit 48-007(a)-00. Figure 4.8-2 shows the analytical results and their locations. Cesium-137, plutonium-238, plutonium-239/plutonium-240, and thorium-227 were detected or detected above the FVs.

- Cesium-137 was detected at locations 48-02172 and 48-02173 at depths where the FV does not apply. Activities decreased with depth at both locations.
- Plutonium-238 was detected above the FV and the maximum background concentration in the only depth interval sampled at location 48-02080.

- Plutonium-239/plutonium-240 was detected above the FV and the maximum background concentration in the only depth interval sampled at location 48-02080, and was detected at location 48-02173 at a depth where the FV does not apply.
- Thorium-227 was detected at locations 48-02159, 48-02161, and 48-02162. Concentrations decreased with depth at locations 48-02159 and 48-02162, and did not change substantially at location 48-02161.

Fourteen samples from six locations were analyzed for SVOCs and VOCs. Table 4.8-4 presents the organic chemicals detected at Consolidated Unit 48-007(a)-00. Figure 4.8-3 shows the analytical results and their locations. Acenaphthene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, bis(2-ethylhexyl)phthalate, 2-butanone, carbazole, chrysene, fluoranthene, fluorene, 4-isopropyltoluene, methylene chloride, phenanthrene, pyrene, toluene, trichlorofluoromethane, and 1,2,4-trimethylbenzene were detected.

- Acenaphthene, anthracene, carbazole, and fluorene were detected at location 48-02161. Concentrations decreased with depth at this location.
- Benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, chrysene, fluoranthene, and pyrene were detected at locations 48-02159, 48-02161, 48-02171, 48-02172, and 48-02173. Concentrations decreased with depth at these locations.
- Benzo(k)fluoranthene was detected at locations 48-02159 and 48-02161. Concentrations decreased with depth at both locations.
- Bis(2-ethylhexyl)phthalate was detected at location 48-02173. Concentrations increased slightly with depth at this location.
- 2-Butanone and 4-isopropyltoluene were detected in the deeper sample but not in the surface sample at location 48-02171.
- Methylene chloride was detected at location 48-02162. Concentrations decreased with depth at this location.
- Phenanthrene was detected at locations 48-02159, 48-02161, 48-02172, and 48-02173. Concentrations decreased with depth at these locations.
- Toluene was detected at locations 48-02159 and 48-02173. Concentrations decreased with depth at both locations.
- Trichlorofluoromethane was detected at locations 48-02159, 48-02161, and 48-02162. Concentrations decreased with depth at location 48-02159, did not change at location 48-02161, and increased with depth at location 48-02162.
- 1,2,4-Trimethylbenzene was detected at location 48-02172. Concentrations decreased with depth at this location.

4.9 SWMU 48-007(b)—Cooling Tower Outfall

SWMU 48-007(b) is an outfall formerly used to discharge noncontact cooling water used to cool a magnet and laser housed in the main radiochemistry laboratory in building 48-0001 at TA-48. This outfall is located north of building 48-0001 and formerly discharged up to 4300 gal./d of cooling water. Water discharged from the outfall flowed into Mortandad Canyon (LANL 1992, 007666). Discharges could not have started before building 48-0001 was constructed in 1957. This outfall formerly operated as an NPDES-permitted outfall but was removed from the Laboratory's NPDES permit on September 19, 1997, because industrial wastewater discharges had been discontinued earlier in the year. Presently, the outfall discharges only stormwater.

The site map of SWMU 48-007(b) is shown in Figure 4.0-1.

4.9.1 Previous Investigations for SWMU 48-007(b)

- 1993: A Phase I RFI was conducted at SWMU 48-007(b). The outfall location was surveyed for radiation and organic vapors. The survey determined radiation levels to be at background, and no organic vapors were detected. A surface soil sample was collected adjacent to the outfall. A 2.5-ft-deep hand auger boring was made slightly downslope of the outfall, and samples were collected at the surface and two depth intervals. A water sample was also collected from the outfall. These samples were field screened for radioactivity and organic chemicals and submitted for analysis of inorganic chemicals and radionuclides using a combination of fixed and mobile laboratories. One subsurface soil sample was also submitted for laboratory analysis of organic chemicals. The RFI activities and results were presented in the RFI report (LANL 1995, 050289).
- 1997: Additional soil samples were collected based on comments received from NMED's review of the Phase I RFI (LANL 1996, 054448 and LANL 1996, 055064). One surface sample and one subsurface sample were collected from each boring and submitted for laboratory analysis of radionuclides. The RFI activities and results were presented in the RFI report (LANL 1997, 056565).

4.9.2 Analytical Data for SWMU 48-007(b)

Four samples were collected from two locations during the RFI in 1997 from depths ranging between 0 and 2 ft, and were analyzed for gamma-emitting radionuclides. Table 4.9-1 presents the analytical suite for each sample. Figure 4.0-2 shows the sampling locations.

Table 4.9-2 presents the radionuclide detected at SWMU 48-007(b). Figure 4.1-2 shows the analytical result and its location.

- Cesium-137 was detected in the surface sample but not in the sample at depth (1–2 ft) at location 48-02167.

4.10 SWMU 48-007(c)—Floor Drain Outfall

SWMU 48-007(c) is an outfall that formerly received discharges from nine floor drains, a trench drain, and six roof drains located in the main radiochemistry laboratory in building 48-0001 at TA-48. This outfall is located north of building 48-0001 and discharges into Mortandad Canyon (LANL 1992, 007666). Former sources of discharge to the floor drains included floor washings, backflow preventers, drainage and condensate from a vacuum pump, steam condensate, a boiler drain, a fire drain, and a water heater pressure relief valve. Discharges could not have started before building 48-0001 was constructed in 1957. This outfall operated as an NPDES-permitted outfall but was removed from the Laboratory's NPDES permit January 14, 1998, because industrial wastewater discharges had been discontinued earlier. The flow rate discharged from this outfall was reported to be minimal (LANL 1997, 056565). Currently, this outfall receives stormwater only.

The site map of SWMU 48-007(c) is shown in Figure 4.0-1.

4.10.1 Previous Investigations for SWMU 48-007(c)

- 1993: A Phase I RFI was conducted at SWMU 48-007(c). The outfall location was surveyed for radiation and organic vapors. The survey determined radiation levels to be at background, and no organic vapors were detected. A surface soil sample was collected adjacent to the outfall. A 2-ft deep hand auger boring was made slightly downslope of the outfall, and samples were collected at the surface and two depth intervals. The outfall was not discharging at the time of sampling so a water sample could not be collected. Samples were field screened for radioactivity and organic chemicals and submitted for analysis of inorganic chemicals and radionuclides using a combination of fixed and mobile laboratories. One subsurface soil sample was also submitted for laboratory analysis of organic chemicals. The RFI activities and results were presented in the RFI report (LANL 1995, 050289).
- 1997: Additional soil samples were collected based on comments received from NMED's review of the Phase I RFI (LANL 1996, 054448; LANL 1996, 055064). One surface sample and two subsurface samples were collected from the boring near the outfall, and one surface sample and one subsurface sample were collected from the other boring. These samples were submitted for laboratory analysis of radionuclides. The boring below the outfall at the bench in the canyon wall was resampled later in 1997 because of anomalous analytical results. At that time, both a surface and subsurface sample were collected from an additional boring approximately 25 ft further downslope into Mortandad Canyon. The samples were all submitted for laboratory analysis of radionuclides. The RFI activities and results were presented in the RFI report (LANL 1997, 056565).

4.10.2 Analytical Data for SWMU 48-007(c)

Nine samples were collected from four locations in 1997 from depths ranging between 0 and 2.83 ft, and were analyzed for gamma-emitting radionuclides. Table 4.10-1 presents the analytical suite for each sample. Figure 4.0-2 shows the sampling locations.

Table 4.10-2 presents the radionuclides detected or detected above BV/FV at SWMU 48-007(c). Figure 4.1-2 shows the analytical results and their locations.

- Cesium-137 was detected below the FV in the surface sample at location 48-02170. Activities decreased with depth at this location.
- Uranium-235 was detected above the BV in the sample at depth (1–2 ft), but was not detected in the surface sample at location 48-02166.

4.11 SWMU 48-007(f)—Outfall

SWMU 48-007(f) is an inactive outfall that formerly received discharges from two sink drains in an office and laboratory building (building 48-0046). This outfall is located north of building 48-0001 and discharged into Mortandad Canyon. Discharges could not have started before operations in TA-48 began in 1957 (LANL 1992, 007666). The approximate date that the outfall ceased operating is 1993. This outfall operated as an NPDES-permitted outfall, but was removed from the Laboratory's NPDES permit on December 6, 1995.

The site map of SWMU 48-007(f) is shown in Figure 4.0-1.

4.11.1 Previous Investigations for SWMU 48-007(f)

- 1993: A Phase I RFI was conducted at SWMU 48-007(f). The outfall location was surveyed for radiation and organic vapors. The survey determined radiation levels to be at background screening levels, and no organic vapors were detected. A surface soil sample was collected adjacent to the outfall. A 1.5-ft-deep hand auger boring was made slightly downslope of the outfall, and samples were collected at the surface and one depth interval. A water sample was also collected from the outfall. These samples were field screened for radioactivity and organic chemicals and submitted for analysis of inorganic chemicals and radionuclides using a combination of fixed and mobile laboratories. The subsurface soil sample was also submitted for laboratory analysis of organic chemicals. The RFI activities and results were presented in the RFI report (LANL 1997, 056565).
- 1997: Additional soil samples were collected based on comments received from NMED's review of the Phase I RFI (LANL 1996, 054448 and LANL 1996, 055064). One surface sample and one subsurface sample were collected from the boring near the outfall, and one surface sample and two subsurface samples were collected from the other boring. The RFI activities and results were presented in the RFI report (LANL 1997, 056565).

4.11.2 Analytical Data for SWMU 48-007(f)

Four samples were collected from two locations in 1997 from depths ranging between 0 and 2 ft, and were analyzed for gamma-emitting radionuclides. Table 4.11-1 presents the analytical suite for each sample. Figure 4.0-2 shows the sampling locations.

Table 4.11-2 presents the radionuclide detected above the BV at SWMU 48-007(f). Figure 4.1-2 shows the analytical result and its location.

- Uranium-235 was detected above the BV in the sample at depth (1–2 ft) but was not detected in the surface sample at location 48-02164.

4.12 AOC 48-011—Disposal Shaft

AOC 48-011 consists of a 3-ft-diameter × 65-ft-deep shaft that was drilled into the tuff on the east side of the main radiochemistry laboratory in building 48-0001 at TA-48. This shaft was reportedly drilled in 1976 or 1977 for use in radiation-counting experiments. As part of these experiments, a 2-ft-diameter × 3-ft-long stainless-steel cylinder containing a sodium-iodide radiation detector was lowered into the shaft. This cylinder also contained approximately 3000 lb of lead shielding. As the cylinder was being lowered into the shaft, the cable broke and the cylinder fell to the bottom of the shaft. Because efforts to retrieve the cylinder were unsuccessful, it was left in place (LANL 1992, 007666).

The site map of AOC 48-011 is shown in Figure 4.0-1.

4.12.1 Previous Investigations for AOC 48-011

No RFI activities have been conducted at this AOC.

4.12.2 Analytical Data for AOC 48-011

There are no decision-level data available for this AOC.

4.13 AOC 48-012—Soil Contamination

AOC 48-012 is a small area of stained soil discovered in August 2002, during routine trenching operations east of the main radiochemistry laboratory in building 48-0001 at TA-48. After the stained soil was discovered, trenching operations were shut down in the area, and the site was reported to the NMED as a one-time spill (LANL 2003, 080917).

The site map of AOC 48-012 is shown in Figure 4.0-1.

4.13.1 Previous Investigations for AOC 48-012

- 2002 and 2003: The ER Project, working collaboratively with other Laboratory groups, mobilized to determine the source of the contamination and to fully characterize the nature and extent of contamination. Lack of residual contamination in the upper 3 ft of the fill indicated a subsurface release. A preliminary sample was collected from the stained area, and laboratory results showed elevated concentrations of TPH, naphthalene, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene. Several organic chemicals were detected at much lower concentrations, including ethylbenzene, toluene, xylenes, and some PAHs. A review of engineering drawings revealed no potential subsurface sources for the spill. Using the ground-penetrating radar (GPR) survey, a 50-sample surface grid was established to define the lateral extent of contamination. At each sampling location, soil gas was measured for VOC concentrations using surface flux (EMFLUX) collectors. The collectors adsorbed VOCs from the soil gas for a period of three days. The samplers were collected and analyzed for VOCs, following EPA Method 8020/8015B. Based on the results of the EMFLUX sampling, three boreholes were drilled and sampled for SVOCs and VOCs. Removal of contaminated soil began in September 2002 as a voluntary corrective action (VCA). Approximately 190 cubic yards of contaminated soil were excavated and removed from the site. The area of excavation was approximately 30 ft × 37 ft and down to a depth of 6 ft in the center of the excavation. Following the excavation, confirmation samples were collected, and the excavated area was filled with clean fill. The site was restored to its original condition.
- 2003: A VCA report was submitted to NMED in May 2003 (LANL 2003, 080917). The VCA report details the investigation and cleanup activities associated with AOC 48-012.

4.13.2 Analytical Data for AOC 48-012

Ten confirmation samples were collected from ten locations after the site cleanup in 2002 from depths ranging between 6 and 7.33 ft, and were analyzed for SVOCs and VOCs. Table 4.13-1 presents the analytical suite for each sample. Figure 4.0-2 shows the sampling locations.

All 10 samples were analyzed for SVOCs and VOCs. Table 4.13-2 presents the organic chemicals detected at AOC 48-012. Figure 4.1-3 shows the analytical results and their locations. Acenaphthene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, chrysene, dibenzo(a,h)anthracene, dibenzofuran, 2,4-dimethylphenol, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, 2-methylnaphthalene, 2-methylphenol, 4-methylphenol, naphthalene, phenanthrene, and pyrene were detected.

- All of the organic chemicals were detected at location 48-02-21183.
- Anthracene, benzo(a)anthracene, benzo(b)fluoranthene, chrysene, fluoranthene, phenanthrene, and pyrene were detected at location 48-02-21187.
- Fluoranthene and pyrene were detected at locations 48-02-21182 and 48-02-21185.

- Naphthalene was detected at locations 48-02-21186 and 48-02-21191.
- Phenanthrene was detected at location 48-02-21182.

5.0 SITES UNDER INVESTIGATION IN TA-50

TA-50 is located immediately northeast of the intersection of Pajarito Road and Pecos Drive and occupies approximately 21 acres, MDA C occupies 11.8 acres and the RLWTF and supporting facilities occupy the remaining 8.7 acres. Radioactive liquid wastewater treatment facilities include the wastewater treatment plant and associated RLW transfer and storage systems, equipment decontamination areas and a volume reduction facility. Figure 5.0-1 shows the site features for TA-50. Previous sampling locations are shown in Figures 5.0-2, 5.0-3, and 5.0-4.

5.1 SWMU 50-001(a)—Wastewater Treatment Facility

SWMU 50-001(a) consists of the TA-50 RLWTF (building 50-0001). This treatment plant treats low level wastewater from various parts of the Laboratory. The TA-50 RLWTF has operated continuously since its construction in 1963. The TA-50 RLWTF primarily removes transuranic (TRU) elements using neutralization, flocculation and clarification, pH control, ion exchange filtration, and ultra filtration on reverse osmosis processes. Treated effluent is monitored and discharged to an NPDES-permitted outfall [SWMU 50-006(d)] in Mortandad Canyon. Associated with the TA-50 RLWTF is a system of drainlines and tanks that used to transfer, treat, and temporarily store the liquid waste and treatment sludge. The drainlines and tanks are not part of SWMU 50-001(a). The drainlines make up SWMU 50-002(b), and the tanks make up SWMU 50-002(a) and Consolidated Unit 50-002(b)-00.

In July 1990, core samples collected from boreholes drilled through the floor of building 50-0001, around the pH adjustment tank (also known as the grit chamber), determined that the inlet line to the pH adjustment tank had leaked. Therefore, influent wastes were rerouted to building 50-0002 (LANL 1992, 007672).

The site map of SWMU 50-001(a) is shown in Figure 5.0-1.

5.1.1 Previous Investigations for SWMU 50-001(a)

No RFI activities have been conducted at this SWMU.

5.1.2 Analytical Data for SWMU 50-001(a)

There are no decision-level data available for this SWMU.

5.2 AOC 50-001(b)—Waste Lines and Manholes

AOC 50-001(b) is the active underground drainline system through which liquid waste is transferred to the RLWTF (building 50-0001) at TA-50. A manhole (structure 50-0072) is the central collection area for most incoming liquid waste. Three lines feed into structure 50-0072:

- In 1982, a major line connecting several TAs to this vault was constructed to replace an old line [Consolidated Unit 50-004(a)-00]. The new line consists of a double polyethylene pipe that enters structure 50-0072 from the north side of Pecos Drive (LANL 1992, 007672).

- Another waste line into structure 50-0072, completed in 1982, transports low-level radioactive liquids from structure 50-0073 (a manhole), which receives wastes from building 50-0069 (a volume reduction facility, AOC 50-008) and building 50-0037 (the former incinerator complex, AOC 50-007). This line is a 6-in. polyethylene line encased in a 10-in. polyethylene line that has leak monitor and vacuum test capabilities.
- A third line, also installed in 1982, transports LLW from TA-55 to structure 50-0072 through two manholes (structures 50-0016 and 50-0078). The line consists of an inner stainless-steel pipe encased in a polyvinyl chloride (PVC) pipe and has leak-monitor and vacuum test capabilities. All manholes that transport wastewater to building 50-0001 are monitored continuously.

A single drainline carried all influent from structure 50-0072 into the grit tank at building 50-0001 until a leak around the grit tank was detected in 1990 (LANL 1992, 007672). The line now bypasses the grit chamber and passes through the neutralization chamber before it connects to the building 50-0002 tank vault [SWMU 50-002(a)]. The line consists of an inner 8-in. schedule 40 stainless-steel pipe and an outer 10-in. schedule 10 stainless-steel pipe. Structure 50-0007, another manhole of the influent waste system, is connected to the waste line from the tank truck unloading station (structure 50-0077). Structure 50-0007 has been out of service since the early 1990s (LANL 1992, 007672).

Four other waste lines run from TA-55 to building 50-0001 through structure 50-0106 to tanks in an underground vault (structure 50-0066). Three of the lines are 1.5-in. stainless-steel lines, each encased in 3-in. PVC. Two of the three lines carry caustic and acid wastes with high radioactivity. The third line is a spare that has never been used. The fourth line, which is for industrial waste, is a 2-in.-diameter stainless-steel line encased in 3-in. PVC. The lines operate by gravity flow, and the end of each is continuously monitored at TA-55, and at a manhole (structures 50-0057), and at an acid pit (structure 50-0066) by a drip-tray and conductivity probe system wired to a computer for continuous readout. The three nonindustrial waste lines were replaced in 1994. However, the new lines have not yet been put into service. According to the 1990 SWMU report, there was some concern about contamination from the waste lines carrying TA-55 effluent because the original vacuum seals had lost their integrity (LANL 1990, 007513). However, the drip pans have never collected fluid that showed the inner lines were leaking. The area where the lines run into building 50-0001 and the area west and north of the tank farm (building 50-0002) were sampled in August 1990. Sample results showed no radionuclides above background (LANL 1992, 007672).

The site map of AOC 50-001(b) is shown in Figure 5.0-1.

5.2.1 Previous Investigations for AOC 50-001(b)

- 2001 and 2005: Samples were collected and analyzed for anions, TAL metals, perchlorate, total cyanide, radionuclides, PCBs, pesticides, TPH-DRO, and VOCs.

5.2.2 Analytical Data for AOC 50-001(b)

Eight samples were collected from 0–0.5 ft at six locations and from 70–71 ft and 90–91.5 ft at location 50-24235 in 2001 and 2005. Samples were analyzed for anions, TAL metals, perchlorate, total cyanide, americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, strontium-90, tritium, PCBs, pesticides, TPH-DRO, and VOCs. Table 5.2-1 presents the analytical suite for each sample. Figure 5.0-2 shows the sampling locations.

Six surface samples were analyzed for anions, TAL metals, perchlorate, and total cyanide. The other two samples at location 50-24235 were analyzed only for TAL metals. Table 5.2-2 presents the inorganic chemicals detected without BVs (nitrate) and the inorganic chemicals above BVs at AOC 50-001(b). Figures 5.2-1 and 5.2-2 show the analytical results and their locations. Arsenic, chromium, total cyanide, lead, nitrate, selenium, and zinc were either detected for an analyte without BV, detected above the BVs, or had detection limits above the BVs.

- Arsenic and selenium were not detected, but the detection limits were above the BVs at one location. The detection limits of arsenic were below the maximum background concentration. The detection limits of selenium were above the maximum background concentration.
- Chromium and lead were detected above the BVs at location 50-24235. Chromium was detected below the maximum background concentration, and lead was detected above the maximum background concentration. Concentrations decreased with depth for both.
- Total cyanide was not detected, but the detection limits were slightly above the BV at six locations.
- Nitrate was detected at six locations.
- Zinc was detected above the BV and the maximum background concentration in the only depth interval sampled at 50-24713.

Six surface samples were analyzed for americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic thorium, isotopic uranium, strontium-90, and tritium. The other two samples at location 50-24235 were analyzed for gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, and strontium-90. Table 5.2-3 presents the radionuclides detected at AOC 50-001(b). Figure 5.2-3 shows the analytical results and their locations.

- Tritium was detected in the only depth interval sampled at locations 50-24708, 50-24709, 50-24711, 50-24713, and 50-24715.

Six surface samples were analyzed for VOCs. The other two samples at location 50-24235 were analyzed for PCBs, pesticides, SVOCs, and TPH-DRO. Table 5.2-4 presents the organic chemicals detected at AOC 50-001(b). Figure 5.2-4 shows the analytical results and their locations.

- Methylene chloride was detected in the only depth interval sampled at location 50-24710. The concentration was below the estimated quantitation limit (EQL).

5.3 SWMU 50-002(a)—Underground Tanks

SWMU 50-002(a) consists of an underground, reinforced-concrete vault (building 50-0002) that houses an equipment room, six flow-through process tanks, and several waste-transfer lines, all of which are associated with the TA-50 RLWTF (building 50-0001). The floor of the vault is 17 ft below ground. The holding tanks located within the vault (building 50-0002) include two incoming raw-waste tanks (25,000 gal. and 75,000 gal.) and two 25,000-gal. tanks used to store treated waste for reuse. The fifth tank (capacity 25,000 gal.) flows into the 75,000-gal. tank and was previously used to store waste during D&D activities; currently, this tank receives waste from chemistry laboratories in the building. The sixth tank (capacity 30,000 gal.) originally functioned as a holding tank for low-level sludge. In June 2001, the 30,000-gal. tank was drained, rinsed, and taken off-line by closing its valve; currently, this tank is available for standby use.

Wastes are transported to the vault (building 50-0002) through a system of transfer lines. Waste transfer lines include six cast-iron lines (including lines 55 and 67) connecting the RLWTF (building 50-0001) to the equipment room in the vault (building 50-0002); four steel lines added in 1984 to connect Room 61 to the equipment room in building 50-0002; five cast-iron lines from drains in building 50-0001 and one cast-iron line from a sink in the former vehicle-decontamination bay in building 50-0001 to the former D&D tank in building 50-0002; an influent line connecting building 50-0002 to a 100,000-gal. holding tank (structure 50-0090); and an effluent line connecting the holding tank to one of the 25,000-gal. influent tanks in the building 50-0002 vault.

In July and September 1974, two separate, unintentional operational releases occurred from the overflow of a sump in building 50-0002. Both releases caused untreated wastewater to be discharged to waste lines 55 and 67 (the waste lines for treated effluent) and into the outfall area at the head of Ten Site Canyon [see SWMU 50-006(a)]. In February 1975, waste line 67 was plugged at its outfall. In 1990, the integrity of the building 50-0002 tank vault and the pipelines tied from the vault to building 50-0001 were checked, and no leaks were found (LANL 1992, 007672).

The site map of SWMU 50-002(a) is shown in Figure 5.0-1.

5.3.1 Previous Investigations for SWMU 50-002(a)

- 1995: One sample was collected at SWMU 50-002(a). No additional RFI activities have been conducted at this SWMU.

5.3.2 Analytical Data for SWMU 50-002(a)

One sample was collected from 0.33–0.66 ft at location 50-03050 in 1995, and was analyzed for TAL metals, total uranium, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, strontium-90, tritium, PCBs and pesticides as a combined suite, SVOCs, and VOCs. Table 5.3-1 presents the analytical suite for this sample. Figure 5.0-2 shows the sampling location.

Table 5.3-2 presents the inorganic chemicals above BVs at SWMU 50-002(a). Figure 5.2-2 shows the analytical results and the location. Antimony, chromium, cobalt, and selenium were either detected above the BVs or had detection limits above the BVs.

- Antimony and selenium were not detected, but the detection limits were above the BVs and the maximum background concentrations at this location.
- Chromium was detected above the BV but below the maximum background concentration at this location.
- Cobalt was detected above the BV at this location.

Table 5.3-3 presents the radionuclide detected at SWMU 50-002(a). Figure 5.3-1 shows the analytical result and the location.

- Tritium was detected at this location.

This tuff sample was analyzed for PCBs and pesticides as a combined suite, SVOCs, and VOCs. No organic chemicals were detected.

5.4 Consolidated Unit 50-002(b)-00—Vaulted Underground Tanks for TA-55 waste

Consolidated Unit 50-002(b)-00 consists of SWMUs 50-002(b and c), two waste tanks (structures 50-0067 and 50-0068), and their associated inlet and outlet lines housed in an underground, reinforced-concrete tank vault (structure 50-0066) at the TA-50 RLWTF [building 50-0001, SWMU 50-001(a)]. The concrete vault measures 18 ft × 16 ft × 14 ft deep and is located about 30 ft from the southwest corner of building 50-0001. The two waste tanks and the tank vault were constructed exclusively to store radioactive caustic waste (structure 50-0067) and acidic waste (structure 50-0068) from TA-55, where TRU wastes are generated. TRU wastes are processed separately from other wastes. The inlet lines consist of four stainless-steel pipes encased in PVC. One line is a capped backup. The second line carries radioactive acid waste to the acid waste tank. The third line carries radioactive caustic waste to the caustic tank. Wastes are transferred from the tanks through two double stainless-steel lines to Room 60, building 50-0001. The operation is monitored for criticality hazards, and necessary adjustments are made before treatment. The fourth line carries RLW to a manhole (structure 50-0072) [see AOC 50-001(b)]. No documented releases are associated with Consolidated Unit 50-002(b)-00 (LANL 1992, 007672).

The site map of Consolidated Unit 50-002(b)-00 is shown in Figure 5.0-1.

5.4.1 Previous Investigations for Consolidated Unit 50-002(b)-00

No RFI activities have been conducted at this consolidated unit.

5.4.2 Analytical Data for Consolidated Unit 50-002(b)-00

There are no decision-level data available for this consolidated unit.

5.5 AOC 50-002(d)—Aboveground Storage Tank

AOC 50-002(d) is a decommissioned aboveground 5000-gal. stainless-steel tank (structure 50-0005) located at TA-50, building 50-0001 (the RLWTF). The tank is outside and adjacent to the north wall of Room 63D. Before decommissioning, the tank was used for the storage of product (nitric acid). The storage tank was part of the ion-exchange column system at the RLWTF (building 50-0001). The ion-exchange system was designed to remove any radioisotopes not previously removed by the clariflocculator system at the RLWTF. Because the clariflocculator system was so successful in removing radioisotopes from wastewater to levels consistently below DOE limits at the time, the ion-exchange column was rarely used and the tank was consequently never filled to capacity. In late 1964, a new tank (structure 50-0005) replaced the original nitric acid tank after the original rubber-lined carbon steel tank reportedly leaked. The new tank is supported on concrete saddles that extend 5 ft bgs. A concrete sump filled with limestone chips (structure 50-0012) was installed beneath the new tank. The tank was vented to the sump to neutralize any nitric acid vapors emitted when the tank was filled. Retaining walls and a concrete slab were installed in 1988 to contain any spillage. Structure 50-0005 was managed in accordance with LANL's Spill Prevention Control and Countermeasures Plan (40 CFR 112). No documented releases have occurred (LANL 2000, 067470.24). The tank was decommissioned (emptied, triple rinsed, and all piping disconnected) in 1996 (LANL 2000, 067470.24).

The site map of AOC 50-002(d) is shown in Figure 5.0-1.

5.5.1 Previous Investigations for AOC 50-002(d)

No sampling activities have been conducted at this AOC.

5.5.2 Analytical Data for AOC 50-002(d)

There are no decision-level data available for this AOC.

5.6 AOC 50-003(a)—Container Storage Area

AOC 50-003(a) is a former RCRA interim status unit that was located in Room 59, building 50-0001. This unit was used to store containers of solid, cemented mixed-TRU sludge resulting from waste treatment activities. During its period of operation, this AOC operated in accordance with the requirements of 20.4.1.600 NMAC 4.1 and 40 CFR 265, Subparts A-D, and I. The New Mexico Environment Department approved clean closure for AOC 50-003(a) in November 2004 (NMED 2004, 098488).

The site map of AOC 50-003(a) is shown in Figure 5.0-1.

5.6.1 Previous Investigations for AOC 50-003(a)

No sampling activities have been conducted at this AOC.

5.6.2 Analytical Data for AOC 50-003(a)

There are no decision-level data available for this AOC.

5.7 Consolidated Unit 50-004(a)-00—Historical Waste Lines and Underground Vault

Consolidated Unit 50-004(a)-00 consists of SWMUs 50-004(a, b, and c), which are former components of the TA-50 RLWTF, building 50-0001.

SWMU 50-004(a) consists of the former locations of underground RLW and industrial waste lines. These waste lines routed wastes to the TA-50 RLWTF from TAs located along Pajarito Road. The majority of these waste lines were decommissioned and removed in 1975, when excavated soil was characterized for radioactive constituents and remediated to meet then current regulatory levels (LANL 1992, 007672).

SWMU 50-004(b) is the location of a decommissioned underground vault (structure 50-0003) that housed three stainless-steel-lined concrete storage tanks. The tanks, ranging in volume from 1000 to 4500 gal., were used to collect and store wastewater from the Omega Reactor, formerly at TA-02. Waste lines to this tank vault included waste line 49 from TA-35 and waste line 50 from building 50-0001. Waste line 49, the vault, and the tanks were removed in 1989. Soil sampled during decommissioning was screened for radionuclides and chemical constituents. No elevated concentrations were detected (LANL 1992, 007672).

SWMU 50-004(c) consists of 13 industrial waste lines (lines 44, 45, 45a, 46, 47, 48, 48a, 49, 54, 55, 56, 65, and 67) and three associated manholes (structures 50-0006, 50-0055, and 50-0056) that discharged to the decommissioned underground tank vault (structure 50-0003). With the exception of waste line 56, all of the waste lines and manholes associated with the underground vault [SWMU 50-004(b)] were removed between 1981 and 1989 (Elder et al. 1986, 003089; LANL 1992, 007672). Waste line 56 remains in service. Radionuclide contamination encountered during decommissioning of the waste lines and manholes was remediated to regulatory levels at that time through removal of the pipe and affected soil to approximately 19 ft below grade. Field screening for radionuclides confirmed that then current regulatory levels were met (LANL 1992, 007672).

The site map of Consolidated Unit 50-004(a)-00 is shown in Figure 5.0-1.

5.7.1 Previous Investigations for Consolidated Unit 50-004(a)-00

- 1993 and 1994: An RFI was conducted at SWMUs 50-004(a and c). The RFI included the trench and manholes through which a 520-ft section of the original 6-in. vitrified clay pipe waste line passed. Five vertical boreholes located approximately 100 ft apart were advanced along the waste line trench. Eleven samples, collected from the five boreholes, were field screened for radionuclides and organic vapors. Radionuclide screening results were all at or near background. The samples were submitted to an off-site laboratory for analysis of inorganic chemicals, radionuclides, PCBs, SVOCs, and VOCs. The RFI activities and results were presented in the RFI report (LANL 1996, 054836).

  No additional RFI activities have been conducted at SWMU 50-004(b).

  At SWMU 50-004(c), 67 samples were collected from depths up to approximately 14 ft in 29 locations. Samples were field screened for radionuclides and organic vapors and submitted for off-site laboratory analysis of inorganic chemicals, radionuclides, PCBs, SVOCs, and VOCs. The RFI activities and results were presented in the RFI report (LANL 1996, 054836).

- 2001: Drilling and sampling of eight boreholes was conducted to characterize subsurface materials at the location of the proposed TA-50 pump house and influent storage tanks and an associated manhole. SWMUs 50-004(b and c) and 50-011(a) are located within the proposed construction area. Six borings were advanced and sampled to 25 ft, one was advanced and sampled to 23 ft, and one was advanced and sampled to 90 ft. Samples were analyzed at an uncertified off-site laboratory for metals, radionuclides, PCBs, pesticides, SVOCs, THP-DRO, and VOCs (LANL 2005, 087834).
- 2003: Supplemental RFI sampling was conducted for SWMU 50-004(c). Samples were analyzed for anions, metals, and radionuclides (LANL 2005, 087834). The sampling results are discussed below.

5.7.2 Analytical Data for Consolidated Unit 50-004(a)-00

A total of 74 samples were collected from 31 locations in 1993, 1994, and 2003 from depths ranging between 0 and 28 ft, and were analyzed for TAL metals, perchlorate, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, strontium-90, tritium, and SVOCs. Table 5.7-1 presents the analytical suite of each sample. Figure 5.0-2 shows the sampling locations.

A total of 73 samples from 30 locations were analyzed for TAL metals, and 6 samples from 5 locations were analyzed for perchlorate. Table 5.7-2 presents the inorganic chemicals above BVs at Consolidated Unit 50-004(a)-00. Figures 5.2-1 and 5.2-2 show the analytical results and their locations. Aluminum, antimony, arsenic, barium, beryllium, cadmium, calcium, chromium, copper, lead, magnesium, mercury, nickel, potassium, selenium, silver, thallium, and zinc were either detected above the BVs or had detection limits above the BVs.

- Aluminum was detected above the BVs at four locations. Aluminum was detected above the maximum background concentration at location 50-03038. Concentrations increased with depth at this location. It was detected below the maximum background concentration at three locations.
- Antimony was not detected, but the detection limits were above the BV and the maximum background concentration at all 30 locations. Antimony was detected above the BV and the maximum background concentration at 50-03032. Concentrations decreased with depth at this location.

- Arsenic was detected above the BV at two locations. Arsenic was detected above the maximum background concentration at location 50-03005. Concentrations increased with depth at this location. Arsenic was detected below the maximum background concentration at location 50-03002.
- Barium was detected above the BV at nine locations. Barium was detected above the maximum background concentration at locations 50-03008, 50-03021, 50-03025, and 50-03038. Concentrations increased with depth at locations 50-03021, 50-03025, and 50-03038, and decreased with depth at location 50-03008. Barium was detected below the maximum background concentration at locations 50-03003, 50-03018, 50-03020, 50-03022, and 50-03032.
- Beryllium was detected above the BV at four locations. Beryllium was detected above the maximum background concentration at locations 50-03009 and 50-03028. Concentrations increased with depth at location 50-03028 and decreased with depth at location 50-03009. Barium was detected below the maximum background concentration in tuff at locations 50-03017 and 50-03038.
- Cadmium was detected above the BV or the detection limits were above the BV in fill at 23 locations. All concentrations and detection limits were below the maximum background concentration.
- Calcium was detected above the BV at seven locations. Calcium was detected above the maximum background concentration at six locations. Concentrations increased with depth at locations 50-03017, 50-03018, 50-03020, 50-03021, and 50-03038, and decreased with depth at location 50-03009. Calcium was detected below the maximum background concentration at one location.
- Chromium was detected above the BV at two locations. Chromium was detected above the maximum background concentration in the deepest depth interval sampled at location 50-03001, and was detected below the maximum background concentration in the deepest depth interval sampled at location 50-03038.
- Copper was detected above the BV at two locations. Copper was detected above the maximum background concentration at location 50-03009. Concentrations decreased with depth at this location. Copper was detected below the maximum background concentration in the deepest depth interval sampled at location 50-03038.
- Lead was detected above the BV in tuff at three locations. Lead was detected above the maximum background concentration in the deepest depth interval sampled at locations 50-03030 and 50-03033, and was detected below the maximum background concentration in the deepest depth interval sampled at location 50-03035.
- Magnesium was detected above the BV at two locations and a detection limit was above the BV at one location. Both concentrations and the detection limit were below the maximum background concentration.
- Mercury was detected above the BV or the detection limits were above the BV at five locations. Mercury was detected above the maximum background concentration at location 50-03009. Concentrations decreased with depth at this location. Mercury was not detected at the other four locations.
- Nickel was detected above the BV at five locations. Nickel was detected above the maximum background concentration in the deepest depth interval sampled at locations 50-03001, 50-03028, and 50-03038. Nickel was detected below the maximum background concentration at locations 50-03009 and 50-03024.

- Potassium was detected above the BV and below the maximum background concentration at location 50-03009.
- Selenium was not detected, but the detection limits were above the BV and the maximum background concentration at 28 locations.
- Silver was not detected, but the detection limit was above the BV at location 50-03009. Silver was not detected, but the detection limit was above the BV and the maximum background concentration at location 50-03028.
- Thallium was detected above the BV but below the maximum background concentration at location 50-03035.
- Zinc was detected above the BV but below the maximum background concentration at location 50-03009.

All 74 samples from the 31 locations were analyzed for gamma-emitting radionuclides, isotopic uranium, and tritium. A total of 72 samples from 30 locations were analyzed for isotopic plutonium. One sample at location 50-05031 was analyzed for strontium-90. Table 5.7-3 presents the radionuclides detected or detected above the BVs/FVs at Consolidated Unit 50-004(a)-00. Figures 5.2-3 and 5.3-1 show the analytical results and their locations. Americium-241, cesium-137, plutonium-238, plutonium-239/plutonium-240, tritium, and uranium-235 were detected or detected above the BVs/FVs.

- Americium-241 was detected at locations 50-03003, 50-03009, and 50-03017 at depths where the FV does not apply. Activities decreased with depth at these locations.
- Cesium-137 was detected at seven locations at depths where the FV does not apply. Activities decreased with depth at these locations.
- Plutonium-238 was detected at eight locations at depths where the FV does not apply. Activities decreased with depth at six locations, and activities increased with depth at two locations.
- Plutonium-239/plutonium-240 was detected above the FV or at depths where the FV does not apply at 26 locations. Activities increased with depth at six locations, and decreased with depth at 19 locations. Plutonium-239/plutonium-240 was detected in the only depth interval sampled at location 50-05031.
- Tritium was detected at 18 locations. Activities increased with depth at six locations, decreased with depth at nine locations, and did not change substantially at two locations. Tritium was detected in the only depth interval sampled at location 50-05031.
- Uranium-235 was detected above the BV at locations 50-03001, 50-03002, and 50-03008. Activities decreased with depth at these locations.

One sample at location 50-05031 was analyzed for SVOCs. No organic chemicals were detected.

5.8 SWMU 50-006(a)—Operational Release

SWMU 50-006(a) is the outfall area at the head of Ten Site Canyon impacted by two accidental operational releases when a sump in a pumping station (building 50-0002) overflowed, causing untreated wastewater to be discharged to waste lines 55 and 67 (the waste lines for treated effluent). The releases occurred in July and September 1974 (LANL 1995, 049925). In February 1975, waste line 67 was plugged at its outfall. A soil sample collected from the outfall area when waste line 67 was plugged showed elevated levels of gross alpha radioactivity. Analysis of additional soil samples collected below the waste line 67 outfall in September 1976 showed elevated levels of gross-alpha radioactivity extending 984 ft downgradient from the outfall. In 1981, both waste lines 55 and 67 were completely removed (Elder et al. 1986, 003089). During waste line removal, elevated levels of radionuclides, including plutonium-239, ruthenium-106, cesium-137, strontium-89, and yttrium-90 were detected. As a result, the outfall area was partially decontaminated by the removal of 70 cubic meters of contaminated soil from the outfall location (LANL 1992, 007672).

The site map of SWMU 50-006(a) is shown in Figure 5.0-1.

5.8.1 Previous Investigations for SWMU 50-006(a)

- 1993: An RFI was conducted at SWMU 50-006(a) to determine the nature and extent of radionuclide and hazardous chemical contamination in and around the area of the Ten Site Canyon outfall. Samples were collected below the former waste line outfall, on both banks of the drainage channel, and in the canyon drainage channel at regular intervals over a distance of approximately 1300 ft downstream from the TA-50 boundary. Samples were field screened for organic vapors and radioactivity. Elevated gross-alpha radiation was detected at one screening sampling location, resulting in the selection of additional sampling locations upstream and downstream from the area with elevated gross alpha radiation. Samples were analyzed for inorganic chemicals, radionuclides, VOCs, SVOCs, and PCBs/pesticides. The RFI activities and results were presented in the RFI report (LANL 1995, 049925).
- 1996: An IA was implemented to remove the contaminated sediment. Approximately 0.72 cubic yards of radioactively contaminated soil was excavated and removed. Ten confirmation samples were collected from the excavated area and analyzed for gross-alpha and beta radioactivity. Results reported in the 1997 IA report showed that residual gross-alpha radiation levels met the IA cleanup levels (LANL 1997, 055834).
- 2005: One sample was collected downgradient from the SWMU in the canyon channel at location 50-06520.

5.8.2 Analytical Data for SWMU 50-006(a)

A total of 124 samples were collected from 62 locations in 1993 and 2005 from depths ranging between 0 and 4 ft, and were analyzed for anions, TAL metals, perchlorate, phosphorous, americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, strontium-90, tritium, PAHs, PCBs, pesticides, SVOCs, and VOCs. Table 5.8-1 presents the analytical suite of each sample. Figure 5.0-3 shows the sampling locations.

One sample at location 50-06520 was analyzed for anions, perchlorate, and phosphorous. A total of 66 samples from 31 locations were analyzed for TAL metals. Table 5.8-2 presents the inorganic chemical detected without BV (total phosphorus) and the inorganic chemicals above BVs at SWMU 50-006(a). Figure 5.8-1 shows the analytical results and their locations. Antimony, barium, cadmium, lead, nickel, selenium, silver, thallium, and total phosphorus were either detected for an analyte without BV (total phosphorus), or detected above the BVs, or had detection limits above the BVs.

- Antimony was not detected, but the detection limits were above the BVs in soil and sediment and the maximum background concentration in soil at all 31 locations.
- Barium was detected above the BV and the maximum background concentration at location 50-06533. Concentrations decreased with depth at this location.

- Cadmium was detected above the BV or the detection limits were above the BV at all 31 locations. Cadmium was detected above the maximum background concentration at 14 locations. Concentrations decreased with depth at locations 50-06517, 50-06520, 50-06528, 50-06529, 50-06536, and 50-06537, and did not change with depth at location 50-06531. Cadmium was detected in the only depth interval sampled at nine locations. Cadmium was detected below the maximum background concentration at three locations.
- Lead was detected above the BV at four locations. Lead was detected above the maximum background concentration at locations 50-06528 and 50-06536. Concentrations decreased with depth at both locations. Lead was detected below the maximum background concentration at the other two locations.
- Nickel was detected above the BV and the maximum background concentration in sediment at locations 50-06528, 50-06531, and 50-06541. Concentrations decreased with depth at three locations.
- Selenium was detected above the BV and the maximum background concentration at location 50-06533. Selenium was not detected but the detection limits were above the BV at 27 locations.
- Silver and thallium were not detected, but the detection limits were above the BV at all 31 locations.
- Total phosphorus was detected at location 50-06520. Concentrations decreased with depth at this location.

A total of 39 samples from 20 locations were analyzed for americium-241. All 124 samples from the 62 locations were analyzed for gamma-emitting radionuclides, isotopic plutonium, and strontium-90. A total of 123 samples from all 62 locations were analyzed for isotopic uranium and tritium. Table 5.8-3 presents the radionuclides detected above BVs at SWMU 50-006(a). Figures 5.8-2 through 5.8-5 shows the analytical results and their locations. Americium-241, cesium-137, cobalt-60, plutonium-238, plutonium-239/plutonium-240, strontium-90, tritium, uranium-234, uranium-235, and uranium-238 were detected or detected above the BVs/FVs.

- Americium-241 was detected above the FV at 21 locations. Americium-241 was detected above the FV in the only depth interval sampled at nine locations. Activities increased with depth at location 50-06558. Activities decreased with depth at 11 locations.
- Cesium-137 was detected above the FV at 16 locations. Cesium-137 was detected above the FV in the only depth interval sampled at four locations. Activities increased with depth at two locations. Activities decreased with depth at 10 locations.
- Cobalt-60 was detected in the surface sample at location 50-06556. Activities decreased with depth at this location.
- Plutonium-238 was detected above the FV or at depths where the FV does not apply at 55 locations. Plutonium-238 was detected above the FV in the only depth interval sampled at 24 locations. Activities increased with depth at four locations. Activities decreased with depth at 26 locations. Activities did not change substantially with depth at location 50-06529.
- Plutonium-239/plutonium-240 was detected above the FV or at depths where the FV does not apply at 43 locations. Plutonium-239/plutonium-240 was detected above the FV in the only depth interval sampled at 15 locations. Activities increased with depth at four locations. Activities decreased with depth at 24 locations.

- Strontium-90 was detected above the FV at locations 50-06508, 50-06510, 50-06561, and 50-06568. Strontium-90 was detected above the FV in the only depth interval sampled at locations 50-06510 and 50-06561. Activities increased with depth at location 50-06508. Activities did not change substantially with depth at location 50-06568.
- Tritium was detected above the FV or at depths where the FV does not apply at 40 locations. Tritium was detected above the FV in the only depth interval sampled at 17 locations. Activities increased with depth at nine locations. Activities decreased with depth at 12 locations. Activities did not change substantially with depth at two locations.
- Uranium-234 was detected above the BV in the only depth interval sampled at location 50-06555.
- Uranium-235 was detected above the BV in the only depth interval sampled at location 50-06525.
- Uranium-238 was detected above the BV at 11 locations. Uranium-238 was detected above the BV in the only depth interval sampled at six locations. Activities decreased with depth at five locations.

One sample at location 50-06520 was analyzed for PAHs and pesticides. A total of 34 samples from 21 locations were analyzed for PCBs. A total of 110 samples from 57 locations were analyzed for SVOCs. A total of 25 samples from 15 locations were analyzed for VOCs. Table 5.8-4 presents the organic chemicals detected at SWMU 50-006(a). Figures 5.8-6 and 5.8-7 show the analytical results and their locations. Acenaphthene, acetone, anthracene, aroclor-1254, aroclor-1260, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, benzoic acid, bis(2-ethylhexyl)phthalate, butylbenzylphthalate, carbon tetrachloride, chrysene, dibenzo(a,h)anthracene, dibenzofuran, diethylphthalate, di-n-butylphthalate, fluoranthene, fluorene, 2-hexanone, indeno(1,2,3-cd)pyrene, 4-methyl-2-pentanone, methylene chloride, 2-methylnaphthalene, naphthalene, phenanthrene, pyrene, and toluene were detected.

- Acenaphthene was detected at five locations. Acenaphthene was detected in the only depth interval sampled at locations 50-06509 and 50-06532, and concentrations were below the EQLs. Concentration increased with depth at location 50-06520. Concentrations decreased with depth at locations 50-06531 and 50-06536.
- Acetone was detected at seven locations. Acetone was detected in the only depth interval sampled at locations 50-06559, 50-06561, 50-06562, and 50-06564, and concentrations were below EQLs at these locations except at location 50-06559. Acetone was detected in the deeper sample but not in the shallower sample at location 50-06557, but the concentration was below the EQL. Concentrations decreased with depth at locations 50-06554 and 50-06558.
- Anthracene was detected at five locations. Anthracene was detected in the only depth interval sampled at locations 50-06509 and 50-06532, and concentrations were below the EQLs. Concentration increased with depth at location 50-06520 and decreased with depth at locations 50-06522 and 50-06531.
- Aroclor-1254 was detected at location 50-06520. Concentrations decreased with depth at this location.
- Aroclor-1260 was detected at 13 locations. Aroclor-1260 was detected in the only depth interval sampled at eight locations. Concentrations decreased with depth at five locations.
- Benzo(a)anthracene was detected at 16 locations. Benzo(a)anthracene was detected in the only depth interval sampled at eight locations, and concentrations were below the EQLs at locations 50-06504, 50-06516, 50-06517, 50-06519, 50-06523, and 50-06534. Concentrations increased slightly with depth at location 50-06520 and decreased with depth at seven locations.

- Benzo(a)pyrene was detected at 16 locations. Benzo(a)pyrene was detected in the only depth interval sampled at eight locations, and concentrations were below the EQLs at locations 50-06504, 50-06516, 50-06517, 50-06519, 50-06523, and 50-06534. Concentrations decreased with depth at eight locations.
- Benzo(b)fluoranthene was detected at 17 locations. Benzo(b)fluoranthene was detected in the only depth interval sampled at eight locations, and concentrations were below the EQLs at locations 50-06510, 50-06516, 50-06517, 50-06519, 50-06523, and 50-06534. Concentrations increased slightly with depth at location 50-06520, but were below the EQLs. Concentrations decreased with depth at eight locations.
- Benzo(g,h,i)perylene was detected at nine locations. Benzo(g,h,i)perylene was detected in the only depth interval sampled at four locations, and concentrations were below the EQLs at locations 50-06509, 50-06516, and 50-06534. Concentrations did not change substantially with depth at location 50-06520, and were below the EQLs. Concentrations decreased with depth at four locations.
- Benzo(k)fluoranthene was detected at 14 locations. Benzo(k)fluoranthene was detected in the only depth interval sampled at seven locations, and concentrations were below the EQLs at locations 50-06509, 50-06516, 50-06517, 50-06519, 50-06523, and 50-06534. Concentration increased slightly with depth at location 50-06520 and decreased with depth at six locations.
- Benzoic acid was detected at five locations. Benzoic acid was detected in the only depth interval sampled at location 50-06519. It was detected in the deeper sample but not in the shallower sample at location 50-06502, but the concentration was below the EQL. Concentrations decreased with depth at locations 50-06506, 50-06508, and 50-06539.
- Bis(2-ethylhexyl)phthalate was detected at 23 locations. Bis(2-ethylhexyl)phthalate was detected in the only depth interval sampled at 12 locations, and all concentrations were below the EQLs. Concentrations did not change substantially with depth at three locations, and all concentrations were below the EQLs. Concentrations decreased with depth at eight locations.
- Butylbenzylphthalate was detected at two locations. Butylbenzylphthalate was detected in the only depth interval sampled at location 50-06534, and the concentration was below the EQL. Concentrations decreased with depth at location 50-06531.
- Carbon tetrachloride was detected in the surface sample at location 50-06551. Concentrations decreased with depth at this location.
- Chrysene was detected at 19 locations. Chrysene was detected in the only depth interval sampled at eight locations, and concentrations were below the EQLs at locations 50-06504, 50-06510, 50-06516, 50-06519, 50-06523, and 50-06534. Concentrations decreased with depth at 11 locations.
- Dibenzo(a,h)anthracene was detected at three locations. Dibenzo(a,h)anthracene was detected in the only depth interval sampled at location 50-06532, and the concentration was below the EQL. It was detected in the deepest sample, but the concentration was below the EQL at location 50-06520. It was detected in the surface sample but not in deeper samples at location 50-06522.
- Dibenzofuran was detected in the deepest interval sampled at location 50-06520, but the concentration was below the EQL.
- Diethylphthalate was detected in the deepest interval sampled at location 50-06541, but the concentration was below the EQL.

- Di-n-butylphthalate was detected at 10 locations. Di-n-butylphthalate was detected in the only depth interval sampled at five locations. Concentrations increased with depth at locations 50-06511 and 50-06517, did not change substantially with depth at one location, and decreased with depth at two locations.
- Fluoranthene was detected at 20 locations. Fluoranthene was detected in the only depth interval sampled at eight locations, and concentrations were below the EQLs at locations 50-06504, 50-06510, 50-06516, 50-06519, and 50-06534. Concentrations increased with depth at locations 50-06520 and 50-06539, and decreased with depth at ten locations.
- Fluorene was detected at two locations. Fluorene was detected in the deepest interval sampled at location 50-06520. It was detected in the only depth interval sampled at location 50-06532, but the concentration was below the EQL.
- 2-Hexanone was detected in the only depth interval sampled at location 50-06563.
- Indeno(1,2,3-cd)pyrene was detected at 10 locations. Indeno(1,2,3-cd)pyrene was detected in the only depth interval sampled at locations 50-06509, 50-06516, 50-06532, and 50-06534, and the concentrations were below the EQLs at these locations except at location 50-06532. Concentrations increased with depth at location 50-06520, but the concentrations were below the EQLs. Concentrations decreased with depth at five locations.
- 4-Methyl-2-pentanone was detected in the only depth interval sampled at location 50-06564, but the concentration was below the EQL.
- Methylene chloride was detected in the only depth interval sampled at location 50-06563, but the concentration was below the EQL.
- 2-Methylnaphthalene was detected in the deepest interval sampled at location 50-06520, but the concentration was below the EQL.
- Naphthalene was detected in the deepest interval sampled at location 50-06520, but the concentration was below the EQL.
- Phenanthrene was detected at 15 locations. Phenanthrene was detected in the only depth interval sampled at seven locations, and concentrations were below the EQLs at locations 50-06504, 50-06509, 50-06516, 50-06519, 50-06523, and 50-06534. Concentrations increased with depth at location 50-06520 and decreased with depth at seven locations.
- Pyrene was detected at 21 locations. Pyrene was detected in the only depth interval sampled at nine locations, and concentrations were below the EQLs at locations 50-06504, 50-06510, 50-06516, 50-06519, and 50-06530. Concentrations increased with depth at location 50-06520. Pyrene was detected in the deeper sample but not in the shallower sample at location 50-06539, but the concentration was below the EQL. Concentrations decreased with depth at 10 locations.
- Toluene was detected at 10 locations. Toluene was detected in the only depth interval sampled at six locations, and concentrations were below the EQLs at locations 50-06553, and 50-06561 through 50-06564. Concentrations decreased with depth at four locations.

5.9 SWMU 50-006(c)—Operational Release

SWMU 50-006(c) consists of the surface soil contamination at TA-50 resulting from the deposition of radioactive contaminants (primarily plutonium and americium) from historical stack emissions at TA-50. Emission sources included seven exhaust stacks that ventilated hoods for specific operations at the facility. Buildings 50-0001, 50-0037, and 50-0069 were monitored for radioactive emissions, and resulting data were reported to EPA Region 6 (LANL 1992, 007672; LANL 1995, 049925).

The site map of SWMU 50-006(c) is shown in Figure 5.0-1.

5.9.1 Previous Investigations for SWMU 50-006(c)

- 1993: An RFI was conducted at SWMU 50-006(c) in the summer of 1993. The RFI also included AOCs 50-007 and 50-008, potential surface soil contamination from airborne releases from the incinerator complex (building 50-0037), and the volume reduction facility (building 50-0069). The SWMU and AOCs were investigated as an aggregate because their boundaries are indistinguishable. Samples were collected from five unpaved areas around buildings 50-0001, 50-0037, and 50-0069. Sampling locations were biased toward natural drainage channels, and soil samples were collected from a total of 51 locations. The samples were analyzed for inorganic and organic chemicals, PCBs, and radionuclides. The RFI activities and results were presented in the RFI report (LANL 1995, 049925).

5.9.2 Analytical Data for SWMU 50-006(c)

A total of 51 samples were collected from 51 locations during the RFI in 1993 from 0–0.5 ft, and were analyzed for gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, strontium-90, tritium, and SVOCs. Table 5.9-1 presents the analytical suite of each sample. Figure 5.0-2 shows the sampling locations.

All 51 samples were analyzed for gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, and tritium. A total of 21 samples were analyzed for strontium-90. Table 5.9-2 presents the radionuclides detected or detected above BVs/FVs at SWMU 50-006(c). Figures 5.2-3 and 5.3-1 show the analytical results and their locations. Cobalt-60, plutonium-238, plutonium-239/plutonium-240, thorium-232, and tritium were detected or detected above the BVs/FVs.

- Cobalt-60 was detected at location 50-05024.
- Plutonium-238 was detected above the FV at 14 locations.
- Plutonium-239/plutonium-240 was detected above the FV at 29 locations.
- Thorium-232 was detected above the BV at location 50-05027.
- Tritium was detected or detected above the FV at 41 locations.

A total of 43 samples from 43 locations were analyzed for SVOCs. Table 5.9-3 presents the organic chemicals detected at SWMU 50-006(c). Figures 5.2-4 and 5.9-1 show the analytical results and their locations. Acenaphthene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, bis(2-ethylhexyl)phthalate, chrysene, dibenzo(a,h)anthracene, diethylphthalate, di-n-butylphthalate, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, phenanthrene, and pyrene were detected.

- Acenaphthene and anthracene were detected at locations 50-05042, 50-05047, and 50-05061, and concentrations were all below the EQLs except for anthracene at location 50-05042.
- Benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, and indeno(1,2,3-cd)pyrene were detected at eight locations. Concentrations were below the EQLs for benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, and indeno(1,2,3-cd)pyrene at

locations 50-05041 and 50-05047. Concentration for chrysene was below the EQL at location 50-05047.

- Benzo(a)pyrene was detected at nine locations, and concentrations were below the EQLs at locations 50-05047 and 50-05048.
- Benzo(g,h,i)perylene was detected at seven locations, and concentrations were below the EQLs at locations 50-05041 and 50-05085.
- Bis(2-ethylhexyl)phthalate was detected at locations 50-05044 and 50-05085.
- Dibenzo(a,h)anthracene was detected at locations 50-05007, 50-05042, 50-05061, and 50-05085, and concentrations were below the EQLs at locations 50-05042 and 50-05085.
- Diethylphthalate was detected at location 50-05087, and the concentration was below the EQL.
- Di-n-butylphthalate and fluorene were detected at location 50-05042.
- Fluoranthene and pyrene were detected at 11 locations, and concentrations were below the EQLs at locations 50-05046 and 50-05048.
- Phenanthrene was detected at 10 locations, and the concentration was below the EQL at location 50-05048.

5.10 SWMU 50-006(d)—Effluent Discharge

SWMU 50-006(d) consists of a TA-50 drainline (structure 50-0064) and associated NPDES-permitted outfall (051) in Mortandad Canyon for treated wastewater from the RLWTF (building 50-0001). Structure 50-0064 is a 6-in.-diameter iron discharge pipe that was rerouted in 1983 to accommodate construction of the TA-35 target fabrication facility (building 35-0213). In 1985, EPA Region 6 issued an administrative order to DOE requiring modification of the outfall to mitigate ongoing stream bank erosion caused by the discharge pipe ending 25 ft short of the stream channel. DOE extended the pipe into the stream channel, and EPA subsequently closed the order in 1986 (LANL 1992, 007672).

The site map of SWMU 50-006(d) is shown in Figure 5.0-1.

5.10.1 Previous Investigations for SWMU 50-006(d)

- 1993: Samples were collected in the canyon downgradient from the SWMU.

5.10.2 Analytical Data for SWMU 50-006(d)

A total of 52 samples were collected from 27 locations in the canyon downgradient from the SWMU in 1993 from depths ranging between 0 and 4 ft. Samples were analyzed for gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, strontium-90, tritium, PCBs, and SVOCs. Table 5.10-1 presents the analytical suite for each sample. Figure 5.0-4 shows the sampling locations.

All 52 samples were analyzed for gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, strontium-90, and tritium. Table 5.10-2 presents the radionuclides detected or detected above BVs/FVs at SWMU 50-006(d). Figure 5.10-1 shows the analytical results and their locations. Americium-241, cesium-137, cobalt-60, plutonium-238, plutonium-239/plutonium-240, strontium-90, tritium, uranium-234, uranium-235, and uranium-238 were detected or detected above the BVs/FVs.

- Americium-241 was detected above the FV or at depths where the FV does not apply at 13 locations. Americium-241 was detected in the only depth interval sampled at eight locations.

Activities increased with depth at two locations, did not change substantially with depth at one location, and decreased with depth at two locations.

- Cesium-137 was detected above the FV or at depths where the FV does not apply at 22 locations. Cesium-137 was detected in the only depth interval sampled at nine locations. Activities increased with depth at seven locations, did not change substantially with depth at two locations, and decreased with depth at four locations.
- Cobalt-60 was detected at 14 locations. Cobalt-60 was detected in the only depth interval sampled at seven locations. Activities increased with depth at locations two locations, and decreased with depth at five locations.
- Plutonium-238 was detected above the FV or at depths where the FV does not apply at 24 locations. Plutonium-238 was detected in the only depth interval sampled at nine locations. Activities increased with depth at six locations and decreased with depth at nine locations.
- Plutonium-239/plutonium-240 was detected above the FV or at depths where the FV does not apply at 24 locations. Plutonium-239/plutonium-240 was detected in the only depth interval sampled at nine locations. Activities increased with depth at two locations, did not change substantially with depth at one location, and decreased with depth at 12 locations.
- Strontium-90 was detected above the FV or at depths where the FV does not apply at 15 locations. Strontium-90 was detected in the only depth interval sampled at four locations. Activities increased with depth at seven locations and decreased with depth at four locations.
- Tritium was detected or detected above the FV at 27 locations. Tritium was detected in the only depth interval sampled at 10 locations. Activities increased with depth at nine locations, did not change substantially with depth at five locations, and decreased with depth at three locations.
- Uranium-234 was detected above the BV at eight locations. Uranium-234 was detected in the only depth interval sampled at locations 50-06003 and 50-06011. Activities increased with depth at location 50-06002 and decreased with depth at locations 50-06008, 50-06009, 50-06015, 50-06017, and 50-06020.
- Uranium-235 was detected above the BV at three locations. Uranium-235 was detected in the only depth interval sampled at location 50-06003. Activities decreased with depth at locations 50-06009 and 50-06015.
- Uranium-238 was detected above the BV at eight locations. Uranium-238 was detected in the only depth interval sampled at locations 50-06003, 50-06011, and 50-06026. Activities decreased with depth at locations 50-06008, 50-06009, 50-06015, 50-06017, and 50-06020.

A total of 15 samples from 10 locations were analyzed for PCBs. A total of 50 samples from 26 locations were analyzed for SVOCs. Table 5.10-3 presents the organic chemicals detected at SWMU 50-006(d). Figure 5.10-2 shows the analytical results and their locations. Aroclor-1260, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzoic acid, bis(2-ethylhexyl)phthalate, chrysene, fluoranthene, phenanthrene, and pyrene were detected.

- Aroclor-1260 was detected in the only depth interval sampled at location 50-06011.
- Benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, chrysene, fluoranthene, phenanthrene, and pyrene were detected at location 50-06023. All concentrations decreased with depth at this location.
- Benzoic acid was detected at eight locations. Benzoic acid was detected in the only depth interval sampled at location 50-06026, and the concentration was below the EQL. It was detected in the

deepest sample at locations 50-06005, 50-06018, 50-06020, and 50-06024, and the concentrations were below the EQLs at these locations except at location 50-06005. Concentrations decreased with depth at locations 50-06021, 50-06022, and 50-06023.

- Bis(2-ethylhexyl)phthalate was detected at two locations. Bis(2-ethylhexyl)phthalate was detected in the deepest sample at location 50-06022, but the concentration was below the EQL. Concentration decreased with depth at location 50-06023.

5.11 AOC 50-007—Incinerator

AOC 50-007 is a former incinerator complex that was housed in building 50-0037. The incinerator complex was constructed in 1975 and consisted of the incinerator, various waste-feed components, and two waste-feed tanks. The incinerator was located in Room 112. The former solid and liquid waste feed system was located in Room 115. The liquid feed system preparation room was bermed and had no floor drains. The maximum waste inventory allowed in Room 115 was 600 gal. in two waste-feed tanks.

The incinerator complex was equipped with an off-gas treatment unit, and the exhaust air system from the incinerator included two high-efficiency particulate air filters. Liquid effluent generated by the off-gas aqueous scrub system was filtered to remove solids before transfer to a double instrument-monitored pipeline to the RLWTF (building 50-0001). Ash was stabilized in concrete.

From 1978 to 1987, 23 test burns were successfully conducted for RCRA and TSCA wastes. EPA issued a permit for the incineration of PCBs in 1984, and NMED included the incinerator in a 1989 Hazardous Waste Facility Permit. Actual waste streams incinerated at building 50-0037 after the permits were issued included radioactively contaminated PCBs and scintillation cocktails. Operation of the incinerator was discontinued in 1987 (LANL 1992, 007672). The incinerator was removed in 1998 and has been approved for RCRA closure in November 2004 (NMED 2004, 098973).

The site map of AOC 50-007 is shown in Figure 5.0-1.

5.11.1 Previous Investigations for AOC 50-007

- 1993: An RFI was conducted. In addition to AOC 50-007, the RFI included SWMU 50-006(c) and AOC 50-008. Results are discussed in section 5.9.2 of this HIR.

5.11.2 Analytical Data for AOC 50-007

There are no decision-level data available for this AOC.

5.12 AOC 50-008—Reduction Site

AOC 50-008 is the waste characterization, reduction, and repackaging facility (formerly the volume reduction facility) located at TA-50 in building 50-0069. This active facility was constructed in 1979 to size-reduce large TRU-contaminated metallic items and repackage them into standard-sized containers for ultimate disposal at the Waste Isolation Pilot Plant. The facility, first used in 1982, is an active permitted storage unit operated in accordance with the requirements of 20.4.1.500 NMAC, 40 CFR 264, Subparts A-D and I, and the LANL Hazardous Waste Facility Permit.

The site map of AOC 50-008 is shown in Figure 5.0-1.

5.12.1 Previous Investigations for AOC 50-008

- 1993: An RFI was conducted. In addition to AOC 50-008, the RFI included SWMUs 50-006(c) and AOC 50-007. Results are discussed in section 5.9.2 of this HIR.

5.12.1 Analytical Data for AOC 50-008

There are no decision-level data available for this AOC.

5.13 SWMU 50-009—Material Disposal Site

SWMU 50-009 consists of decommissioned MDA C, established to replace MDA B at TA-21 as a disposal area for Laboratory-derived waste. MDA C operated from May 1948 to April 1974. The northern boundary of MDA C is approximately 50 ft south of the south wall of RLWTF. Wastes disposed at MDA C included liquids, solids, and gases generated from a broad range of nuclear energy research and development activities conducted at the Laboratory, including uncontaminated classified materials, metals, hazardous materials, and radionuclides. Historical reports indicate that it was common practice for chemicals to be burned in the chemical disposal pit at MDA C. At MDA C, 7 pits and 108 shafts were excavated into the overlying soil and tuff (LANL 1992, 007672).

SWMU 50-009, MDA C, is currently under investigation. Phase I investigation has been completed and the investigation report (LANL 2006, 094688) was submitted to NMED in December 2006. A Phase II Work Plan was submitted to NMED (LANL 2007, 098425), and the field activity will start in November 2007.

5.13.1 Previous Investigations for SWMU 50-009

Previous investigations at SWMU 50-009 (MDA C) are presented in the Investigation Report for MDA C (LANL 2006, 094688).

5.13.2 Analytical Data for SWMU 50-009

Analytical results related to this SWMU are presented in the investigation report for MDA C (LANL 2006, 094688).

5.14 AOC 50-010—Decontamination Facility

AOC 50-010 is a former vehicle decontamination bay that was located in Room 34B of the TA-50 RLWTF (building 50-0001). The area was used to clean radioactive contamination from vehicles and large objects used to transport RLW to TA-50. Liquid wastes generated during decontamination activities were transferred to tanks at building 50-0002 through a floor drain and waste line. The decontamination bay was operated from 1963 through October 1999. It was enclosed in 1983. There is no documented evidence of contaminant releases from this facility (LANL 1992, 007672).

The site map of AOC 50-010 is shown in Figure 5.0-1.

5.14.1 Previous Investigations for AOC 50-010

No RFI activities have been conducted at AOC 50-010.

5.14.2 Analytical Data for AOC 50-010

There are no decision-level data available for this AOC.

5.15 SWMU 50-011(a)—Septic System

SWMU 50-011(a) is the location of a former septic system that was installed at TA-50 in 1964 at the south end of the RLWTF (building 50-0001). The septic system consisted of an influent line from building 50-0001 that discharged to a manhole (structure 50-0009) and then to a septic tank (structure 50-0010). The effluent line from the tank tied to a distribution box (structure 50-0011) that discharged to four parallel perforated pipes traversing a leach field.

In 1978, a 4-ft-diameter × 50-ft-deep shaft was drilled at the east end of the leach field to address problems with standing water on the ground surface. A 4-in. perforated pipe was installed in the shaft, and the annulus was backfilled to within 4 ft of the ground surface. The outlets of the four parallel pipes were then tied into the newly installed perforated pipe.

With the exception of the perforated pipe installed in the leach field in 1978, the entire septic system was removed in 1983. Currently, a storage building (50-0083) and an asphalt pad cover the area formerly occupied by the septic system. The 50-ft-deep shaft and perforated pipe remain in place beneath the storage building 50-0083 (LANL 1992, 007672).

The site map of SWMU 50-011(a) is shown in Figure 5.0-1.

5.15.1 Previous Investigations for SWMU 50-011(a)

- 1986: Previous investigations of the area surrounding SWMU 50-011(a) were conducted during decommissioning of the RLW line (Elder et al. 1986, 003089). Excavated soil was characterized for radioactive constituents.
- 1993: An RFI was conducted for radioactive and hazardous waste constituents on surface soil from an unpaved area at TA-50 (LANL 1995, 049925).
- 1994: SWMU 50-011(a) was sampled via four shallow vertical holes up to 10 ft. Samples were collected and analyzed for metals, radionuclides, PCBs, SVOCs, and VOCs. The RFI activities and results were presented in the RFI report (LANL 1996, 054836).
- 2001: In December 2001, drilling and sampling of eight boreholes was conducted to characterize subsurface materials at the location of the proposed TA-50 pump house and influent storage tanks and an associated manhole. SWMUs 50-004(b and c) and 50-011(a) are located within the proposed construction area. Six borings were advanced and sampled to 25 ft. One was advanced and sampled to 23 ft, and one was advanced and sampled to 90 ft. Samples were analyzed at an uncertified off-site laboratory for metals, radionuclides, PCBs, pesticides, SVOCs, TPH-DRO, and VOCs (LANL 2005, 087834).
- 2004: Supplemental RFI sampling was conducted for SWMU 50-011(a). Samples were analyzed for anions, metals, radionuclides, and VOCs (LANL 2005, 087834).

5.15.2 Analytical Data for SWMU 50-011(a)

Eleven samples were collected from six locations in 1994 and 2004 from depths ranging between 6 and 60 ft, and were analyzed for TAL metals, perchlorate, americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, tritium, and VOCs. Table 5.15-1 presents the analytical suite for each sample. Figure 5.0-2 shows the sampling locations.

All 11 samples were analyzed for TAL metals. Four samples from two locations were analyzed for perchlorate. Table 5.15-2 presents the inorganic chemicals above BVs at SWMU 50-011(a). Figure 5.2-2 shows the analytical results and their locations. Antimony and selenium were either detected above the BVs or had detection limits above the BVs.

- Antimony was not detected, but the detection limits were above the BV and the maximum background concentration at four locations.
- Selenium was detected above the BV and the maximum background concentration in the deeper sample at locations 50-03042 and 50-23548. Selenium was not detected in the shallower sample at these two locations. Selenium was not detected, but the detection limits were above the BV and the maximum background concentration at four locations.

Four samples from locations 50-23548 and 50-23549 were analyzed for americium-241. All 11 samples were analyzed for gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, and tritium. Table 5.15-3 presents the radionuclides detected at SWMU 50-011(a). Figure 5.3-1 shows the analytical results and their locations. Plutonium-238, plutonium-239/plutonium-240, and tritium were detected.

- Plutonium-238 was detected at locations 50-03011, 50-03043, and 50-23549. All activities decreased with depth.
- Plutonium-239/plutonium-240 was detected at four locations. Activities decreased with depth at locations 50-03011, 50-03043, and 50-23549. Plutonium-239/plutonium-240 was detected in the deeper sample but not in the shallower sample at location 50-03042.
- Tritium was detected at six locations. Activities increased with depth at 50-23549 and decreased with depth at locations 50-03011, 50-03042, 50-03043, and 50-23548. Tritium was detected in the only depth interval sampled at location 50-03044.

Four samples from two locations were analyzed for VOCs. Table 5.15-4 presents the organic chemicals detected at SWMU 50-011(a). Figure 5.9-1 shows the analytical results and their locations.

- Acetone was detected at both locations. Concentrations did not change substantially with depth, and were all below the EQLs.

5.16 AOC 50-011(b)—Lift Station

AOC 50-011(b) consists of two active sanitary wastewater lift stations (structures 50-0091 and 50-0092) and approximately 400 ft of piping that transport sanitary wastewater from the TA-50 RLWTF (building 50-0001) to the main line that serves the TA-46 SWSC plant. The lift stations are located at TA-50 on the north and south sides of building 50-0001. These sanitary lift stations and associated drainlines were installed in 1983 as part of a utility upgrade. One lift station serves the north end of building 50-0001, and the second lift station serves the south end of the building. This sanitary wastewater system is still active. The wastewater is pumped through each lift station to a 6-in. main on the west side of the building. The 6-in. main runs across Pecos Drive to a sanitary sewer manhole and joins the 5-in. gravity main to the SWSC plant at TA-46 (LANL 1992, 007672).

The site map of AOC 50-011(b) is shown in Figure 5.0-1.

5.16.1 Previous Investigations for AOC 50-011(b)

No sampling activities have been conducted at this AOC.

5.16.2 Analytical Data for AOC 50-011(b)

There are no decision-level data available for this AOC.

6.0 SITE UNDER INVESTIGATION IN TA-55

TA-55 is located on Pecos Drive north of Pajarito Road. The 21-acre site is located on a finger mesa between a branch of Mortandad Canyon on the north and Two Mile Canyon on the south. The elevation of TA-55 ranges from approximately 7100 to 7300 ft. TA-55 was established for the operation of a Plutonium Processing Facility in 1973. Today, TA-55 houses a group of structures inside a security fence. Principle operations conducted at TA-55 include fabrication of plutonium metal components, plutonium processing, and basic research on TRU materials (LANL 1992, 007672). Figure 6.0-1 shows the site features for TA-55.

6.1 SWMU 55-008—Sumps and Tanks

SWMU 55-008 consists of sumps, tanks, and pumps in the basement of the Plutonium Building (55-0004), which is the primary site for plutonium processing, fabrication, and research at LANL. Six sumps/pumps, each with a capacity of 3 cubic ft, collect spills and mop-water generated in the building. Four 8-in.-diameter × 4-ft-long condensate tank pumps and eight 8-in.-diameter × 4-ft-long blowdown tanks receive condensate from cooling coils. It is possible that the liquids discharged to these units may contain small amounts of hazardous and/or radioactive constituents. All liquids collected and contained within these units are transferred through a direct pipeline to the RLWTF at TA-50, and none of these units release liquids to the environment (LANL 1992, 007672).

The site map of SWMU 55-008 is shown in Figure 6.0-1.

6.1.1 Previous Investigations for SWMU 55-008

No RFI activities have been conducted at this SWMU.

6.1.2 Analytical Data for SWMU 55-008

There are no decision-level data available for this SWMU.

7.0 NFA-APPROVED SITES

A total of 56 sites in the Upper Mortandad Canyon Aggregate Area have been approved for NFA by EPA or NMED. A brief site description and the approval document of site completion for each of the sites are presented in Table 1.0-1.

8.0 REFERENCES AND DATA SOURCES FOR FIGURES

8.1 References

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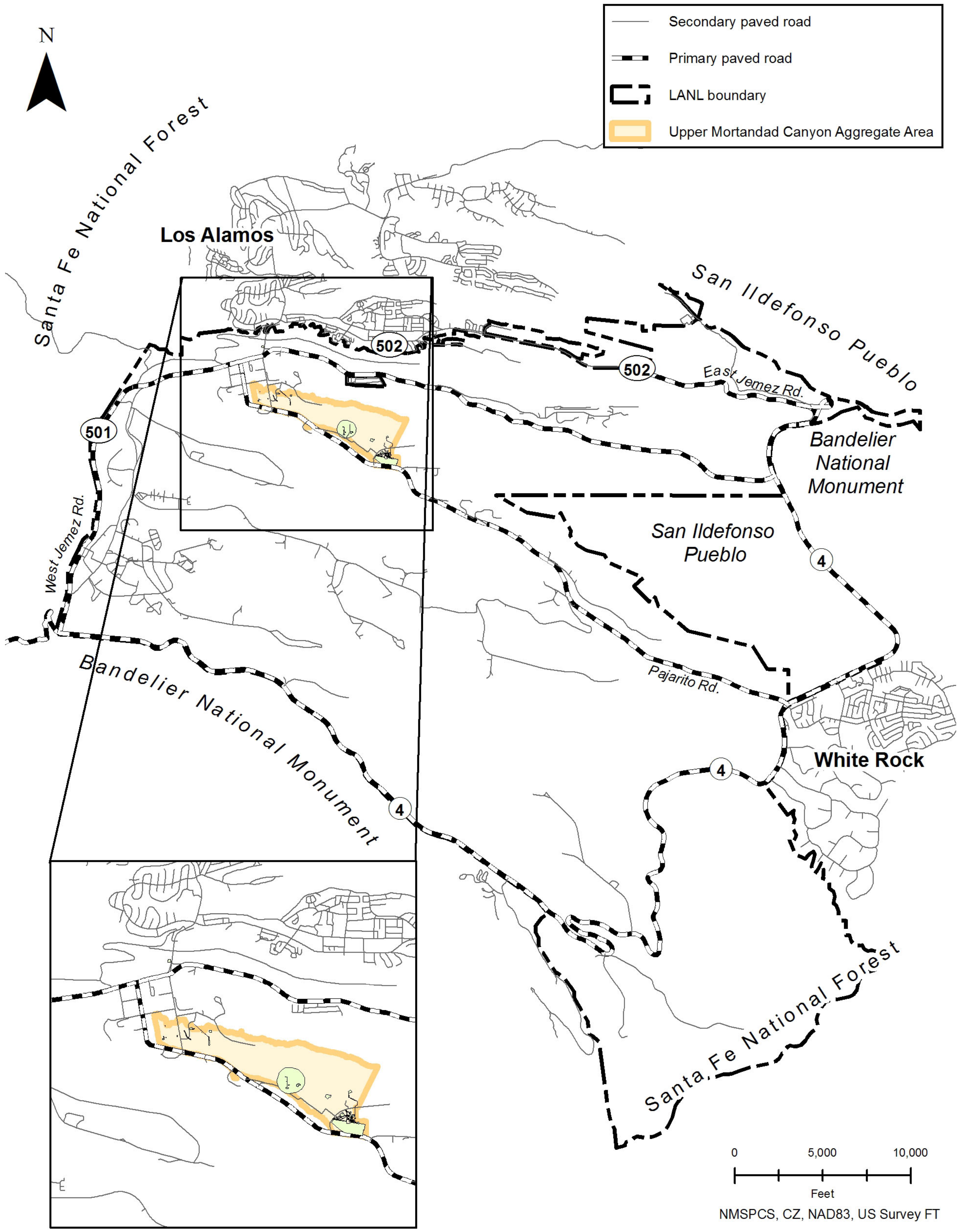

Figure 1.0-1 Location of Upper Mortandad Canyon Aggregate Area with respect to the Laboratory and surrounding land holdings

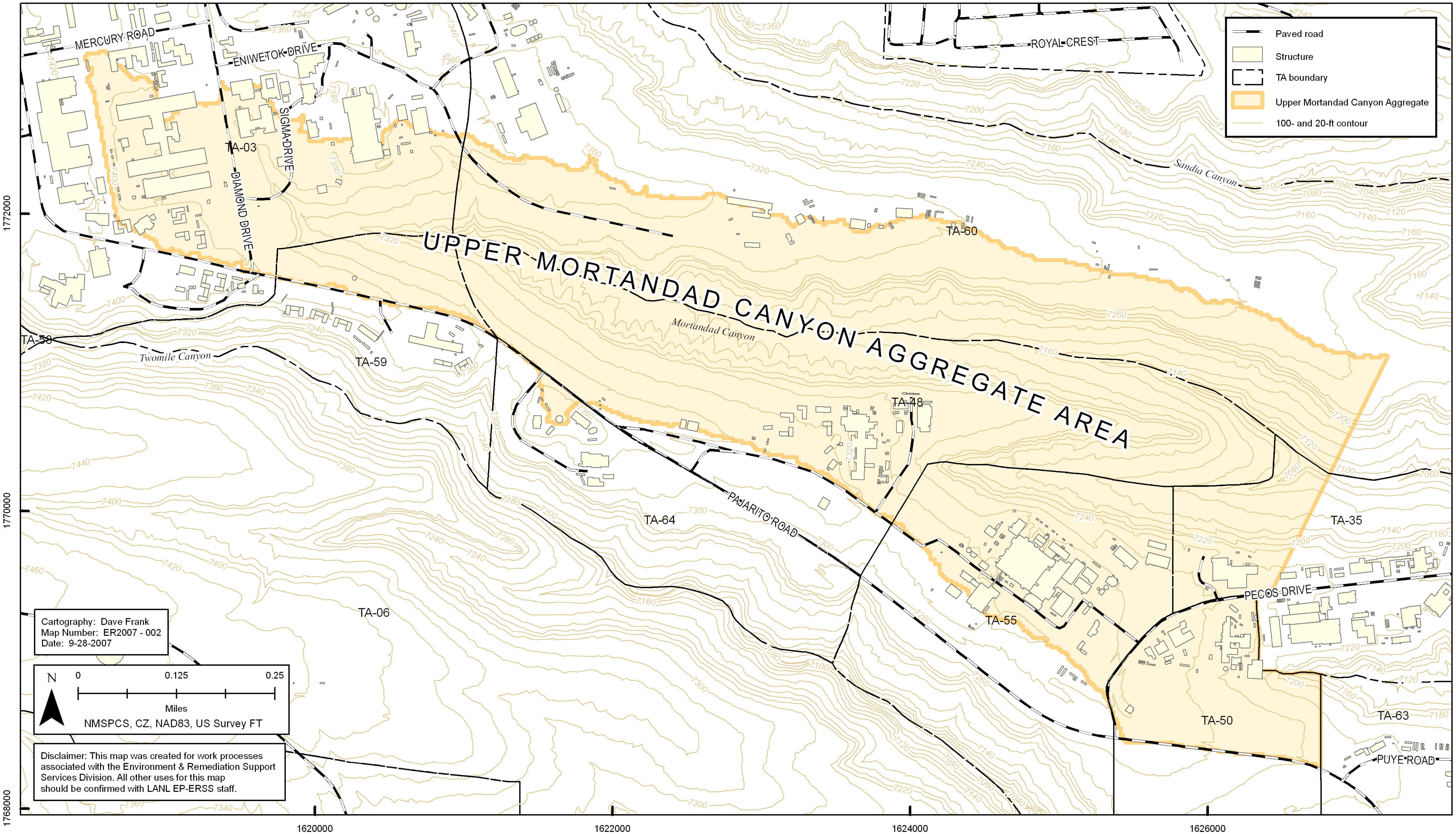

Figure 1.0-2 Location of Upper Mortandad Canyon Aggregate Area with respect to Laboratory technical areas

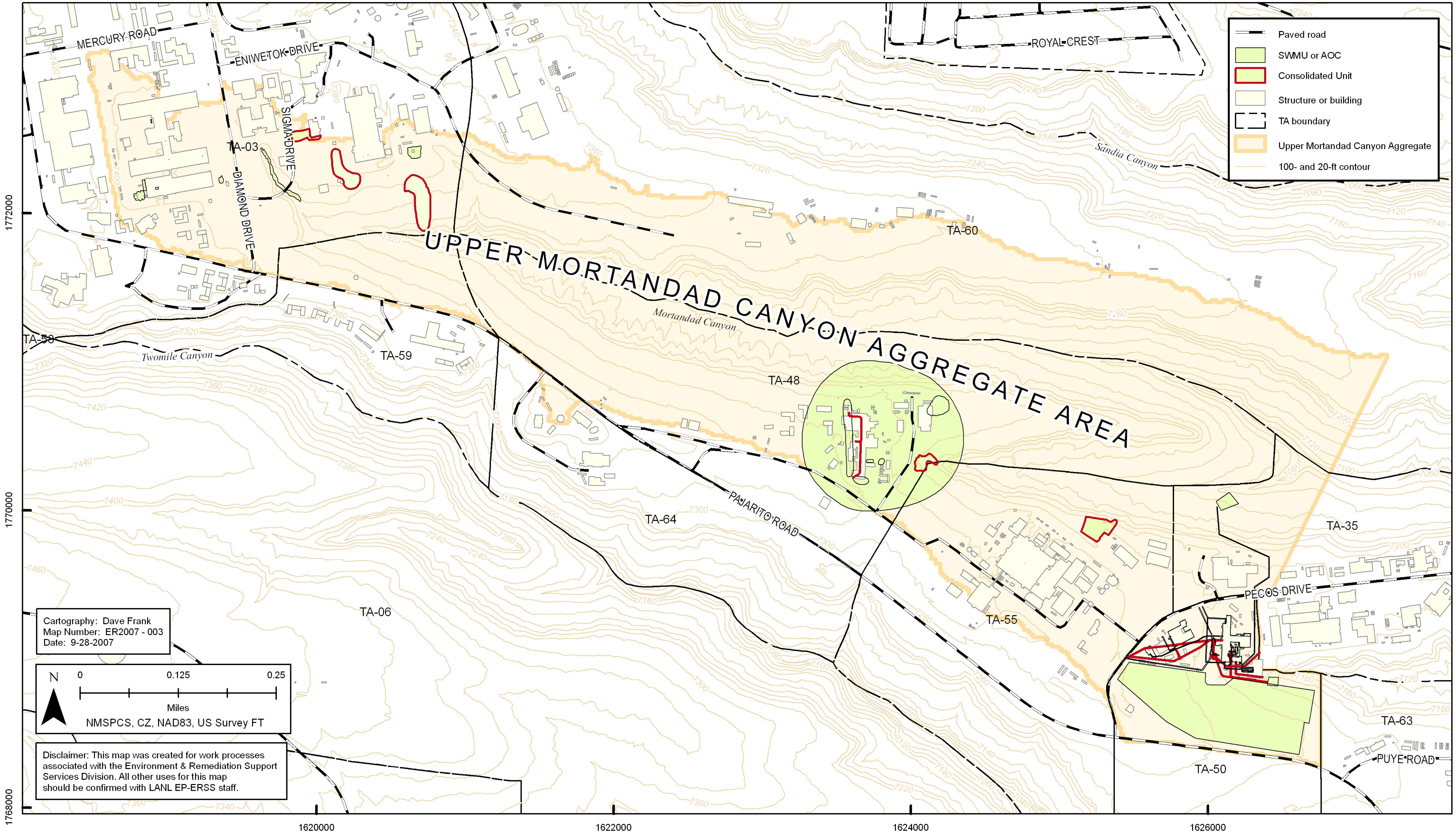

Figure 1.0-3 Location of Upper Mortandad Canyon Aggregate Area SWMUs, AOCs, and consolidated units

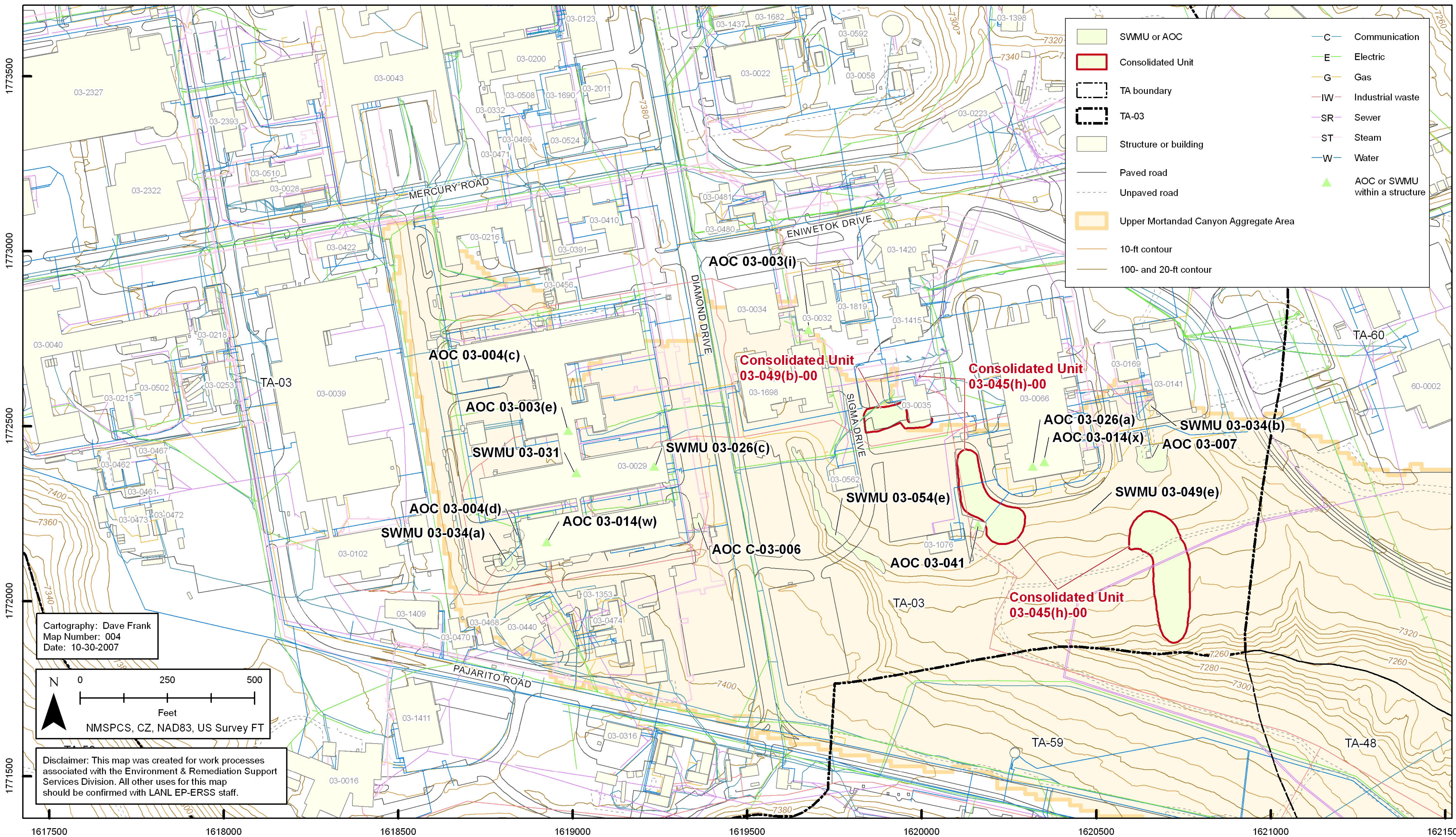

Figure 2.0-1 Site features for TA-03 SWMUs, AOCs, and consolidated units in Upper Mortandad Canyon Aggregate Area

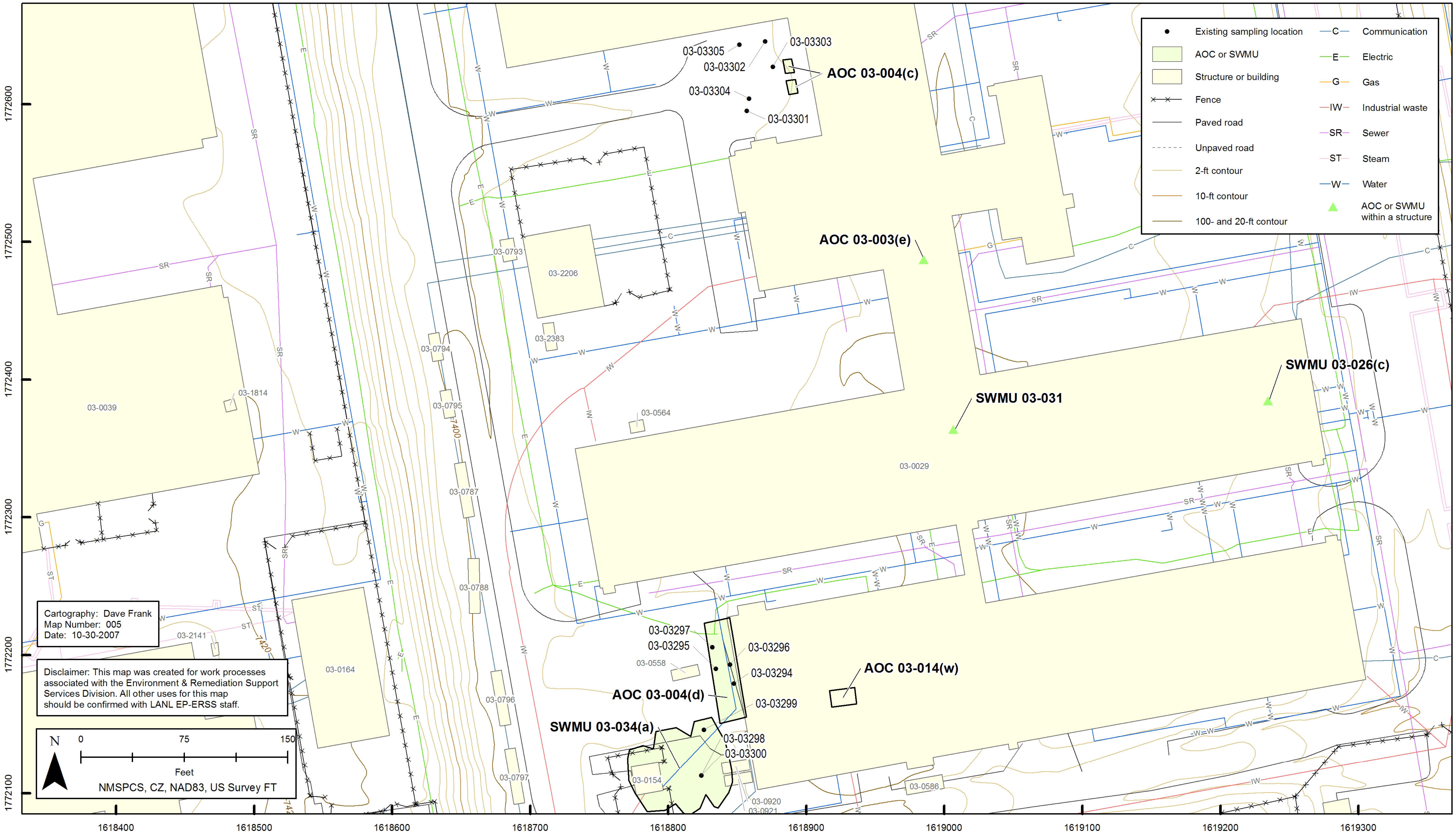

Figure 2.0-2 Site features and previous sampling locations for AOCs 03-004(c) and 03-004(d) and SWMU 03-034(a)

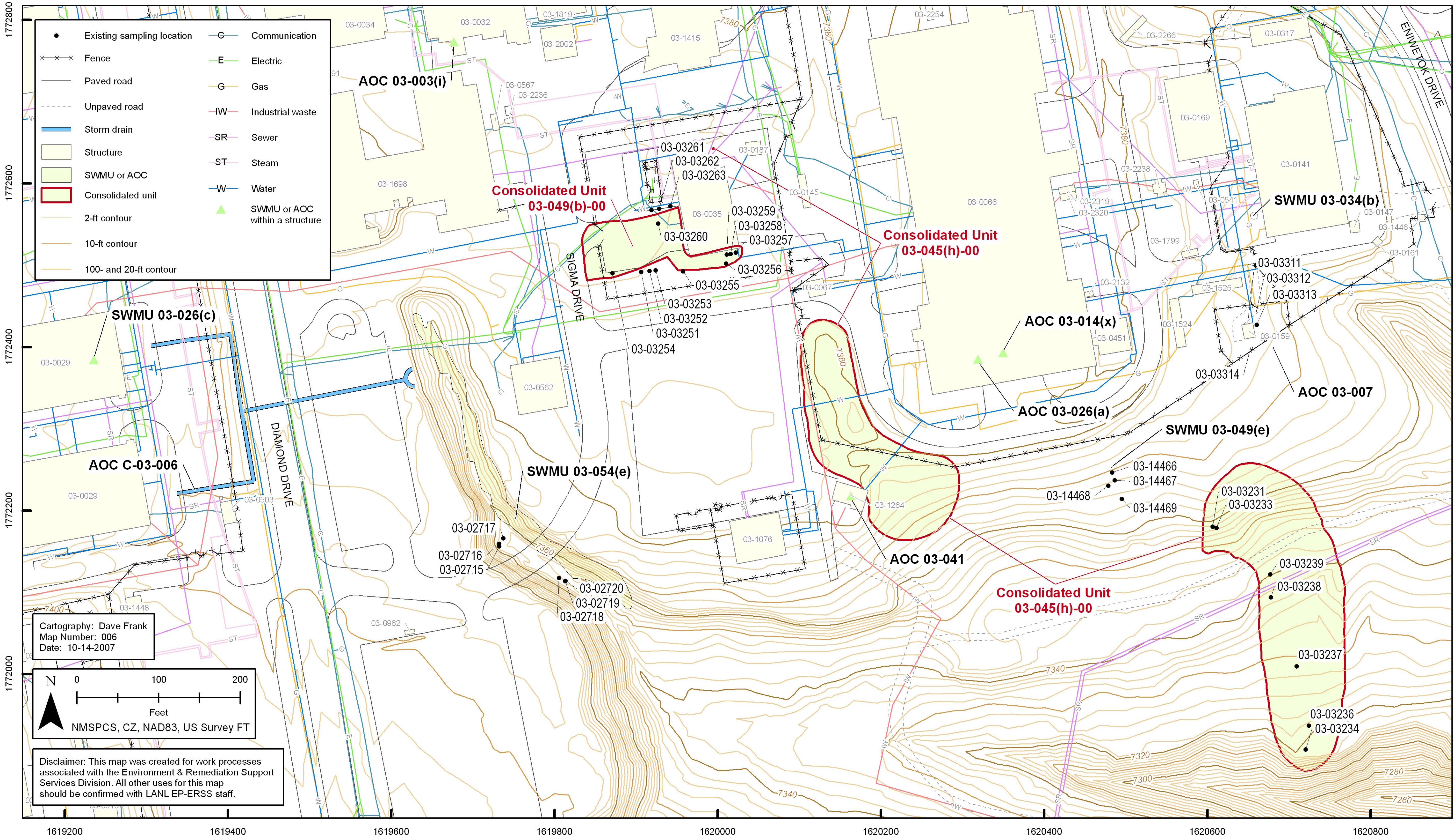

Figure 2.0-3 Site features and previous sampling locations for AOC 03-007, Consolidated Units 03-045(h)-00 and 03-049(b)-00, and SWMUs 03-049(e) and 03-054(e)

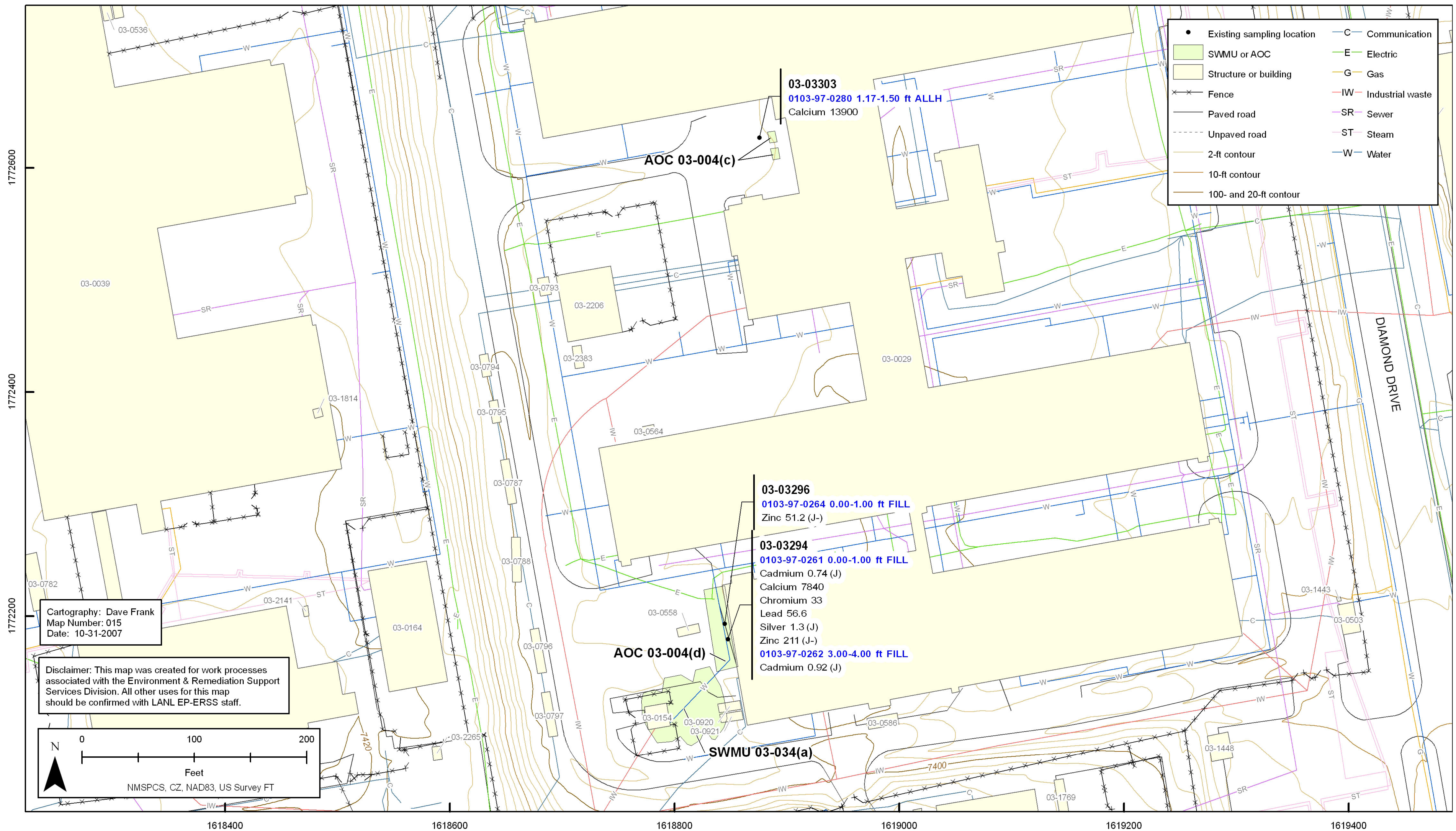

Figure 2.3-1 Inorganic chemicals detected above BVs at AOCs 03-004(c) and 03-004(d) and SWMU 03-034(a)

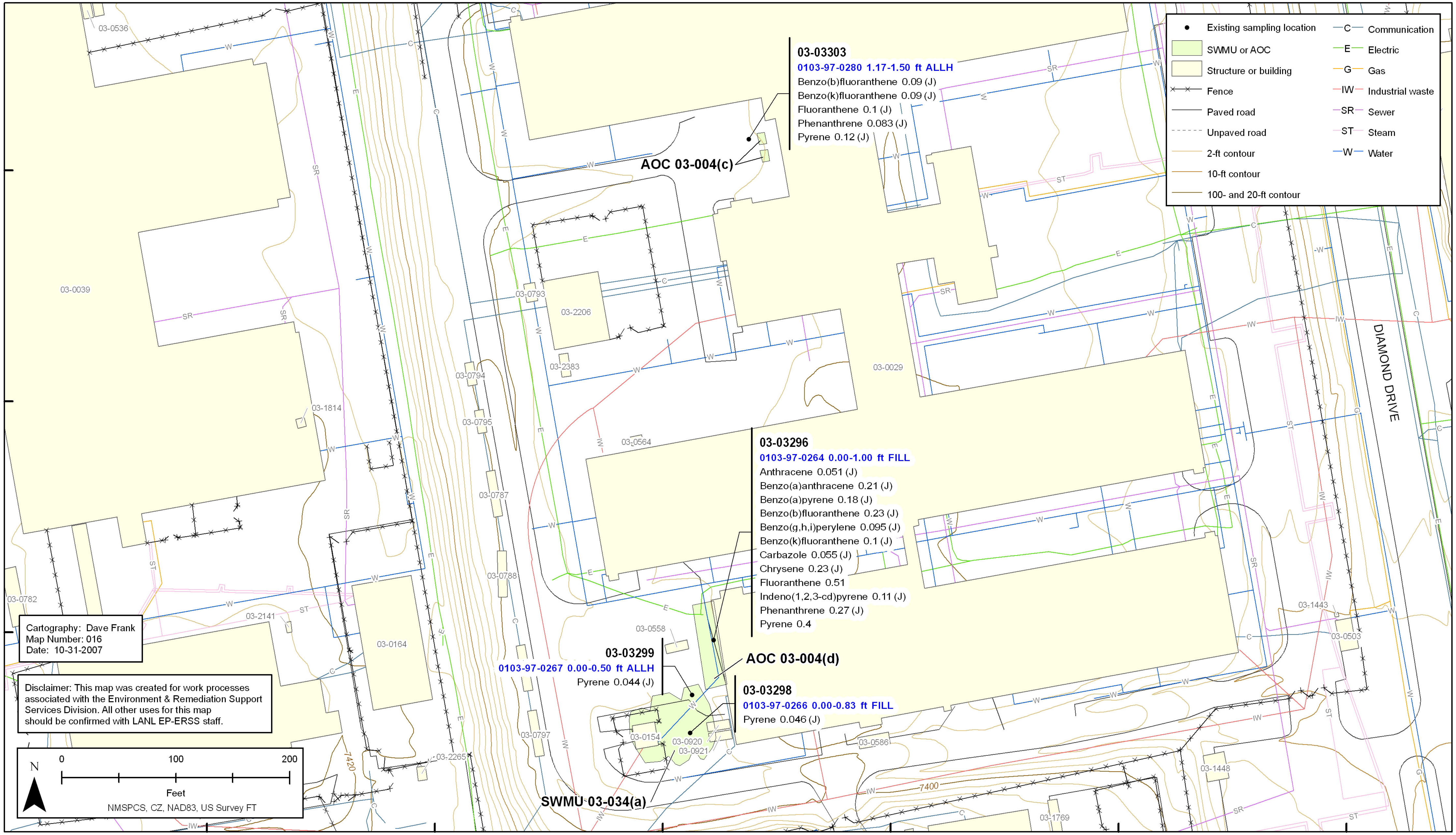

Figure 2.3-2 Organic chemicals detected at AOCs 03-004(c) and 03-004(d) and SWMU 03-034(a)

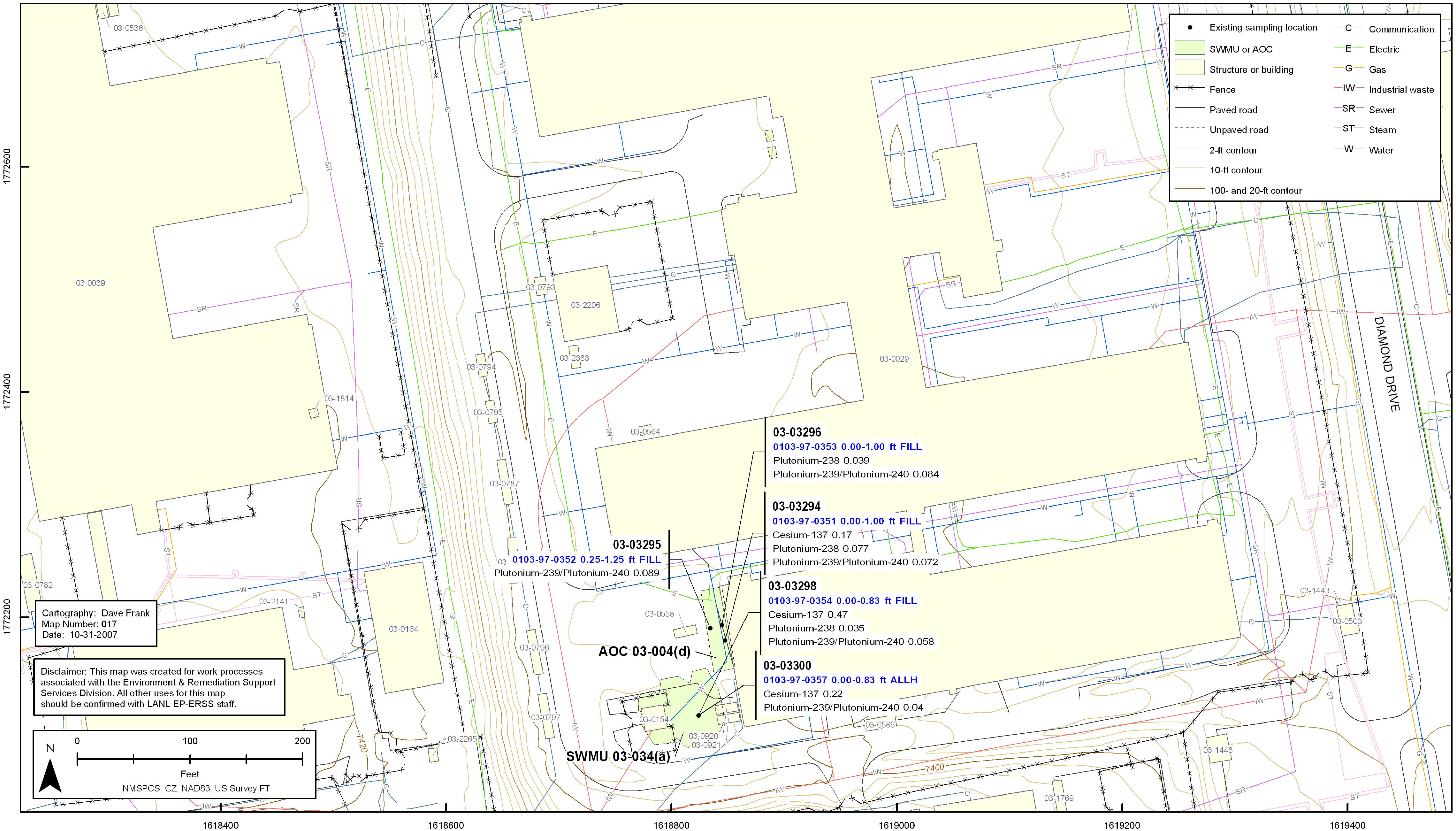

Figure 2.4-1 Radionuclides detected or detected above BV/FV at AOC 03-004(d) and SWMU 03-034(a)

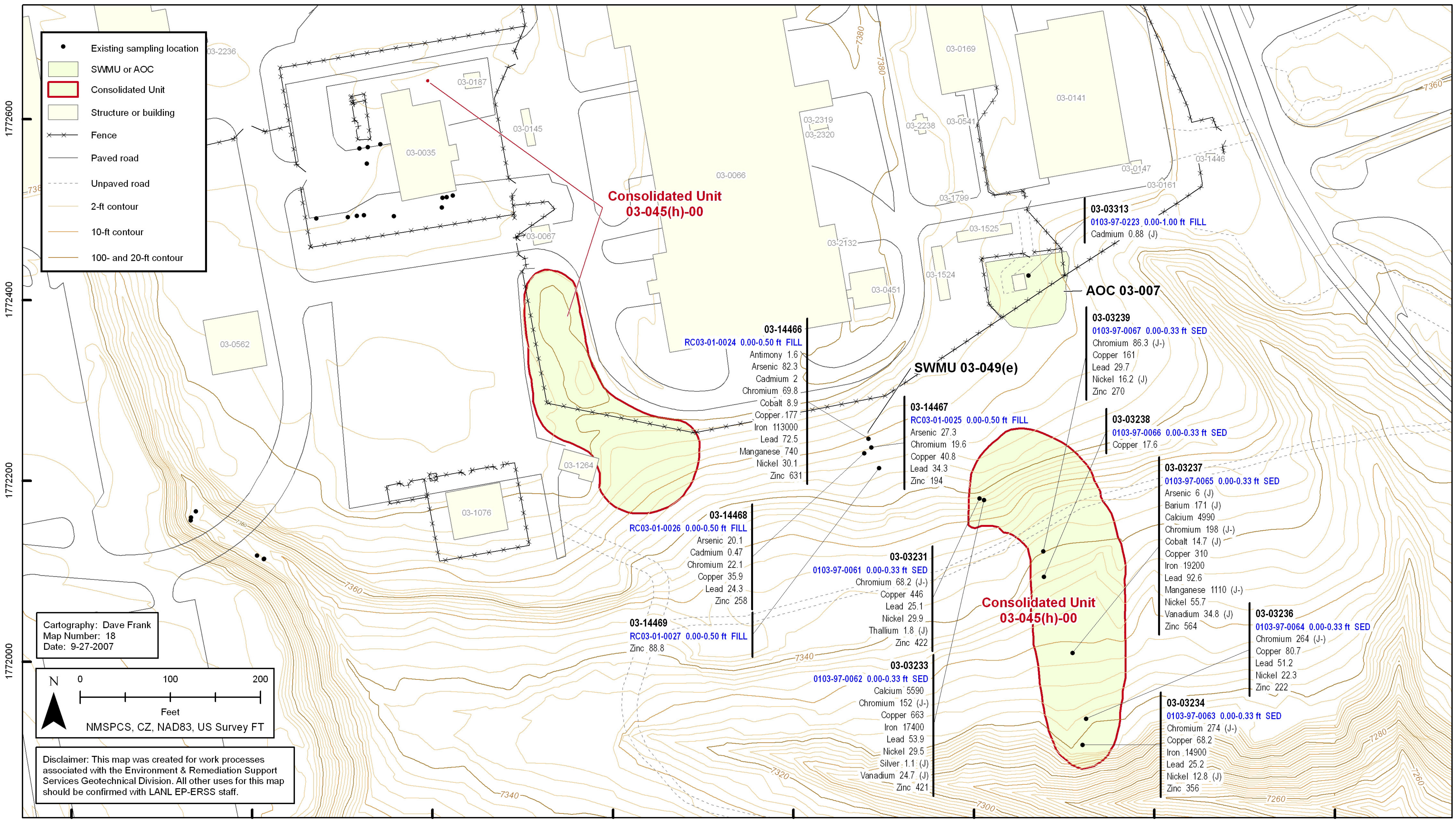

Figure 2.5-1 Inorganic chemicals detected above BVs at AOC 03-007, Consolidated Unit 03-045(h)-00, and SWMU 03-049(e)

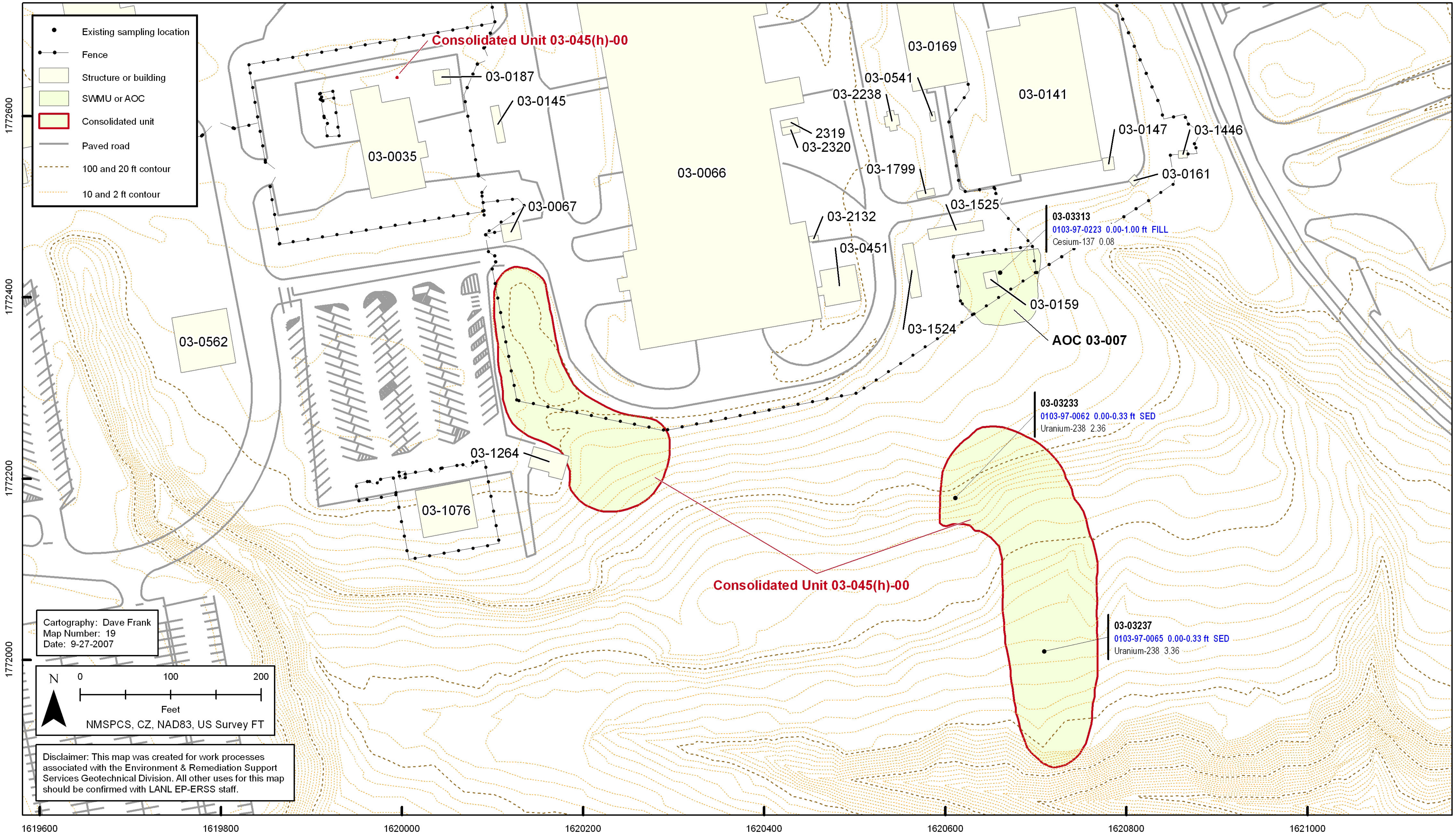

Figure 2.5-2 Radionuclides detected or detected above BV/FV at AOC 03-007 and Consolidated Unit 03-045(h)-00

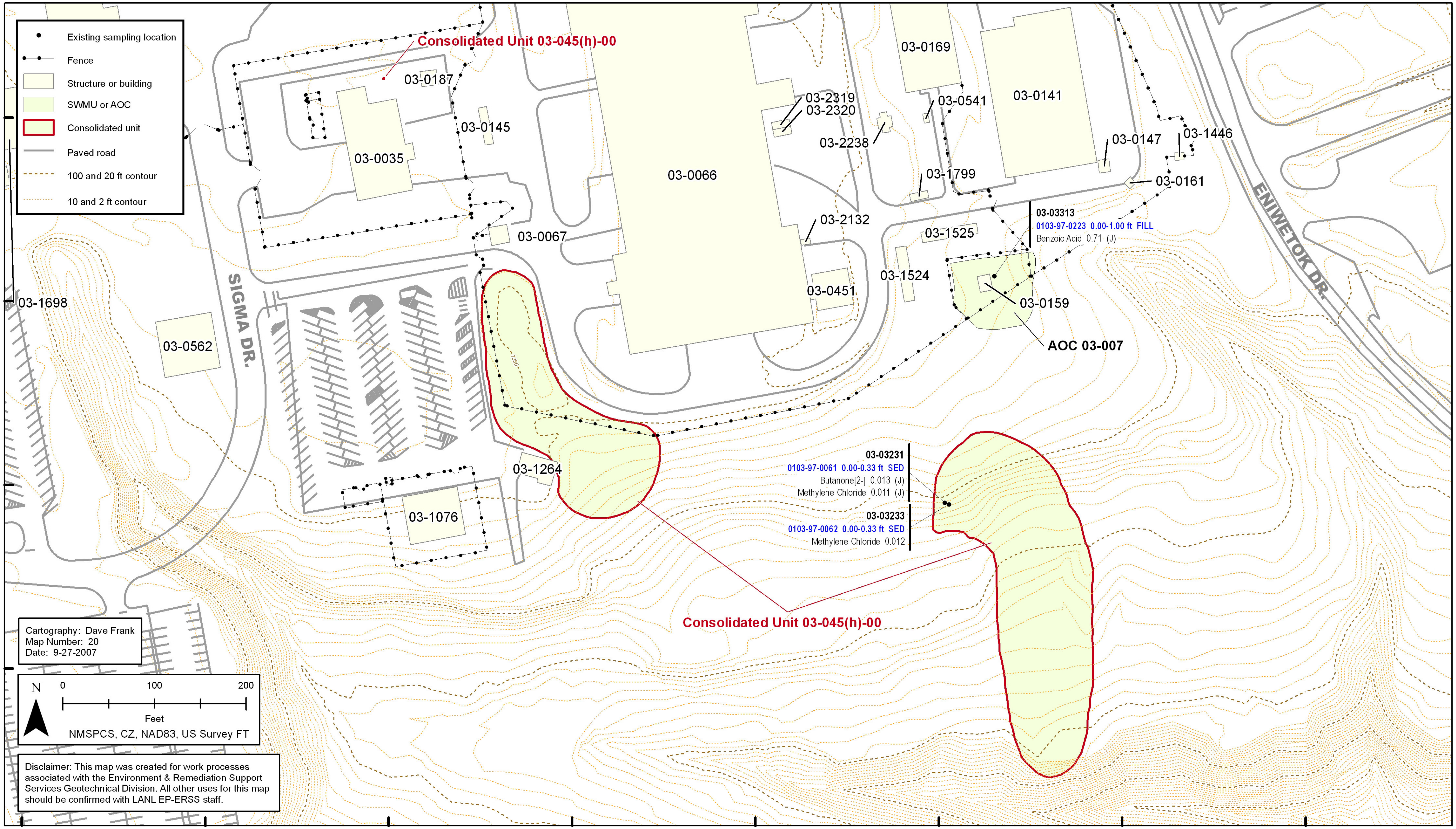

Figure 2.5-3 Organic chemicals detected at AOC 03-007 and Consolidated Unit 03-045(h)-00

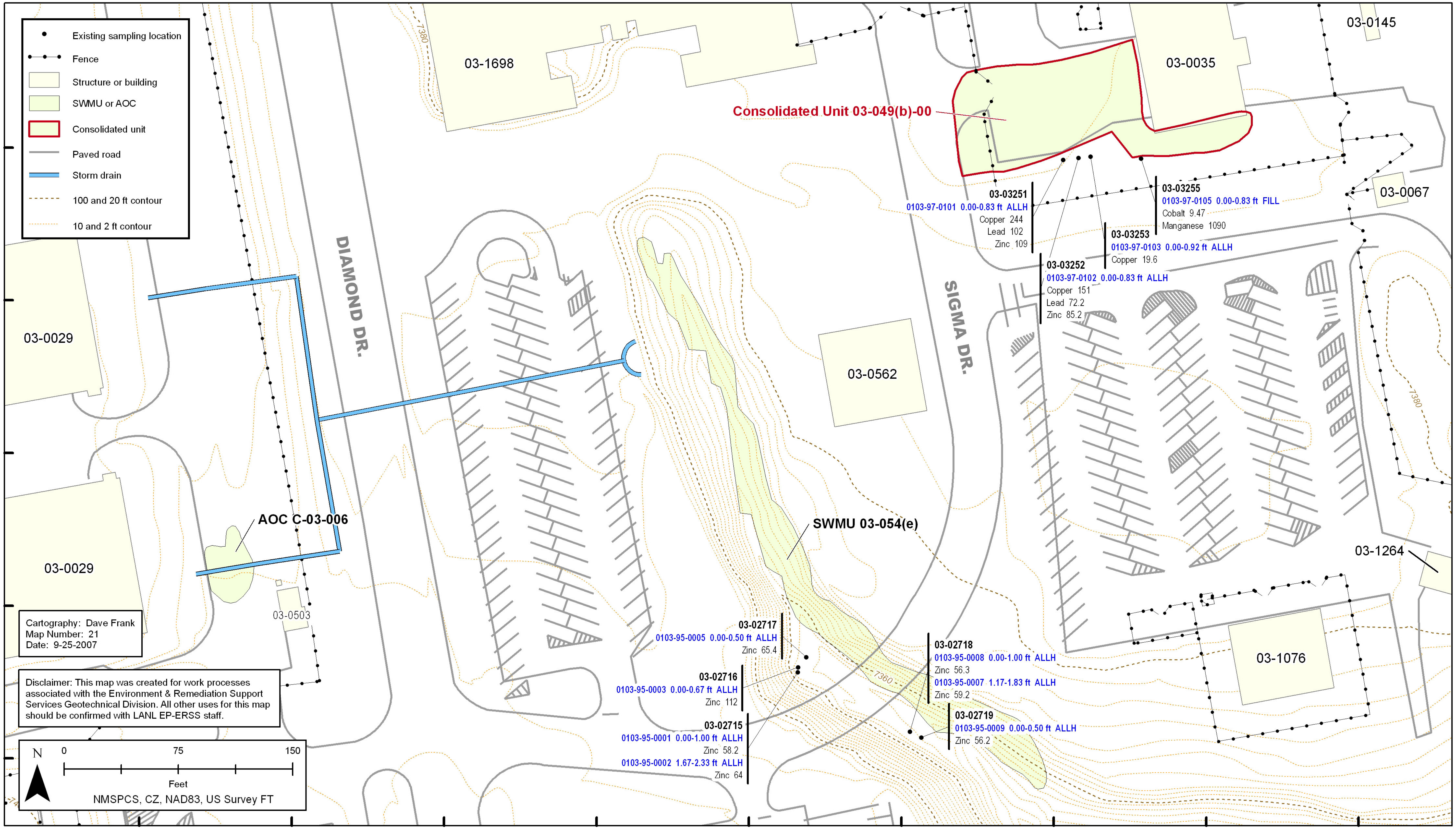

Figure 2.15-1 Inorganic chemicals detected above BVs at Consolidated Unit 03-049(b)-00, SWMU 03-054(e), and AOC C-03-006

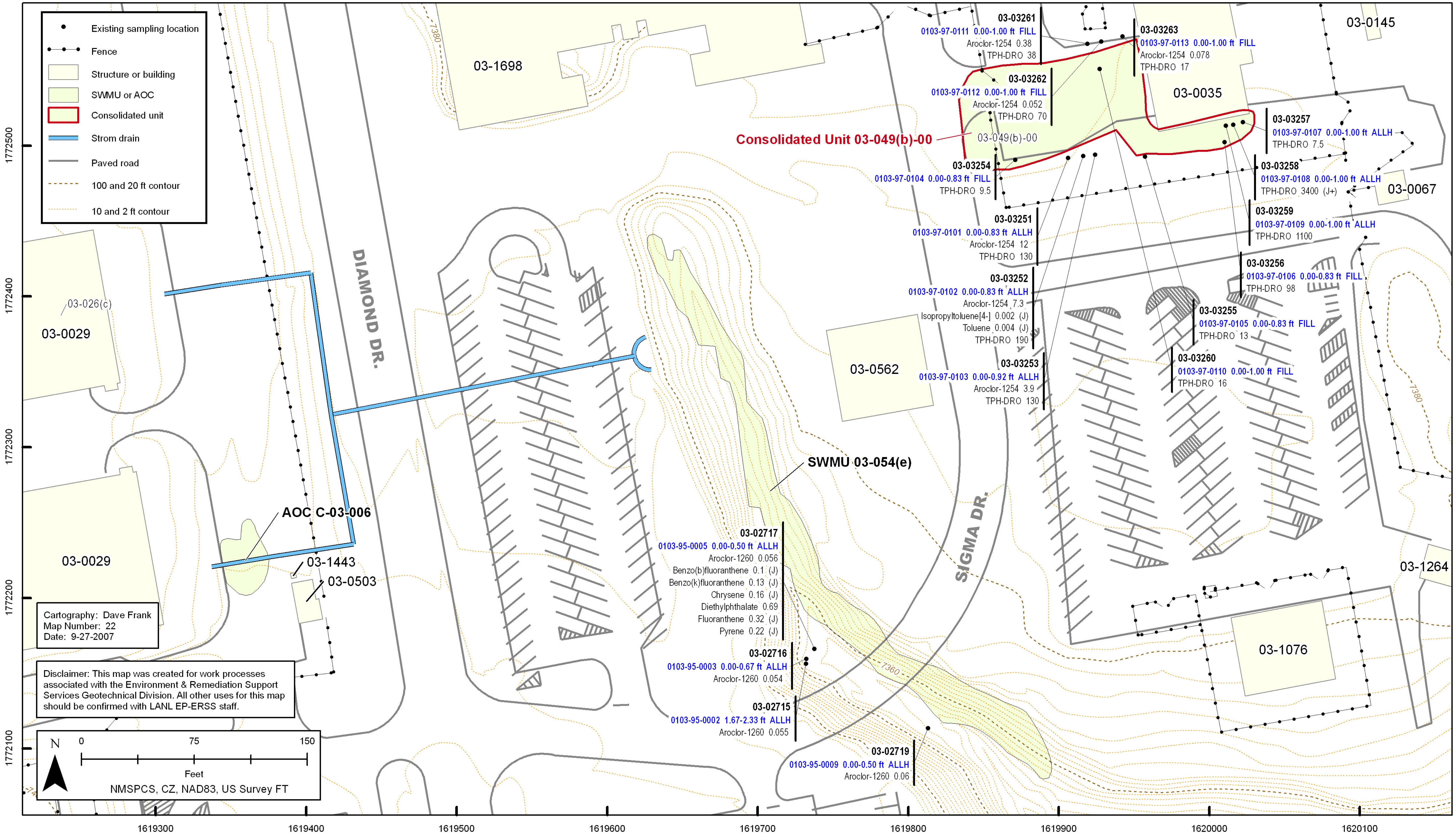

Figure 2.15-2 Organic chemicals detected at Consolidated Unit 03-049(b)-00, SWMU 03-054(e), and AOC C-03-006

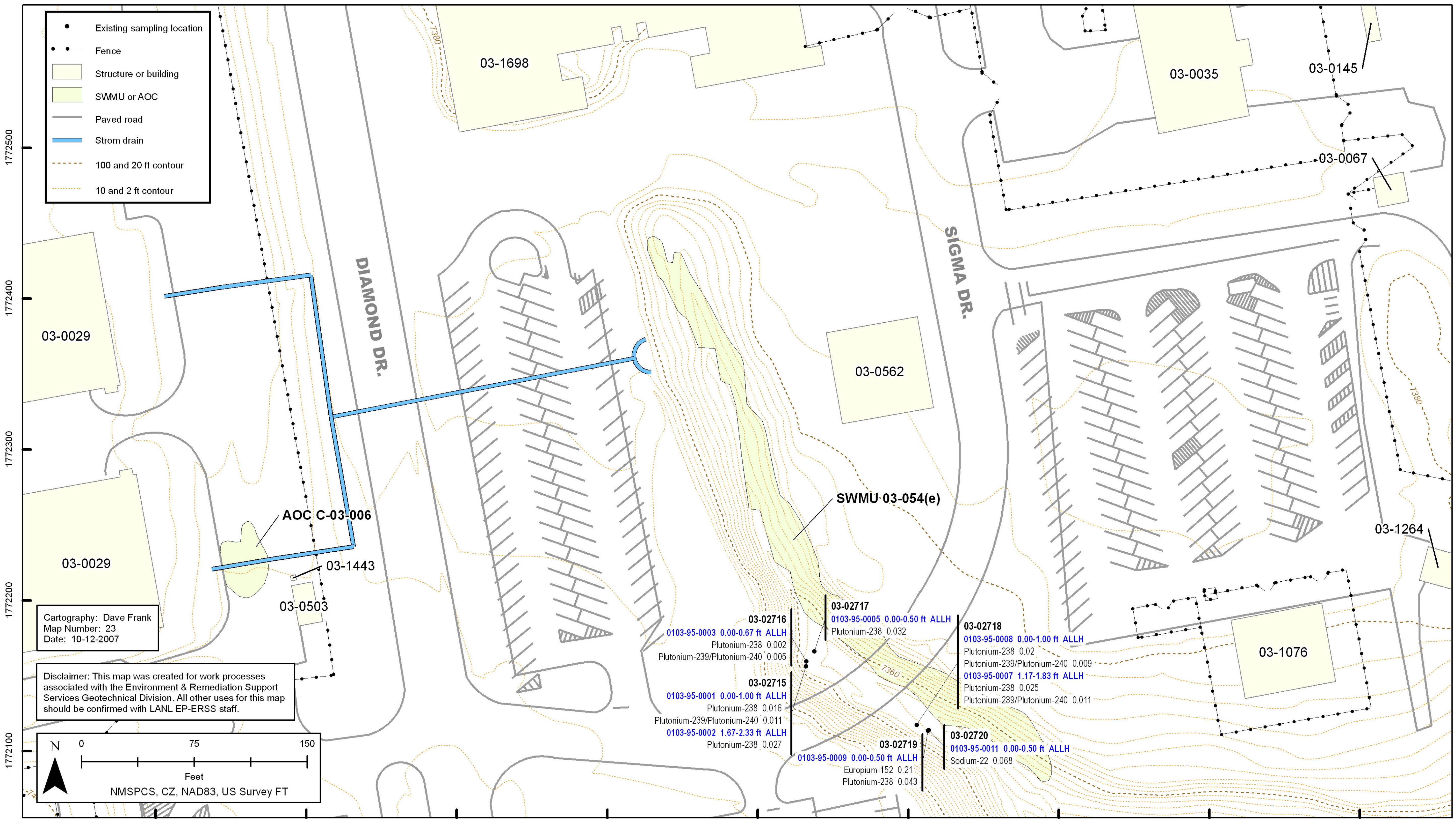

Figure 2.17-1 Radionuclides detected or detected above BV/FV at SWMU 03-054(e) and AOC C-03-006

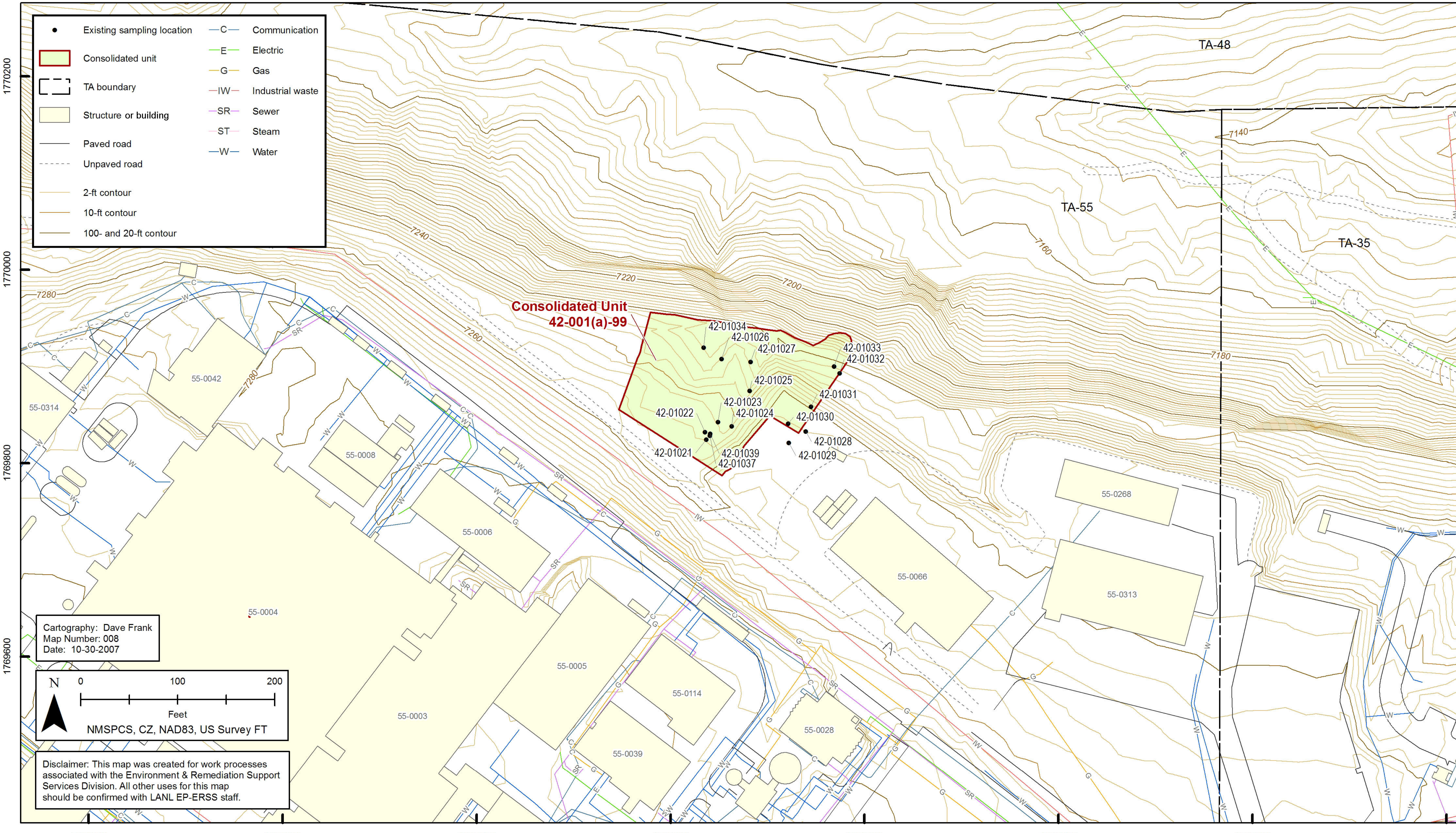

Figure 3.0-1 Site features and previous sampling locations for TA-42 Consolidated Unit 42-001(a)-99

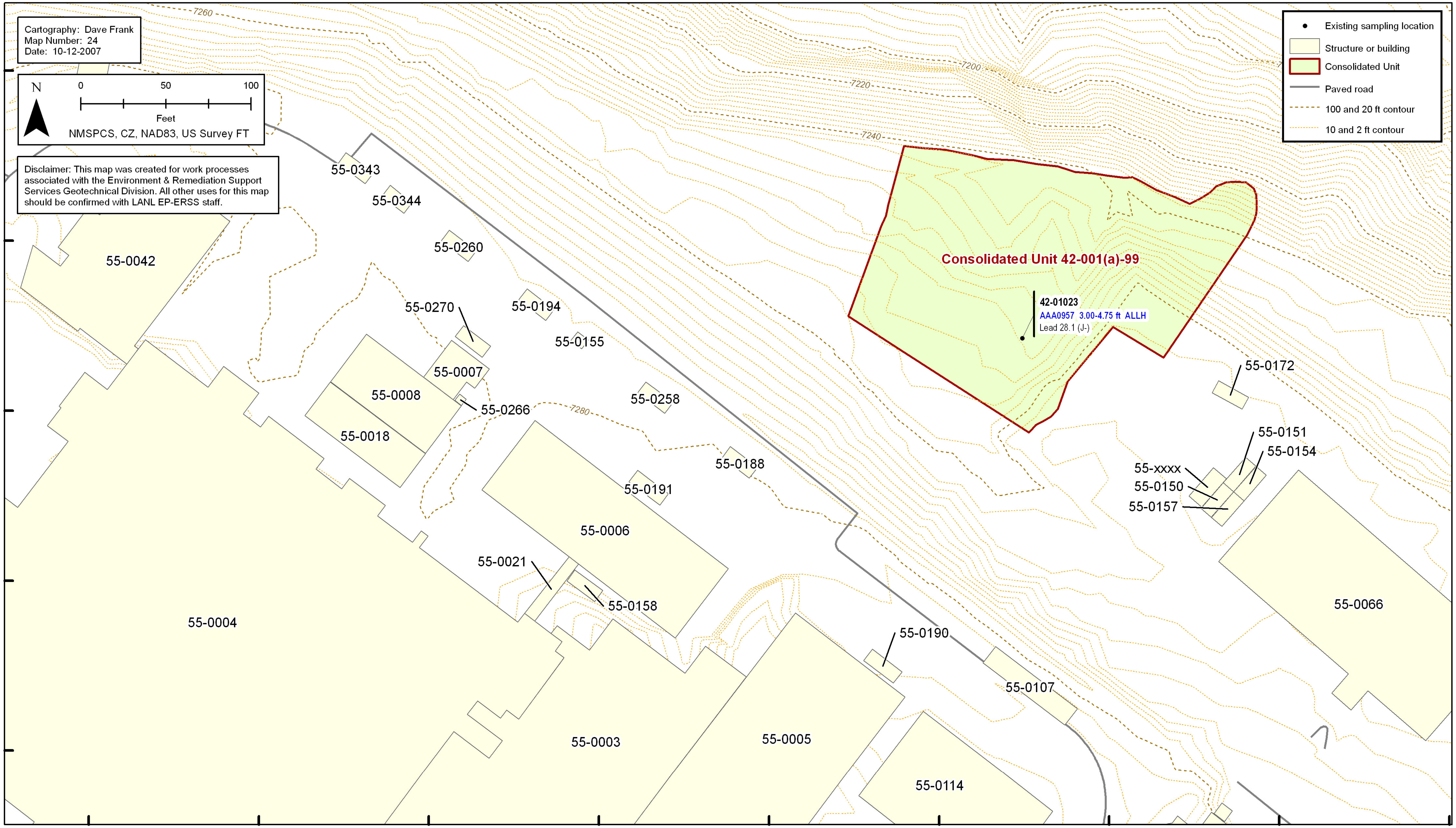

Figure 3.1-1 Inorganic chemicals detected above BVs at Consolidated Unit 42-001(a)-99

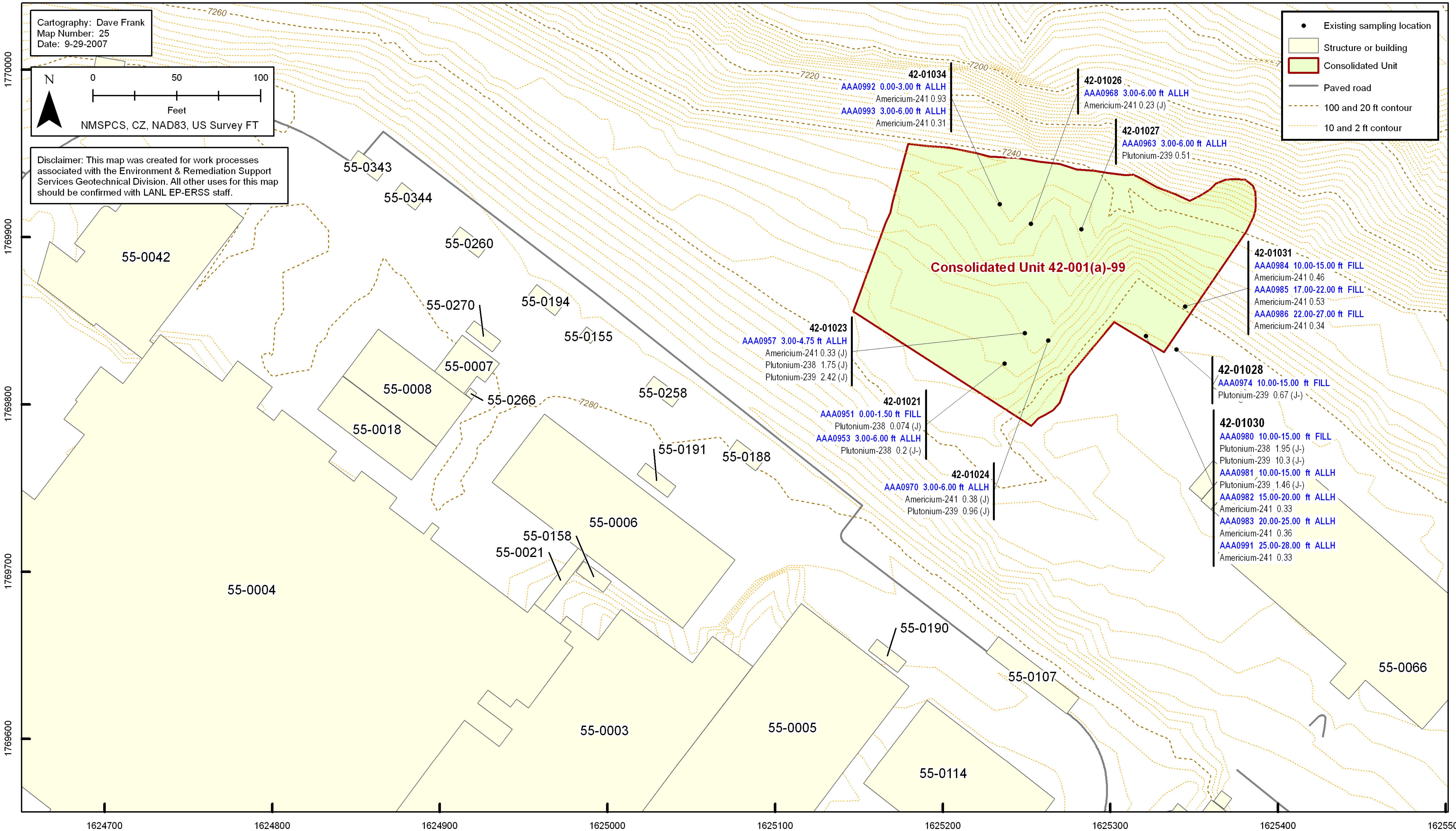

Figure 3.1-2 Radionuclides detected or detected above BV/FV at Consolidated Unit 42-001(a)-99

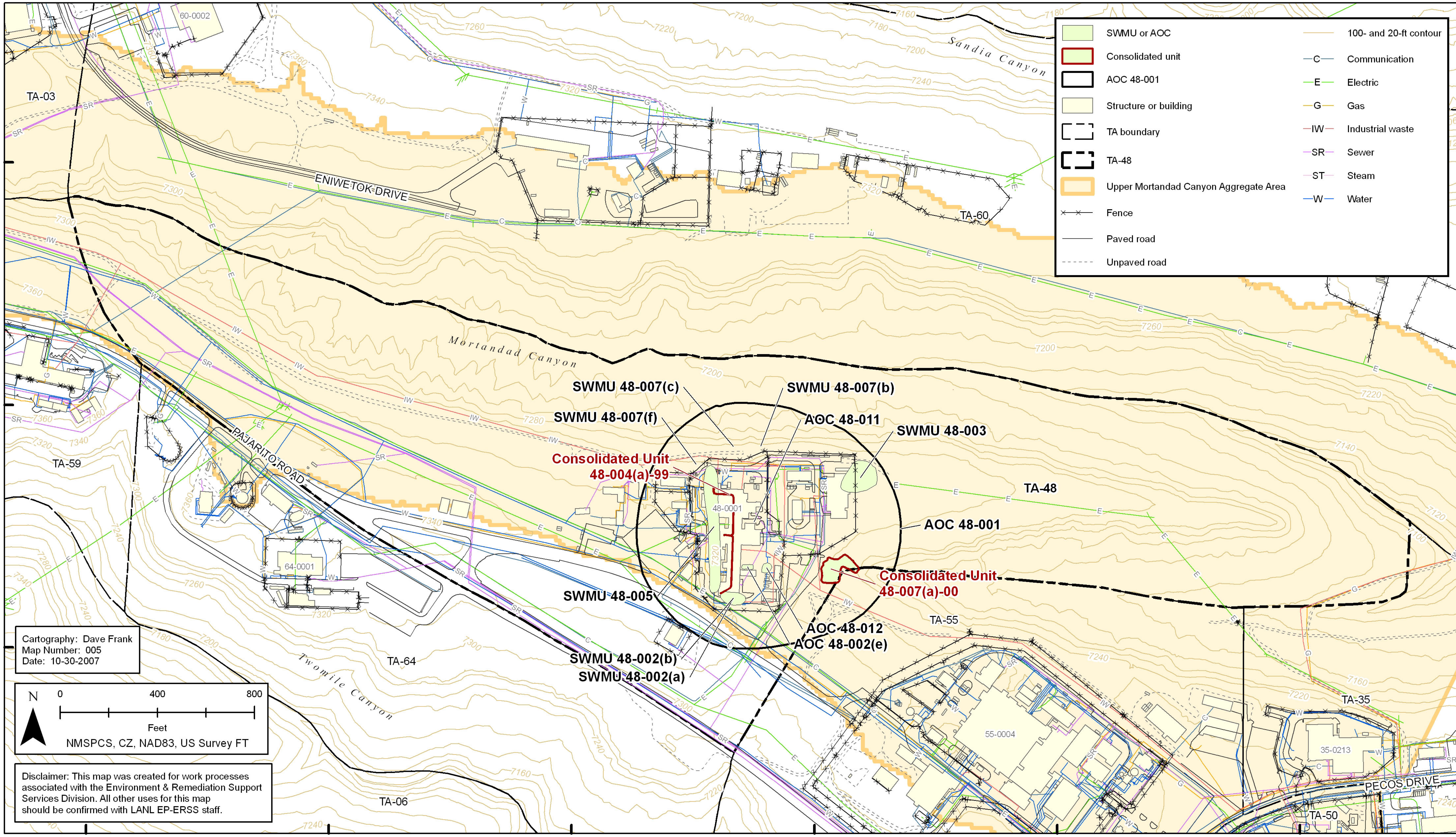

Figure 4.0-1 Site features for TA-48 SWMUs, AOCs, and consolidated units

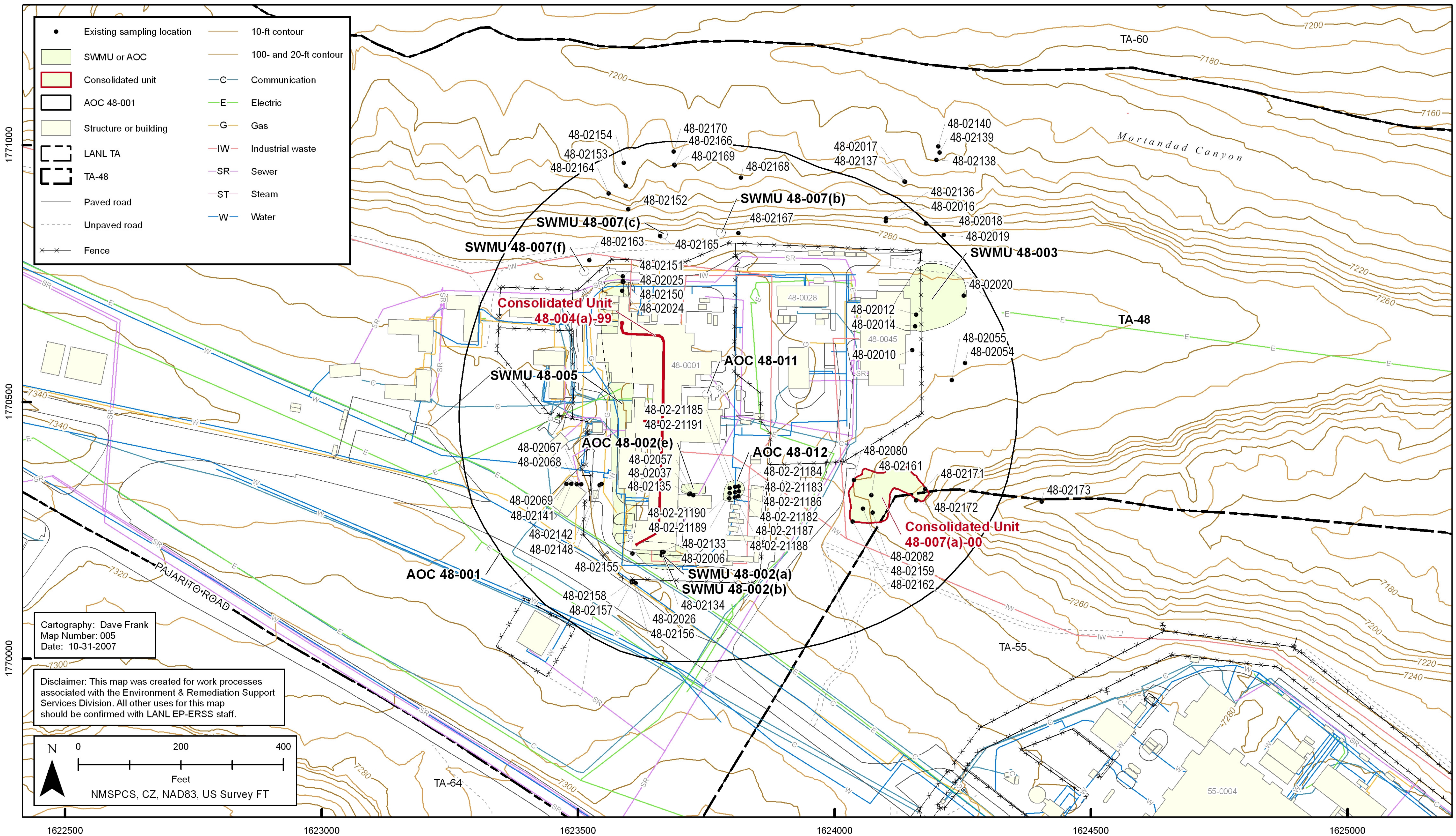

Figure 4.0-2 Site features and previous sample locations for TA-48 SWMUs, AOCs, and consolidated units

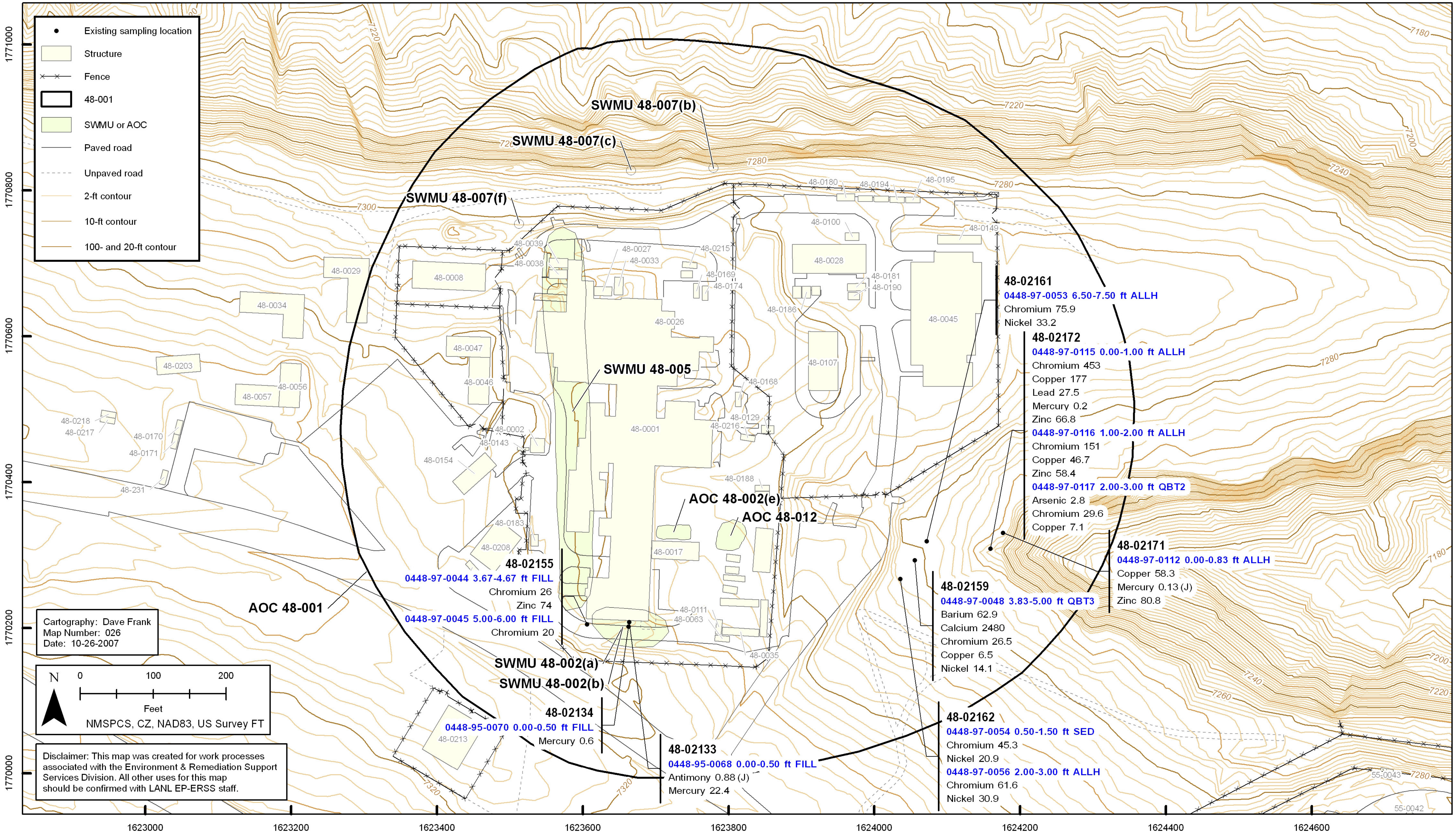

Figure 4.1-1 Inorganic chemicals detected above BVs at AOC 48-001 and SWMUs 48-002(a), 48-002(b), and 48-005

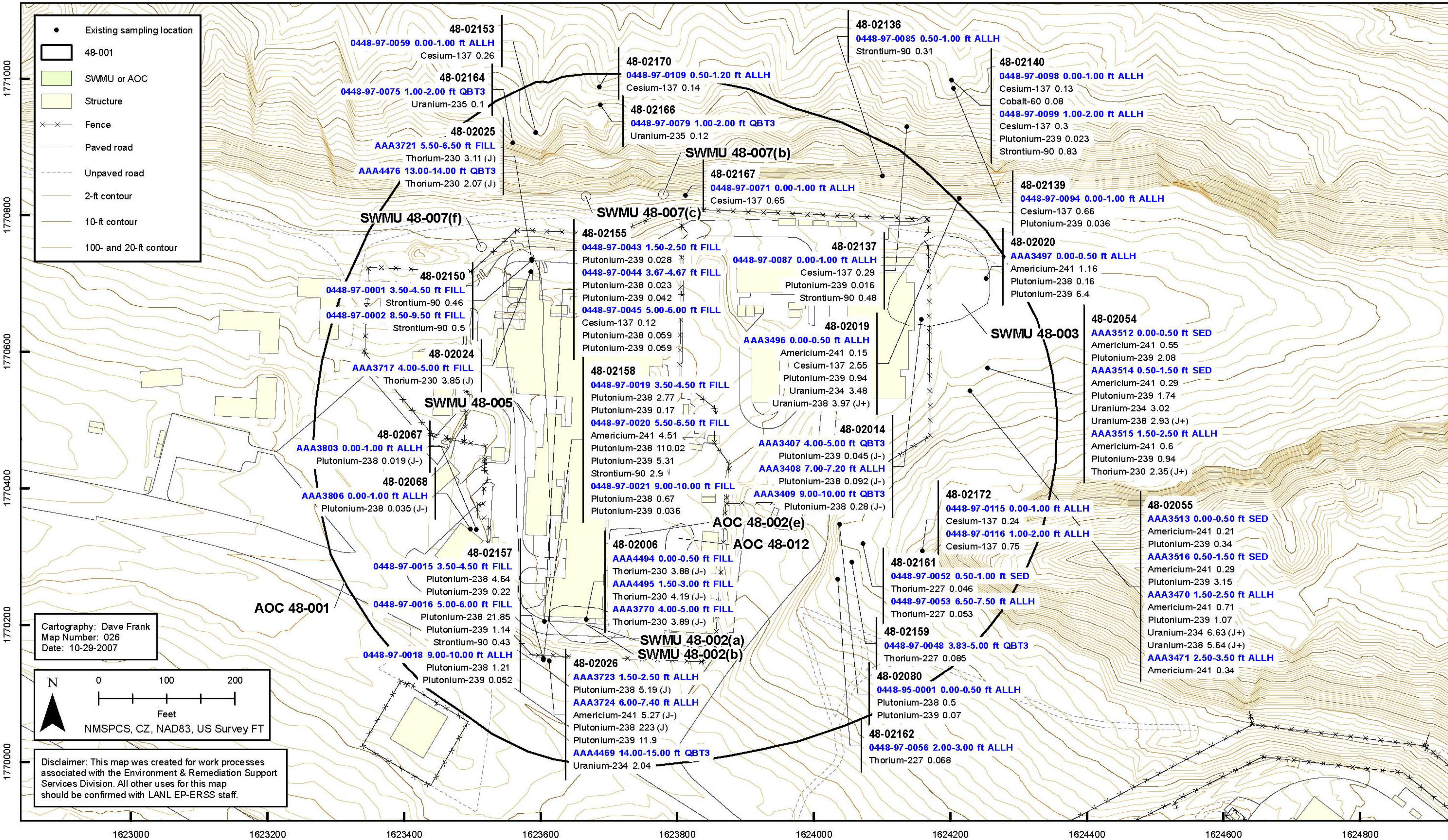

Figure 4.1-2 Radionuclides detected or detected above BV/FV at AOC 48-001 and SWMUs 48-002(a), 48-002(b), 48-003, 48-005, 48-007(b), 48-007(c), and 48-007(f)

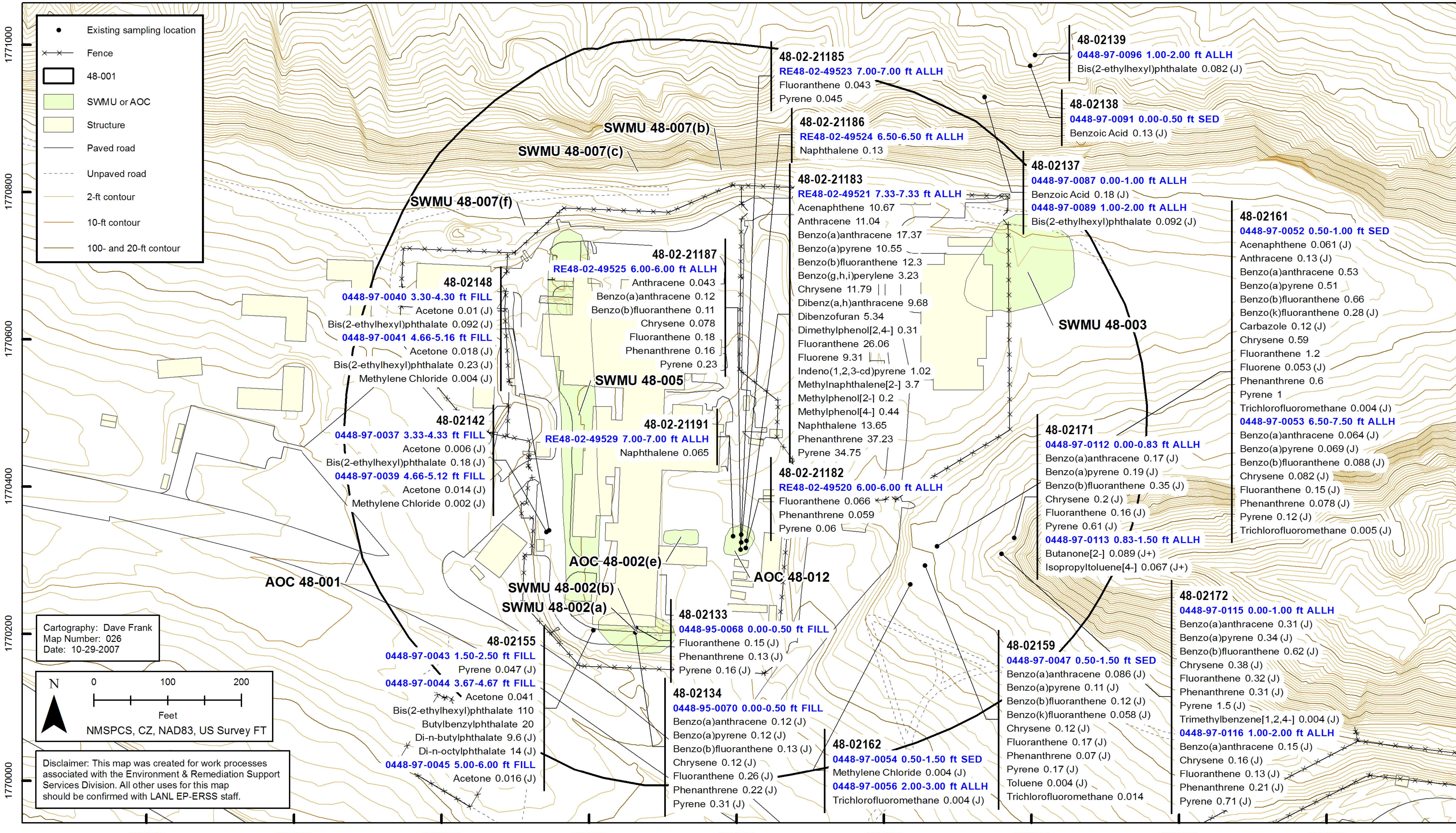

Figure 4.1-3 Organic chemicals detected at AOC 48-001, SWMUs 48-002(a), 48-002(b), 48-003, 48-005, and AOC 48-012

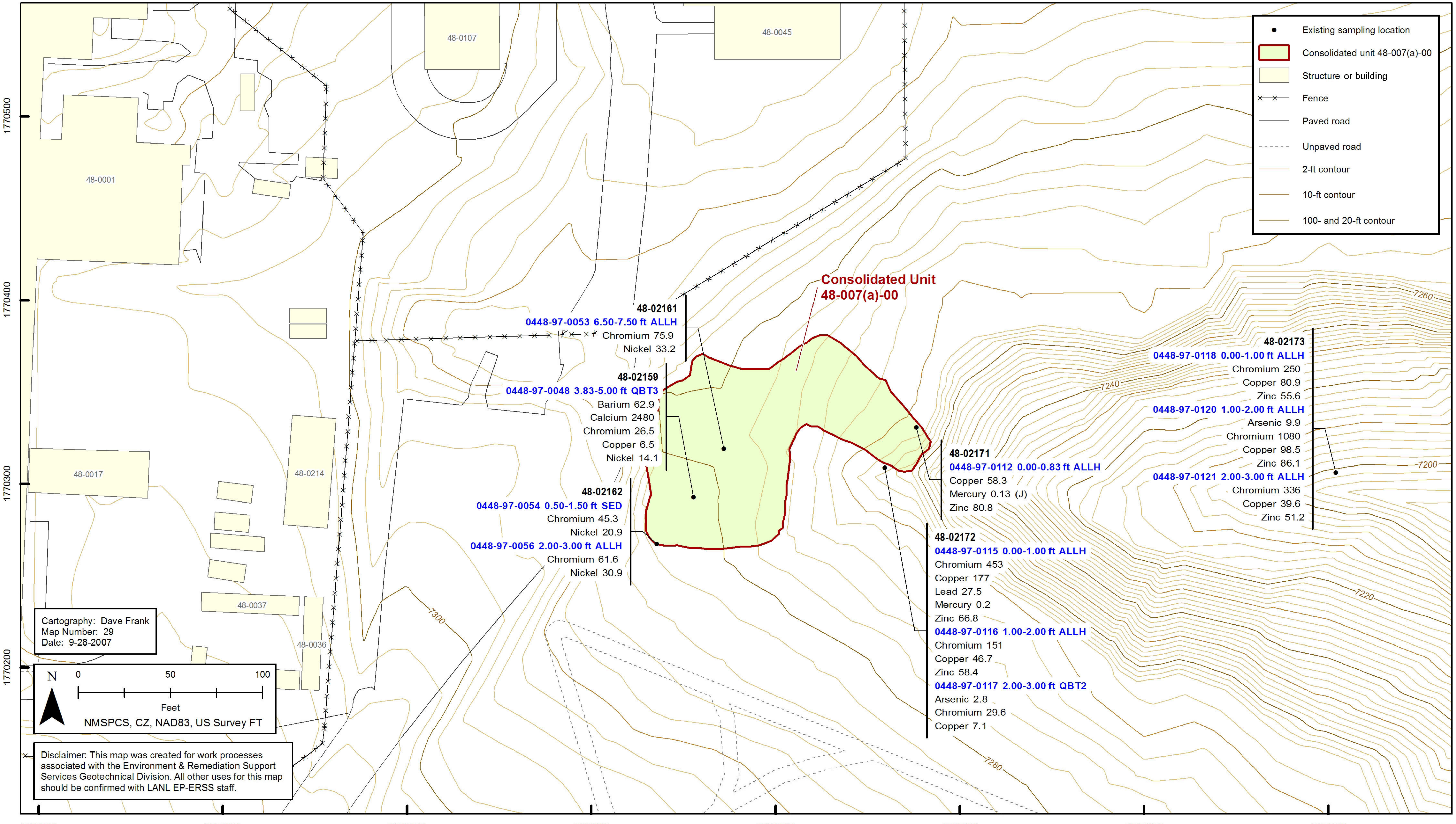

Figure 4.8-1 Inorganic chemicals detected above BVs at Consolidated Unit 48-007(a)-00

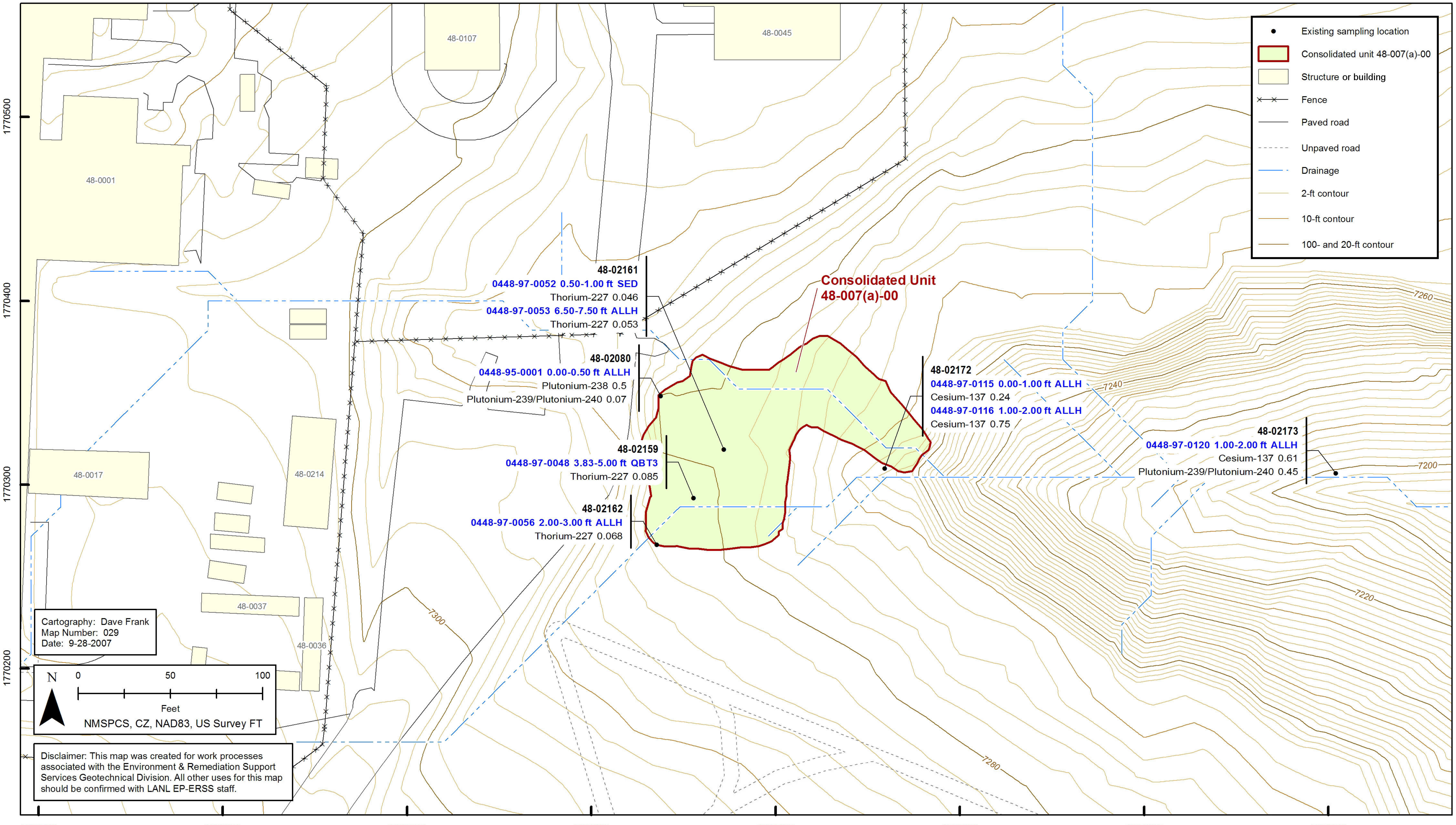

Figure 4.8-2 Radionuclides detected or detected above BV/FV at Consolidated Unit 48-007(a)-00

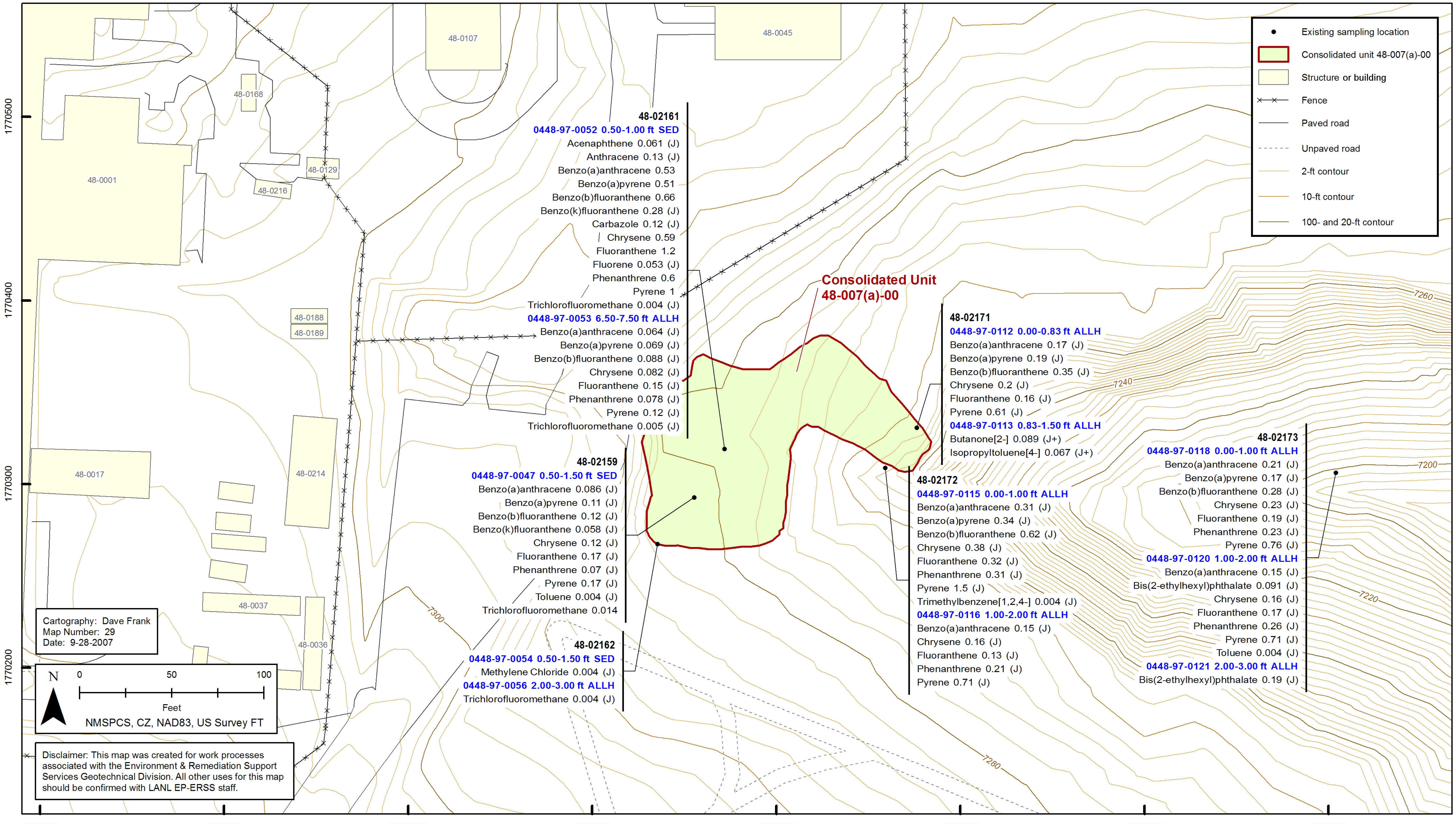

Figure 4.8-3 Organic chemicals detected at Consolidated Unit 48-007(a)-00

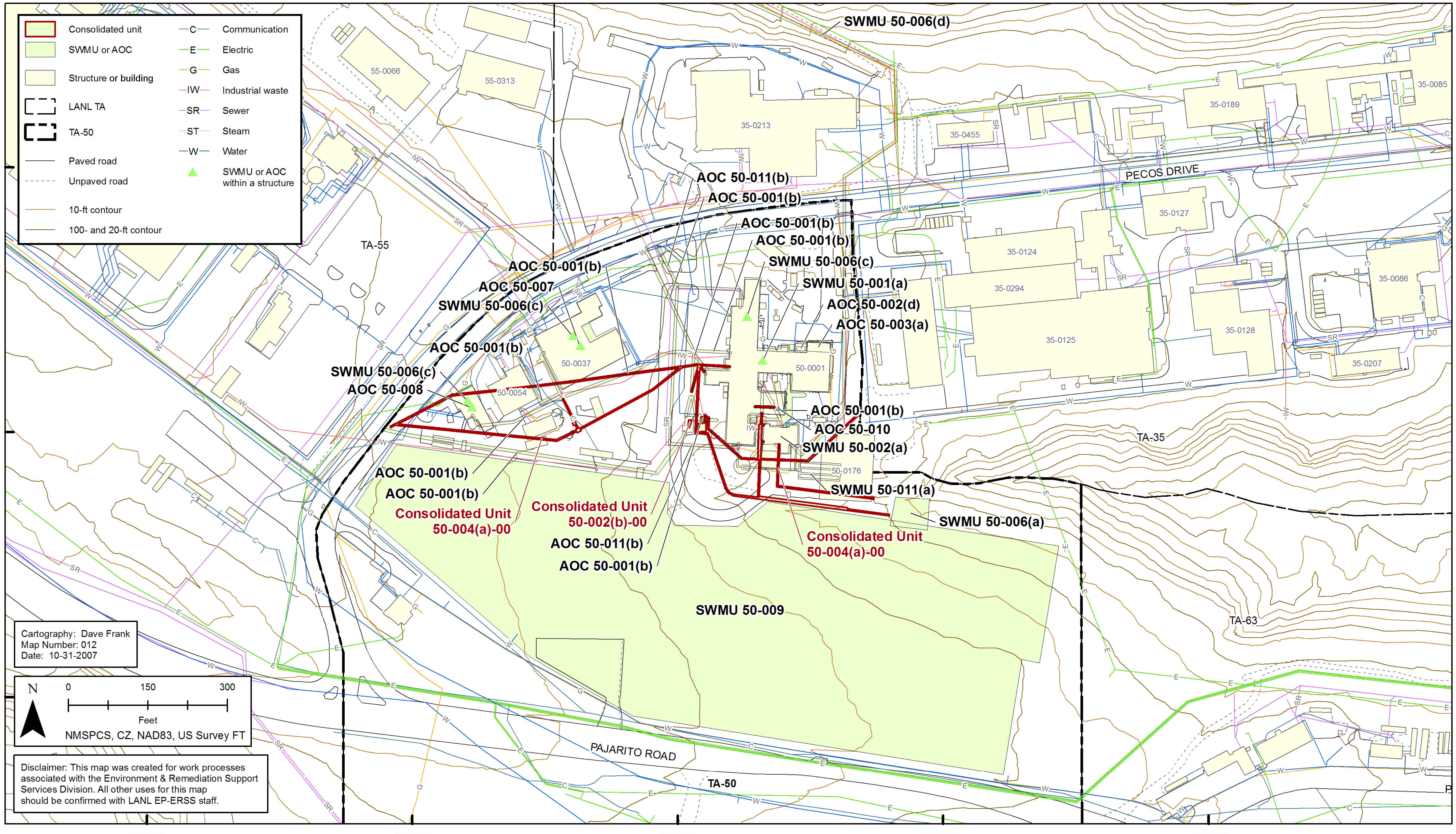

Figure 5.0-1 Site features for TA-50 SWMUs, AOCs, and consolidated units

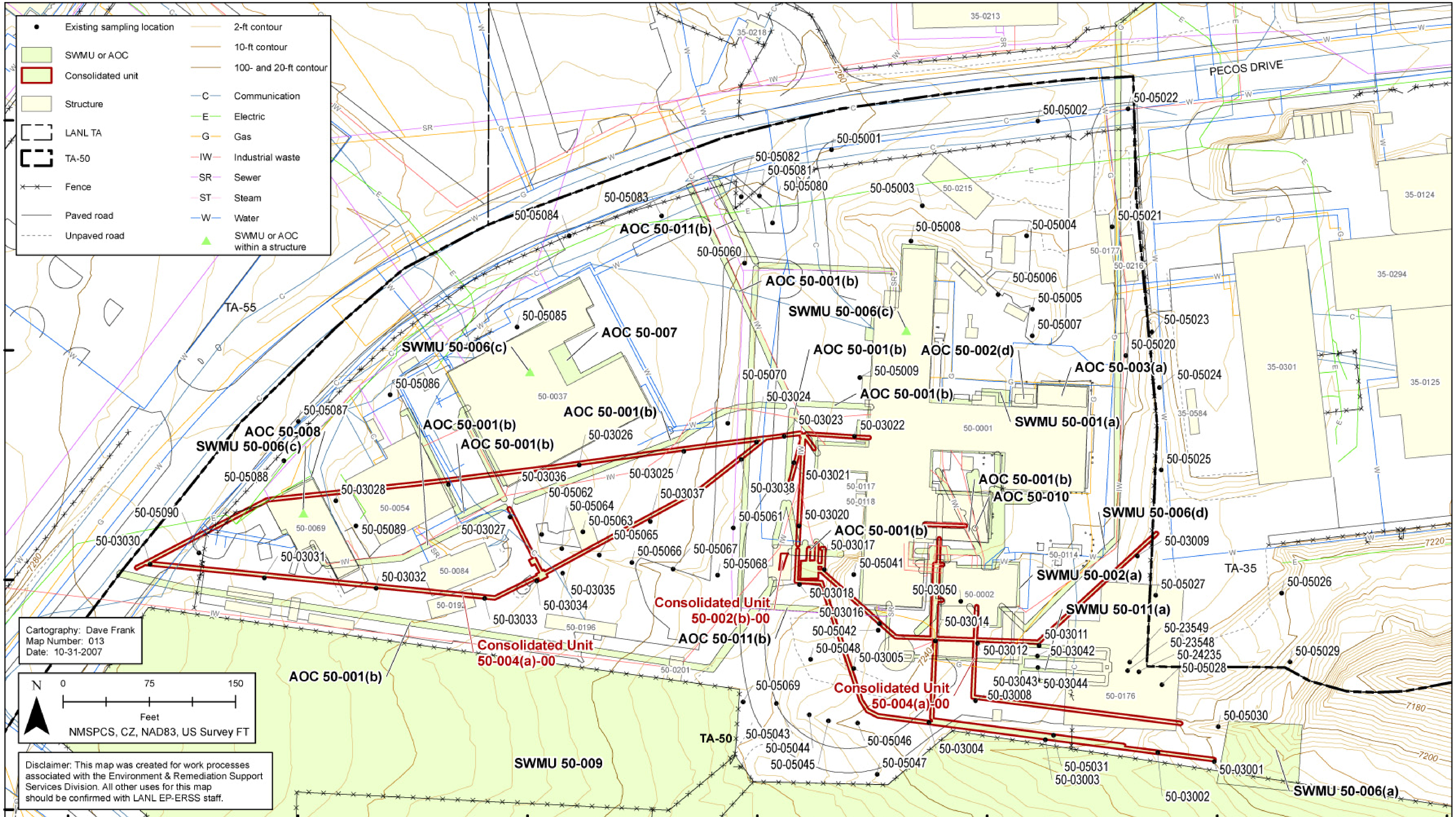

Figure 5.0-2 Site features and previous sampling locations for TA-50 SWMUs, AOCs, and consolidated units, except sampling locations at SWMUs 50-006(a) and 50-006(d)

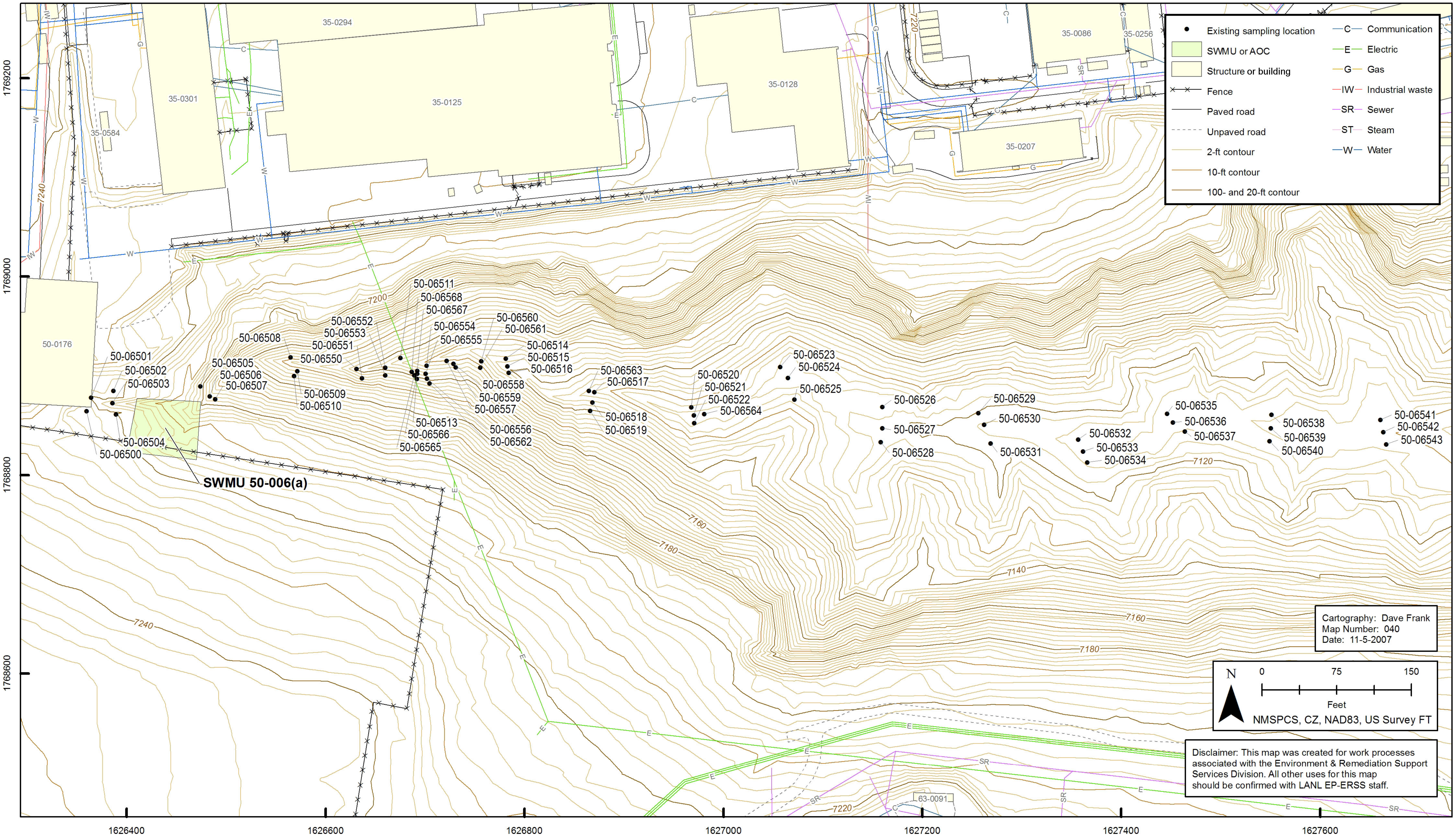

Figure 5.0-3 Site features and previous sampling locations at SWMU 50-006(a)

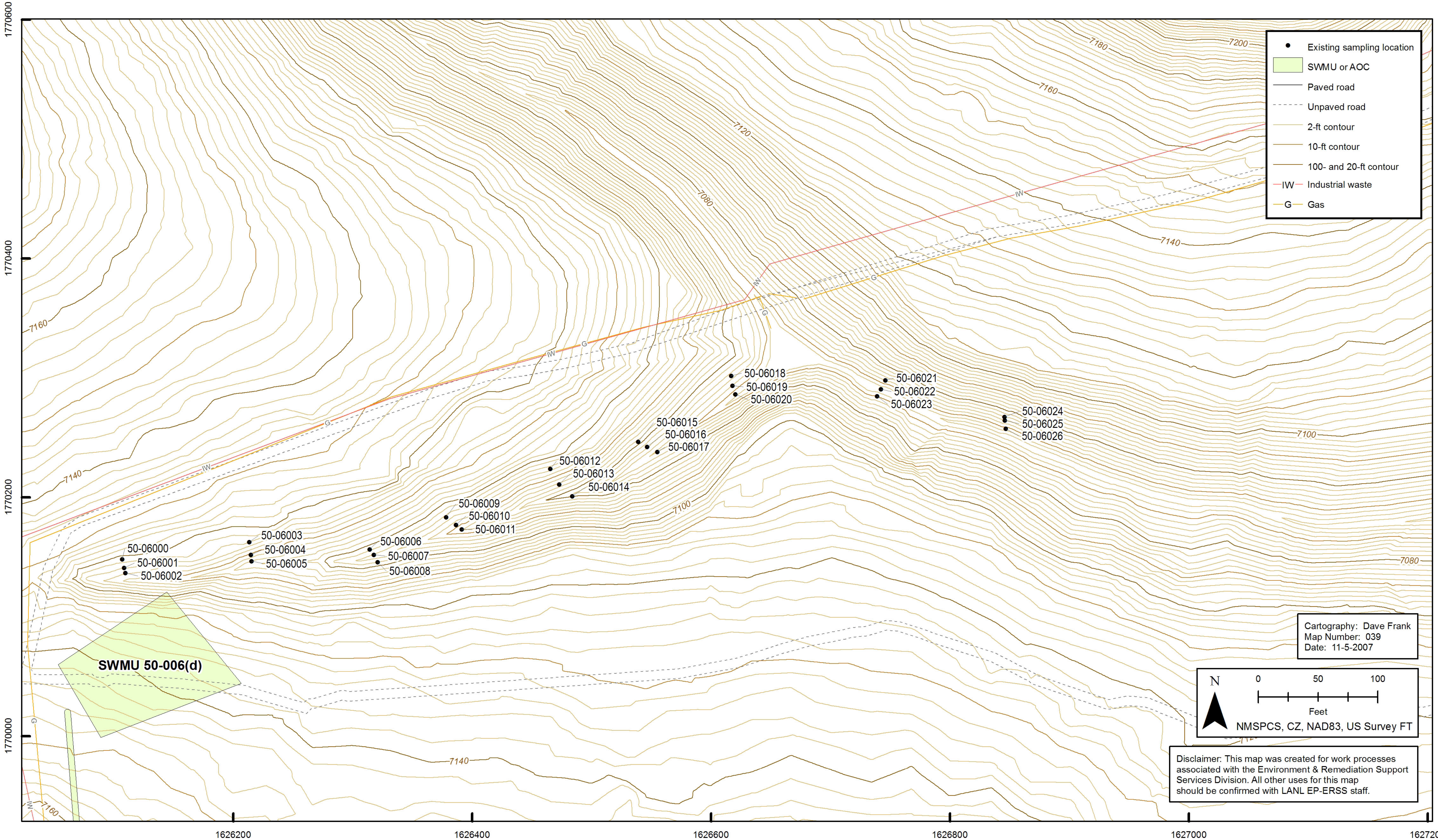

Figure 5.0-4 Site features and previous sampling locations at SWMU 50-006(d)

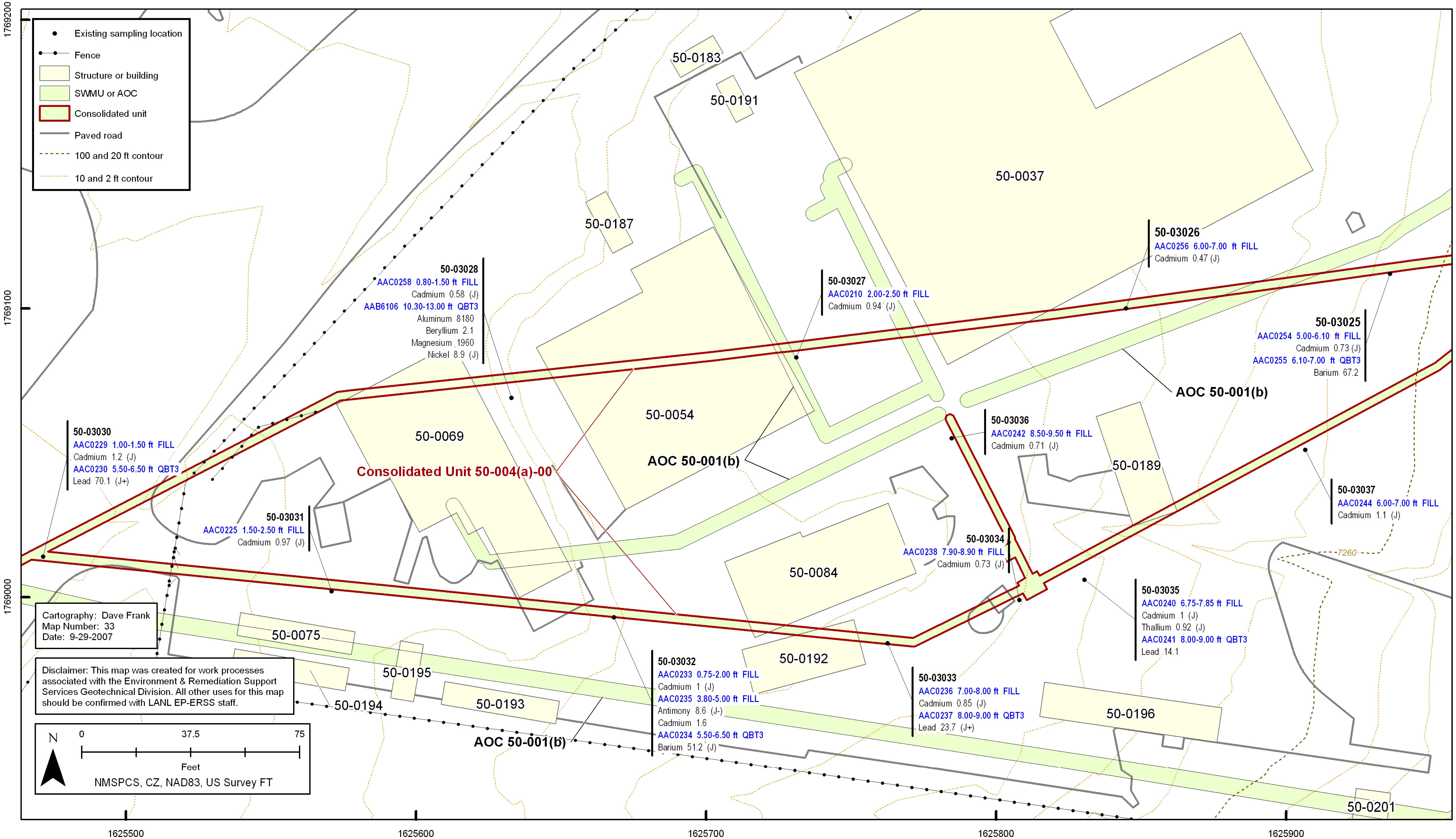

Figure 5.2-1 Inorganic chemicals detected above BVs at the western portions of AOC 50-001(b) and Consolidated Unit 50-004(a)-00

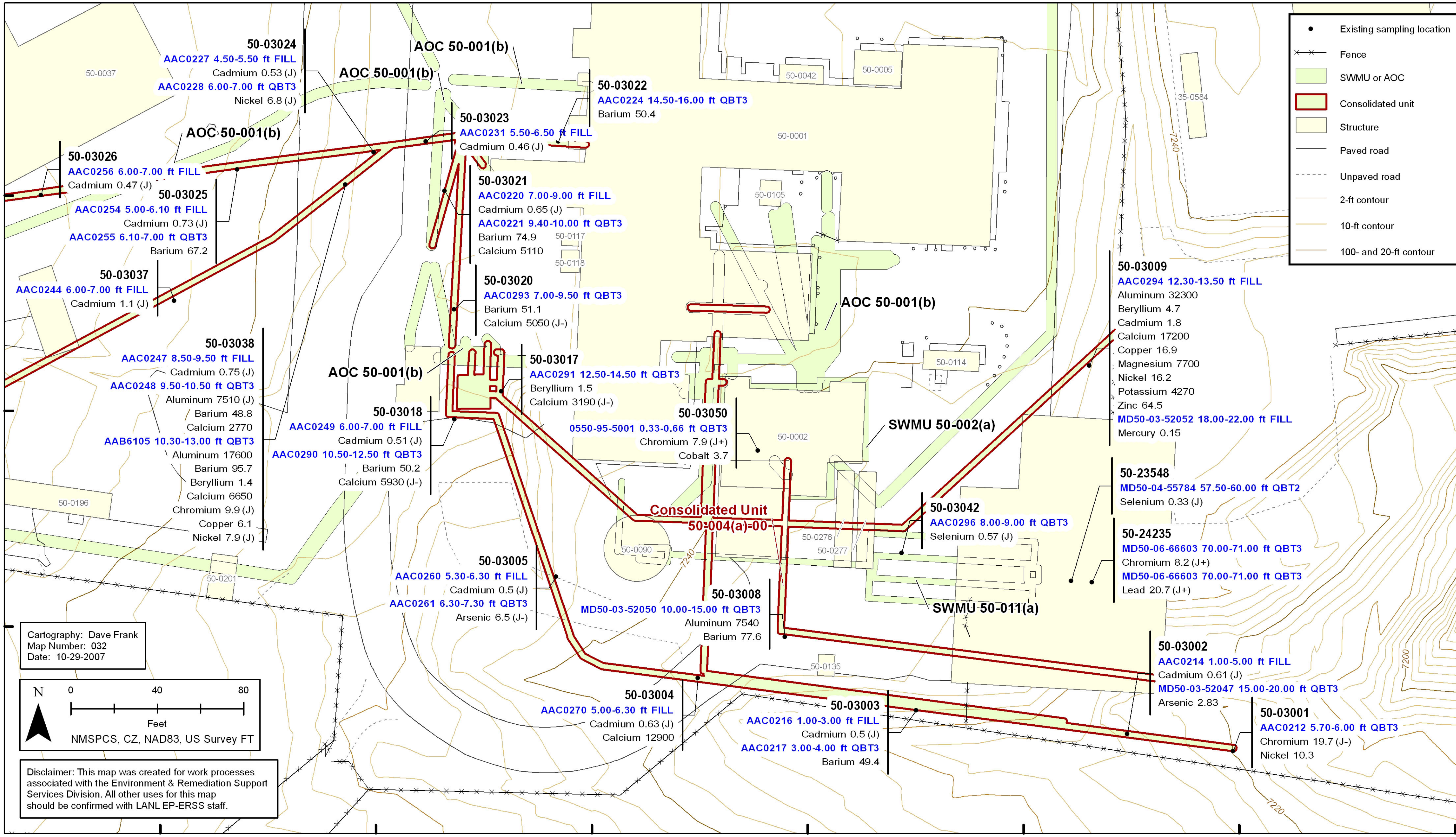

Figure 5.2-2 Inorganic chemicals detected above BVs at the eastern portions of AOC 50-001(b) and Consolidated Unit 50-004(a)-00, and at SWMUs 50-002(a) and 50-011(a)

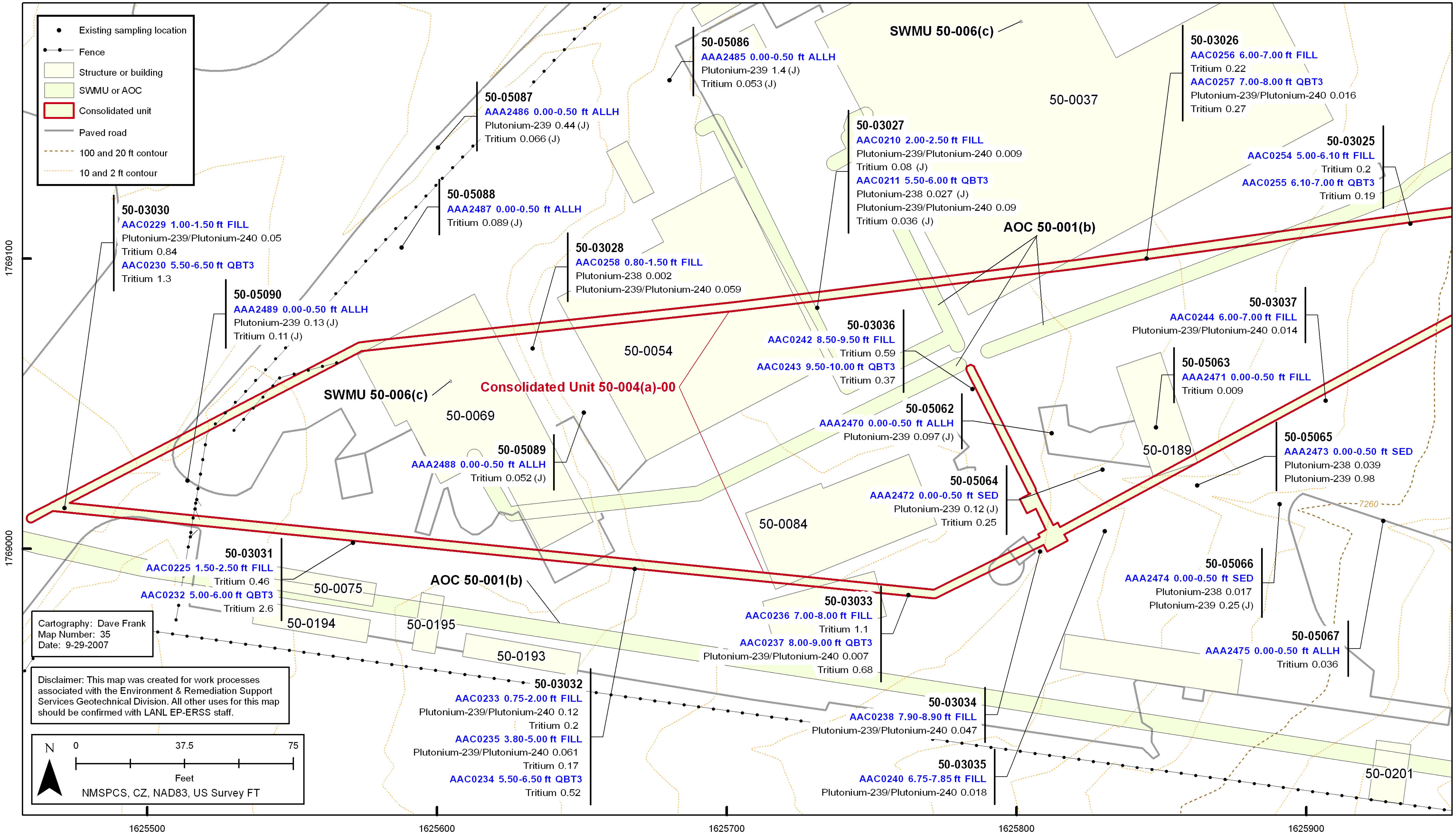

Figure 5.2-3 Radionuclides detected or detected above BV/FV at AOC 50-001(b), and at the western portions of SWMU 50-006(c) and Consolidated Unit 50-004(a)-00

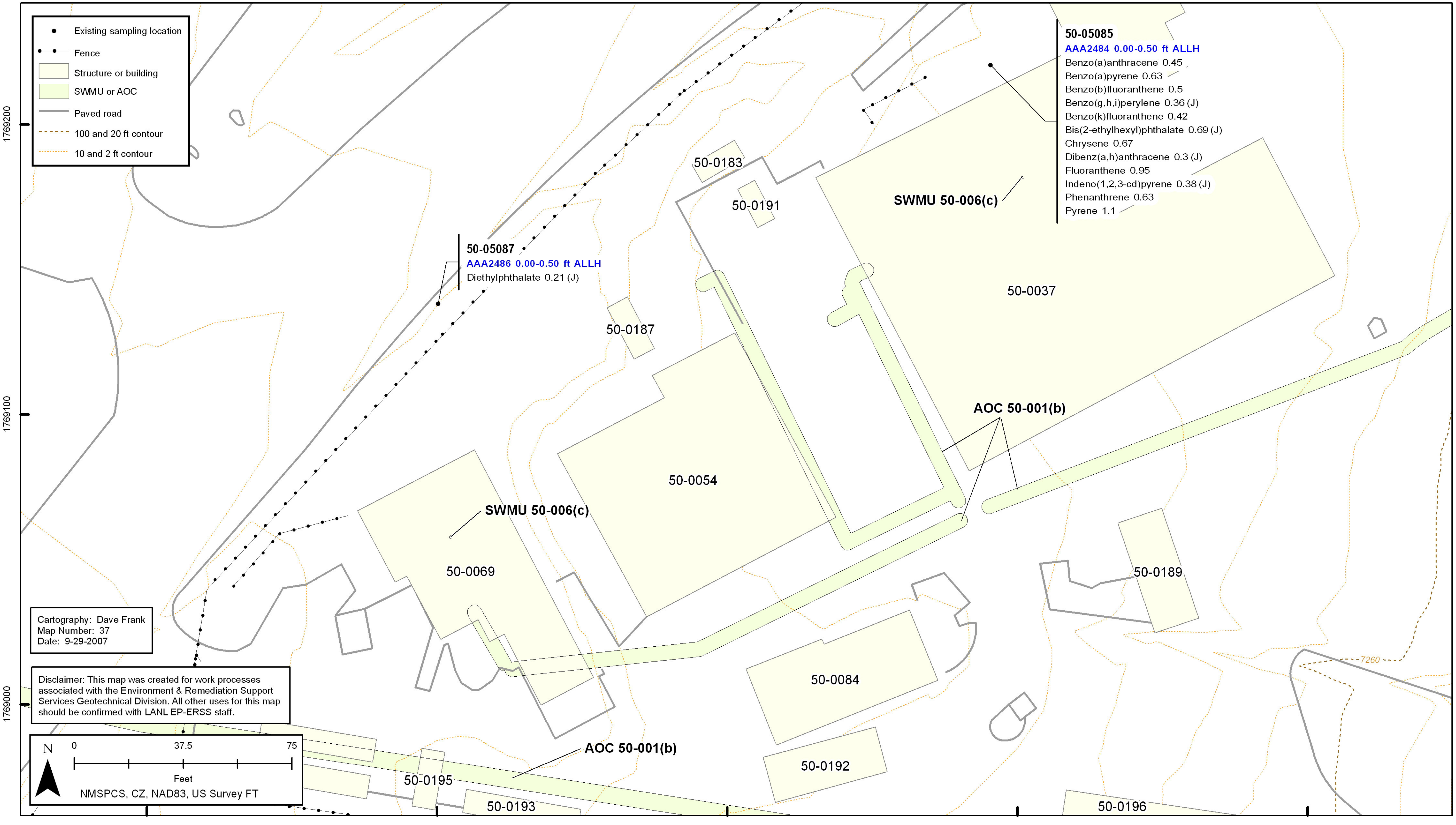

Figure 5.2-4 Organic chemicals detected at AOC 50-001(b) and at the western portion of SWMU 50-006(c)

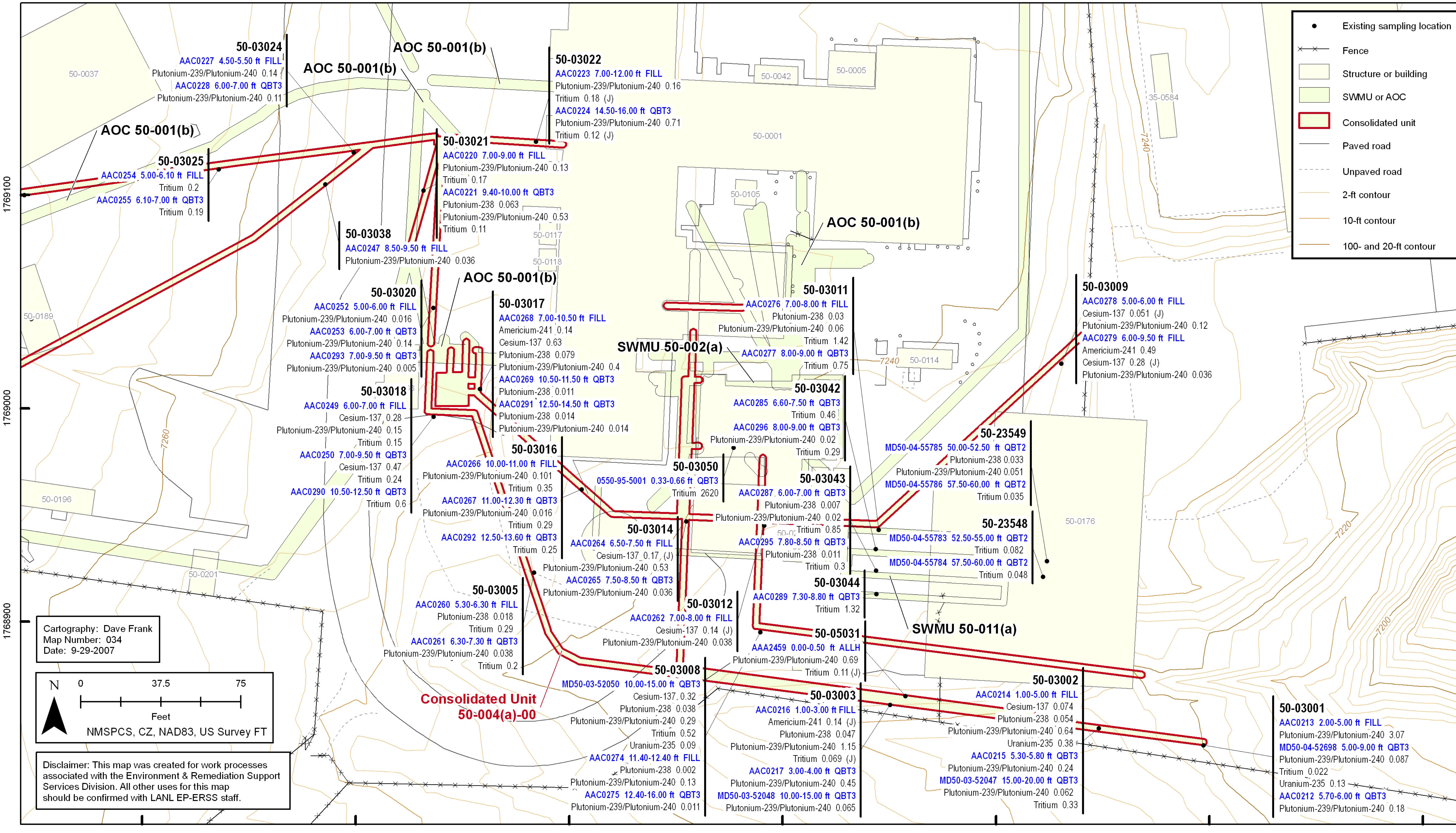

Figure 5.3-1 Radionuclides detected or detected above BV/FV at SWMU 50-002(a), at the eastern portions of SWMU 50-006(c) and Consolidated Unit 50-004(a)-00, and at SWMU 50-011(a)

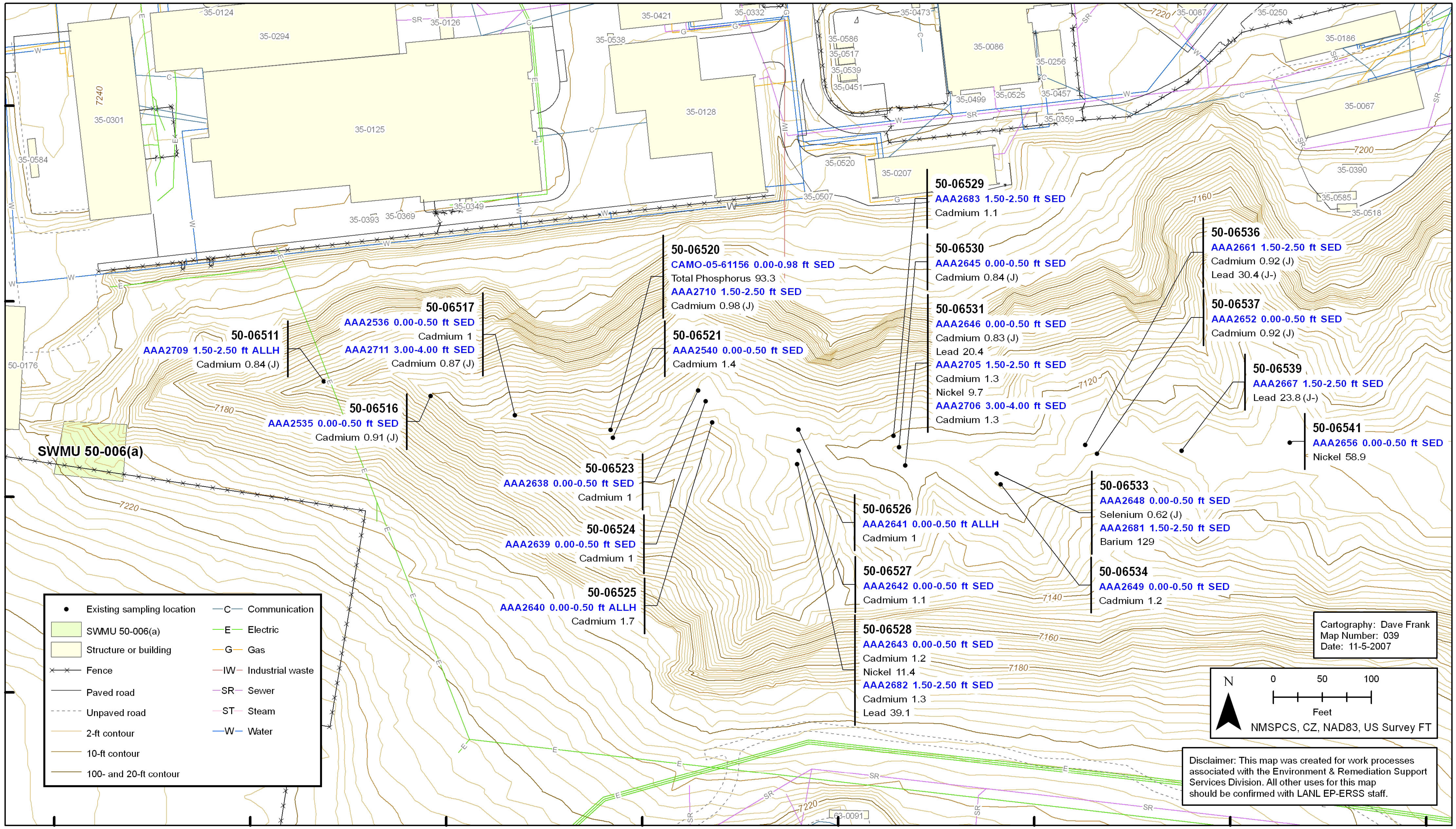

Figure 5.8-1 Inorganic chemicals detected above BVs SWMU 50-006(a)

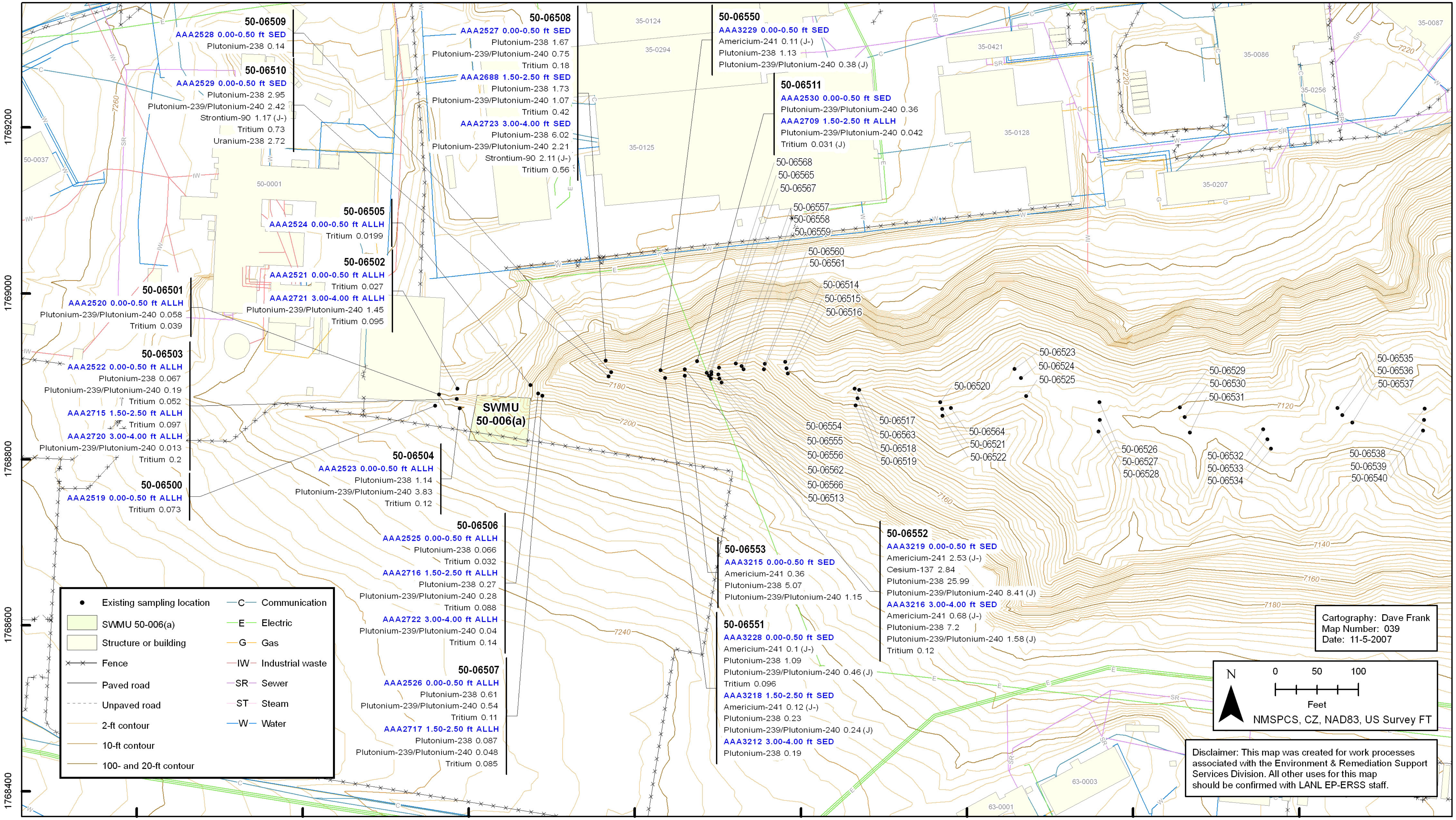

Figure 5.8-2 Radionuclides detected or detected above BV/FV at SWMU 50-006(a), part 1 of 4

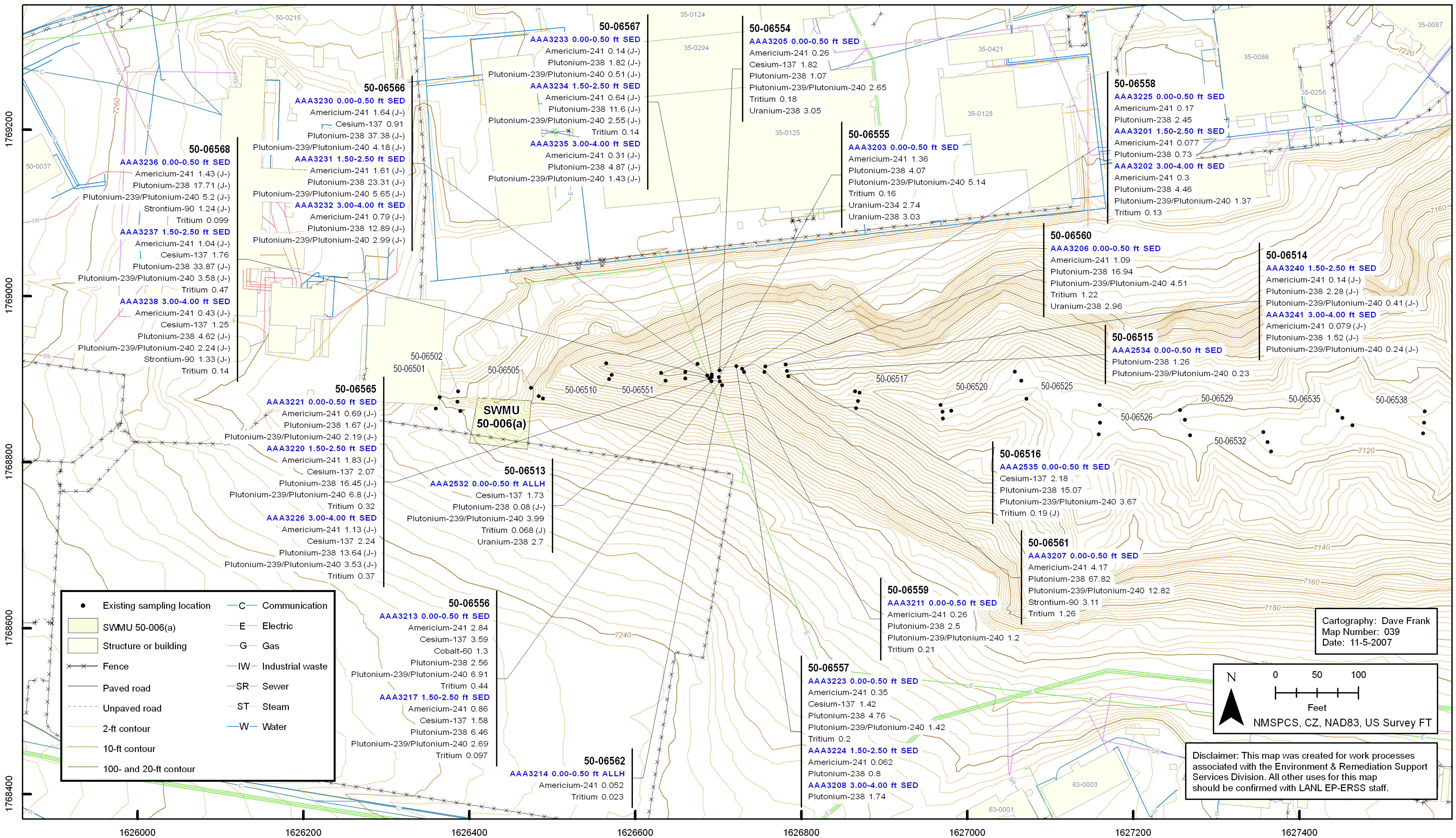

Figure 5.8-3 Radionuclides detected or detected above BV/FV at SWMU 50-006(a), part 2 of 4

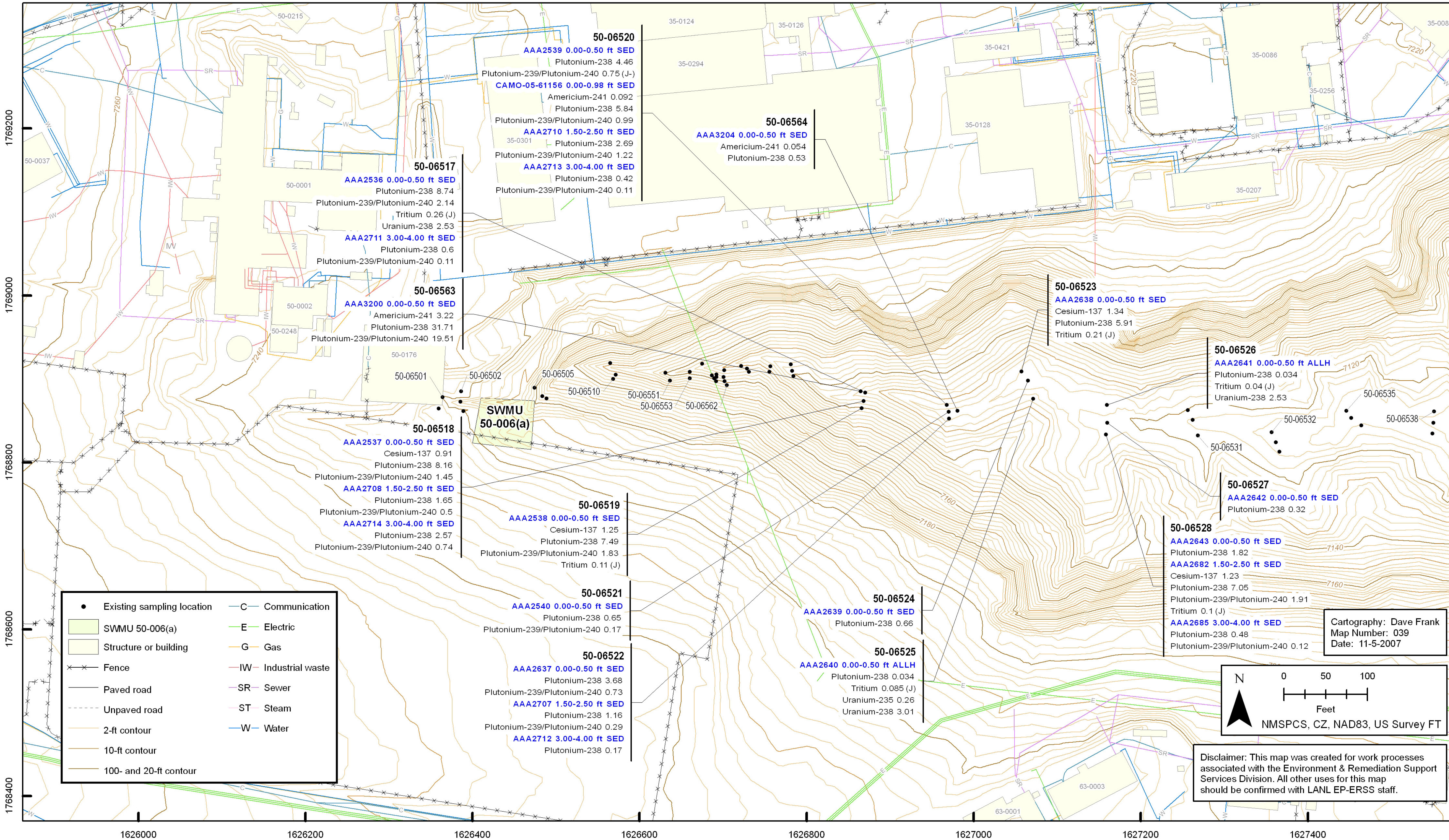

Figure 5.8-4 Radionuclides detected or detected above BV/FV at SWMU 50-006(a), part 3 of 4

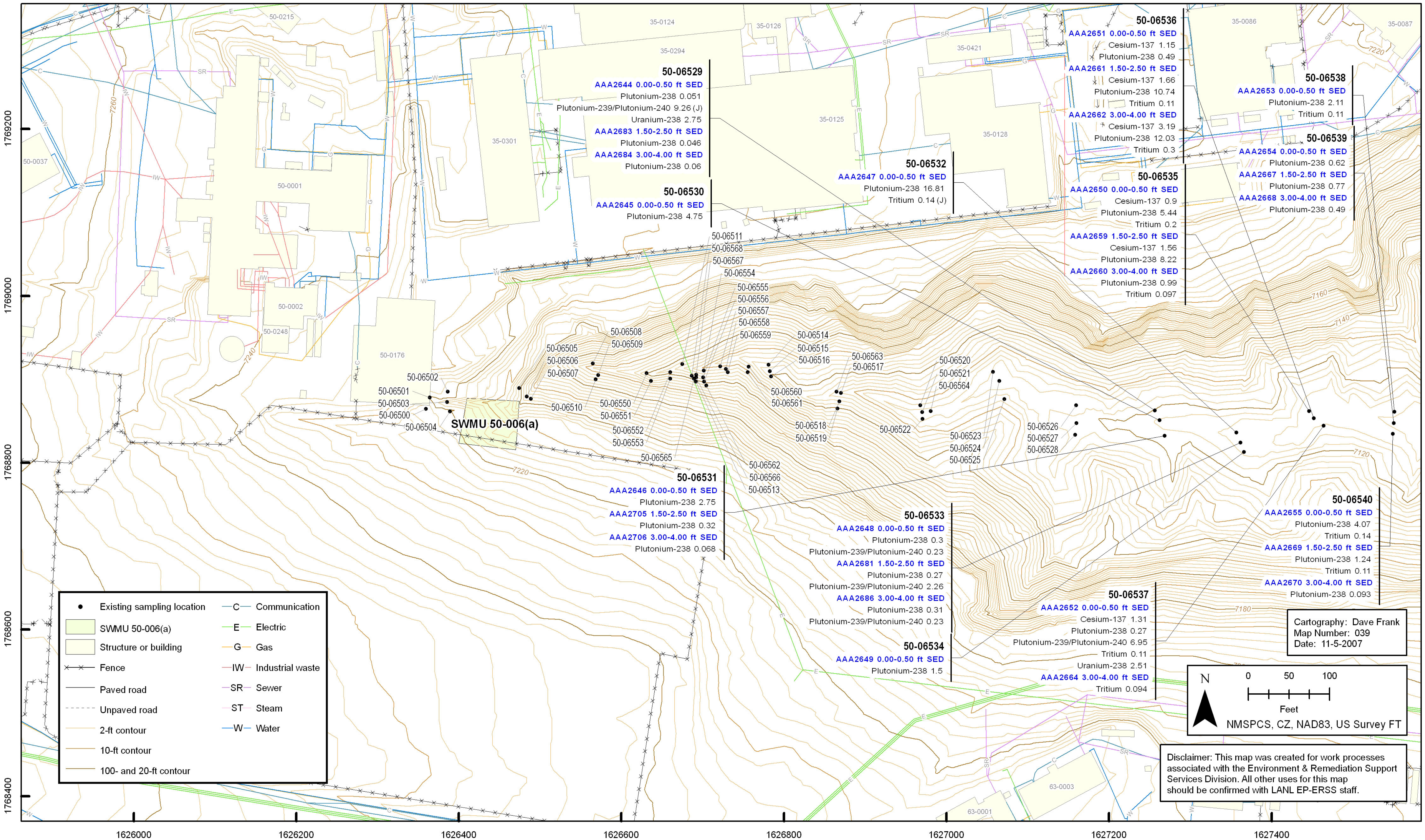

Figure 5.8-5 Radionuclides detected or detected above BV/FV at SWMU 50-006(a), part 4 of 4

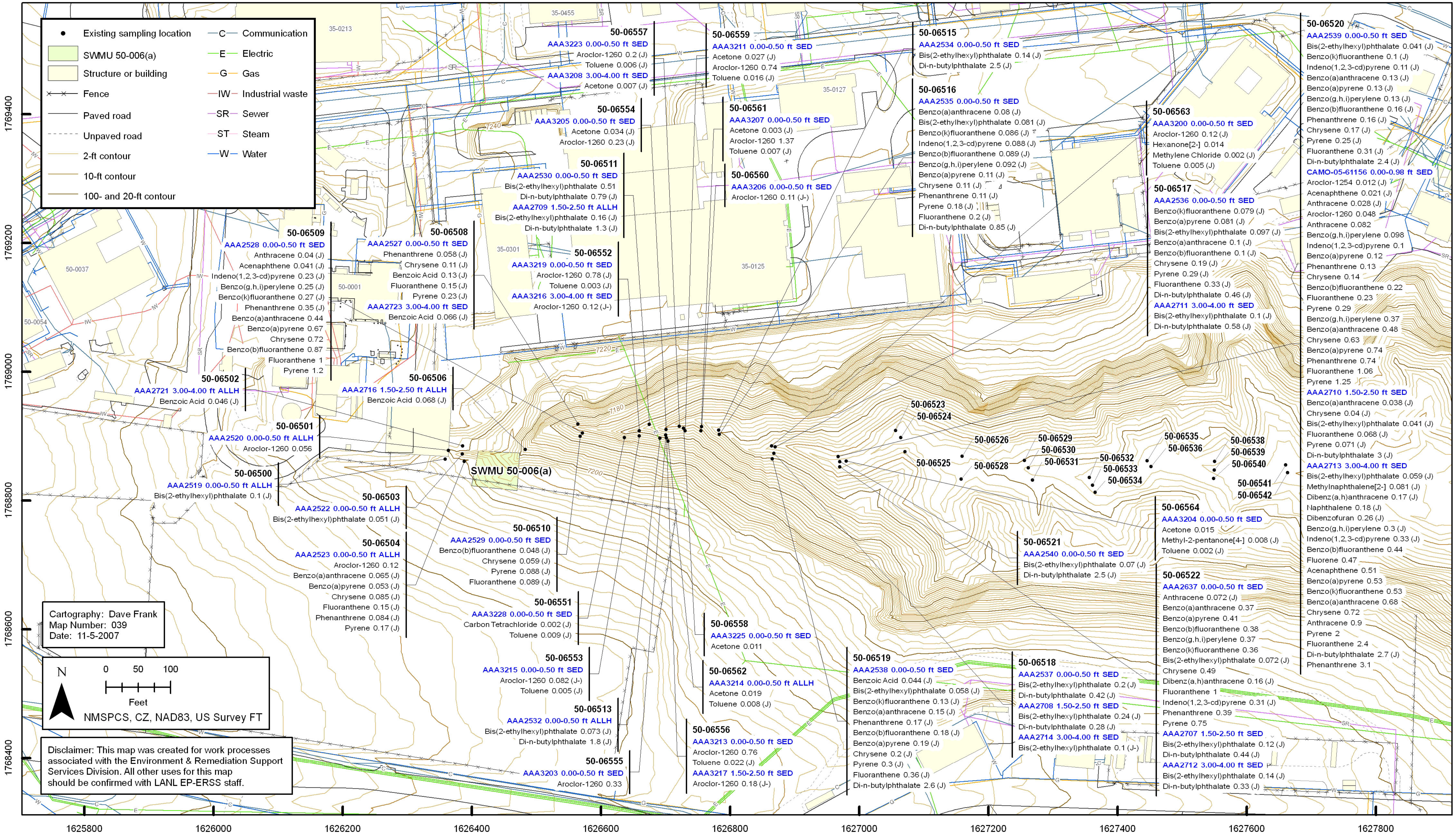

Figure 5.8-6 Organic chemicals detected at SWMU 50-006(a), part 1 of 2

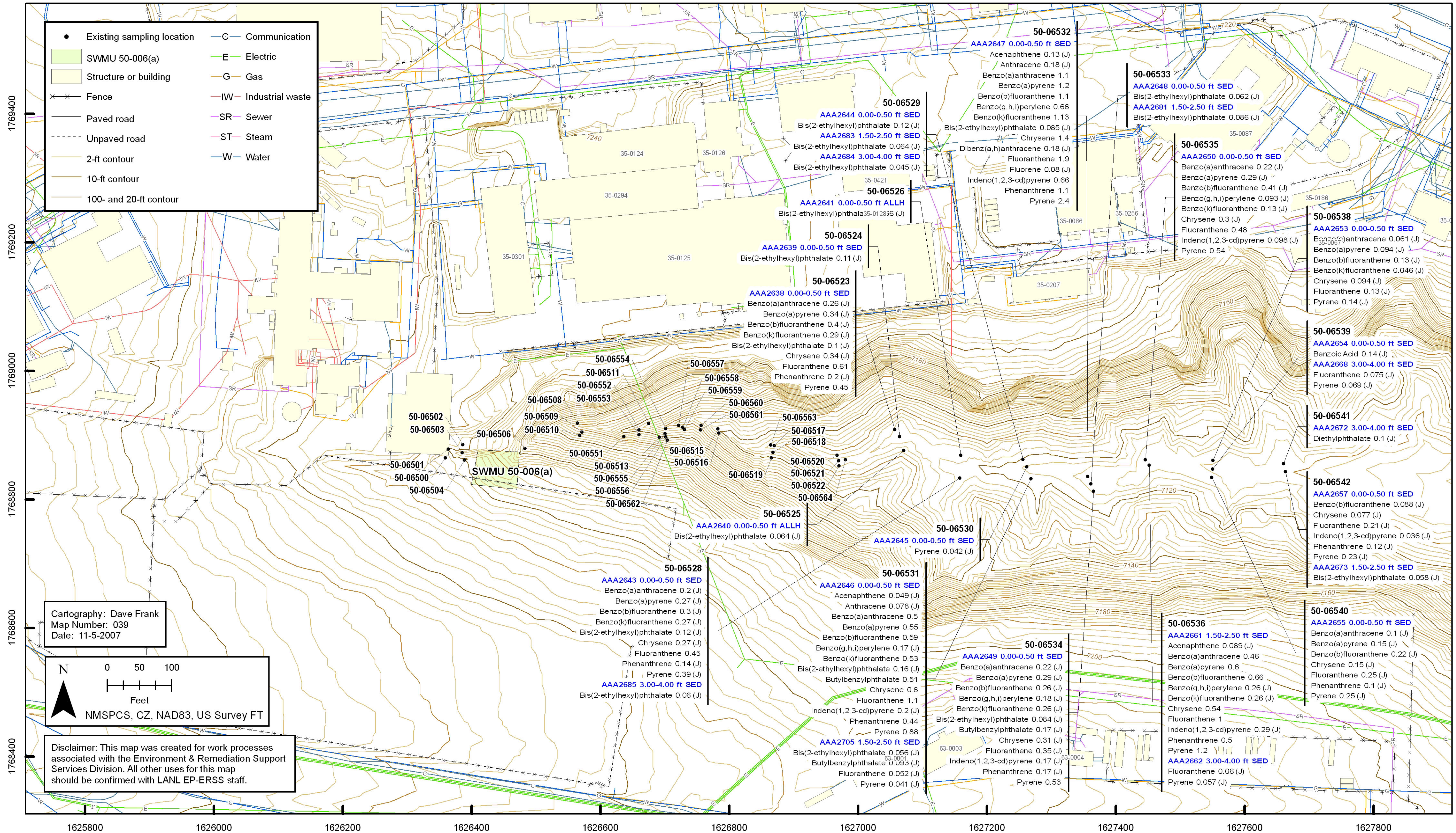

Figure 5.8-7 Organic chemicals detected at SWMU 50-006(a), part 2 of 2

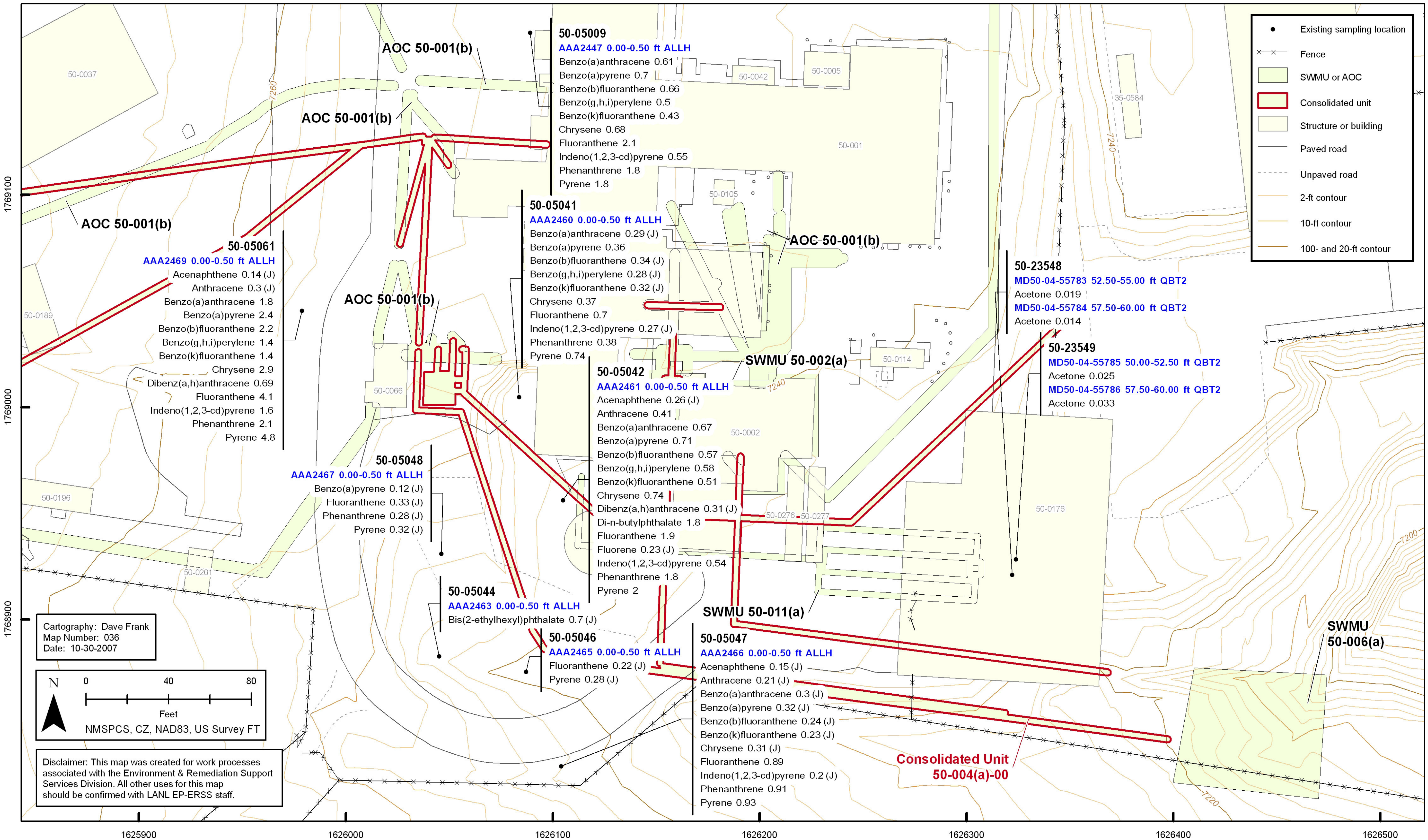

Figure 5.9-1 Organic chemicals detected at the eastern portion of SWMU 50-006(c) and at SWMU 50-011(a)

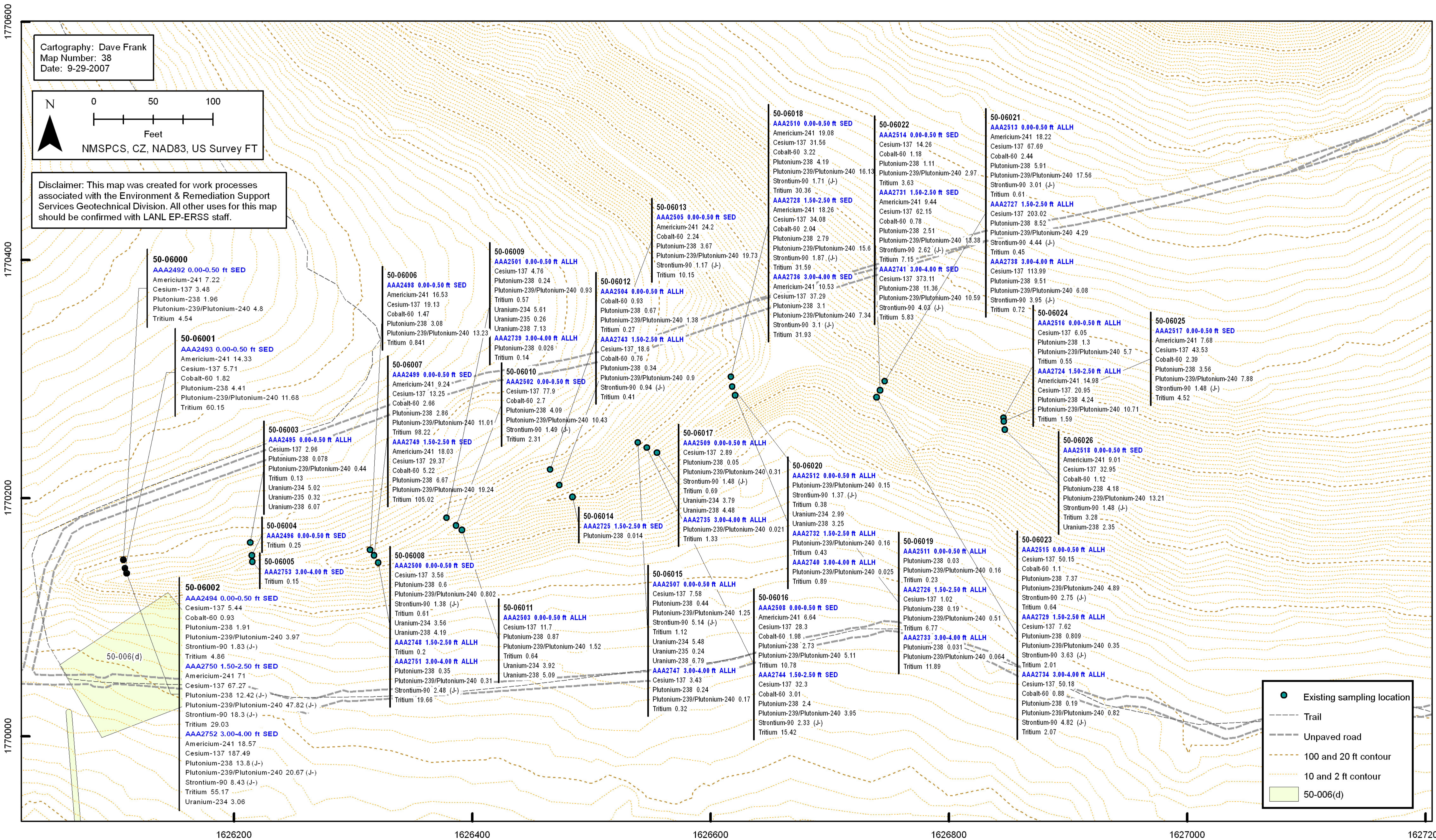

Figure 5.10-1 Radionuclides detected or detected above BV/FV at SWMU 50-006(d)

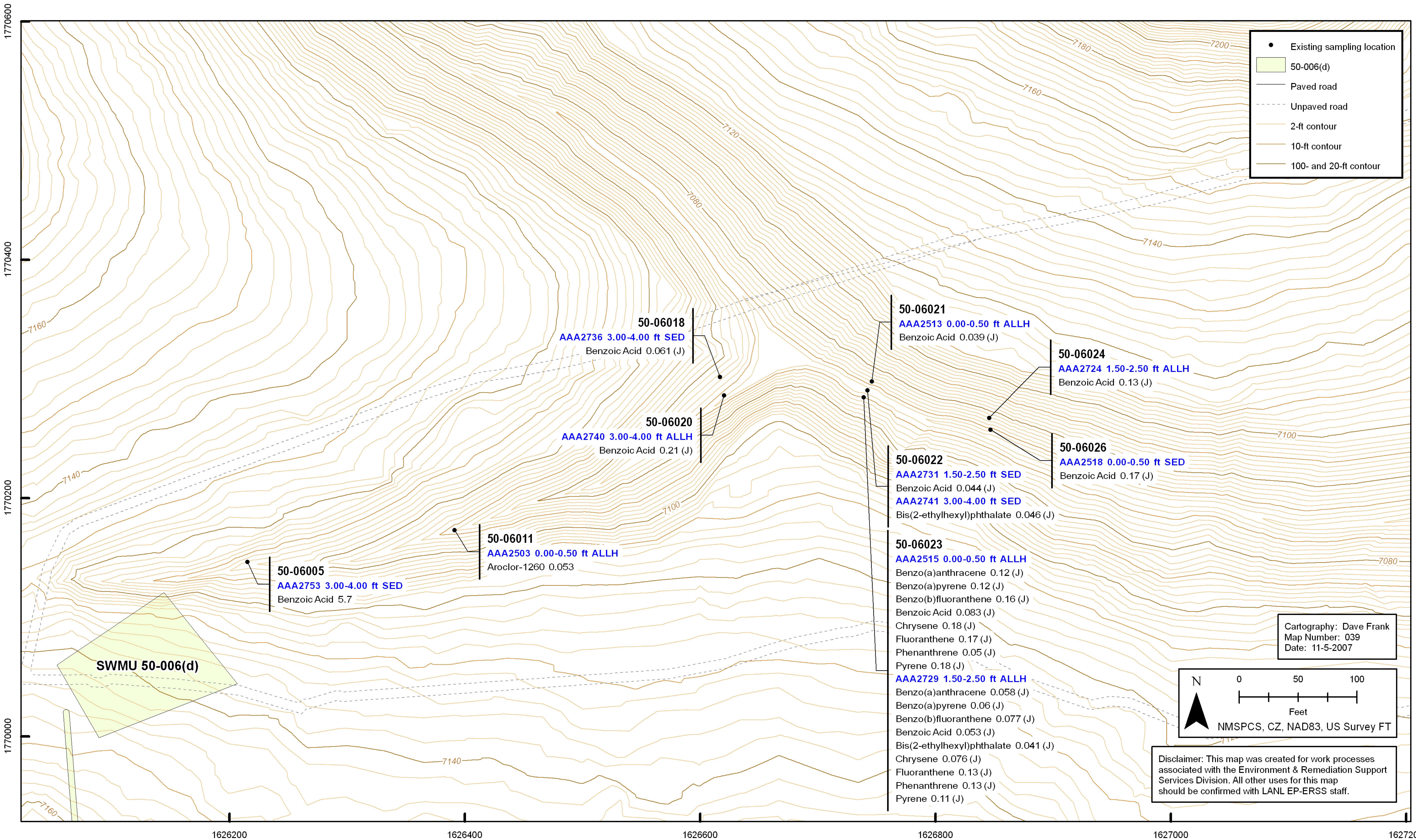

Figure 5.10-2 Organic chemicals detected at SWMU 50-006(d)

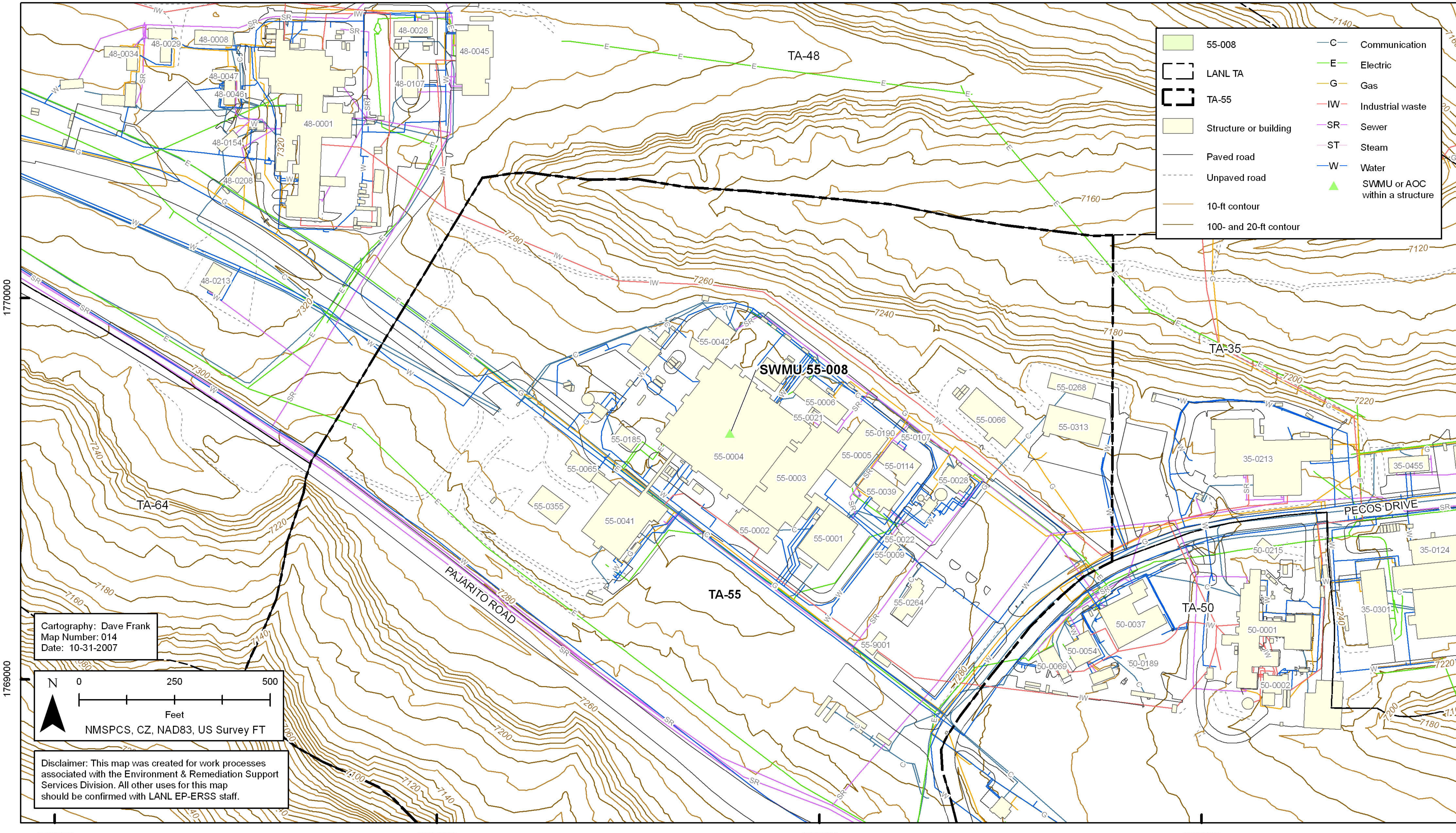

Figure 6.0-1 Site features for TA-55 SWMU

Table 1.0-1
Upper Mortandad Canyon Aggregate Area Sites and Their Regulatory Status

Site ID	Subunit	Brief Description	Site Status	Reference
TA-03				
AOC 03-001(h)		Satellite accumulation area in the Sigma Building (03-66)	NFA Approved	EPA 2005, 088464
AOC 03-001(j)		Satellite accumulation area at the south loading dock of building 03-34	NFA Approved	EPA 2005, 088464
AOC 03-001(y)		Satellite accumulation area in the CMR Building (03-29)	NFA Approved	EPA 2005, 088464
AOC 03-003(e)		Storage area (transformers)—PCB only site in the basement of the CMR Building (03-29)	Under Investigation	HIR Section 2.1
AOC 03-003(i)		Storage area (transformer)—PCB only site in a vault beneath the Cryogenics Building (03-32)	Under Investigation	HIR Section 2.2
AOC 03-004(a)		Container storage area, former temporary drum storage area outside Room 4041 of the CMR Building (03-29)	NFA Approved	EPA 2005, 088464
AOC 03-004(b)		Container storage area, former drum storage area on a concrete pad in Room 2005 of the CMR Building (03-29)	NFA Approved	EPA 2005, 088464
AOC 03-004(c)		Storage area at the main loading dock of the CMR Building (03-29)	Under Investigation	HIR Section 2.3
AOC 03-004(d)		Storage area, former location of a dumpster at the west end of Wing 9 of the CMR Building (03-29)	Under Investigation	HIR Section 2.4
AOC 03-004(e)		Storage area, a 55-gal. storage drum in Wing 4 of the CMR Building (03-29)	NFA Approved	EPA 2005, 088464
AOC 03-004(f)		Storage area, a 55-gal. drum that contains calcium fluoride slags in paint cans in Room 4064 in the basement of the CMR Building (03-29)	NFA Approved	EPA 2005, 088464
AOC 03-007		Decommissioned firing site located southwest of the Beryllium Technology Facility (03-141)	Under Investigation	HIR Section 2.5
SWMU 03-009(c)		Construction debris area, formerly located south of the Sigma Building (03-66)	Removed from Module VIII, HWFP*	NMED 2001, 070010

Table 1.0-1 (continued)

Site ID	Subunit	Brief Description	Site Status	Reference
SWMU 03-009(e)		Surface disposal area, revealed to be construction fill area located at the head of Mortandad Canyon	Removed from Module VIII, HWFP	NMED 1998, 063042
SWMU 03-009(h)		Surface disposal area located on Sigma asphalt mesa, re-identified and assigned as SWMU 60-002	Removed from Module VIII, HWFP	NMED 1998, 063042
AOC 03-010(b)		Operational release, site of a former vacuum pump located on the north side of Wing 5 of the CMR Building (03-29)	NFA Approved	EPA 2005, 088464
SWMU 03-012(a)		Controlled operational release, site of a controlled operational pipe cleaning procedure, located on the north slope of Mortandad Canyon	Removed from Module VIII, HWFP	NMED 1998, 063042
AOC 03-014(w)		Floor drain in the CMR Building (03-29)	Under Investigation	HIR Section 2.6
AOC 03-014(x)		Floor drain in the Sigma Building (03-66)	Under Investigation	HIR Section 2.7
SWMU 03-025(a)		Reputed oil trap sump, site does not exist	Removed from Module VIII, HWFP	NMED 2001, 070010
AOC 03-026(a)		Sump located in the southeast corner of an open pump pit directly adjacent to and west of the SWMU 03-037 holding tanks	Under Investigation	HIR Section 2.8
SWMU 03-026(c)		Aboveground holding tanks for returning chilled water in the basement of the CMR Building (03-29)	Under Investigation	HIR Section 2.9
AOC 03-030		Surface impoundment, duplicate of SWMU 03-012(a)	NFA Approved	EPA 2005, 088464
SWMU 03-031		Radioactive liquid waste system in the CMR Building (03-29)	Under Investigation	HIR Section 2.10
SWMU 03-034(a)		Pumphouse (03-154) and associated radioactive liquid waste tanks	Under Investigation	HIR Section 2.11
SWMU 03-034(b)		Active industrial waste sump and tank located on the west side of the Beryllium Technology Facility (03-141)	Under Investigation	HIR Section 2.12
AOC 03-041		Unloading station (building 03-1264) designed as a holding tank for industrial low-level radioactive wastewater, 140 ft southwest of the Sigma Building (03-66)	Under Investigation	HIR Section 2.13

Table 1.0-1 (continued)

Site ID	Subunit	Brief Description	Site Status	Reference
Consolidated Unit 03-045(h)-00	SWMU 03-045(h)	Former NPDES-permitted outfall at the north perimeter of the Sigma Complex security fence, approximately 50 ft north of a cooling tower (structure 03-187). Formerly, treated cooling water and stormwater discharged at the outfall. Currently, only stormwater discharges at the outfall, and ultimately drains into Sandia Canyon	Under Investigation	HIR Section 2.14
	SWMU 03-049(a)	NPDES-permitted outfall south of the Sigma Building (03-66) that discharges treated cooling water from a cooling tower (structure 03-127) and roof-drain runoff to Mortandad Canyon		
AOC 03-048		Satellite accumulation areas within the CMR Building (03-29)	NFA Approved	EPA 2005, 088464
Consolidated Unit 03-049(b)-00	SWMU 03-049(b)	Discharge area at the south wall of the Press Building (03-35) from a former vacuum pump	Under Investigation	HIR Section 2.15
	AOC C-03-014	Equipment storage area located southwest of the Press Building (03-35)		
SWMU 03-049(d)		Outfall (active) of the condensate system for the Sigma Building (03-66)	Removed from Module VIII, HWFP	NMED 2001, 070010
SWMU 03-049(e)		Outfall south of the Sigma Building (03-66) from a single pipe that connects three roof drains	Under Investigation	HIR Section 2.16
AOC 03-050(b)		Exhaust emissions from the Cryogenics Building (03-34), off-gas scrubber of HEPA filter system	NFA Approved	EPA 2005, 088464
SWMU 03-054(e)		Outfall located in upper Mortandad Canyon, receives roof drains and stormwater runoff at the CMR Building (03-29), received an unintentional one-time release from an industrial waste manhole (AOC C-03-006) in 1974	Under Investigation	HIR Section 2.17
AOC 03-056(e)		Satellite accumulation area, duplicate of both SWMU 03-001(j) and SWMU 03-001(n)	NFA Approved	EPA 2005, 088464
AOC 03-058		Container storage areas within the CMR Building (03-29)	NFA Approved	EPA 2005, 088464

Table 1.0-1 (continued)

Site ID	Subunit	Brief Description	Site Status	Reference
AOC C-03-006		Unintentional overflow at an industrial waste line manhole in 1974 that discharged to the outfall SWMU 03-054(e)	Under Investigation	HIR Section 2.18
AOC C-03-007		Storage areas for radioactive materials throughout building 03-35	NFA Approved	EPA 2005, 088464
AOC C-03-012		Satellite accumulation area, a former storage cabinet located outdoors at the southeast entrance to the filter tower for Wing 3 of the CMR Building (03-29)	NFA Approved	EPA 2005, 088464
TA-42				
Consolidated Unit 42-001(a)-99	SWMU 42-001(a)	Former location for building 42-1 that housed the incinerator	Under Investigation	HIR Section 3.1
	SWMU 42-001(b)	Former location of one of the two ash storage tanks		
	SWMU 42-001(c)	Former location of the other ash storage tank		
	AOC 42-002(a)	Former location of an indoor storage and decontamination area		
	SWMU 42-002(b)	Former location of the outdoor decontamination area		
	SWMU 42-003	Former location of a septic system that served building 42-1		
AOC 42-004		Canyon disposal located over the canyon edge north of former TA-42	NFA Approved	EPA 2005, 088464
TA-48				
AOC 48-001		Air exhaust system of building 48-1	Under Investigation	HIR Section 4.1
SWMU 48-002(a)		Former container storage area located at the southwest corner of building 48-1	Under Investigation	HIR Section 4.2
SWMU 48-002(b)		Former container storage area located at a loading dock on the south side of building 48-1	Under Investigation	HIR Section 4.3
AOC 48-002(c)		Former container storage area located on an asphalt pad east of building 48-1	NFA Approved	EPA 2005, 088464
AOC 48-002(d)		Container storage area located inside building 48-1	NFA Approved	EPA 2005, 088464
AOC 48-002(e)		Former container storage area located on the east side of building 48-1	Under Investigation	HIR Section 4.4

Table 1.0-1 (continued)

Site ID	Subunit	Brief Description	Site Status	Reference
SWMU 48-003		Former septic system that served TA-48 from 1957 through 1986	Under Investigation	HIR Section 4.5
Consolidated Unit 48-004(a)-99	SWMU 48-004(a)	Two sumps located below the floor of the shop in Room 50 of building 48-1	Under Investigation	HIR Section 4.6
	SWMU 48-004(b)	Three sets of tanks located in the south basement of building 48-1 in Room 80		
	SWMU 48-004(c)	Two tanks located in the north basement of building 48-1		
AOC 48-004(d)		Tank installed below the hot cell in the basement of building 48-1, but has never been used	NFA Approved	EPA 2005, 088464
SWMU 48-005		Segments of inactive radioactive liquid waste lines at TA-48 and an associated outfall	Under Investigation	HIR Section 4.7
AOC 48-006		Septic system installed in early 1980s and only served office buildings	NFA Approved	EPA 2005, 088464
Consolidated Unit 48-007(a)-00	SWMU 48-007(a)	Former NPDES-permitted outfall located east of building 48-1 that discharged treated cooling tower blowdown from two cooling towers located on the roof of building 48-1; currently discharges only stormwater	Under Investigation	HIR Section 4.8
	SWMU 48-007(d)	Former NPDES-permitted outfall located east of building 48-1 that discharged noncontact cooling water used to cool a vacuum pump; currently discharges only stormwater		
	SWMU 48-010	Surface impoundment located approximately 300 ft east of building 48-1 and 150 ft outh of building 48-45, received discharges from SWMUs 48-007(a and d) and stormwater runoff from the parking lot for building 48-45; currently receives only stormwater and discharges into a tributary to Mortandad Canyon		

Table 1.0-1 (continued)

Site ID	Subunit	Brief Description	Site Status	Reference
SWMU 48-007(b)		Former NPDES-permitted outfall located north of building 48-1 that discharged noncontact cooling water used to cool a magnet and laser; currently receives only stormwater and discharges into Mortandad Canyon	Under Investigation	HIR Section 4.9
SWMU 48-007(c)		Former NPDES-permitted outfall located north of building 48-1 that received discharges from nine floor drains, a trench drain, and six roof drains located in building 48-1; currently receives only stormwater and discharges into Mortandad Canyon	Under Investigation	HIR Section 4.10
AOC 48-007(e)		Outfall of once-through noncontact cooling water used to cool an electromagnet in the northwest corner of building 48-8	NFA Approved	EPA 2005, 088464
SWMU 48-007(f)		A former NPDES-permitted outfall located north of building 48-1 that received discharges from two sink drains in building 48-46 and discharged into Mortandad Canyon	Under Investigation	HIR Section 4.11
AOC 48-008		Former transformer leak—PCB only site in the basement of building 48-1	NFA Approved	EPA 2005, 088464
AOC 48-009		Soil contamination from two air compressors located on loading dock east of building 48-1	NFA Approved	EPA 2005, 088464
AOC 48-011		A 3-ft diameter by 65-ft deep shaft that was drilled into tuff on the east side of building 48-1; inside the shaft is a 2-ft diameter by 3-ft long stainless-steel cylinder that contains a sodium-iodide radiation detector, the cylinder fell into the shaft and retrieval efforts have failed because it has approximately 3000 lb of lead shielding	Under Investigation	HIR Section 4.12
AOC 48-012		Soil Contamination discovered in August 2002 during trenching east of building 48-1	Under Investigation	HIR Section 4.13
TA-50				
SWMU 50-001(a)		TA-50 radioactive liquid waste treatment facility (RLWTF, building 50-1)	Under Investigation	HIR Section 5.1

Table 1.0-1 (continued)

Site ID	Subunit	Brief Description	Site Status	Reference
AOC 50-001(b)		Active underground drain line system transferring liquid waste to the RLWTF	Under Investigation	HIR Section 5.2
SWMU 50-002(a)		Underground reinforced-concrete vault (building 50-2) that houses an equipment room, six flow-through process tanks, and several waste-transfer lines, all of which are associated with the RLWTF	Under Investigation	HIR Section 5.3
Consolidated Unit 50-002(b)-00	SWMU 50-002(b)	Waste tank (structure 50-67) and associated inlet and outlet lines housed in an underground reinforced-concrete vault (structure 50-66) at the RLWTF	Under Investigation	HIR Section 5.4
	SWMU 50-002(c)	Waste tank (structure 50-68) and associated inlet and outlet lines housed in an underground reinforced-concrete vault (structure 50-66) at the RLWTF		
AOC 50-002(d)		Decommissioned aboveground 5000-gal. stainless-steel tank (structure 50-5) at the RLWTF	Under Investigation	HIR Section 5.5
AOC 50-003(a)		Former RCRA interim status unit located in Room 59 of building 50-1, used to store containers of solid, cemented mixed-TRU sludge resulting from waste treatment activities	Under Investigation	HIR Section 5.6
AOC 50-003(b)		Storage area, a storage cabinet in Room 130 of building 50-1 that contains bottles of mixed wastes	NFA Approved	EPA 2005, 088464
AOC 50-003(c)		Two temporary storage areas, one is for “tuff tanks” located on asphalt paving immediately south of the tank farm at TA-50; the other is for mixed waste (filter cakes packed into drums) located on asphaltic concrete between the north wall of the Vehicle Decontamination Facility and the south wall of east wing of building 50-1	NFA Approved	EPA 2005, 088464

Table 1.0-1 (continued)

Site ID	Subunit	Brief Description	Site Status	Reference
AOC 50-003(d)		Two greater-than-90-day storage structures for chemical waste, one is a 12'x14' canvas building located on asphalt pavement, against the south wall of the east wing of building 50-1 and adjacent to the drum storage area of AOC 50-003(c); the other is a 9'x24' steel shed set on a concrete pad, located about 25 ft east of the northeast corner of the tank farm	NFA Approved	EPA 2005, 088464
AOC 50-003(e)		Reputed storage area, site does not exist	NFA Approved	EPA 2005, 088464
Consolidated Unit 50-004(a)-00	SWMU 50-004(a)	Locations of former underground RLW and industrial waste lines	Under Investigation	HIR Section 5.7
	SWMU 50-004(b)	Location of a former underground vault (structure 50-3) that housed three stainless-steel-lined concrete storage tanks		
	SWMU 50-004(c)	Thirteen industrial waste lines and three associated manholes that discharged to the underground tank vault [SWMU 50-004(b)]		
AOC 50-005		Former waste treatment facility for treating nonradioactive liquid waste in building 50-1	NFA Approved	EPA 2005, 088464
SWMU 50-006(a)		Two accidental operational releases from sump	Under Investigation	HIR Section 5.8
AOC 50-006(b)		Operational release from a radiator located on a concrete foundation about 15 ft west of the wall of building 50-37	NFA Approved	EPA 2005, 088464
SWMU 50-006(c)		Surface soil contamination at TA-50 resulting from the deposition of radioactive contaminants from historical stack emissions at TA-50	Under Investigation	HIR Section 5.9
SWMU 50-006(d)		A TA-50 drain line (structure 50-64) and associated NPDES-permitted outfall (051) in Mortandad Canyon for treated wastewater from the RLWTF	Under Investigation	HIR Section 5.10
AOC 50-006(e)		Aboveground diesel fuel tank located on the southwest side of building 50-37	NFA Approved	EPA 2005, 088464
AOC 50-007		Former incinerator complex in building 50-37	Under Investigation	HIR Section 5.11

Table 1.0-1 (continued)

Site ID	Subunit	Brief Description	Site Status	Reference
AOC 50-008		Formerly volume reduction facility, currently the waste characterization, reduction, and repackaging facility (WCRRF), in building 50-69	Under Investigation	HIR Section 5.12
SWMU 50-009		Material disposal area (MDA C)	Under Investigation	HIR Section 5.13
AOC 50-010		Former vehicle decontamination bay located in Room 34B of the RLWTF	Under Investigation	HIR Section 5.14
SWMU 50-011(a)		Former septic system at the south end of the RLWTF	Under Investigation	HIR Section 5.15
AOC 50-011(b)		Two sanitary wastewater lift stations (structures 50-91 and 50-92) and associated piping	Under Investigation	HIR Section 5.16
TA-55				
AOC 55-001		Cement plant in Room 401 in the Plutonium Building (55-4), a RCRA unit	NFA Approved	EPA 2005, 088464
AOC 55-002(a)		Radioactive waste storage area located inside the Plutonium Building (55-4)	NFA Approved	EPA 2005, 088464
AOC 55-002(b)		Temporary radioactive waste storage area outside of the Plutonium Building (55-4)	NFA Approved	EPA 2005, 088464
AOC 55-002(c)		Interim container storage area located on asphalt pad on the west side of the Plutonium Building (55-4)	NFA Approved	EPA 2005, 088464
AOC 55-003		Containment area, an aboveground storage tank that holds pure nitric acid, which is product, not waste	NFA Approved	EPA 2005, 088464
AOC 55-004		Evaporator located adjacent to the cementing process (AOC 55-001) in the Plutonium Building (55-4)	NFA Approved	EPA 2005, 088464
AOC 55-005		Filtration unit associated with the evaporator (AOC 55-004) and the cementing process (AOC 55-001) in the Plutonium Building (55-4)	NFA Approved	EPA 2005, 088464
AOC 55-006		Glass breaker located in a glovebox in Room 133 of the Plutonium Building (55-4)	NFA Approved	EPA 2005, 088464
AOC 55-007		Two thermal combustion units located in Room 420 of the Plutonium Building (55-4)	NFA Approved	EPA 2005, 088464

Table 1.0-1 (continued)

Site ID	Subunit	Brief Description	Site Status	Reference
SWMU 55-008		Sumps, tanks, and pumps in the basement of the Plutonium Building (55-4)	Under Investigation	HIR Section 6.1
SWMU 55-009		Former sanitary sewer monitoring station in TA-55 plutonium complex, consisting of a 9'x9'x6'-deep concrete-lined pit; the walls and floors of the monitoring station are 6"-thick reinforced concrete	Removed from Module VIII, HWFP	NMED 2007, 095495
AOC 55-010		One time spill of solvent located at the southwest side of the Plutonium Building (55-4)	NFA Approved	EPA 2005, 088464
AOC 55-011(a)		Active NPDES-permitted storm-drainage system located northwest of the Plutonium Building (55-4) and discharges to the north of building 55-4 at the rim of Mortandad Canyon	NFA Approved	EPA 2005, 088464
AOC 55-011(b)		Active NPDES-permitted storm-drainage system located northeast of the Plutonium Building (55-4) and discharges to the northeast of building 55-4 at the rim of Mortandad Canyon	NFA Approved	EPA 2005, 088464
AOC 55-011(c)		Active NPDES-permitted storm-drainage system located northeast of the Plutonium Building (55-4) and discharges to the northeast of building 55-4 at the rim of Mortandad Canyon	NFA Approved	EPA 2005, 088464
AOC 55-011(d)		Active NPDES-permitted storm-drainage system located southwest of the Plutonium Building (55-4) and discharges to the south of building 55-4 to Two Mile Canyon	NFA Approved	EPA 2005, 088464
AOC 55-011(e)		Active NPDES-permitted storm-drainage system located northeast of the Plutonium Building (55-4) and discharges to the northeast of building 55-4 at the rim of Mortandad Canyon	NFA Approved	EPA 2005, 088464
AOC 55-012		Former container storage area for a bottle of waste acid containing heavy metals in Room 503 in the Plutonium Building (55-4)	NFA Approved	EPA 2005, 088464
AOC 55-013(a)		A satellite storage area under a fume hood in Room 186 of building 55-3	NFA Approved	EPA 2005, 088464

Table 1.0-1 (continued)

Site ID	Subunit	Brief Description	Site Status	Reference
AOC 55-013(b)		A satellite storage area under a fume hood in Room 186 of building 55-3	NFA Approved	EPA 2005, 088464
TA-60				
AOC C-60-002		A 4000-gal. decommissioned diesel fuel UST (structure 03-318) located on Sigma Mesa near the decommissioned communications bunker (structure 03-219)	NFA Approved	EPA 2005, 088464

Note: Shading denotes sites that have been approved for NFA.
*HWFP=The Laboratory's Hazardous Waste Facility Permit.

Table 2.3-1
Samples Collected at AOC 03-004(c)

Sample ID	Location ID	Depth (ft)	Media	Metals	SVOCs	VOCs
0103-97-0275	03-03301	1.25–1.5	Soil	3415R[a]	3414R	—[b]
0103-97-0279	03-03302	1.17–1.5	Soil	3415R	3414R	—
0103-97-0280	03-03303	1.17–1.5	Soil	3415R	3414R	—
0103-97-0278	03-03304	0.33–1.42	Soil	3415R	3414R	—
0103-97-0277	03-03305	1.17–1.42	Soil	3415R	3414R	3414R

[a] Analytical request number.
[b] — =Analysis not requested.

Table 2.3-2
Inorganic Chemicals above BVs at AOC 03-004(c)

Sample ID	Location ID	Depth (ft)	Media	Antimony	Cadmium	Calcium	Silver
Soil Background Value[a]				**0.83**	**0.4**	**6120**	**1**
0103-97-0275	03-03301	1.25–1.50	Soil	6.6 (UJ)	0.55 (U)	—[b]	1.9 (U)
0103-97-0279	03-03302	1.17–1.50	Soil	5.7 (UJ)	0.47 (U)	—	1.7 (U)
0103-97-0280	03-03303	1.17–1.50	Soil	7.1 (UJ)	0.59 (U)	13900	2.1 (U)
0103-97-0278	03-03304	0.33–1.42	Soil	6.9 (UJ)	0.57 (U)	—	2 (U)
0103-97-0277	03-03305	1.17–1.42	Soil	6.6 (UJ)	0.55 (U)	—	1.9 (U)

Note: All values in mg/kg.
[a] Background values are from LANL 1998, 059730.
[b] — = Analyte not reported (detect or nondetect) above BV or not detected.

Table 2.3-3
Organic Chemicals Detected at AOC 03-004(c)

Sample ID	Location ID	Depth (ft)	Media	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Fluoranthene	Phenanthrene	Pyrene
0103-97-0280	03-03303	1.17–1.50	Soil	0.09 (J)	0.09 (J)	0.1 (J)	0.083 (J)	0.12 (J)

Note: All values in mg/kg.

Table 2.4-1
Samples Collected at AOC 03-004(d)

Sample ID	Location ID	Depth (ft)	Media	Metals	SVOCs	VOCs	Gamma Spectroscopy	Isotopic Plutonium	Isotopic Uranium
0103-97-0261	03-03294	0–1	Fill	3413R[a]	3412R	—[b]	—	—	—
0103-97-0351	03-03294	0–1	Fill	—	—	—	3731R	3731R	3731R
0103-97-0262	03-03294	3–4	Fill	3413R	3412R	3412R	—	—	—
0103-97-0263	03-03295	0.25–1.25	Fill	3413R	3412R	—	—	—	—
0103-97-0352	03-03295	0.25–1.25	Fill	—	—	—	3731R	3731R	3731R
0103-97-0264	03-03296	0–1	Fill	3413R	3412R	—	—	—	—
0103-97-0353	03-03296	0–1	Fill	—	—	—	3731R	3731R	3731R
0103-97-0265	03-03296	3–4	Fill	3413R	3412R	—	—	—	—
0103-97-0268	03-03297	0.25–0.5	Soil	3413R	3412R	—	—	—	—
0103-97-0356	03-03297	0.25–0.5	Soil	—	—	—	3731R	3731R	3731R
0103-97-0266	03-03298	0–0.83	Fill	3413R	3412R	—	—	—	—
0103-97-0354	03-03298	0–0.83	Fill	—	—	—	3731R	3731R	3731R
0103-97-0267	03-03299	0–0.5	Soil	3413R	3412R	—	—	—	—
0103-97-0355	03-03299	0–0.5	Soil	—	—	—	3731R	3731R	3731R
0103-97-0357	03-03300	0–0.83	Soil	—	—	—	3731R	3731R	3731R

[a] Analytical request number.

[b] — =Analysis not requested.

Table 2.4-2
Inorganic Chemicals above BVs at AOC 03-004(d)

Sample ID	Location ID	Depth (ft)	Media	Antimony	Cadmium	Calcium	Chromium	Lead	Silver	Thallium	Zinc
Soil Background Value[a]				**0.83**	**0.4**	**6120**	**19.3**	**22.3**	**1**	**0.73**	**48.8**
0103-97-0261	03-03294	0.00–1.00	Fill	7.7 (U)	0.74 (J)	7840	33	56.6	1.3 (J)	—[b]	211 (J-)
0103-97-0262	03-03294	3.00–4.00	Fill	8.2 (U)	0.92 (J)	—	—	—	—	—	—
0103-97-0263	03-03295	0.25–1.25	Fill	8.1 (U)	0.7 (U)	—	—	—	—	2 (U)	—
0103-97-0264	03-03296	0.00–1.00	Fill	7.5 (U)	0.65 (U)	—	—	—	—	—	51.2 (J-)
0103-97-0265	03-03296	3.00–4.00	Fill	8.2 (U)	0.71 (U)	—	—	—	—	—	—
0103-97-0268	03-03297	0.25–0.50	Soil	8.1 (U)	0.7 (U)	—	—	—	—	2.1 (U)	—
0103-97-0266	03-03298	0.00–0.83	Fill	7.1 (U)	0.61 (U)	—	—	—	—	1.9 (U)	—
0103-97-0267	03-03299	0.00–0.50	Soil	7.8 (U)	0.67 (U)	—	—	—	—	1.8 (U)	—

Note: All values in mg/kg.

[a] Background values are from LANL 1998, 059730.

[b] — = Analyte not reported (detect or nondetect) above BV or not detected.

Table 2.4-3
Radionuclides Detected at AOC 03-004(d)

Sample ID	Location ID	Depth (ft)	Media	Cesium-137	Plutonium-238	Plutonium-239/Plutonium-240
Soil Fallout Value[a,b]				**1.65**	**0.023**	**0.054**
0103-97-0351	03-03294	0.00–1.00	Fill	0.1673	0.077	0.072
0103-97-0352	03-03295	0.25–1.25	Fill	—[c]	—	0.089
0103-97-0353	03-03296	0.00–1.00	Fill	—	0.039	0.084
0103-97-0354	03-03298	0.00–0.83	Fill	0.4739	0.035	0.058
0103-97-0357	03-03300	0.00–0.83	Soil	0.2244	—	0.04

Note: All values in pCi/g.

[a] Fallout values are from LANL 1998, 059730.

[b] Fallout value applies to samples collected from 0–0.5 ft only.

[c] — = Analyte not detected.

Table 2.4-4
Organic Chemicals Detected at AOC 03-004(d)

Sample ID	Location ID	Depth (ft)	Media	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Carbazole	Chrysene	Fluoranthene	Indeno(1,2,3-cd)pyrene	Phenanthrene	Pyrene
0103-97-0264	03-03296	0.00–1.00	Fill	0.051 (J)	0.21 (J)	0.18 (J)	0.23 (J)	0.095 (J)	0.1 (J)	0.055 (J)	0.23 (J)	0.51	0.11 (J)	0.27 (J)	0.4
0103-97-0266	03-03298	0.00–0.83	Fill	—*	—	—	—	—	—	—	—	—	—	—	0.046 (J)
0103-97-0267	03-03299	0.00–0.50	Soil	—	—	—	—	—	—	—	—	—	—	—	0.044 (J)

Note: All values in mg/kg.

* — = Analyte not detected.

Table 2.5-1
Samples Collected at AOC 03-007

Sample ID	Location ID	Depth (ft)	Media	Metals	High-Explosive	SVOCs	VOCs	Gamma Spectroscopy	Isotopic Thorium
0103-97-0221	03-03311	0–1	Fill	3410R[a]	3409R	3408R	3408R	—[b]	3411R
0103-97-0222	03-03312	0–1	Fill	3410R	3409R	3408R	—	—	3411R
0103-97-0223	03-03313	0–1	Fill	3410R	3409R	3408R	—	3426R	3411R
0103-97-0224	03-03314	0–1	Fill	3410R	3409R	3408R	3408R	—	3411R

[a] Analytical request number.
[b] — =Analysis not requested.

Table 2.5-2
Inorganic Chemicals above BVs at AOC 03-007

Sample ID	Location ID	Depth (ft)	Media	Antimony	Cadmium	Silver
Soil Background Value*				**0.83**	**0.4**	**1**
0103-97-0221	03-03311	0.00–1.00	Fill	5.5 (UJ)	0.46 (U)	1.6 (U)
0103-97-0222	03-03312	0.00–1.00	Fill	6.2 (UJ)	0.51 (U)	1.8 (U)
0103-97-0223	03-03313	0.00–1.00	Fill	6.1 (UJ)	0.88 (J)	1.8 (U)
0103-97-0224	03-03314	0.00–1.00	Fill	6.3 (UJ)	0.53 (U)	1.8 (U)

Note: All values in mg/kg.
* Background values are from LANL 1998, 059730.

Table 2.5-3
Radionuclides Detected at AOC 03-007

Sample ID	Location ID	Depth (ft)	Media	Cesium-137
Soil Fallout Value[a,b]				**1.65**
0103-97-0223	03-03313	0.00–1.00	Fill	0.08

Note: All values in pCi/g.
[a] Fallout values are from LANL 1998, 059730.
[b] Fallout value applies to samples collected from 0–0.5 ft only.

Table 2.5-4
Organic Chemicals Detected at AOC 03-007

Sample ID	Location ID	Depth (ft)	Media	Benzoic Acid
0103-97-0223	03-03313	0.00–1.00	Fill	0.71 (J)

Note: All values in mg/kg.

Table 2.11-1
Samples Collected at SWMU 03-034(a)

Sample ID	Location ID	Depth (ft)	Media	Metals	SVOCs	Gamma Spectroscopy	Isotopic Plutonium	Isotopic Uranium
0103-97-0266	03-03298	0–0.83	Fill	3413R[a]	3412R	—[b]	—	—
0103-97-0354	03-03298	0–0.83	Fill	—	—	3731R	3731R	3731R
0103-97-0267	03-03299	0–0.5	Soil	3413R	3412R	—	—	—
0103-97-0355	03-03299	0–0.5	Soil	—	—	3731R	3731R	3731R
0103-97-0357	03-03300	0–0.83	Soil	—	—	3731R	3731R	3731R

[a] Analytical request number.
[b] — =Analysis not requested.

Table 2.11-2
Inorganic Chemicals above BVs at SWMU 03-034(a)

Sample ID	Location ID	Depth (ft)	Media	Antimony	Cadmium	Thallium
Soil Background Value*				**0.83**	**0.4**	**0.73**
0103-97-0266	03-03298	0.00–0.83	Fill	7.1 (U)	0.61 (U)	1.9 (U)
0103-97-0267	03-03299	0.00–0.50	Soil	7.8 (U)	0.67 (U)	1.8 (U)

Note: All values in mg/kg.
* Background values are from LANL 1998, 059730.

Table 2.11-3
Radionuclides Detected at SWMU 03-034(a)

Sample ID	Location ID	Depth (ft)	Media	Cesium-137	Plutonium-238	Plutonium-239/Plutonium-240
Soil Fallout Value[a,b]				**1.65**	**0.023**	**0.054**
0103-97-0354	03-03298	0.00–0.83	Fill	0.4739	0.035	0.058
0103-97-0357	03-03300	0.00–0.83	Soil	0.2244	—[c]	0.04

Note: All values in pCi/g.
[a] Fallout values are from LANL 1998, 059730.
[b] Fallout value applies to samples collected from 0–0.5 ft only.
[c] — = Analyte not detected.

Table 2.11-4
Organic Chemicals Detected at SWMU 03-034(a)

Sample ID	Location ID	Depth (ft)	Media	Pyrene
0103-97-0266	03-03298	0.00–0.83	Fill	0.046 (J)
0103-97-0267	03-03299	0.00–0.50	Soil	0.044 (J)

Note: All values in mg/kg.

Table 2.14-1
Samples Collected at Consolidated Unit 03-045(h)-00

Sample ID	Location ID	Depth (ft)	Media	Hexavalent Chromium	Metals	Total Cyanide	VOCs	Isotopic Uranium
0103-97-0061	03-03231	0–0.33	Sediment	3363R[a]	3363R	3363R	3362R	3364R
0103-97-0062	03-03233	0–0.33	Sediment	3363R	3363R	3363R	3362R	3364R
0103-97-0063	03-03234	0–0.33	Sediment	3363R	3363R	3363R	—[b]	3364R
0103-97-0064	03-03236	0–0.33	Sediment	3363R	3363R	3363R	—	3364R
0103-97-0065	03-03237	0–0.33	Sediment	3363R	3363R	3363R	—	3364R
0103-97-0066	03-03238	0–0.33	Sediment	3363R	3363R	3363R	—	3364R
0103-97-0067	03-03239	0–0.33	Sediment	3363R	3363R	3363R	—	3364R

[a] Analytical request number.

[b] — =Analysis not requested.

Table 2.14-2
Inorganic Chemicals above BVs at Consolidated Unit 03-045(h)-00

Sample ID	Location ID	Depth (ft)	Media	Antimony	Arsenic	Barium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Manganese	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
Sediment Background Value[a]				**0.83**	**3.98**	**127**	**4420**	**10.5**	**4.73**	**11.2**	**13800**	**19.7**	**543**	**9.38**	**0.3**	**1**	**0.73**	**19.7**	**60.2**
0103-97-0061	03-03231	0.00-0.33	Sediment	1.1 (U)	—[b]	—	—	68.2 (J-)	—	446	—	25.1	—	29.9	0.84 (U)	—	1.8 (J)	—	422
0103-97-0062	03-03233	0.00-0.33	Sediment	2.3 (U)	—	—	5590	152 (J-)	—	663	17400	53.9	—	29.5	1.8 (U)	1.1 (J)	1.5 (U)	24.7 (J)	421
0103-97-0063	03-03234	0.00-0.33	Sediment	1.2 (U)	—	—	—	274 (J-)	—	68.2	14900	25.2	—	12.8 (J)	0.99 (U)	—	0.81 (U)	—	356
0103-97-0064	03-03236	0.00-0.33	Sediment	1.2 (U)	—	—	—	264 (J-)	—	80.7	—	51.2	—	22.3	0.92 (U)	—	0.75 (U)	—	222
0103-97-0065	03-03237	0.00-0.33	Sediment	3.3 (U)	6 (J)	171 (J)	4990	198 (J-)	14.7 (J)	310	19200	92.6	1110 (J-)	55.7	2.6 (U)	1.2 (U)	2.1 (U)	34.8 (J)	564
0103-97-0066	03-03238	0.00-0.33	Sediment	0.95 (U)	—	—	—	—	—	17.6	—	—	—	—	0.75 (U)	—	—	—	—
0103-97-0067	03-03239	0.00-0.33	Sediment	2.3 (U)	—	—	—	86.3 (J-)	—	161	—	29.7	—	16.2 (J)	1.8 (U)	—	1.5 (U)	—	270

Note: All values in mg/kg.

[a] Background values are from LANL 1998, 059730.

[b] — = Analyte not reported (detect or nondetect) above BV or not detected.

Table 2.14-3
Radionuclide Detected above the BV at Consolidated Unit 03-045(h)-00

Sample ID	Location ID	Depth (ft)	Media	Uranium-238
Sediment Background Value*				**2.29**
0103-97-0062	03-03233	0.00–0.33	Sediment	2.3592
0103-97-0065	03-03237	0.00–0.33	Sediment	3.364

Note: All values in pCi/g.

* Background values are from LANL 1998, 059730.

Table 2.14-4
Organic Chemicals Detected at Consolidated Unit 03-045(h)-00

Sample ID	Location ID	Depth (ft)	Media	Butanone[2-]	Methylene Chloride
0103-97-0061	03-03231	0.00–0.33	Sediment	0.013 (J)	0.011 (J)
0103-97-0062	03-03233	0.00–0.33	Sediment	—*	0.012

Note: All values in mg/kg.

* — = Analyte not detected.

Table 2.15-1
Samples Collected at Consolidated Unit 03-049(b)-00

Sample ID	Location ID	Depth (ft)	Media	Metals	PCBs	Total Petroleum Hydrocarbons Diesel Range Organics	VOCs	Isotopic Uranium
0103-97-0101	03-03251	0–0.83	Soil	3369R[a]	3368R	3368R	—[b]	—
0103-97-0102	03-03252	0–0.83	Soil	3369R	3368R	3368R	3368R	—
0103-97-0103	03-03253	0–0.92	Soil	3369R	3368R	3368R	—	—
0103-97-0104	03-03254	0–0.83	Fill	3369R	3368R	3368R	—	3370R
0103-97-0105	03-03255	0–0.83	Fill	3369R	3368R	3368R	—	3370R
0103-97-0106	03-03256	0–0.83	Fill	3369R	3368R	3368R	—	3370R
0103-97-0107	03-03257	0–1	Soil	3369R	3368R	3368R	—	—
0103-97-0108	03-03258	0–1	Soil	3369R	3368R	3368R	3368R	—
0103-97-0109	03-03259	0–1	Soil	3369R	3368R	3368R	—	—
0103-97-0110	03-03260	0–1	Fill	3369R	3368R	3368R	3368R	3370R
0103-97-0111	03-03261	0–1	Fill	3369R	3368R	3368R	—	—
0103-97-0112	03-03262	0–1	Fill	3369R	3368R	3368R	—	—
0103-97-0113	03-03263	0–1	Fill	3369R	3368R	3368R	—	—

[a] Analytical request number.

[b] — =Analysis not requested.

Table 2.15-2
Inorganic Chemicals above BVs at Consolidated Unit 03-049(b)-00

Sample ID	Location ID	Depth (ft)	Media	Antimony	Cadmium	Cobalt	Copper	Lead	Manganese	Zinc
Soil Background Value[a]				**0.83**	**0.4**	**8.64**	**14.7**	**22.3**	**671**	**48.8**
0103-97-0101	03-03251	0.00–0.83	Soil	4.64 (U)	0.464 (U)	—[b]	244	102	—	109
0103-97-0102	03-03252	0.00–0.83	Soil	5.06 (U)	0.506 (U)	—	151	72.2	—	85.2
0103-97-0103	03-03253	0.00–0.92	Soil	3.97 (U)	—	—	19.6	—	—	—
0103-97-0104	03-03254	0.00–0.83	Fill	5.77 (U)	0.577 (U)	—	—	—	—	—
0103-97-0105	03-03255	0.00–0.83	Fill	4.98 (U)	0.498 (U)	9.47	—	—	1090	—
0103-97-0106	03-03256	0.00–0.83	Fill	4.13 (U)	0.413 (U)	—	—	—	—	—
0103-97-0107	03-03257	0.00–1.00	Soil	4.79 (U)	0.479 (U)	—	—	—	—	—
0103-97-0108	03-03258	0.00–1.00	Soil	4.84 (U)	0.484 (U)	—	—	—	—	—
0103-97-0109	03-03259	0.00–1.00	Soil	4.77 (U)	0.477 (U)	—	—	—	—	—
0103-97-0110	03-03260	0.00–1.00	Fill	5.16 (U)	0.516 (U)	—	—	—	—	—
0103-97-0111	03-03261	0.00–1.00	Fill	4.35 (U)	0.435 (U)	—	—	—	—	—
0103-97-0112	03-03262	0.00–1.00	Fill	4.46 (U)	0.446 (U)	—	—	—	—	—
0103-97-0113	03-03263	0.00–1.00	Fill	4.8 (U)	0.48 (U)	—	—	—	—	—

Note: All values in mg/kg.

[a] Background values are from LANL 1998, 059730.

[b] — = Analyte not reported (detect or nondetect) above BV or not detected.

Table 2.15-3
Organic Chemicals Detected at Consolidated Unit 03-049(b)-00

Sample ID	Location ID	Depth (ft)	Media	Aroclor-1254	Isopropyltoluene[4-]	Toluene	Total Petroleum Hydrocarbons Diesel Range Organics
0103-97-0101	03-03251	0.00–0.83	Soil	12	—*	—	130
0103-97-0102	03-03252	0.00–0.83	Soil	7.3	0.002 (J)	0.004 (J)	190
0103-97-0103	03-03253	0.00–0.92	Soil	3.9	—	—	130
0103-97-0104	03-03254	0.00–0.83	Fill	—	—	—	9.5
0103-97-0105	03-03255	0.00–0.83	Fill	—	—	—	13
0103-97-0106	03-03256	0.00–0.83	Fill	—	—	—	98
0103-97-0107	03-03257	0.00–1.00	Soil	—	—	—	7.5
0103-97-0108	03-03258	0.00–1.00	Soil	—	—	—	3400 (J+)
0103-97-0109	03-03259	0.00–1.00	Soil	—	—	—	1100
0103-97-0110	03-03260	0.00–1.00	Fill	—	—	—	16
0103-97-0111	03-03261	0.00–1.00	Fill	0.38	—	—	38
0103-97-0112	03-03262	0.00–1.00	Fill	0.052	—	—	70
0103-97-0113	03-03263	0.00–1.00	Fill	0.078	—	—	17

Note: All values in mg/kg.

* — = Analyte not detected.

Table 2.16-1
Samples Collected at SWMU 03-049(e)

Sample ID	Location ID	Depth (ft)	Media	Anions	Metals
RC03-01-0024	03-14466	0–0.5	Fill	9417R*	9417R
RC03-01-0025	03-14467	0–0.5	Fill	9417R	9417R
RC03-01-0026	03-14468	0–0.5	Fill	9417R	9417R
RC03-01-0027	03-14469	0–0.5	Fill	9417R	9417R

* Analytical request number.

Table 2.16-2
Inorganic Chemicals Detected above BVs at SWMU 03-049(e)

Sample ID	Location ID	Depth (ft)	Media	Antimony	Arsenic	Cadmium	Chromium	Cobalt	Copper	Iron	Lead	Manganese	Nickel	Zinc
Soil Background Value[a]				**0.83**	**8.17**	**0.4**	**19.3**	**8.64**	**14.7**	**21500**	**22.3**	**671**	**15.4**	**48.8**
RC03-01-0024	03-14466	0.00–0.50	Fill	1.6	82.3	2	69.8	8.9	177	113000	72.5	740	30.1	631
RC03-01-0025	03-14467	0.00–0.50	Fill	—[b]	27.3	—	19.6	—	40.8	—	34.3	—	—	194
RC03-01-0026	03-14468	0.00–0.50	Fill	—	20.1	0.47	22.1	—	35.9	—	24.3	—	—	258
RC03-01-0027	03-14469	0.00–0.50	Fill	—	—	—	—	—	—	—	—	—	—	88.8

Note: All values in mg/kg.

[a] Background values are from LANL 1998, 059730.

[b] — = Analyte not reported (detect or nondetect) above BV or not detected.

Table 2.17-1
Samples Collected at SWMU 03-054(e)

Sample ID	Location ID	Depth (ft)	Media	Metals	Total Cyanide	PCBs	SVOCs	VOCs	Gamma Spectroscopy	Tritium	Isotopic Plutonium	Isotopic Uranium
0103-95-0001	03-02715	0–1	Soil	31[a]	31	11	11	11	35	35	35	35
0103-95-0002	03-02715	1.67–2.33	Soil	31	31	11	11	11	35	35	35	35
0103-95-0003	03-02716	0–0.67	Soil	31	31	11	11	—[b]	35	35	35	35
0103-95-0005	03-02717	0–0.5	Soil	31	31	11	11	—	35	35	35	35
0103-95-0008	03-02718	0–1	Soil	31	31	11	11	11	35	35	35	35
0103-95-0007	03-02718	1.17–1.83	Soil	31	31	11	11	11	35	35	35	35
0103-95-0009	03-02719	0–0.5	Soil	31	31	11	11	—	35	35	35	35
0103-95-0011	03-02720	0–0.5	Soil	31	31	11	11	—	35	35	35	35

[a] Analytical request number.
[b] — =Analysis not requested.

Table 2.17-2
Inorganic Chemicals above BVs at SWMU 03-054(e)

Sample ID	Location ID	Depth (ft)	Media	Cyanide (Total)	Mercury	Thallium	Zinc
Soil Background Value[a]				**0.5**	**0.1**	**0.73**	**48.8**
0103-95-0001	03-02715	0.00–1.00	Soil	1.2 (U)	0.12 (U)	1.1 (U)	58.2
0103-95-0002	03-02715	1.67–2.33	Soil	1.21 (U)	0.11 (U)	1.1 (U)	64
0103-95-0003	03-02716	0.00–0.67	Soil	1.23 (U)	0.12 (U)	1.2 (U)	112
0103-95-0005	03-02717	0.00–0.50	Soil	1.11 (U)	0.11 (U)	1 (U)	65.4
0103-95-0008	03-02718	0.00–1.00	Soil	1.35 (U)	0.12 (U)	1.3 (U)	56.3
0103-95-0007	03-02718	1.17–1.83	Soil	1.27 (U)	0.11 (U)	1.2 (U)	59.2
0103-95-0009	03-02719	0.00–0.50	Soil	1.19 (U)	0.12 (U)	1.1 (U)	56.2
0103-95-0011	03-02720	0.00–0.50	Soil	1.18 (U)	0.11 (U)	1.1 (U)	—[b]

Note: All values in mg/kg.
[a] Background values are from LANL 1998, 059730.
[b] — = Analyte not reported (detect or nondetect) above BV or not detected.

Table 2.17-3
Radionuclides Detected or Detected above the FVs at SWMU 03-054(e)

Sample ID	Location ID	Depth (ft)	Media	Europium-152	Plutonium-238	Plutonium-239/ Plutonium-240	Sodium-22
Soil Fallout Value[a,b]				**na[c]**	**0.023**	**0.054**	**na**
0103-95-0001	03-02715	0.00–1.00	Soil	—[d]	0.016	0.011	—
0103-95-0002	03-02715	1.67–2.33	Soil	—	0.027	—	—
0103-95-0003	03-02716	0.00–0.67	Soil	—	0.002	0.005	—
0103-95-0005	03-02717	0.00–0.50	Soil	—	0.032	—	—
0103-95-0008	03-02718	0.00–1.00	Soil	—	0.02	0.009	—
0103-95-0007	03-02718	1.17–1.83	Soil	—	0.025	0.011	—
0103-95-0009	03-02719	0.00–0.50	Soil	0.211	0.043	—	—
0103-95-0011	03-02720	0.00–0.50	Soil	—	—	—	0.0681

Note: All values in pCi/g.

[a] Fallout values are from LANL 1998, 059730.

[b] Fallout value applies to samples collected from 0–0.5 ft only.

[c] na = Not available

[d] — = Analyte not reported (detect or nondetect) above FV or not detected.

Table 2.17-4
Organic Chemicals Detected at SWMU 03-054(e)

Sample ID	Location ID	Depth (ft)	Media	Aroclor-1260	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Chrysene	Diethylphthalate	Fluoranthene	Pyrene
0103-95-0002	03-02715	1.67–2.33	Soil	0.0553	—*	—	—	—	—	—
0103-95-0003	03-02716	0.00–0.67	Soil	0.0536	—	—	—	—	—	—
0103-95-0005	03-02717	0.00–0.50	Soil	0.0562	0.1 (J)	0.13 (J)	0.16 (J)	0.69	0.32 (J)	0.22 (J)
0103-95-0009	03-02719	0.00–0.50	Soil	0.0596	—	—	—	—	—	—

Note: All values in mg/kg.

* — = Analyte not detected.

Table 3.1-1
Samples Collected at Consolidated Unit 42-001(a)-99

Sample ID	Location ID	Depth (ft)	Media	Metals	Americium-241	Isotopic Plutonium	Isotopic Thorium	Isotopic Uranium
AAA0951	42-01021	0–1.5	Fill	13188[a]	13189	13189	—[b]	—
AAA0953	42-01021	3–6	Soil	13188	13189	13189	—	—
AAA0954	42-01022	0–2.6	Fill	13188	13189	13189	—	—
AAA0955	42-01022	3–6	Soil	13188	13189	13189	—	—
AAA0956	42-01023	0–3	Soil	13188	13189	13189	—	—
AAA0957	42-01023	3–4.75	Soil	13188	13189	13189	—	—
AAA0969	42-01024	0–3	Fill	—	13189	13189	—	—
AAA0970	42-01024	3–6	Soil	—	13189	13189	—	—
AAA0960	42-01025	0–2.2	Fill	—	13189	13189	—	—
AAA0961	42-01025	3–6	Soil	—	13189	13189	—	—
AAA0967	42-01026	0–3	Soil	—	13189	13189	13189	13189
AAA0968	42-01026	3–6	Soil	—	13189	13189	—	—
AAA0962	42-01027	0–3	Fill	—	13189	13189	—	—
AAA0963	42-01027	3–6	Soil	—	13189	13189	13189	13189
AAA0973	42-01028	10–15	Fill	—	13189	13189	—	—
AAA0974	42-01028	10–15	Fill	—	13189	13189	—	—
AAA0975	42-01028	15–20	Fill	—	13189	13189	—	—
AAA0976	42-01028	20–25	Fill	—	13189	13189	—	—
AAA0990	42-01028	25–28	Soil	—	13189	13189	—	—
AAA0977	42-01029	10–15	Fill	—	13189	13189	—	—
AAA0978	42-01029	15–20	Fill	—	13189	13189	—	—
AAA0979	42-01029	20–25	Fill	—	13189	13189	—	—
AAA0980	42-01030	10–15	Fill	—	13189	13189	—	—
AAA0981	42-01030	10–15	Soil	—	13189	13189	—	—
AAA0982	42-01030	15–20	Soil	—	13189	13189	—	—
AAA0983	42-01030	20–25	Soil	—	13189	13189	—	—
AAA0991	42-01030	25–28	Soil	—	13189	13189	—	—
AAA0984	42-01031	10–15	Fill	—	13189	13189	—	—
AAA0985	42-01031	17–22	Fill	—	13189	13189	—	—
AAA0986	42-01031	22–27	Fill	—	13189	13189	—	—
AAA0964	42-01032	0–5	Fill	—	13189	13189	—	—
AAA0965	42-01032	5–10	Soil	—	13189	13189	—	—
AAA0966	42-01032	7–11	Soil	—	13189	13189	—	—

Table 3.1-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Metals	Americium-241	Isotopic Plutonium	Isotopic Thorium	Isotopic Uranium
AAA0989	42-01033	0–3.5	Soil	—	13189	13189	—	—
AAA0992	42-01034	0–3	Soil	—	13189	13189	13189	—
AAA0993	42-01034	3–6	Soil	—	13189	13189	13189	—
AAA1691	42-01037	1–2	Soil	13641	—	—	—	—
AAA1692	42-01039	0–1	Soil	13641	—	—	—	—
AAA1693	42-01039	1–2	Soil	13641	—	—	—	—
AAA1695	42-01039	2–3	Soil	13641	—	—	—	—

[a] Analytical request number.

[b] — =Analysis not requested.

Table 3.1-2
Inorganic Chemical Detected above the BV at
Consolidated Unit 42-001(a)-99

Sample ID	Location ID	Depth (ft)	Media	Lead
Soil Background Value*				**22.3**
AAA0957	42-01023	3.00–4.75	Soil	28.1 (J-)

Note: All values in mg/kg.

* Background value is from LANL 1998, 059730.

Table 3.1-3
Radionuclides Detected at Consolidated Unit 42-001(a)-99

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Plutonium-238	Plutonium-239/ Plutonium-240
Soil Fallout Value[a,b]				**0.013**	**0.023**	**0.054**
AAA0951	42-01021	0.00–1.50	Fill	—[c]	0.0739 (J)	—
AAA0953	42-01021	3.00–6.00	Soil	—	0.2 (J-)	—
AAA0957	42-01023	3.00–4.75	Soil	0.332 (J)	1.75 (J)	2.42 (J)
AAA0970	42-01024	3.00–6.00	Soil	0.38 (J)	—	0.963 (J)
AAA0968	42-01026	3.00–6.00	Soil	0.227 (J)	—	—
AAA0963	42-01027	3.00–6.00	Soil	—	—	0.511
AAA0974	42-01028	10.00–15.00	Fill	—	—	0.666 (J-)
AAA0980	42-01030	10.00–15.00	Fill	—	1.95 (J-)	10.3 (J-)
AAA0981	42-01030	10.00–15.00	Soil	—	—	1.46 (J-)
AAA0982	42-01030	15.00–20.00	Soil	0.327	—	—
AAA0983	42-01030	20.00–25.00	Soil	0.358	—	—
AAA0991	42-01030	25.00–28.00	Soil	0.332	—	—
AAA0984	42-01031	10.00–15.00	Fill	0.463	—	—
AAA0985	42-01031	17.00–22.00	Fill	0.529	—	—
AAA0986	42-01031	22.00–27.00	Fill	0.342	—	—
AAA0992	42-01034	0.00–3.00	Soil	0.933	—	—
AAA0993	42-01034	3.00–6.00	Soil	0.309	—	—

Note: All values in pCi/g.

[a] Fallout values are from LANL 1998, 059730.

[b] Fallout value applies to samples collected from 0–0.5 ft only.

[c] — = Analyte not detected.

Table 4.1-1
Samples Collected at AOC 48-001

Sample ID	Location ID	Depth (ft)	Media	Metals	SVOCs	VOCs	Americium-241	Gamma Spectroscopy	Isotopic Plutonium	Isotopic Thorium	Isotopic Uranium	Strontium-90
AAA4494	48-02006	0–0.5	Fill	—[a]	—	—	—	15290[b]	15290	15290	15290	—
AAA4493	48-02006	0.5–1.5	Fill	—	—	—	—	15290	15290	15290	15290	—
AAA4495	48-02006	1.5–3	Fill	—	—	—	—	15290	15290	15290	15290	—
AAA3769	48-02006	3–4	Fill	—	—	—	—	15290	15290	15290	15290	—
AAA3770	48-02006	4–5	Fill	—	—	—	—	15290	15290	15290	15290	—
AAA3771	48-02006	5–6	Fill	—	—	—	—	15290	15290	15290	15290	—
AAA3772	48-02006	6–7	Fill	—	—	—	—	15290	15290	15290	15290	—
AAA3773	48-02006	7–8	Fill	—	—	—	—	15290	15290	15290	15290	—
AAA3401	48-02010	4–5	Qbt 3	—	—	—	—	15162	15162	15162	15162	—
AAA3402	48-02010	8.5–9.5	Qbt 3	—	—	—	—	15162	15162	15162	15162	—
AAA3403	48-02010	14–15	Qbt 3	—	—	—	—	15162	15162	15162	15162	—
AAA3404	48-02012	4–5	Qbt 3	—	—	—	—	15162	15162	15162	15162	—
AAA3405	48-02012	9–10	Qbt 3	—	—	—	—	15162	15162	15162	15162	—
AAA3406	48-02012	14–15	Qbt 3	—	—	—	—	15162	15162	15162	15162	—
AAA3407	48-02014	4–5	Qbt 3	—	—	—	—	15162	15162	15162	15162	—
AAA3408	48-02014	7–7.2	Soil	—	—	—	—	15162	15162	15162	15162	—
AAA3409	48-02014	9–10	Qbt 3	—	—	—	—	15162	15162	15162	15162	—
AAA4473	48-02014	14–15	Qbt 3	—	—	—	—	15162	15162	15162	15162	—
AAA3493	48-02016	0–0.5	Soil	—	—	—	15128	15128	15128	15128	15128	—
AAA3495	48-02018	0–0.5	Soil	—	—	—	15128	15128	15128	15128	15128	—
AAA3497	48-02020	0–0.5	Soil	—	—	—	15128	15128	15128	15128	15128	—

Table 4.1-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Metals	SVOCs	VOCs	Americium-241	Gamma Spectroscopy	Isotopic Plutonium	Isotopic Thorium	Isotopic Uranium	Strontium-90
AAA3717	48-02024	4–5	Fill	—	—	—	15213	—	15213	15213	15213	—
AAA3718	48-02024	8–9	Fill	—	—	—	15213	15213	15213	15213	15213	—
AAA3719	48-02024	14–15	Qbt 3	—	—	—	15213	—	15213	15213	15213	—
AAA3720	48-02025	4–5	Fill	—	—	—	15213	—	15213	15213	15213	—
AAA3721	48-02025	5.5–6.5	Fill	—	—	—	15213	15213	15213	15213	15213	—
AAA3722	48-02025	7.5–8.5	Fill	—	—	—	15213	—	15213	15213	15213	—
AAA4475	48-02025	9–10	Qbt 4	—	—	—	15213	—	15213	15213	15213	—
AAA4476	48-02025	13–14	Qbt 3	—	—	—	15213	—	15213	15213	15213	—
AAA3723	48-02026	1.5–2.5	Soil	—	—	—	15213	—	15213	15213	15213	—
AAA3724	48-02026	6–7.4	Soil	—	—	—	15213	—	15213	15213	15213	—
AAA4469	48-02026	14–15	Qbt 3	—	—	—	15213	—	15213	15213	15213	—
AAA3545	48-02037	0–0.5	Fill	—	—	—	15333	15333	15333	15333	15333	—
AAA3546	48-02037	0.5–1.5	Fill	—	—	—	15333	—	15333	15333	15333	—
AAA3547	48-02037	1.5–3	Soil	—	—	—	15333	—	15333	15333	15333	—
AAA3512	48-02054	0–0.5	Sediment	—	—	—	15128	15128	15128	15128	15128	—
AAA3514	48-02054	0.5–1.5	Sediment	—	—	—	15128	—	15128	15128	15128	—
AAA3515	48-02054	1.5–2.5	Soil	—	—	—	15128	—	15128	15128	15128	—
AAA3513	48-02055	0–0.5	Sediment	—	—	—	15128	15128	15128	15128	15128	—
AAA3516	48-02055	0.5–1.5	Sediment	—	—	—	15128	—	15128	15128	15128	—
AAA3470	48-02055	1.5–2.5	Soil	—	—	—	15128	—	15128	15128	15128	—
AAA3471	48-02055	2.5–3.5	Soil	—	—	—	15128	—	15128	15128	15128	—
AAA3782	48-02057	0–0.5	Soil	—	—	—	15333	—	15333	15333	15333	—

Table 4.1-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Metals	SVOCs	VOCs	Americium-241	Gamma Spectroscopy	Isotopic Plutonium	Isotopic Thorium	Isotopic Uranium	Strontium-90
AAA3803	48-02067	0–1	Soil	—	16178	—	16193	—	16193	16193	16193	—
AAA3804	48-02067	1–2	Soil	—	16178	—	16193	—	16193	16193	16193	—
AAA3806	48-02068	0–1	Soil	—	16178	—	16193	—	16193	16193	16193	—
AAA3810	48-02069	0–1	Soil	—	16178	—	16193	16193	16193	16193	16193	—
AAA3811	48-02069	1–2	Qbt 4	—	16178	—	16193	—	16193	16193	16193	—
0448-95-0001	48-02080	0–0.5	Soil	224	—	—	—	—	225	—	225	—
0448-95-0005	48-02082	0–0.5	Soil	224	—	—	—	—	—	—	—	—
0448-95-0068	48-02133	0–0.5	Fill	1050	1049	—	—	—	—	—	—	—
0448-95-0070	48-02134	0–0.5	Fill	1050	1049	—	—	—	—	—	—	—
0448-97-0032	48-02135	0–1	Fill	—	—	—	—	2920	—	—	—	—
0448-97-0033	48-02135	1–2	Fill	—	—	—	—	2920	—	—	—	—
0448-97-0034	48-02135	2–3.25	Fill	—	—	—	—	2920	—	—	—	—
0448-97-0084	48-02136	0–0.5	Soil	2996	2995	—	—	2997	2997	2997	2997	2997
0448-97-0085	48-02136	0.5–1	Soil	2996	2995	—	—	2997	2997	2997	2997	2997
0448-97-0009	48-02141	11.5–12.5	Fill	—	—	—	—	2906	—	—	—	—
0448-97-0011	48-02141	12.5–13.5	Qbt 4	—	—	—	—	2906	—	—	—	—
0448-97-0037	48-02142	3.33–4.33	Fill	2980	2979	2979	—	2981	2981	2981	2981	2981
0448-97-0039	48-02142	4.66–5.12	Fill	2980	2979	2979	—	2981	2981	2981	2981	2981
0448-97-0040	48-02148	3.3–4.3	Fill	2980	2979	2979	—	2981	2981	2981	2981	2981
0448-97-0041	48-02148	4.66–5.16	Fill	2980	2979	2979	—	2981	2981	2981	2981	2981
0448-97-0001	48-02150	3.5–4.5	Fill	—	—	—	—	2906	—	2906	2906	2906
0448-97-0002	48-02150	8.5–9.5	Fill	—	—	—	—	2906	—	2906	2906	2906

Table 4.1-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Metals	SVOCs	VOCs	Americium-241	Gamma Spectroscopy	Isotopic Plutonium	Isotopic Thorium	Isotopic Uranium	Strontium-90
0448-97-0003	48-02150	14–15	Qbt 4	—	—	—	—	2906	—	2906	2906	2906
0448-97-0004	48-02151	6–7	Fill	—	—	—	—	2906	—	2906	2906	2906
0448-97-0006	48-02151	13.5–14.5	Fill	—	—	—	—	2906	—	2906	2906	2906
0448-97-0007	48-02151	15.5–16.5	Fill	—	—	—	—	2906	—	2906	2906	2906
0448-97-0057	48-02152	0–1	Soil	—	—	—	—	2977	—	2977	2977	2977
0448-97-0058	48-02152	1–2	Soil	—	—	—	—	2977	—	2977	2977	2977
0448-97-0059	48-02153	0–1	Soil	—	—	—	—	2977	—	2977	2977	2977
0448-97-0060	48-02153	1–2	Soil	—	—	—	—	2977	—	2977	2977	2977
0448-97-0062	48-02154	0–0.83	Sediment	—	—	—	—	2977	—	2977	2977	2977
0448-97-0061	48-02154	0.83–1.67	Soil	—	—	—	—	2977	—	2977	2977	2977
0448-97-0043	48-02155	1.5–2.5	Fill	2918	2917	2917	—	2919	2919	2919	2919	2919
0448-97-0044	48-02155	3.67–4.67	Fill	2918	2917	2917	—	2919	2919	2919	2919	2919
0448-97-0045	48-02155	5–6	Fill	2918	2917	2917	—	2919	2919	2919	2919	2919
0448-97-0012	48-02156	17.5–18.5	Fill	—	—	—	—	2906	2906	2906	2906	2906
0448-97-0013	48-02156	21–22	Fill	—	—	—	—	2906	2906	2906	2906	2906
0448-97-0014	48-02156	24–25	Qbt 3	—	—	—	—	2906	2906	2906	2906	2906
0448-97-0015	48-02157	3.5–4.5	Fill	—	—	—	—	2906	2906	2906	2906	2906
0448-97-0016	48-02157	5–6	Fill	—	—	—	—	2906	2906	2906	2906	2906
0448-97-0018	48-02157	9–10	Soil	—	—	—	—	2906	2906	2906	2906	2906
0448-97-0019	48-02158	3.5–4.5	Fill	—	—	—	—	2906	2906	2906	2906	2906
0448-97-0020	48-02158	5.5–6.5	Fill	—	—	—	—	2906	2906	2906	2906	2906
0448-97-0021	48-02158	9–10	Fill	—	—	—	—	2906	2906	2906	2906	2906

Table 4.1-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Metals	SVOCs	VOCs	Americium-241	Gamma Spectroscopy	Isotopic Plutonium	Isotopic Thorium	Isotopic Uranium	Strontium-90
0448-97-0047	48-02159	0.5–1.5	Sediment	2944	2943	2943	—	2945	2945	2945	2945	2945
0448-97-0048	48-02159	3.83–5	Qbt 3	2944	2943	2943	—	2945	2945	2945	2945	2945
0448-97-0052	48-02161	0.5–1	Sediment	2944	2943	2943	—	2945	2945	2945	2945	2945
0448-97-0053	48-02161	6.5–7.5	Soil	2944	2943	2943	—	2945	2945	2945	2945	2945
0448-97-0054	48-02162	0.5–1.5	Sediment	2944	2943	2943	—	2945	2945	2945	2945	2945
0448-97-0056	48-02162	2–3	Soil	2944	2943	2943	—	2945	2945	2945	2945	2945
0448-97-0064	48-02163	0–1	Soil	—	—	—	—	2955	—	—	—	—
0448-97-0065	48-02163	1–2	Soil	—	—	—	—	2955	—	—	—	—
0448-97-0074	48-02164	0–1	Sediment	—	—	—	—	2977	—	—	—	—
0448-97-0075	48-02164	1–2	Qbt 3	—	—	—	—	2977	—	—	—	—
0448-97-0067	48-02165	0–1	Sediment	—	—	—	—	2955	—	—	—	—
0448-97-0068	48-02165	1–2	Soil	—	—	—	—	2955	—	—	—	—
0448-97-0070	48-02165	2–2.83	Soil	—	—	—	—	2955	—	—	—	—
0448-97-0078	48-02166	0–1	Sediment	—	—	—	—	2977	—	—	—	—
0448-97-0079	48-02166	1–2	Qbt 3	—	—	—	—	2977	—	—	—	—
0448-97-0071	48-02167	0–1	Soil	—	—	—	—	2955	—	—	—	—
0448-97-0072	48-02167	1–2	Soil	—	—	—	—	2955	—	—	—	—
0448-97-0081	48-02168	0–0.83	Sediment	—	—	—	—	2977	—	—	—	—
0448-97-0082	48-02168	0.83–1.67	Soil	—	—	—	—	2977	—	—	—	—
0448-97-0105	48-02169	0–1	Sediment	—	—	—	—	3220R	—	—	—	—
0448-97-0107	48-02169	1–2	Soil	—	—	—	—	3220R	—	—	—	—
0448-97-0108	48-02170	0–0.5	Sediment	—	—	—	—	3220R	—	—	—	—

Table 4.1-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Metals	SVOCs	VOCs	Americium-241	Gamma Spectroscopy	Isotopic Plutonium	Isotopic Thorium	Isotopic Uranium	Strontium-90
0448-97-0109	48-02170	0.5–1.2	Soil	—	—	—	—	3220R	—	—	—	—
0448-97-0112	48-02171	0–0.83	Soil	3258R	3257R	3257R	—	3259R	3259R	3259R	3259R	3259R
0448-97-0113	48-02171	0.83–1.5	Soil	3258R	3257R	3257R	—	3259R	3259R	3259R	3259R	3259R
0448-97-0115	48-02172	0–1	Soil	3258R	3257R	3257R	—	3259R	3259R	3259R	3259R	3259R
0448-97-0116	48-02172	1–2	Soil	3258R	3257R	3257R	—	3259R	3259R	3259R	3259R	3259R
0448-97-0117	48-02172	2–3	Qbt 2	3258R	3257R	3257R	—	3259R	3259R	3259R	3259R	3259R

[a] — =Analysis not requested.

[b] Analytical request number.

Table 4.1-2
Inorganic Chemicals above BVs at AOC 48-001

Sample ID	Location ID	Depth (ft)	Media	Antimony	Arsenic	Barium	Cadmium	Calcium	Chromium	Copper	Lead	Mercury	Nickel	Selenium	Silver	Thallium	Zinc
Soil Background Value[a]				**0.83**	**8.17**	**295**	**0.4**	**6120**	**19.3**	**14.7**	**22.3**	**0.1**	**15.4**	**1.52**	**1**	**0.73**	**48.8**
Qbt 2,3,4 Background Value[a]				**0.5**	**2.79**	**46**	**1.63**	**2200**	**7.14**	**4.66**	**11.2**	**0.1**	**6.58**	**0.3**	**1**	**1.10**	**63.5**
Sediment Background Value[a]				**0.83**	**3.98**	**127**	**0.4**	**4420**	**10.5**	**11.2**	**19.7**	**0.1**	**9.38**	**0.3**	**1**	**0.73**	**60.2**
0448-95-0068	48-02133	0.00–0.50	Fill	0.88 (J)	—[b]	—	—	—	—	—	—	22.4	—	—	—	—	—
0448-95-0070	48-02134	0.00–0.50	Fill	—	—	—	—	—	—	—	—	0.6	—	—	—	—	—
0448-97-0084	48-02136	0.00–0.50	Soil	5.8 (U)	—	—	0.58 (U)	—	—	—	—	—	—	—	—	—	—
0448-97-0085	48-02136	0.50–1.00	Soil	5.49 (U)	—	—	0.549 (U)	—	—	—	—	—	—	—	—	—	—
0448-97-0037	48-02142	3.33–4.33	Fill	5.4 (U)	—	—	0.54 (U)	—	—	—	—	—	—	—	—	—	—
0448-97-0039	48-02142	4.66–5.12	Fill	5.54 (U)	—	—	0.554 (U)	—	—	—	—	—	—	—	—	—	—
0448-97-0040	48-02148	3.30–4.30	Fill	5.69 (U)	—	—	0.569 (U)	—	—	—	—	—	—	—	—	—	—
0448-97-0041	48-02148	4.66–5.16	Fill	5.79 (U)	—	—	0.579 (U)	—	—	—	—	—	—	—	—	—	—
0448-97-0043	48-02155	1.50–2.50	Fill	12 (UJ)	—	—	0.6 (U)	—	—	—	—	0.12 (U)	—	—	2.4 (U)	—	—
0448-97-0044	48-02155	3.67–4.67	Fill	12 (UJ)	—	—	0.59 (U)	—	26	—	—	0.12 (U)	—	—	2.4 (U)	—	74
0448-97-0045	48-02155	5.00–6.00	Fill	12 (UJ)	—	—	0.59 (U)	—	20	—	—	0.12 (U)	—	—	2.4 (U)	—	—
0448-97-0047	48-02159	0.50–1.50	Sediment	7.2 (U)	—	—	0.72 (U)	—	—	—	—	—	—	0.36 (UJ)	—	—	—
0448-97-0048	48-02159	3.83–5.00	Qbt 3	6.4 (U)	—	62.9	—	2480	26.5	6.5	—	—	14.1	0.32 (UJ)	—	—	—
0448-97-0052	48-02161	0.50–1.00	Sediment	7.3 (U)	—	—	0.73 (U)	—	—	—	—	—	—	0.37 (UJ)	—	—	—
0448-97-0053	48-02161	6.50–7.50	Soil	6.1 (U)	—	—	0.61 (U)	—	75.9	—	—	—	33.2	—	—	—	—
0448-97-0054	48-02162	0.50–1.50	Sediment	5.9 (U)	—	—	0.59 (U)	—	45.3	—	—	—	20.9	—	—	—	—
0448-97-0056	48-02162	2.00–3.00	Soil	6.2 (U)	—	—	0.62 (U)	—	61.6	—	—	—	30.9	—	—	—	—
0448-97-0112	48-02171	0.00–0.83	Soil	3.7 (UJ)	—	—	—	—	—	58.3	—	0.13 (J)	-	—	—	1.3 (U)	80.8
0448-97-0113	48-02171	0.83–1.50	Soil	3 (UJ)	—	—	—	—	—	—	—	—	—	—	—	1.1 (U)	-
0448-97-0115	48-02172	0.00–1.00	Soil	2.7 (UJ)	—	—	—	—	453	177	27.5	0.2	—	—	—	0.96 (U)	66.8
0448-97-0116	48-02172	1.00–2.00	Soil	2.8 (UJ)	—	—	—	—	151	46.7	—	—	—	—	—	1 (U)	58.4
0448-97-0117	48-02172	2.00–3.00	Qbt 2	2.4 (UJ)	2.8	—	—	—	29.6	7.1	—	—	—	0.56 (U)	—	—	—

Note: All values in mg/kg.
[a] Background values are from LANL 1998, 059730.
[b] — = Analyte not reported (detect or nondetect) above BV or not detected.

Table 4.1-3
Radionuclides Detected or Detected above BVs/FVs at AOC 48-001

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cesium-137	Plutonium-238	Plutonium-239/ Plutonium-240	Strontium-90	Thorium-227	Thorium-230	Uranium-234	Uranium-235	Uranium-238
Soil Background/Fallout Value[a,b]				**0.013**	**1.65**	**0.023**	**0.054**	**1.31**	**na[c]**	**2.29**	**2.59**	**0.20**	**2.29**
Qbt 2,3,4 Background/Fallout Value[a,b]				**na**	**na**	**na**	**na**	**na**	**na**	**1.98**	**1.98**	**0.09**	**1.93**
Sediment Background/Fallout Value[a,b]				**0.04**	**0.90**	**0.006**	**0.068**	**1.04**	**na**	**2.28**	**2.59**	**0.20**	**2.29**
AAA4494	48-02006	0.00–0.50	Fill	—[d]	—	—	—	—	—	3.88 (J-)	—	—	—
AAA4495	48-02006	1.50–3.00	Fill	—	—	—	—	—	—	4.19 (J-)	—	—	—
AAA3770	48-02006	4.00–5.00	Fill	—	—	—	—	—	—	3.89 (J-)	—	—	—
AAA3407	48-02014	4.00–5.00	Qbt 3	—	—	—	0.045 (J-)	—	—	—	—	—	—
AAA3408	48-02014	7.00–7.20	Soil	—	—	0.092 (J-)	—	—	—	—	—	—	—
AAA3409	48-02014	9.00–10.00	Qbt 3	—	—	0.277 (J-)	—	—	—	—	—	—	—
AAA3497	48-02020	0.00–0.50	Soil	1.16	—	0.162	6.4	—	—	—	—	—	—
AAA3717	48-02024	4.00–5.00	Fill	—	—	—	—	—	—	3.85 (J)	—	—	—
AAA3721	48-02025	5.50–6.50	Fill	—	—	—	—	—	—	3.11 (J)	—	—	—
AAA4476	48-02025	13.00–14.00	Qbt 3	—	—	—	—	—	—	2.07 (J)	—	—	—
AAA3723	48-02026	1.50–2.50	Soil	—	—	5.19 (J)	—	—	—	—	—	—	—
AAA3724	48-02026	6.00–7.40	Soil	5.27 (J-)	—	223 (J)	11.9	—	—	—	—	—	—
AAA4469	48-02026	14.00–15.00	Qbt 3	—	—	—	—	—	—	—	2.04	—	—
AAA3512	48-02054	0.00–0.50	Sediment	0.545	—	—	2.08	—	—	—	—	—	—
AAA3514	48-02054	0.50–1.50	Sediment	0.292	—	—	1.74	—	—	—	3.02	—	2.93 (J+)
AAA3515	48-02054	1.50–2.50	Soil	0.601	—	—	0.935	—	—	2.35 (J+)	—	—	—
AAA3513	48-02055	0.00–0.50	Sediment	0.213	—	—	0.339	—	—	—	—	—	—
AAA3516	48-02055	0.50–1.50	Sediment	0.291	—	—	3.15	—	—	—	—	—	—
AAA3470	48-02055	1.50–2.50	Soil	0.713	—	—	1.07	—	—	—	6.63 (J+)	—	5.64 (J+)

Table 4.1-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cesium-137	Plutonium-238	Plutonium-239/ Plutonium-240	Strontium-90	Thorium-227	Thorium-230	Uranium-234	Uranium-235	Uranium-238
Soil Background/Fallout Value[a,b]				**0.013**	**1.65**	**0.023**	**0.054**	**1.31**	**na[c]**	**2.29**	**2.59**	**0.20**	**2.29**
Qbt 2,3,4 Background/Fallout Value[a,b]				**na**	**na**	**na**	**na**	**na**	**na**	**1.98**	**1.98**	**0.09**	**1.93**
Sediment Background/Fallout Value[a,b]				**0.04**	**0.90**	**0.006**	**0.068**	**1.04**	**na**	**2.28**	**2.59**	**0.20**	**2.29**
AAA3471	48-02055	2.50–3.50	Soil	0.337	—	—	—	—	—	—	—	—	—
AAA3803	48-02067	0.00–1.00	Soil	—	—	0.0186 (J-)	—	—	—	—	—	—	—
AAA3806	48-02068	0.00–1.00	Soil	—	—	0.0348 (J-)	—	—	—	—	—	—	—
0448-95-0001	48-02080	0.00–0.50	Soil	—	—	0.5	0.07	—	—	—	—	—	—
0448-97-0085	48-02136	0.50–1.00	Soil	—	—	—	—	0.308	—	—	—	—	—
0448-97-0001	48-02150	3.50–4.50	Fill	—	—	—	—	0.46	—	—	—	—	—
0448-97-0002	48-02150	8.50–9.50	Fill	—	—	—	—	0.5	—	—	—	—	—
0448-97-0059	48-02153	0.00–1.00	Soil	—	0.258	—	—	—	—	—	—	—	—
0448-97-0043	48-02155	1.50–2.50	Fill	—	—	—	0.028	—	—	—	—	—	—
0448-97-0044	48-02155	3.67–4.67	Fill	—	—	0.023	0.042	—	—	—	—	—	—
0448-97-0045	48-02155	5.00–6.00	Fill	—	0.118	0.059	0.059	—	—	—	—	—	—
0448-97-0015	48-02157	3.50–4.50	Fill	—	—	4.64	0.218	—	—	—	—	—	—
0448-97-0016	48-02157	5.00–6.00	Fill	—	—	21.847	1.135	0.43	—	—	—	—	—
0448-97-0018	48-02157	9.00–10.00	Soil	—	—	1.205	0.052	—	—	—	—	—	—
0448-97-0019	48-02158	3.50–4.50	Fill	—	—	2.766	0.171	—	—	—	—	—	—
0448-97-0020	48-02158	5.50–6.50	Fill	4.511	—	110.02	5.311	2.9	—	—	—	—	—
0448-97-0021	48-02158	9.00–10.00	Fill	—	—	0.671	0.036	—	—	—	—	—	—
0448-97-0048	48-02159	3.83–5.00	Qbt 3	—	—	—	—	—	0.085	—	—	—	—
0448-97-0052	48-02161	0.50–1.00	Sediment	—	—	—	—	—	0.046	—	—	—	—
0448-97-0053	48-02161	6.50–7.50	Soil	—	—	—	—	—	0.053	—	—	—	—
0448-97-0056	48-02162	2.00–3.00	Soil	—	—	—	—	—	0.068	—	—	—	—

Table 4.1-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cesium-137	Plutonium-238	Plutonium-239/ Plutonium-240	Strontium-90	Thorium-227	Thorium-230	Uranium-234	Uranium-235	Uranium-238
Soil Background/Fallout Value[a,b]				**0.013**	**1.65**	**0.023**	**0.054**	**1.31**	**na[c]**	**2.29**	**2.59**	**0.20**	**2.29**
Qbt 2,3,4 Background/Fallout Value[a,b]				**na**	**na**	**na**	**na**	**na**	**na**	**1.98**	**1.98**	**0.09**	**1.93**
Sediment Background/Fallout Value[a,b]				**0.04**	**0.90**	**0.006**	**0.068**	**1.04**	**na**	**2.28**	**2.59**	**0.20**	**2.29**
0448-97-0075	48-02164	1.00–2.00	Qbt 3	—	—	—	—	—	—	—	—	0.1033	—
0448-97-0079	48-02166	1.00–2.00	Qbt 3	—	—	—	—	—	—	—	—	0.119	—
0448-97-0071	48-02167	0.00–1.00	Soil	—	0.65	—	—	—	—	—	—	—	—
0448-97-0109	48-02170	0.50–1.20	Soil	—	0.144	—	—	—	—	—	—	—	—
0448-97-0115	48-02172	0.00–1.00	Soil	—	0.244	—	—	—	—	—	—	—	—
0448-97-0116	48-02172	1.00–2.00	Soil	—	0.754	—	—	—	—	—	—	—	—

Note: All values in pCi/g.

[a] Background/fallout values are from LANL 1998, 059730.

[b] Fallout value applies to soil and tuff samples collected from 0–0.5 ft only and applies to sediment samples of all depth.

[c] na = Not available.

[d] — = Analyte not reported (detect or nondetect) above BV/FV or not detected.

Table 4.1-4
Organic Chemicals Detected at AOC 48-001

Sample ID	Location ID	Depth (ft)	Media	Acenaphthene	Acetone	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Bis(2-ethylhexyl)phthalate	Butanone[2-]	Butylbenzylphthalate	Carbazole	Chrysene	Di-n-butylphthalate	Di-n-octylphthalate	Fluoranthene	Fluorene	Isopropyltoluene[4-]	Methylene Chloride	Phenanthrene	Pyrene	Toluene	Trichlorofluoromethane	Trimethylbenzene[1,2,4-]
0448-95-0068	48-02133	0.00–0.50	Fill	—*	—	—	—	—	—	—	—	—	—	—	—	—	—	0.15 (J)	—	—	—	0.13 (J)	0.16 (J)	—	—	—
0448-95-0070	48-02134	0.00–0.50	Fill	—	—	—	0.12 (J)	0.12 (J)	0.13 (J)	—	—	—	—	—	0.12 (J)	—	—	0.26 (J)	—	—	—	0.22 (J)	0.31 (J)	—	—	—
0448-97-0037	48-02142	3.33–4.33	Fill	—	0.006 (J)	—	—	—	—	—	0.18 (J)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
0448-97-0039	48-02142	4.66–5.12	Fill	—	0.014 (J)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.002 (J)	—	—	—	—	—
0448-97-0040	48-02148	3.30–4.30	Fill	—	0.01 (J)	—	—	—	—	—	0.092 (J)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
0448-97-0041	48-02148	4.66–5.16	Fill	—	0.018 (J)	—	—	—	—	—	0.23 (J)	—	—	—	—	—	—	—	—	—	0.004 (J)	—	—	—	—	—
0448-97-0043	48-02155	1.50–2.50	Fill	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.047 (J)	—	—	—
0448-97-0044	48-02155	3.67–4.67	Fill	—	0.041	—	—	—	—	—	110	—	20	—	—	9.6 (J)	14 (J)	—	—	—	—	—	—	—	—	—
0448-97-0045	48-02155	5.00–6.00	Fill	—	0.016 (J)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
0448-97-0047	48-02159	0.50–1.50	Sediment	—	—	—	0.086 (J)	0.11 (J)	0.12 (J)	0.058 (J)	—	—	—	—	0.12 (J)	—	—	0.17 (J)	—	—	—	0.07 (J)	0.17 (J)	0.004 (J)	0.014	—
0448-97-0052	48-02161	0.50–1.00	Sediment	0.061 (J)	—	0.13 (J)	0.53	0.51	0.66	0.28 (J)	—	—	—	0.12 (J)	0.59	—	—	1.2	0.053 (J)	—	—	0.6	1	—	0.004 (J)	—
0448-97-0053	48-02161	6.50–7.50	Soil	—	—	—	0.064 (J)	0.069 (J)	0.088 (J)	—	—	—	—	—	0.082 (J)	—	—	0.15 (J)	—	—	—	0.078 (J)	0.12 (J)	—	0.005 (J)	—
0448-97-0054	48-02162	0.50–1.50	Sediment	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.004 (J)	—	—	—	—	—
0448-97-0056	48-02162	2.00–3.00	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.004 (J)	—
0448-97-0112	48-02171	0.00–0.83	Soil	—	—	—	0.17 (J)	0.19 (J)	0.35 (J)	—	—	—	—	—	0.2 (J)	—	—	0.16 (J)	—	—	—	—	0.61 (J)	—	—	—
0448-97-0113	48-02171	0.83–1.50	Soil	—	—	—	—	—	—	—	—	0.089 (J+)	—	—	—	—	—	—	—	0.067 (J+)	—	—	—	—	—	—
0448-97-0115	48-02172	0.00–1.00	Soil	—	—	—	0.31 (J)	0.34 (J)	0.62 (J)	—	—	—	—	—	0.38 (J)	—	—	0.32 (J)	—	—	—	0.31 (J)	1.5 (J)	—	—	0.004 (J)
0448-97-0116	48-02172	1.00–2.00	Soil	—	—	—	0.15 (J)	—	—	—	—	—	—	—	0.16 (J)	—	—	0.13 (J)	—	—	—	0.21 (J)	0.71 (J)	—	—	—

Note: All values in mg/kg.

* — = Analyte not detected.

Table 4.2-1
Samples Collected at SWMU 48-002(a)

Sample ID	Location ID	Depth (ft)	Media	Metals	SVOCs	Gamma Spectroscopy	Isotopic Plutonium	Isotopic Thorium	Isotopic Uranium
AAA4494	48-02006	0–0.5	Fill	—[a]	—	15290[b]	15290	15290	15290
AAA4493	48-02006	0.5–1.5	Fill	—	—	15290	15290	15290	15290
AAA4495	48-02006	1.5–3	Fill	—	—	15290	15290	15290	15290
AAA3769	48-02006	3–4	Fill	—	—	15290	15290	15290	15290
AAA3770	48-02006	4–5	Fill	—	—	15290	15290	15290	15290
AAA3771	48-02006	5–6	Fill	—	—	15290	15290	15290	15290
AAA3772	48-02006	6–7	Fill	—	—	15290	15290	15290	15290
AAA3773	48-02006	7–8	Fill	—	—	15290	15290	15290	15290
0448-95-0068	48-02133	0–0.5	Fill	1050	1049	—	—	—	—
0448-95-0070	48-02134	0–0.5	Fill	1050	1049	—	—	—	—

[a] — =Analysis not requested.

[b] Analytical request number.

Table 4.2-2
Inorganic Chemicals Detected above BVs at SWMU 48-002(a)

Sample ID	Location ID	Depth (ft)	Media	Antimony	Mercury
Soil Background Value[a]				**0.83**	**0.1**
0448-95-0068	48-02133	0.00–0.50	Fill	0.88 (J)	22.4
0448-95-0070	48-02134	0.00–0.50	Fill	—[b]	0.6

Note: All values in mg/kg.

[a] Background values are from LANL 1998, 059730.

[b] — = Analyte not reported (detect or nondetect) above BV or not detected.

Table 4.2-3
Radionuclide Detected above the BV at SWMU 48-002(a)

Sample ID	Location ID	Depth (ft)	Media	Thorium-230
Soil Background Value*				**2.29**
AAA4494	48-02006	0.00–0.50	Fill	3.88 (J-)
AAA4495	48-02006	1.50–3.00	Fill	4.19 (J-)
AAA3770	48-02006	4.00–5.00	Fill	3.89 (J-)

Note: All values in pCi/g.

* Background value is from LANL 1998, 059730.

Table 4.2-4
Organic Chemicals Detected at SWMU 48-002(a)

Sample ID	Location ID	Depth (ft)	Media	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Chrysene	Fluoranthene	Phenanthrene	Pyrene
0448-95-0068	48-02133	0.00–0.50	Fill	—*	—	—	—	0.15 (J)	0.13 (J)	0.16 (J)
0448-95-0070	48-02134	0.00–0.50	Fill	0.12 (J)	0.12 (J)	0.13 (J)	0.12 (J)	0.26 (J)	0.22 (J)	0.31 (J)

Note: All values in mg/kg.

* — = Analyte not detected.

Table 4.4-1
Samples Collected at AOC 48-002(e)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Gamma Spectroscopy	Isotopic Plutonium	Isotopic Thorium	Isotopic Uranium
AAA3545	48-02037	0–0.5	Fill	15333[a]	15333	15333	15333	15333
AAA3546	48-02037	0.5–1.5	Fill	15333	—[b]	15333	15333	15333
AAA3547	48-02037	1.5–3	Soil	15333	—	15333	15333	15333
AAA3782	48-02057	0–0.5	Soil	15333	—	15333	15333	15333
0448-97-0032	48-02135	0–1	Fill	—	2920	—	—	—
0448-97-0033	48-02135	1–2	Fill	—	2920	—	—	—
0448-97-0034	48-02135	2–3.25	Fill	—	2920	—	—	—

[a] Analytical request number.

[b] — =Analysis not requested.

Table 4.5-1
Samples Collected at SWMU 48-003

Sample ID	Location ID	Depth (ft)	Media	Metals	SVOCs	Americium-241	Gamma Spectroscopy	Isotopic Plutonium	Isotopic Thorium	Isotopic Uranium	Strontium-90
AAA3401	48-02010	4–5	Qbt 3	—[a]	—	—	15162[b]	15162	15162	15162	—
AAA3402	48-02010	8.5–9.5	Qbt 3	—	—	—	15162	15162	15162	15162	—
AAA3403	48-02010	14–15	Qbt 3	—	—	—	15162	15162	15162	15162	—
AAA3404	48-02012	4–5	Qbt 3	—	—	—	15162	15162	15162	15162	—
AAA3405	48-02012	9–10	Qbt 3	—	—	—	15162	15162	15162	15162	—
AAA3406	48-02012	14–15	Qbt 3	—	—	—	15162	15162	15162	15162	—
AAA3407	48-02014	4–5	Qbt 3	—	—	—	15162	15162	15162	15162	—
AAA3408	48-02014	7–7.2	Soil	—	—	—	15162	15162	15162	15162	—
AAA3409	48-02014	9–10	Qbt 3	—	—	—	15162	15162	15162	15162	—
AAA4473	48-02014	14–15	Qbt 3	—	—	—	15162	15162	15162	15162	—
AAA3493	48-02016	0–0.5	Soil	—	—	15128	15128	15128	15128	15128	—
AAA3494	48-02017	0–0.5	Soil	—	—	15128	15128	15128	15128	15128	—
AAA3495	48-02018	0–0.5	Soil	—	—	15128	15128	15128	15128	15128	—
AAA3496	48-02019	0–0.5	Soil	—	—	15128	15128	15128	15128	15128	—
AAA3497	48-02020	0–0.5	Soil	—	—	15128	15128	15128	15128	15128	—
AAA3512	48-02054	0–0.5	Sediment	—	—	15128	15128	15128	15128	15128	—
AAA3514	48-02054	0.5–1.5	Sediment	—	—	15128	—	15128	15128	15128	—
AAA3515	48-02054	1.5–2.5	Soil	—	—	15128	—	15128	15128	15128	—
AAA3513	48-02055	0–0.5	Sediment	—	—	15128	15128	15128	15128	15128	—
AAA3516	48-02055	0.5–1.5	Sediment	—	—	15128	—	15128	15128	15128	—
AAA3470	48-02055	1.5–2.5	Soil	—	—	15128	—	15128	15128	15128	—
AAA3471	48-02055	2.5–3.5	Soil	—	—	15128	—	15128	15128	15128	—
0448-97-0084	48-02136	0–0.5	Soil	2996	2995	—	2997	2997	2997	2997	2997
0448-97-0085	48-02136	0.5–1	Soil	2996	2995	—	2997	2997	2997	2997	2997
0448-97-0087	48-02137	0–1	Soil	2996	2995	—	2997	2997	2997	2997	2997
0448-97-0089	48-02137	1–2	Soil	2996	2995	—	2997	2997	2997	2997	2997
0448-97-0091	48-02138	0–0.5	Sediment	2996	2995	—	2997	2997	2997	2997	2997
0448-97-0092	48-02138	0.5–1	Soil	2996	2995	—	2997	2997	2997	2997	2997
0448-97-0094	48-02139	0–1	Soil	2996	2995	—	2997	2997	2997	2997	2997
0448-97-0096	48-02139	1–2	Soil	2996	2995	—	2997	2997	2997	2997	2997
0448-97-0098	48-02140	0–1	Soil	2996	2995	—	2997	2997	2997	2997	2997
0448-97-0099	48-02140	1–2	Soil	2996	2995	—	2997	2997	2997	2997	2997

[a] — =Analysis not requested.

[b] Analytical request number.

Table 4.5-2
Inorganic Chemicals above BVs at SWMU 48-003

Sample ID	Location ID	Depth (ft)	Media	Antimony	Cadmium
Soil Background Value*				**0.83**	**0.4**
Sediment Background Value*				**0.83**	**0.4**
0448-97-0084	48-02136	0.00–0.50	Soil	5.8 (U)	0.58 (U)
0448-97-0085	48-02136	0.50–1.00	Soil	5.49 (U)	0.549 (U)
0448-97-0087	48-02137	0.00–1.00	Soil	6.17 (U)	0.617 (U)
0448-97-0089	48-02137	1.00–2.00	Soil	5.51 (U)	0.551 (U)
0448-97-0091	48-02138	0.00–0.50	Sediment	6.67 (U)	0.667 (U)
0448-97-0092	48-02138	0.50–1.00	Soil	6.04 (U)	0.604 (U)
0448-97-0094	48-02139	0.00–1.00	Soil	5.9 (U)	0.59 (U)
0448-97-0096	48-02139	1.00–2.00	Soil	5.5 (U)	0.55 (U)
0448-97-0098	48-02140	0.00–1.00	Soil	5.39 (U)	0.539 (U)
0448-97-0099	48-02140	1.00–2.00	Soil	5.7 (U)	0.57 (U)

Note: All values in mg/kg.

* Background values are from LANL 1998, 059730.

Table 4.5-3
Radionuclides Detected or Detected above BVs at SWMU 48-003

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cesium-137	Cobalt-60	Plutonium-238	Plutonium-239/ Plutonium-240	Strontium-90	Thorium-230	Uranium-234	Uranium-238
Soil Background/Fallout Value[a,b]				**0.013**	**1.65**	**na[c]**	**0.023**	**0.054**	**1.31**	**2.29**	**2.59**	**2.29**
Qbt 2,3,4 Background/Fallout Value[a,b]				**na**	**na**	**na**	**na**	**na**	**na**	**1.98**	**1.98**	**1.93**
Sediment Background/Fallout Value[a,b]				**0.04**	**0.90**	**na**	**0.006**	**0.068**	**1.04**	**2.29**	**2.59**	**2.29**
AAA3407	48-02014	4.00–5.00	Qbt 3	—[d]	—	—	—	0.045 (J-)	—	—	—	—
AAA3408	48-02014	7.00–7.20	Soil	—	—	—	0.092 (J-)	—	—	—	—	—
AAA3409	48-02014	9.00–10.00	Qbt 3	—	—	—	0.277 (J-)	—	—	—	—	—
AAA3496	48-02019	0.00–0.50	Soil	0.153	2.549	—	—	0.941	—	—	3.48	3.97 (J+)
AAA3497	48-02020	0.00–0.50	Soil	1.16	—	—	0.162	6.4	—	—	—	—
AAA3512	48-02054	0.00–0.50	Sediment	0.545	—	—	—	2.08	—	—	—	—
AAA3514	48-02054	0.50–1.50	Sediment	0.292	—	—	—	1.74	—	-	3.02	2.93 (J+)
AAA3515	48-02054	1.50–2.50	Soil	0.601	—	—	—	0.935	—	2.35 (J+)	—	—
AAA3513	48-02055	0.00–0.50	Sediment	0.213	—	—	—	0.339	—	—	—	—
AAA3516	48-02055	0.50–1.50	Sediment	0.291	—	—	—	3.15	—	—	—	—
AAA3470	48-02055	1.50–2.50	Soil	0.713	—	—	—	1.07	—	—	6.63 (J+)	5.64 (J+)
AAA3471	48-02055	2.50–3.50	Soil	0.337	—	—	—	—	—	—	—	—
0448-97-0085	48-02136	0.50–1.00	Soil	—	—	—	—	—	0.308	—	—	—
0448-97-0087	48-02137	0.00–1.00	Soil	—	0.2932	—	—	0.0158	0.476	—	—	—
0448-97-0094	48-02139	0.00–1.00	Soil	—	0.6592	—	—	0.036	—	—	—	—

Table 4.5-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cesium-137	Cobalt-60	Plutonium-238	Plutonium-239/ Plutonium-240	Strontium-90	Thorium-230	Uranium-234	Uranium-238
Soil Background/Fallout Value[a,b]				**0.013**	**1.65**	**na[c]**	**0.023**	**0.054**	**1.31**	**2.29**	**2.59**	**2.29**
Qbt 2,3,4 Background/Fallout Value[a,b]				**na**	**na**	**na**	**na**	**na**	**na**	**1.98**	**1.98**	**1.93**
Sediment Background/Fallout Value[a,b]				**0.04**	**0.90**	**na**	**0.006**	**0.068**	**1.04**	**2.29**	**2.59**	**2.29**
0448-97-0098	48-02140	0.00–1.00	Soil	—	0.1322	0.0795	—	—	—	—	—	—
0448-97-0099	48-02140	1.00–2.00	Soil	—	0.3036	—	—	0.0225	0.834	—	—	—

Note: All values in pCi/g.

[a] Background/fallout values are from LANL 1998, 059730.

[b] Fallout value applies to soil and tuff samples collected from 0–0.5 ft only and applies to sediment samples of all depth.

[c] na = Not available.

[d] — = Analyte not reported (detect or nondetect) above BV/FV or not detected.

Table 4.5-4
Organic Chemicals Detected at SWMU 48-003

Sample ID	Location ID	Depth (ft)	Media	Benzoic Acid	Bis(2-ethylhexyl)phthalate
0448-97-0087	48-02137	0.00–1.00	Soil	0.18 (J)	—*
0448-97-0089	48-02137	1.00–2.00	Soil	—	0.092 (J)
0448-97-0091	48-02138	0.00–0.50	Sediment	0.13 (J)	—
0448-97-0096	48-02139	1.00–2.00	Soil	—	0.082 (J)

Note: All values in mg/kg.

* — = Analyte not detected.

Table 4.7-1
Samples Collected at SWMU 48-005

Sample ID	Location ID	Depth (ft)	Media	Metals	SVOCs	VOCs	Americium-241	Gamma Spectroscopy	Isotopic Plutonium	Isotopic Thorium	Isotopic Uranium	Strontium-90
AAA3717	48-02024	4–5	Fill	—[a]	—	—	15213[b]	—	15213	15213	15213	—
AAA3718	48-02024	8–9	Fill	—	—	—	15213	15213	15213	15213	15213	—
AAA3719	48-02024	14–15	Qbt 3	—	—	—	15213	—	15213	15213	15213	—
AAA3720	48-02025	4–5	Fill	—	—	—	15213	—	15213	15213	15213	—
AAA3721	48-02025	5.5–6.5	Fill	—	—	—	15213	15213	15213	15213	15213	—
AAA3722	48-02025	7.5–8.5	Fill	—	—	—	15213	—	15213	15213	15213	—
AAA4475	48-02025	9–10	Qbt 4	—	—	—	15213	—	15213	15213	15213	—
AAA4476	48-02025	13–14	Qbt 3	—	—	—	15213	—	15213	15213	15213	—
AAA3723	48-02026	1.5–2.5	Soil	—	—	—	15213	—	15213	15213	15213	—
AAA3724	48-02026	6–7.4	Soil	—	—	—	15213	—	15213	15213	15213	—
AAA4469	48-02026	14–15	Qbt 3	—	—	—	15213	—	15213	15213	15213	—
AAA3803	48-02067	0–1	Soil	—	16178	—	16193	—	16193	16193	16193	—
AAA3804	48-02067	1–2	Soil	—	16178	—	16193	—	16193	16193	16193	—
AAA3806	48-02068	0–1	Soil	—	16178	—	16193	—	16193	16193	16193	—
AAA3810	48-02069	0–1	Soil	—	16178	—	16193	16193	16193	16193	16193	—
AAA3811	48-02069	1–2	Qbt 4	—	16178	—	16193	—	16193	16193	16193	—
0448-97-0009	48-02141	11.5–12.5	Fill	—	—	—	—	2906	—	—	—	—
0448-97-0011	48-02141	12.5–13.5	Qbt 4	—	—	—	—	2906	—	—	—	—
0448-97-0037	48-02142	3.33–4.33	Fill	2980	2979	2979	—	2981	2981	2981	2981	2981
0448-97-0039	48-02142	4.66–5.12	Fill	2980	2979	2979	—	2981	2981	2981	2981	2981
0448-97-0040	48-02148	3.3–4.3	Fill	2980	2979	2979	—	2981	2981	2981	2981	2981

Table 4.7-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Metals	SVOCs	VOCs	Americium-241	Gamma Spectroscopy	Isotopic Plutonium	Isotopic Thorium	Isotopic Uranium	Strontium-90
0448-97-0041	48-02148	4.66–5.16	Fill	2980	2979	2979	—	2981	2981	2981	2981	2981
0448-97-0001	48-02150	3.5–4.5	Fill	—	—	—	—	2906	—	2906	2906	2906
0448-97-0002	48-02150	8.5–9.5	Fill	—	—	—	—	2906	—	2906	2906	2906
0448-97-0003	48-02150	14–15	Qbt 4	—	—	—	—	2906	—	2906	2906	2906
0448-97-0004	48-02151	6–7	Fill	—	—	—	—	2906	—	2906	2906	2906
0448-97-0006	48-02151	13.5–14.5	Fill	—	—	—	—	2906	—	2906	2906	2906
0448-97-0007	48-02151	15.5–16.5	Fill	—	—	—	—	2906	—	2906	2906	2906
0448-97-0057	48-02152	0–1	Soil	—	—	—	—	2977	—	2977	2977	2977
0448-97-0058	48-02152	1–2	Soil	—	—	—	—	2977	—	2977	2977	2977
0448-97-0059	48-02153	0–1	Soil	—	—	—	—	2977	—	2977	2977	2977
0448-97-0060	48-02153	1–2	Soil	—	—	—	—	2977	—	2977	2977	2977
0448-97-0062	48-02154	0–0.83	Sediment	—	—	—	—	2977	—	2977	2977	2977
0448-97-0061	48-02154	0.83–1.67	Soil	—	—	—	—	2977	—	2977	2977	2977
0448-97-0043	48-02155	1.5–2.5	Fill	2918	2917	2917	—	2919	2919	2919	2919	2919
0448-97-0044	48-02155	3.67–4.67	Fill	2918	2917	2917	—	2919	2919	2919	2919	2919
0448-97-0045	48-02155	5–6	Fill	2918	2917	2917	—	2919	2919	2919	2919	2919
0448-97-0012	48-02156	17.5–18.5	Fill	—	—	—	—	2906	2906	2906	2906	2906
0448-97-0013	48-02156	21–22	Fill	—	—	—	—	2906	2906	2906	2906	2906
0448-97-0014	48-02156	24–25	Qbt 3	—	—	—	—	2906	2906	2906	2906	2906
0448-97-0015	48-02157	3.5–4.5	Fill	—	—	—	—	2906	2906	2906	2906	2906
0448-97-0016	48-02157	5–6	Fill	—	—	—	—	2906	2906	2906	2906	2906
0448-97-0018	48-02157	9–10	Soil	—	—	—	—	2906	2906	2906	2906	2906

Table 4.7-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Metals	SVOCs	VOCs	Americium-241	Gamma Spectroscopy	Isotopic Plutonium	Isotopic Thorium	Isotopic Uranium	Strontium-90
0448-97-0019	48-02158	3.5–4.5	Fill	—	—	—	—	2906	2906	2906	2906	2906
0448-97-0020	48-02158	5.5–6.5	Fill	—	—	—	—	2906	2906	2906	2906	2906
0448-97-0021	48-02158	9–10	Fill	—	—	—	—	2906	2906	2906	2906	2906

[a] — =Analysis not requested.

[b] Analytical request number.

Table 4.7-2
Inorganic Chemicals above BVs at SWMU 48-005

Sample ID	Location ID	Depth (ft)	Media	Antimony	Cadmium	Chromium	Mercury	Silver	Zinc
Soil Background Value[a]				**0.83**	**0.4**	**19.3**	**0.1**	**1**	**48.8**
0448-97-0037	48-02142	3.33–4.33	Fill	5.4 (U)	0.54 (U)	—[b]	—	—	—
0448-97-0039	48-02142	4.66–5.12	Fill	5.54 (U)	0.554 (U)	—	—	—	—
0448-97-0040	48-02148	3.30–4.30	Fill	5.69 (U)	0.569 (U)	—	—	—	—
0448-97-0041	48-02148	4.66–5.16	Fill	5.79 (U)	0.579 (U)	—	—	—	—
0448-97-0043	48-02155	1.50–2.50	Fill	12 (UJ)	0.6 (U)	—	0.12 (U)	2.4 (U)	—
0448-97-0044	48-02155	3.67–4.67	Fill	12 (UJ)	0.59 (U)	26	0.12 (U)	2.4 (U)	74
0448-97-0045	48-02155	5.00–6.00	Fill	12 (UJ)	0.59 (U)	20	0.12 (U)	2.4 (U)	—

Note: All values in mg/kg.

[a] Background values are from LANL 1998, 059730.

[b] — = Analyte not reported (detect or nondetect) above BV or not detected.

Table 4.7-3
Radionuclides Detected or Detected above the BVs at SWMU 48-005

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cesium-137	Plutonium-238	Plutonium-239/ Plutonium-240	Strontium-90	Thorium-230	Uranium-234
Soil Background/Fallout Value[a,b]				**0.013**	**1.65**	**0.023**	**0.054**	**1.31**	**2.29**	**2.59**
Qbt 2,3,4 Background/Fallout Value[a,b]				**na[c]**	**na**	**na**	**na**	**na**	**1.98**	**1.98**
AAA3717	48-02024	4.00–5.00	Fill	—[d]	—	—	—	—	3.85 (J)	—
AAA3721	48-02025	5.50–6.50	Fill	—	—	—	—	—	3.11 (J)	—
AAA4476	48-02025	13.00–14.00	Qbt 3	—	—	—	—	—	2.07 (J)	—
AAA3723	48-02026	1.50–2.50	Soil	—	—	5.19 (J)	—	—	—	—
AAA3724	48-02026	6.00–7.40	Soil	5.27 (J-)	—	223 (J)	11.9	—	—	—
AAA4469	48-02026	14.00–15.00	Qbt 3	—	—	—	—	—	—	2.04
AAA3803	48-02067	0.00–1.00	Soil	—	—	0.0186 (J-)	—	—	—	—
AAA3806	48-02068	0.00–1.00	Soil	—	—	0.0348 (J-)	—	—	—	—
0448-97-0001	48-02150	3.50–4.50	Fill	—	—	—	—	0.46	—	—
0448-97-0002	48-02150	8.50–9.50	Fill	—	—	—	—	0.5	—	—
0448-97-0059	48-02153	0.00–1.00	Soil	—	0.258	—	—	—	—	—
0448-97-0043	48-02155	1.50–2.50	Fill	—	—	—	0.028	—	—	—
0448-97-0044	48-02155	3.67–4.67	Fill	—	—	0.023	0.042	—	—	—
0448-97-0045	48-02155	5.00–6.00	Fill	—	0.118	0.059	0.059	—	—	—
0448-97-0015	48-02157	3.50–4.50	Fill	—	—	4.64	0.218	—	—	—

Table 4.7-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cesium-137	Plutonium-238	Plutonium-239/ Plutonium-240	Strontium-90	Thorium-230	Uranium-234
Soil Background/Fallout Value[a,b]				**0.013**	**1.65**	**0.023**	**0.054**	**1.31**	**2.29**	**2.59**
Qbt 2,3,4 Background/Fallout Value[a,b]				**na[c]**	**na**	**na**	**na**	**na**	**1.98**	**1.98**
0448-97-0016	48-02157	5.00–6.00	Fill	—	—	21.847	1.135	0.43	—	—
0448-97-0018	48-02157	9.00–10.00	Soil	—	—	1.205	0.052	—	—	—
0448-97-0019	48-02158	3.50–4.50	Fill	—	—	2.766	0.171	—	—	—
0448-97-0020	48-02158	5.50–6.50	Fill	4.511	—	110.02	5.311	2.9	—	—
0448-97-0021	48-02158	9.00–10.00	Fill	—	—	0.671	0.036	—	—	—

Note: All values in pCi/g.

[a] Background/fallout values are from LANL 1998, 059730.

[b] Fallout value applies to samples collected from 0–0.5 ft only.

[c] na = Not available.

[d] — = Analyte not reported (detect or nondetect) above BV or not detected.

Table 4.7-4
Organic Chemicals Detected at SWMU 48-005

Sample ID	Location ID	Depth (ft)	Media	Acetone	Bis(2-ethylhexyl)phthalate	Butylbenzylphthalate	Di-n-butylphthalate	Di-n-octylphthalate	Methylene Chloride	Pyrene
0448-97-0037	48-02142	3.33–4.33	Fill	0.006 (J)	0.18 (J)	—*	—	—	—	—
0448-97-0039	48-02142	4.66–5.12	Fill	0.014 (J)	—	—	—	—	0.002 (J)	—
0448-97-0040	48-02148	3.30–4.30	Fill	0.01 (J)	0.092 (J)	—	—	—	—	—
0448-97-0041	48-02148	4.66–5.16	Fill	0.018 (J)	0.23 (J)	—	—	—	0.004 (J)	—
0448-97-0043	48-02155	1.50–2.50	Fill	—	—	—	—	—	—	0.047 (J)
0448-97-0044	48-02155	3.67–4.67	Fill	0.041	110	20	9.6 (J)	14 (J)	—	—
0448-97-0045	48-02155	5.00–6.00	Fill	0.016 (J)	—	—	—	—	—	—

Note: All values in mg/kg.

* — = Analyte not detected.

Table 4.8-1
Samples Collected at Consolidated Unit 48-007(a)-00

Sample ID	Location ID	Depth (ft)	Media	Metals	SVOCs	VOCs	Gamma Spectroscopy	Isotopic Plutonium	Isotopic Thorium	Isotopic Uranium	Strontium-90
0448-95-0001	48-02080	0–0.5	Soil	224[a]	—[b]	—	—	225	—	225	—
0448-95-0005	48-02082	0–0.5	Soil	224	—	—	—	—	—	—	—
0448-97-0047	48-02159	0.5–1.5	Sediment	2944	2943	2943	2945	2945	2945	2945	2945
0448-97-0048	48-02159	3.83–5	Qbt 3	2944	2943	2943	2945	2945	2945	2945	2945
0448-97-0052	48-02161	0.5–1	Sediment	2944	2943	2943	2945	2945	2945	2945	2945
0448-97-0053	48-02161	6.5–7.5	Soil	2944	2943	2943	2945	2945	2945	2945	2945
0448-97-0054	48-02162	0.5–1.5	Sediment	2944	2943	2943	2945	2945	2945	2945	2945
0448-97-0056	48-02162	2–3	Soil	2944	2943	2943	2945	2945	2945	2945	2945
0448-97-0112	48-02171	0–0.83	Soil	3258R	3257R	3257R	3259R	3259R	3259R	3259R	3259R
0448-97-0113	48-02171	0.83–1.5	Soil	3258R	3257R	3257R	3259R	3259R	3259R	3259R	3259R
0448-97-0115	48-02172	0–1	Soil	3258R	3257R	3257R	3259R	3259R	3259R	3259R	3259R
0448-97-0116	48-02172	1–2	Soil	3258R	3257R	3257R	3259R	3259R	3259R	3259R	3259R
0448-97-0117	48-02172	2–3	Qbt 2	3258R	3257R	3257R	3259R	3259R	3259R	3259R	3259R
0448-97-0118	48-02173	0–1	Soil	3258R	3257R	3257R	3259R	3259R	3259R	3259R	3259R
0448-97-0120	48-02173	1–2	Soil	3258R	3257R	3257R	3259R	3259R	3259R	3259R	3259R
0448-97-0121	48-02173	2–3	Soil	3258R	3257R	3257R	3259R	3259R	3259R	3259R	3259R

[a] Analytical request number.

[b] — =Analysis not requested.

Table 4.8-2
Inorganic Chemicals above BVs at Consolidated Unit 48-007(a)-00

Sample ID	Location ID	Depth (ft)	Media	Antimony	Arsenic	Barium	Cadmium	Calcium	Chromium	Copper	Lead	Mercury	Nickel	Selenium	Thallium	Zinc
Soil Background Value[a]				**0.83**	**8.17**	**295**	**0.4**	**6120**	**19.3**	**14.7**	**22.3**	**0.1**	**15.4**	**1.52**	**0.73**	**48.8**
Qbt 2,3,4 Background Value[a]				**0.5**	**2.79**	**46**	**1.63**	**2200**	**7.14**	**4.66**	**11.2**	**0.1**	**6.58**	**0.3**	**1.1**	**63.5**
Sediment Background Value[a]				**0.83**	**3.98**	**127**	**0.4**	**4420**	**10.5**	**11.2**	**19.7**	**0.1**	**9.38**	**0.3**	**0.73**	**60.2**
0448-97-0047	48-02159	0.50–1.50	Sediment	7.2 (U)	—[b]	—	0.72 (U)	—	—	—	—	—	—	0.36 (UJ)	—	—
0448-97-0048	48-02159	3.83–5.00	Qbt 3	6.4 (U)	—	62.9	—	2480	26.5	6.5	—	—	14.1	0.32 (UJ)	—	—
0448-97-0052	48-02161	0.50–1.00	Sediment	7.3 (U)	—	—	0.73 (U)	—	—	—	—	—	—	0.37 (UJ)	—	—
0448-97-0053	48-02161	6.50–7.50	Soil	6.1 (U)	—	—	0.61 (U)	—	75.9	—	—	—	33.2	—	—	—
0448-97-0054	48-02162	0.50–1.50	Sediment	5.9 (U)	—	—	0.59 (U)	—	45.3	—	—	—	20.9	—	—	—
0448-97-0056	48-02162	2.00–3.00	Soil	6.2 (U)	—	—	0.62 (U)	—	61.6	—	—	—	30.9	—	—	—
0448-97-0112	48-02171	0.00–0.83	Soil	3.7 (UJ)	—	—	—	—	—	58.3	—	0.13 (J)	—	—	1.3 (U)	80.8
0448-97-0113	48-02171	0.83–1.50	Soil	3 (UJ)	—	—	—	—	—	—	—	—	—	—	1.1 (U)	—
0448-97-0115	48-02172	0.00–1.00	Soil	2.7 (UJ)	—	—	—	—	453	177	27.5	0.2	—	—	0.96 (U)	66.8
0448-97-0116	48-02172	1.00–2.00	Soil	2.8 (UJ)	—	—	—	—	151	46.7	—	—	—	—	1 (U)	58.4
0448-97-0117	48-02172	2.00–3.00	Qbt 2	2.4 (UJ)	2.8	—	—	—	29.6	7.1	—	—	—	0.56 (U)	—	—
0448-97-0118	48-02173	0.00–1.00	Soil	2.5 (UJ)	—	—	—	—	250	80.9	—	—	—	—	0.88 (U)	55.6
0448-97-0120	48-02173	1.00–2.00	Soil	2.7 (UJ)	9.9	—	—	—	1080	98.5	—	—	—	—	0.97 (U)	86.1
0448-97-0121	48-02173	2.00–3.00	Soil	2.5 (UJ)	—	—	—	—	336	39.6	—	—	—	—	0.91 (U)	51.2

Note: All values in mg/kg.

[a] Background values are from LANL 1998, 059730.

[b] — = Analyte not reported (detect or nondetect) above BV or not detected.

Table 4.8-3
Radionuclides Detected or Detected above the FVs at Consolidated Unit 48-007(a)-00

Sample ID	Location ID	Depth (ft)	Media	Cesium-137	Plutonium-238	Plutonium-239/Plutonium-240	Thorium-227
Soil Background/Fallout Value[a,b]				**1.65**	**0.023**	**0.054**	**na[c]**
Qbt 2,3,4 Background/Fallout Value[a,b]				**na**	**na**	**na**	**na**
Sediment Background/Fallout Value[a,b]				**0.9**	**0.006**	**0.068**	**na**
0448-95-0001	48-02080	0.00–0.50	Soil	—[d]	0.5	0.07	—
0448-97-0048	48-02159	3.83–5.00	Qbt 3	—	—	—	0.085
0448-97-0052	48-02161	0.50–1.00	Sediment	—	—	—	0.046
0448-97-0053	48-02161	6.50–7.50	Soil	—	—	—	0.053
0448-97-0056	48-02162	2.00–3.00	Soil	—	—	—	0.068
0448-97-0115	48-02172	0.00–1.00	Soil	0.244	—	—	—
0448-97-0116	48-02172	1.00–2.00	Soil	0.754	—	—	—
0448-97-0120	48-02173	1.00–2.00	Soil	0.614	—	0.448	—

Note: All values in pCi/g.

[a] Background/fallout values are from LANL 1998, 059730.

[b] Fallout value applies to soil and tuff samples collected from 0–0.5 ft only and applies to sediment samples of all depth.

[c] na = Not available.

[d] — = Analyte not reported (detect or nondetect) above BV/FV or not detected.

Table 4.8-4
Organic Chemicals Detected at Consolidated Unit 48-007(a)-00

Sample ID	Location ID	Depth (ft)	Media	Acenaphthene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Bis(2-ethylhexyl)phthalate	Butanone[2-]	Carbazole	Chrysene	Fluoranthene	Fluorene	Isopropyltoluene[4-]	Methylene Chloride	Phenanthrene	Pyrene	Toluene	Trichlorofluoromethane	Trimethylbenzene[1,2,4-]
0448-97-0047	48-02159	0.50–1.50	Sediment	—*	—	0.086 (J)	0.11 (J)	0.12 (J)	0.058 (J)	—	—	—	0.12 (J)	0.17 (J)	—	—	—	0.07 (J)	0.17 (J)	0.004 (J)	0.014	—
0448-97-0052	48-02161	0.50–1.00	Sediment	0.061 (J)	0.13 (J)	0.53	0.51	0.66	0.28 (J)	—	—	0.12 (J)	0.59	1.2	0.053 (J)	—	—	0.6	1	—	0.004 (J)	—
0448-97-0053	48-02161	6.50–7.50	Soil	—	—	0.064 (J)	0.069 (J)	0.088 (J)	—	—	—	—	0.082 (J)	0.15 (J)	—	—	—	0.078 (J)	0.12 (J)	—	0.005 (J)	—
0448-97-0054	48-02162	0.50–1.50	Sediment	—	—	—	—	—	—	—	—	—	—	—	—	—	0.004 (J)	—	—	—	—	—
0448-97-0056	48-02162	2.00–3.00	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.004 (J)	—
0448-97-0112	48-02171	0.00–0.83	Soil	—	—	0.17 (J)	0.19 (J)	0.35 (J)	—	—	—	—	0.2 (J)	0.16 (J)	—	—	—	—	0.61 (J)	—	—	—
0448-97-0113	48-02171	0.83–1.50	Soil	—	—	—	—	—	—	—	0.089 (J+)	—	—	—	—	0.067 (J+)	—	—	—	—	—	—
0448-97-0115	48-02172	0.00–1.00	Soil	—	—	0.31 (J)	0.34 (J)	0.62 (J)	—	—	—	—	0.38 (J)	0.32 (J)	—	—	—	0.31 (J)	1.5 (J)	—	—	0.004 (J)
0448-97-0116	48-02172	1.00–2.00	Soil	—	—	0.15 (J)	—	—	—	—	—	—	0.16 (J)	0.13 (J)	—	—	—	0.21 (J)	0.71 (J)	—	—	—
0448-97-0118	48-02173	0.00–1.00	Soil	—	—	0.21 (J)	0.17 (J)	0.28 (J)	—	—	—	—	0.23 (J)	0.19 (J)	—	—	—	0.23 (J)	0.76 (J)	—	—	—
0448-97-0120	48-02173	1.00–2.00	Soil	—	—	0.15 (J)	—	—	—	0.091 (J)	—	—	0.16 (J)	0.17 (J)	—	—	—	0.26 (J)	0.71 (J)	0.004 (J)	—	—
0448-97-0121	48-02173	2.00–3.00	Soil	—	—	—	—	—	—	0.19 (J)	—	—	—	—	—	—	—	—	—	—	—	—

Note: All values in mg/kg.

*— = Analyte not detected.

Table 4.9-1
Samples Collected at SWMU 48-007(b)

Sample ID	Location ID	Depth (ft)	Media	Gamma Spectroscopy
0448-97-0071	48-02167	0–1	Soil	2955*
0448-97-0072	48-02167	1–2	Soil	2955
0448-97-0081	48-02168	0–0.83	Sediment	2977
0448-97-0082	48-02168	0.83–1.67	Soil	2977

* Analytical request number.

Table 4.9-2
Radionuclides Detected at SWMU 48-007(b)

Sample ID	Location ID	Depth (ft)	Media	Cesium-137
Soil Fallout Value[a,b]				**1.65**
0448-97-0071	48-02167	0.00–1.00	Soil	0.65

Note: All values in pCi/g.
[a] Fallout values are from LANL 1998, 059730.
[b] Fallout value applies to samples collected from 0–0.5 ft only.

Table 4.10-1
Samples Collected at SWMU 48-007(c)

Sample ID	Location ID	Depth (ft)	Media	Gamma Spectroscopy
0448-97-0067	48-02165	0–1	Sediment	2955*
0448-97-0068	48-02165	1–2	Soil	2955
0448-97-0070	48-02165	2–2.83	Soil	2955
0448-97-0078	48-02166	0–1	Sediment	2977
0448-97-0079	48-02166	1–2	Qbt 3	2977
0448-97-0105	48-02169	0–1	Sediment	3220R
0448-97-0107	48-02169	1–2	Soil	3220R
0448-97-0108	48-02170	0–0.5	Sediment	3220R
0448-97-0109	48-02170	0.5–1.2	Soil	3220R

* Analytical request number.

Table 4.10-2
Radionuclides Detected or Detected above the BV at SWMU 48-007(c)

Sample ID	Location ID	Depth (ft)	Media	Cesium-137	Uranium-235
Soil Background/Fallout Value[a,b]				**1.65**	**0.2**
Qbt 2,3,4 Background/Fallout Value[a,b]				**na[c]**	**0.09**
0448-97-0079	48-02166	1.00–2.00	Qbt 3	—[d]	0.119
0448-97-0109	48-02170	0.50–1.20	Soil	0.144	—

Note: All values in pCi/g.

[a] Background/fallout values are from LANL 1998, 059730.

[b] Fallout value applies to samples collected from 0–0.5 ft only.

[c] na = Not available.

[d] — = Analyte not reported (detect or nondetect) above BV or not detected.

Table 4.11-1
Samples Collected at SWMU 48-007(f)

Sample ID	Location ID	Depth (ft)	Media	Gamma Spectroscopy
0448-97-0064	48-02163	0–1	Soil	2955*
0448-97-0065	48-02163	1–2	Soil	2955
0448-97-0074	48-02164	0–1	Sediment	2977
0448-97-0075	48-02164	1–2	Qbt 3	2977

* Analytical request number.

Table 4.11-2
Radionuclide Detected above the BV at SWMU 48-007(f)

Sample ID	Location ID	Depth (ft)	Media	Uranium-235
Qbt 2,3,4 Background Value*				**0.09**
0448-97-0075	48-02164	1.00-2.00	Qbt 3	0.1033

Note: All values in pCi/g.

* Background value is from LANL 1998, 059730.

Table 4.13-1
Samples Collected at AOC 48-012

Sample ID	Location ID	Depth (ft)	Media	SVOCs	VOCs
RE48-02-49520	48-02-21182	6–6	Soil	1243S*	1243S
RE48-02-49521	48-02-21183	7.33–7.33	Soil	1244S	1243S
RE48-02-49522	48-02-21184	7–7	Soil	1243S	1243S
RE48-02-49523	48-02-21185	7–7	Soil	1243S	1243S
RE48-02-49524	48-02-21186	6.5–6.5	Soil	1243S	1243S
RE48-02-49525	48-02-21187	6–6	Soil	1243S	1243S
RE48-02-49526	48-02-21188	6–6	Soil	1243S	1243S
RE48-02-49527	48-02-21189	7–7	Soil	1243S	1243S
RE48-02-49528	48-02-21190	7–7	Soil	1243S	1243S
RE48-02-49529	48-02-21191	7–7	Soil	1243S	1243S

* Analytical request number.

Table 4.13-2
Organic Chemicals Detected at AOC 48-012

Sample ID	Location ID	Depth (ft)	Media	Acenaphthene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Chrysene	Dibenz(a,h)anthracene	Dibenzofuran	Dimethylphenol[2,4-]	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Methylnaphthalene[2-]	Methylphenol[2-]	Methylphenol[4-]	Naphthalene	Phenanthrene	Pyrene
RE48-02-49520	48-02-21182	6.00–6.00	Soil	—*	—	—	—	—	—	—	—	—	—	0.06580494	—	—	—	—	—	—	0.05875441	0.05992949
RE48-02-49521	48-02-21183	7.33–7.33	Soil	10.67183	11.0441	17.37275	10.54774	12.3	3.226367	11.78865	9.679101	5.335915	0.3102276	26.05912	9.306828	1.017546	3.7	0.1985456	0.442	13.65001	37.22731	34.74549
RE48-02-49523	48-02-21185	7.00–7.00	Soil	—	—	—	—	—	—	—	—	—	—	0.04347826	—	—	—	—	—	—	—	0.04459309
RE48-02-49524	48-02-21186	6.50–6.50	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.1345291	—	—
RE48-02-49525	48-02-21187	6.00–6.00	Soil	—	0.0433735	0.1180723	—	0.113	—	0.07831325	—	—	—	0.1807229	—	—	—	—	—	—	0.1566265	0.2289157
RE48-02-49529	48-02-21191	7.00–7.00	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.06455266	—	—

Note: All values in mg/kg.

* — = Analyte not detected.

Table 5.2-1
Samples Collected at AOC 50-001(b)

Sample ID	Location ID	Depth (ft)	Media	Anions	Metals	Perchlorate	Total Cyanide	PCBs	Pesticides	SVOCs	TPH DRO	VOCs	Americium-241	Gamma Spectroscopy	Tritium	Isotopic Plutonium	Isotopic Uranium	Strontium-90
MD50-06-66603	50-24235	70–71	Qbt 3	—[a]	4475S[b]	—	—	4475S	4475S	4475S	4475S	—	—	4475S	—	4475S	4475S	4475S
MD50-06-66604	50-24235	90–91.5	Qbt 3	—	4475S	—	—	4475S	4475S	4475S	4475S	—	—	4475S	—	4475S	4475S	4475S
MD50-05-60733	50-24708	0–0.5	Soil	3402S	3402S	3402S	3402S	—	—	—	—	3401S	3403S	3403S	3403S	3403S	3403S	3403S
MD50-05-60734	50-24709	0–0.5	Soil	3402S	3402S	3402S	3402S	—	—	—	—	3401S	3403S	3403S	3403S	3403S	3403S	3403S
MD50-05-60732	50-24710	0–0.5	Soil	3402S	3402S	3402S	3402S	—	—	—	—	3401S	3403S	3403S	3403S	3403S	3403S	3403S
MD50-05-60736	50-24711	0–0.5	Soil	3402S	3402S	3402S	3402S	—	—	—	—	3401S	3403S	3403S	3403S	3403S	3403S	3403S
MD50-05-60738	50-24713	0–0.5	Soil	3470S	3470S	3470S	3470S	—	—	—	—	3469S	3471S	3471S	3471S	3471S	3471S	3471S
MD50-05-60740	50-24715	0–0.5	Soil	3470S	3470S	3470S	3470S	—	—	—	—	3469S	3471S	3471S	3471S	3471S	3471S	3471S

[a] — =Analysis not requested.

[b] Analytical request number.

Table 5.2-2
Inorganic Chemicals above BVs or Detected without BV at AOC 50-001(b)

Sample ID	Location ID	Depth (ft)	Media	Arsenic	Chromium	Total Cyanide	Lead	Nitrate	Selenium	Zinc
Soil Background Value[a]				**8.17**	**19.3**	**0.5**	**22.3**	**na[b]**	**1.52**	**48.8**
Qbt 2,3,4 Background Value[a]				**2.79**	**7.14**	**0.5**	**11.2**	**na**	**0.3**	**63.5**
MD50-06-66603	50-24235	70.00–71.00	Qbt 3	3 (U)	8.2 (J+)	—[c]	20.7 (J+)	—	2.5 (U)	—
MD50-06-66604	50-24235	90.00–91.50	Qbt 3	3 (U)	—	—	—	—	2.5 (U)	—
MD50-05-60733	50-24708	0.00–0.50	Soil	—	—	0.53 (U)	—	0.31	—	—
MD50-05-60734	50-24709	0.00–0.50	Soil	—	—	0.56 (U)	—	4.2	—	—
MD50-05-60732	50-24710	0.00–0.50	Soil	—	—	0.6 (U)	—	0.3	—	—
MD50-05-60736	50-24711	0.00–0.50	Soil	—	—	0.51 (U)	—	2.1	—	—
MD50-05-60738	50-24713	0.00–0.50	Soil	—	—	0.56 (U)	—	1.3	—	82.2 (J+)
MD50-05-60740	50-24715	0.00–0.50	Soil	—	—	0.52 (U)	—	2.9	—	—

Note: All values in mg/kg.
[a] Background values are from LANL 1998, 059730.
[b] na = Not available.
[c] — = Analyte not reported (detect or nondetect) above BV or not detected.

Table 5.2-3
Radionuclides Detected at AOC 50-001(b)

Sample ID	Location ID	Depth (ft)	Media	Tritium
Soil Fallout Value[a,b]				**na[c]**
Qbt 2,3,4 Fallout Value[a,b]				**na**
MD50-05-60733	50-24708	0.00–0.50	Soil	0.0144
MD50-05-60734	50-24709	0.00–0.50	Soil	0.0816
MD50-05-60736	50-24711	0.00–0.50	Soil	0.0648
MD50-05-60738	50-24713	0.00–0.50	Soil	0.0153
MD50-05-60740	50-24715	0.00–0.50	Soil	0.0242

Note: All values in pCi/g.
[a] Fallout values are from LANL 1998, 059730.
[b] Fallout value applies to samples collected from 0–0.5 ft only.
[c] na = Not available.

Table 5.2-4
Organic Chemicals Detected at AOC 50-001(b)

Sample ID	Location ID	Depth (ft)	Media	Methylene Chloride
MD50-05-60732	50-24710	0.00–0.50	Soil	0.0035 (J)

Note: Value in mg/kg.

Table 5.3-1
Samples Collected at SWMU 50-002(a)

Sample ID	Location ID	Depth (ft)	Media	Metals	Uranium	Pesticides/PCBs	SVOCs	VOCs	Gamma Spectroscopy	Tritium	Isotopic Plutonium	Isotopic Uranium	Strontium-90
0550-95-5001	50-03050	0.33–0.66	Qbt 3	1292*	1293	1291	1291	1291	1293	1293	1293	1293	1293

* Analytical request number.

Table 5.3-2
Inorganic Chemicals above BVs at SWMU 50-002(a)

Sample ID	Location ID	Depth (ft)	Media	Antimony	Chromium	Cobalt	Selenium
Qbt 2,3,4 Background Value*				**0.5**	**7.14**	**3.14**	**0.3**
0550-95-5001	50-03050	0.33-0.66	Qbt 3	0.54 (U)	7.9 (J+)	3.7	0.49 (U)

Note: All values in mg/kg.
* Background values are from LANL 1998, 059730.

Table 5.3-3
Radionuclides Detected at SWMU 50-002(a)

Sample ID	Location ID	Depth (ft)	Media	Tritium
Qbt 2,3,4 Fallout Value[a,b]				**na[c]**
0550-95-5001	50-03050	0.33-0.66	Qbt 3	2620

Note: Value in pCi/g.
[a] Fallout values are from LANL 1998, 059730.
[b] Fallout value applies to samples collected from 0–0.5 ft only.
[c] na = Not available.

Table 5.7-1
Samples Collected at Consolidated Unit 50-004(a)-00

Sample ID	Location ID	Depth (ft)	Media	Metals	Perchlorate	SVOCs	Gamma Spectroscopy	Tritium	Isotopic Plutonium	Isotopic Uranium	Strontium-90
AAC0213	50-03001	2–5	Fill	19677[a]	—[b]	—	19658	19658	19658	19658	—
MD50-04-52698	50-03001	5–9	Qbt 3	1941S	1941S	—	1942S	1942S	1942S	1942S	—
AAC0212	50-03001	5.7–6	Qbt 3	19677	—	—	19658	19658	19658	19658	—
AAC0214	50-03002	1–5	Fill	19677	—	—	19658	19658	19658	19658	—
AAC0215	50-03002	5.3–5.8	Qbt 3	19677	—	—	19658	19658	19658	19658	—
MD50-03-52047	50-03002	15–20	Qbt 3	1901S	1901S	—	1902S	1902S	1902S	1902S	—
AAC0216	50-03003	1–3	Fill	19677	—	—	19658	19658	19658	19658	—
AAC0217	50-03003	3–4	Qbt 3	19677	—	—	19658	19658	19658	19658	—
MD50-03-52048	50-03003	10–15	Qbt 3	1901S	1901S	—	1902S	1902S	1902S	1902S	—
AAC0270	50-03004	5–6.3	Fill	20190	—	—	20195	20195	—	20195	—
AAC0271	50-03004	6.3–7.3	Qbt 3	20190	—	—	20195	20195	—	20195	—
AAC0260	50-03005	5.3–6.3	Fill	19774	—	—	19776	19776	19776	19776	—
AAC0261	50-03005	6.3–7.3	Qbt 3	19774	—	—	19776	19776	19776	19776	—
MD50-03-52050	50-03008	10–15	Qbt 3	1901S	1901S	—	1902S	1902S	1902S	1902S	—
AAC0274	50-03008	11.4–12.4	Fill	19910	—	—	19915	19915	19915	19915	—
AAC0275	50-03008	12.4–16	Qbt 3	19910	—	—	19915	19915	19915	19915	—
AAC0278	50-03009	5–6	Fill	19910	—	—	19915	19915	19915	19915	—
AAC0279	50-03009	6–9.5	Fill	19910	—	—	19915	19915	19915	19915	—
AAC0294	50-03009	12.3–13.5	Fill	19910	—	—	19915	19915	19915	19915	—
MD50-03-52052	50-03009	18–22	Fill	1792S	1792S	—	1793S	1793S	1793S	1793S	—
MD50-03-52051	50-03009	26–28	Qbt 3	1792S	1792S	—	1793S	1793S	1793S	1793S	—
AAC0262	50-03012	7–8	Fill	19910	—	—	19915	19915	19915	19915	—
AAC0263	50-03012	8–11	Qbt 3	19910	—	—	19915	19915	19915	19915	—
AAC0264	50-03014	6.5–7.5	Fill	19910	—	—	19915	19915	19915	19915	—
AAC0265	50-03014	7.5–8.5	Qbt 3	19910	—	—	19915	19915	19915	19915	—
AAC0266	50-03016	10–11	Fill	19774	—	—	19776	19776	19776	19776	—
AAC0267	50-03016	11–12.3	Qbt 3	19774	—	—	19776	19776	19776	19776	—
AAC0292	50-03016	12.5–13.6	Qbt 3	19774	—	—	19776	19776	19776	19776	—
AAC0268	50-03017	7–10.5	Fill	19774	—	—	19776	19776	19776	19776	—
AAC0269	50-03017	10.5–11.5	Qbt 3	19774	—	—	19776	19776	19776	19776	—
AAC0291	50-03017	12.5–14.5	Qbt 3	19774	—	—	19776	19776	19776	19776	—
AAC0249	50-03018	6–7	Fill	19774	—	—	19776	19776	19776	19776	—
AAC0250	50-03018	7–9.5	Qbt 3	19774	—	—	19776	19776	19776	19776	—

Table 5.7-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Metals	Perchlorate	SVOCs	Gamma Spectroscopy	Tritium	Isotopic Plutonium	Isotopic Uranium	Strontium-90
AAC0290	50-03018	10.5–12.5	Qbt 3	19774	—	—	19776	19776	19776	19776	—
AAC0252	50-03020	5–6	Fill	19774	—	—	19776	19776	19776	19776	—
AAC0253	50-03020	6–7	Qbt 3	19774	—	—	19776	19776	19776	19776	—
AAC0293	50-03020	7–9.5	Qbt 3	19774	—	—	19776	19776	19776	19776	—
AAC0220	50-03021	7–9	Fill	19679	—	—	19657	19657	19657	19657	—
AAC0221	50-03021	9.4–10	Qbt 3	19679	—	—	19657	19657	19657	19657	—
AAC0223	50-03022	7–12	Fill	19677	—	—	19658	19658	19658	19658	—
AAC0224	50-03022	14.5–16	Qbt 3	19677	—	—	19658	19658	19658	19658	—
AAC0231	50-03023	5.5–6.5	Fill	19678	—	—	19671	19671	19671	19671	—
AAC0227	50-03024	4.5–5.5	Fill	19678	—	—	19671	19671	19671	19671	—
AAC0228	50-03024	6–7	Qbt 3	19678	—	—	19671	19671	19671	19671	—
AAC0254	50-03025	5–6.1	Fill	19720	—	—	19722	19722	19722	19722	—
AAC0255	50-03025	6.1–7	Qbt 3	19720	—	—	19722	19722	19722	19722	—
AAC0256	50-03026	6–7	Fill	19720	—	—	19722	19722	19722	19722	—
AAC0257	50-03026	7–8	Qbt 3	19720	—	—	19722	19722	19722	19722	—
AAC0210	50-03027	2–2.5	Fill	19506	—	—	19670	19670	19670	19670	—
AAC0211	50-03027	5.5–6	Qbt 3	19506	—	—	19670	19670	19670	19670	—
AAC0258	50-03028	0.8–1.5	Fill	19720	—	—	19722	19722	19722	19722	—
AAC0259	50-03028	1.5–3	Qbt 3	19720	—	—	19722	19722	19722	19722	—
AAB6106	50-03028	10.3–13	Qbt 3	19720	—	—	19722	19722	19722	19722	—
AAC0229	50-03030	1–1.5	Fill	19679	—	—	19657	19657	19657	19657	—
AAC0230	50-03030	5.5–6.5	Qbt 3	19679	—	—	19657	19657	19657	19657	—
AAC0225	50-03031	1.5–2.5	Fill	19679	—	—	19657	19657	19657	19657	—
AAC0232	50-03031	5–6	Qbt 3	19679	—	—	19657	19657	19657	19657	—
AAC0233	50-03032	0.75–2	Fill	19679	—	—	19657	19657	19657	19657	—
AAC0235	50-03032	3.8–5	Fill	19679	—	—	19657	19657	19657	19657	—
AAC0234	50-03032	5.5–6.5	Qbt 3	19679	—	—	19657	19657	19657	19657	—
AAC0236	50-03033	7–8	Fill	19679	—	—	19657	19657	19657	19657	—
AAC0237	50-03033	8–9	Qbt 3	19679	—	—	19657	19657	19657	19657	—
AAC0238	50-03034	7.9–8.9	Fill	19678	—	—	19671	19671	19671	19671	—
AAC0239	50-03034	9–10	Qbt 3	19678	—	—	19671	19671	19671	19671	—
AAC0240	50-03035	6.75–7.85	Fill	19678	—	—	19671	19671	19671	19671	—
AAC0241	50-03035	8–9	Qbt 3	19678	—	—	19671	19671	19671	19671	—
AAC0242	50-03036	8.5–9.5	Fill	19679	—	—	19657	19657	19657	19657	—

Table 5.7-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Metals	Perchlorate	SVOCs	Gamma Spectroscopy	Tritium	Isotopic Plutonium	Isotopic Uranium	Strontium-90
AAC0243	50-03036	9.5–10	Qbt 3	19679	—	—	19657	19657	19657	19657	—
AAC0244	50-03037	6–7	Fill	19678	—	—	19671	19671	19671	19671	—
AAC0245	50-03037	7–8.5	Qbt 3	19678	—	—	19671	19671	19671	19671	—
AAC0247	50-03038	8.5–9.5	Fill	19678	—	—	19671	19671	19671	19671	—
AAC0248	50-03038	9.5–10.5	Qbt 3	19678	—	—	19671	19671	19671	19671	—
AAB6105	50-03038	10.3–13	Qbt 3	19678	—	—	19671	19671	19671	19671	—
AAA2459	50-05031	0–0.5	Soil	—	—	14633	14634	14634	14634	14634	14634

[a] Analytical request number.

[b] — =Analysis not requested.

Table 5.7-2
Inorganic Chemicals above BVs at Consolidated Unit 50-004(a)-00

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Copper	Lead	Magnesium	Mercury	Nickel	Potassium	Selenium	Silver	Thallium	Zinc
Qbt 2,3,4 Background Value[a]				**7340**	**0.5**	**2.79**	**46**	**1.21**	**1.63**	**2200**	**7.14**	**4.66**	**11.2**	**1690**	**0.1**	**6.58**	**3500**	**0.3**	**1**	**1.1**	**63.5**
Soil Background Value[a]				**29200**	**0.83**	**8.17**	**295**	**1.83**	**0.4**	**6120**	**19.3**	**14.7**	**22.3**	**4610**	**0.1**	**15.4**	**3460**	**1.52**	**1**	**0.73**	**48.8**
AAC0213	50-03001	2.00–5.00	Fill	—[b]	4.5 (U)	—	—	—	—	—	—	—	—	—	0.12 (U)	—	—	—	—	—	—
MD50-04-52698	50-03001	5.00–9.00	Qbt 3	—	1.03 (UJ)	—	—	—	—	—	—	—	—	—	—	—	—	0.518 (U)	—	—	—
AAC0212	50-03001	5.70–6.00	Qbt 3	—	4.5 (U)	—	—	—	—	—	19.7 (J-)	—	—	—	0.12 (U)	10.3	—	0.53 (U)	—	—	—
AAC0214	50-03002	1.00–5.00	Fill	—	4.8 (U)	—	—	—	0.61 (J)	—	—	—	—	—	0.16 (U)	—	—	—	—	—	—
AAC0215	50-03002	5.30–5.80	Qbt 3	—	4.8 (U)	—	—	—	—	—	—	—	—	—	0.14 (U)	—	—	0.57 (U)	—	—	—
MD50-03-52047	50-03002	15.00–20.00	Qbt 3	—	—	2.83	—	—	—	—	—	—	—	—	—	—	—	0.528 (U)	—	—	—
AAC0216	50-03003	1.00–3.00	Fill	—	4.6 (U)	—	—	—	0.5 (J)	—	—	—	—	—	0.25 (U)	—	—	—	—	—	—
AAC0217	50-03003	3.00–4.00	Qbt 3	—	4.6 (U)	—	49.4	—	—	—	—	—	—	—	0.14 (U)	—	—	0.55 (U)	—	—	—
MD50-03-52048	50-03003	10.00–15.00	Qbt 3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.545 (U)	—	—	—
AAC0270	50-03004	5.00–6.30	Fill	—	4.6 (U)	—	—	—	0.63 (J)	12900	—	—	—	—	—	—	—	—	—	—	—
AAC0271	50-03004	6.30–7.30	Qbt 3	—	4.8 (U)	—	—	—	—	—	—	—	—	—	—	—	—	0.57 (U)	—	—	—
AAC0260	50-03005	5.30–6.30	Fill	—	4.9 (UJ)	—	—	—	0.5 (J)	—	—	—	—	—	—	—	—	—	—	—	—
AAC0261	50-03005	6.30–7.30	Qbt 3	—	4.7 (UJ)	6.5 (J-)	—	—	—	—	—	—	—	—	—	—	—	0.55 (U)	—	—	—
MD50-03-52050	50-03008	10.00–15.00	Qbt 3	7540	—	—	77.6	—	—	—	—	—	—	—	—	—	—	0.554 (U)	—	—	—
AAC0274	50-03008	11.40–12.40	Fill	—	5 (U)	—	—	—	0.41 (U)	—	—	—	—	—	—	—	—	—	—	—	—
AAC0275	50-03008	12.40–16.00	Qbt 3	—	4.7 (U)	—	—	—	—	—	—	—	—	—	—	—	—	0.55 (U)	—	—	—
AAC0278	50-03009	5.00–6.00	Fill	—	4.7 (U)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
AAC0279	50-03009	6.00–9.50	Fill	—	4.6 (U)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
AAC0294	50-03009	12.30–13.50	Fill	32300	6.7 (U)	—	—	4.7	1.8	17200	—	16.9	—	7700	—	16.2	4270	—	1.2 (U)	—	64.5
MD50-03-52052	50-03009	18.00–22.00	Fill	—	—	—	—	—	0.552 (U)	—	—	—	—	—	0.146	—	—	—	—	—	—
AAC0262	50-03012	7.00–8.00	Fill	—	4.6 (U)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
AAC0263	50-03012	8.00–11.00	Qbt 3	—	4.6 (U)	—	—	—	—	—	—	—	—	—	—	—	—	0.55 (U)	—	—	—
AAC0264	50-03014	6.50–7.50	Fill	—	4.6 (U)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
AAC0265	50-03014	7.50–8.50	Qbt 3	—	4.6 (U)	—	—	—	—	—	—	—	—	—	—	—	—	0.7 (U)	—	—	—
AAC0266	50-03016	10.00–11.00	Fill	—	4.7 (UJ)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
AAC0267	50-03016	11.00–12.30	Qbt 3	—	4.7 (UJ)	—	—	—	—	—	—	—	—	—	—	—	—	0.56 (U)	—	—	—
AAC0292	50-03016	12.50–13.60	Qbt 3	—	4.7 (UJ)	—	—	—	—	—	—	—	—	—	—	—	—	0.56 (U)	—	—	—
AAC0268	50-03017	7.00–10.50	Fill	—	4.7 (UJ)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
AAC0269	50-03017	10.50–11.50	Qbt 3	—	4.7 (UJ)	—	—	—	—	—	—	—	—	—	—	—	—	0.56 (U)	—	—	—
AAC0291	50-03017	12.50–14.50	Qbt 3	—	4.8 (UJ)	—	—	1.5	—	3190 (J-)	—	—	—	—	—	—	—	0.57 (U)	—	—	—
AAC0249	50-03018	6.00–7.00	Fill	—	4.8 (UJ)	—	—	—	0.51 (J)	—	—	—	—	—	—	—	—	—	—	—	—
AAC0250	50-03018	7.00–9.50	Qbt 3	—	4.8 (UJ)	—	—	—	—	—	—	—	—	—	—	—	—	0.58 (U)	—	—	—
AAC0290	50-03018	10.50–12.50	Qbt 3	—	4.9 (UJ)	—	50.2	—	—	5930 (J-)	—	—	—	—	—	—	—	0.58 (U)	—	—	—

Table 5.7-2 (continued)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Copper	Lead	Magnesium	Mercury	Nickel	Potassium	Selenium	Silver	Thallium	Zinc
Qbt 2,3,4 Background Value[a]				**7340**	**0.5**	**2.79**	**46**	**1.21**	**1.63**	**2200**	**7.14**	**4.66**	**11.2**	**1690**	**0.1**	**6.58**	**3500**	**0.3**	**1**	**1.1**	**63.5**
Soil Background Value[a]				**29200**	**0.83**	**8.17**	**295**	**1.83**	**0.4**	**6120**	**19.3**	**14.7**	**22.3**	**4610**	**0.1**	**15.4**	**3460**	**1.52**	**1**	**0.73**	**48.8**
AAC0252	50-03020	5.00–6.00	Fill	—	4.9 (UJ)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
AAC0253	50-03020	6.00–7.00	Qbt 3	—	4.9 (UJ)	—	—	—	—	—	—	—	—	—	—	—	—	0.58 (U)	—	—	—
AAC0293	50-03020	7.00–9.50	Qbt 3	—	4.8 (UJ)	—	51.1	—	—	5050 (J-)	—	—	—	—	—	—	—	0.57 (U)	—	—	—
AAC0220	50-03021	7.00–9.00	Fill	—	4.7 (UJ)	—	—	—	0.65 (J)	—	—	—	—	—	—	—	—	—	—	—	—
AAC0221	50-03021	9.40–10.00	Qbt 3	—	4.6 (UJ)	—	74.9	—	—	5110	—	—	—	—	—	—	—	0.55 (U)	—	—	—
AAC0223	50-03022	7.00–12.00	Fill	—	4.8 (U)	—	—	—	—	—	—	—	—	—	0.14 (U)	—	—	—	—	—	—
AAC0224	50-03022	14.50–16.00	Qbt 3	—	4.7 (U)	—	50.4	—	—	—	—	—	—	—	0.19 (U)	—	—	0.56 (U)	—	—	—
AAC0231	50-03023	5.50–6.50	Fill	—	4.6 (U)	—	—	—	0.46 (J)	—	—	—	—	—	—	—	—	—	—	—	—
AAC0227	50-03024	4.50–5.50	Fill	—	4.5 (U)	—	—	—	0.53 (J)	—	—	—	—	—	—	—	—	—	—	—	—
AAC0228	50-03024	6.00–7.00	Qbt 3	—	4.8 (U)	—	—	—	—	—	—	—	—	—	—	6.8 (J)	—	0.58 (U)	—	—	—
AAC0254	50-03025	5.00–6.10	Fill	—	4.8 (UJ)	—	—	—	0.73 (J)	—	—	—	—	—	—	—	—	—	—	—	—
AAC0255	50-03025	6.10–7.00	Qbt 3	—	4.6 (UJ)	—	67.2	—	—	—	—	—	—	—	—	—	—	0.55 (UJ)	—	—	—
AAC0256	50-03026	6.00–7.00	Fill	—	5 (UJ)	—	—	—	0.47 (J)	—	—	—	—	—	—	—	—	—	—	—	—
AAC0257	50-03026	7.00–8.00	Qbt 3	—	5 (UJ)	—	—	—	—	—	—	—	—	—	—	—	—	0.59 (UJ)	—	—	—
AAC0210	50-03027	2.00–2.50	Fill	—	4.8 (U)	—	—	—	0.94 (J)	—	—	—	—	—	—	—	—	—	—	—	—
AAC0211	50-03027	5.50–6.00	Qbt 3	—	4.6 (U)	—	—	—	—	—	—	—	—	—	—	—	—	0.55 (U)	—	—	—
AAC0258	50-03028	0.80–1.50	Fill	—	5.3 (UJ)	—	—	—	0.58 (J)	—	—	—	—	—	—	—	—	—	—	—	—
AAC0259	50-03028	1.50–3.00	Qbt 3	—	6 (UJ)	—	—	—	—	—	—	—	—	—	—	—	—	0.71 (UJ)	1.1 (UJ)	—	—
AAB6106	50-03028	10.30–13.00	Qbt 3	8180	5 (UJ)	—	—	2.1	—	—	—	—	—	1960	—	8.9 (J)	—	0.59 (UJ)	—	—	—
AAC0229	50-03030	1.00–1.50	Fill	—	5.1 (UJ)	—	—	—	1.2 (J)	—	—	—	—	—	—	—	—	—	—	—	—
AAC0230	50-03030	5.50–6.50	Qbt 3	—	5 (UJ)	—	—	—	—	—	—	—	70.1 (J+)	—	—	—	—	0.6 (U)	—	—	—
AAC0225	50-03031	1.50–2.50	Fill	—	5.1 (UJ)	—	—	—	0.97 (J)	—	—	—	—	—	—	—	—	—	—	—	—
AAC0232	50-03031	5.00–6.00	Qbt 3	—	5.8 (UJ)	—	—	—	—	—	—	—	—	—	—	—	—	0.69 (U)	—	—	—
AAC0233	50-03032	0.75–2.00	Fill	—	5.1 (UJ)	—	—	—	1 (J)	—	—	—	—	—	—	—	—	—	—	—	—
AAC0235	50-03032	3.80–5.00	Fill	—	8.6 (J-)	—	—	—	1.6	—	—	—	—	—	—	—	—	—	—	—	—
AAC0234	50-03032	5.50–6.50	Qbt 3	—	5.4 (UJ)	—	51.2 (J)	—	—	—	—	—	—	—	—	—	—	0.64 (U)	—	—	—
AAC0236	50-03033	7.00–8.00	Fill	—	4.7 (UJ)	—	—	—	0.85 (J)	—	—	—	—	—	—	—	—	—	—	—	—
AAC0237	50-03033	8.00–9.00	Qbt 3	—	4.5 (UJ)	—	—	—	—	—	—	—	23.7 (J+)	—	—	—	—	0.54 (U)	—	—	—
AAC0238	50-03034	7.90–8.90	Fill	—	4.9 (U)	—	—	—	0.73 (J)	—	—	—	—	—	—	—	—	—	—	—	—
AAC0239	50-03034	9.00–10.00	Qbt 3	—	4.5 (U)	—	—	—	—	—	—	—	—	—	—	—	—	0.53 (U)	—	—	—
AAC0240	50-03035	6.75–7.85	Fill	—	4.9 (U)	—	—	—	1 (J)	—	—	—	—	—	—	—	—	—	—	0.92 (J)	—
AAC0241	50-03035	8.00–9.00	Qbt 3	—	4.8 (U)	—	—	—	—	—	—	—	14.1	—	—	—	—	0.57 (U)	—	—	—
AAC0242	50-03036	8.50–9.50	Fill	—	5 (UJ)	—	—	—	0.71 (J)	—	—	—	—	—	—	—	—	—	—	—	—
AAC0243	50-03036	9.50–10.00	Qbt 3	—	4.9 (UJ)	—	—	—	—	—	—	—	—	—	—	—	—	0.58 (U)	—	—	—
AAC0244	50-03037	6.00–7.00	Fill	—	4.7 (U)	—	—	—	1.1 (J)	—	—	—	—	—	—	—	—	—	—	—	—

Table 5.7-2 (continued)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Copper	Lead	Magnesium	Mercury	Nickel	Potassium	Selenium	Silver	Thallium	Zinc
Qbt 2,3,4 Background Value[a]				**7340**	**0.5**	**2.79**	**46**	**1.21**	**1.63**	**2200**	**7.14**	**4.66**	**11.2**	**1690**	**0.1**	**6.58**	**3500**	**0.3**	**1**	**1.1**	**63.5**
Soil Background Value[a]				**29200**	**0.83**	**8.17**	**295**	**1.83**	**0.4**	**6120**	**19.3**	**14.7**	**22.3**	**4610**	**0.1**	**15.4**	**3460**	**1.52**	**1**	**0.73**	**48.8**
AAC0245	50-03037	7.00–8.50	Qbt 3	—	4.7 (U)	—	—	—	—	—	—	—	—	—	—	—	—	0.56 (U)	—	—	—
AAC0247	50-03038	8.50–9.50	Fill	—	4.6 (U)	—	—	—	0.75 (J)	—	—	—	—	—	—	—	—	—	—	—	—
AAC0248	50-03038	9.50–10.50	Qbt 3	7510 (J)	4.8 (U)	—	48.8	—	—	2770	—	—	—	—	—	—	—	0.57 (U)	—	—	—
AAB6105	50-03038	10.30–13.00	Qbt 3	17600	5.1 (U)	—	95.7	1.4	—	6650	9.9 (J)	6.1	—	2670 (U)	—	7.9 (J)	—	0.61 (U)	—	—	—

Note: All values in mg/kg.

[a] Background values are from LANL 1998, 059730.

[b] — = Analyte not reported (detect or nondetect) above BV or not detected.

Table 5.7-3
Radionuclides Detected or Detected above BVs/FVs at Consolidated Unit 50-004(a)-00

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cesium-137	Plutonium-238	Plutonium-239/ Plutonium-240	Tritium	Uranium-235
Soil Background/Fallout Value[a,b]				0.013	1.65	0.023	0.054	na[c]	0.2
Qbt 2,3,4 Background/Fallout Value[a,b]				na	na	na	na	na	0.09
AAC0213	50-03001	2.00–5.00	Fill	—[d]	—	—	3.074	—	—
MD50-04-52698	50-03001	5.00–9.00	Qbt 3	—	—	—	0.0869	0.0215	0.132
AAC0212	50-03001	5.70–6.00	Qbt 3	—	—	—	0.178	—	—
AAC0214	50-03002	1.00–5.00	Fill	—	0.074	0.054	0.64	—	0.38
AAC0215	50-03002	5.30–5.80	Qbt 3	—	—	—	0.241	—	—
MD50-03-52047	50-03002	15.00–20.00	Qbt 3	—	—	—	0.0618	0.327	—
AAC0216	50-03003	1.00–3.00	Fill	0.142 (J)	—	0.047	1.149	0.0690 (J)	—
AAC0217	50-03003	3.00–4.00	Qbt 3	—	—	—	0.448	—	—
MD50-03-52048	50-03003	10.00–15.00	Qbt 3	—	—	—	0.0648	—	—
AAC0260	50-03005	5.30–6.30	Fill	—	—	0.018	—	0.2929989	—
AAC0261	50-03005	6.30–7.30	Qbt 3	—	—	—	0.038	0.1987262	—
MD50-03-52050	50-03008	10.00–15.00	Qbt 3	—	0.318	0.0384	0.294	0.523	0.0902
AAC0274	50-03008	11.40–12.40	Fill	—	—	0.002	0.131	—	—
AAC0275	50-03008	12.40–16.00	Qbt 3	—	—	—	0.011	—	—
AAC0278	50-03009	5.00–6.00	Fill	—	0.051 (J)	—	0.122	—	—
AAC0279	50-03009	6.00–9.50	Fill	0.488	0.28 (J)	—	0.036	—	—
AAC0262	50-03012	7.00–8.00	Fill	—	0.139 (J)	—	0.038	—	—
AAC0264	50-03014	6.50–7.50	Fill	—	0.165 (J)	—	0.525	—	—
AAC0265	50-03014	7.50–8.50	Qbt 3	—	—	—	0.036	—	—
AAC0266	50-03016	10.00–11.00	Fill	—	—	—	0.101	0.3495513	—
AAC0267	50-03016	11.00–12.30	Qbt 3	—	—	—	0.016	0.2897765	—
AAC0292	50-03016	12.50–13.60	Qbt 3	—	—	—	—	0.2546068	—
AAC0268	50-03017	7.00–10.50	Fill	0.135	0.625	0.079	0.403	—	—
AAC0269	50-03017	10.50–11.50	Qbt 3	—	—	0.011	—	—	—
AAC0291	50-03017	12.50–14.50	Qbt 3	—	—	0.014	0.014	—	—
AAC0249	50-03018	6.00–7.00	Fill	—	0.275	—	0.146	0.1527491	—
AAC0250	50-03018	7.00–9.50	Qbt 3	—	0.472	—	—	0.2382164	—
AAC0290	50-03018	10.50–12.50	Qbt 3	—	—	—	—	0.5958139	—
AAC0252	50-03020	5.00–6.00	Fill	—	—	—	0.016	—	—
AAC0253	50-03020	6.00–7.00	Qbt 3	—	—	—	0.14	—	—
AAC0293	50-03020	7.00–9.50	Qbt 3	—	—	—	0.005	—	—

Table 5.7-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cesium-137	Plutonium-238	Plutonium-239/ Plutonium-240	Tritium	Uranium-235
Soil Background/Fallout Value[a,b]				**0.013**	**1.65**	**0.023**	**0.054**	**na[c]**	**0.2**
Qbt 2,3,4 Background/Fallout Value[a,b]				**na**	**na**	**na**	**na**	**na**	**0.09**
AAC0220	50-03021	7.00–9.00	Fill	—	—	—	0.126	0.16567	—
AAC0221	50-03021	9.40–10.00	Qbt 3	—	—	0.063	0.527	0.1060026	—
AAC0223	50-03022	7.00–12.00	Fill	—	—	—	0.164	0.1814286 (J)	—
AAC0224	50-03022	14.50–16.00	Qbt 3	—	—	—	0.705	0.117836 (J)	—
AAC0227	50-03024	4.50–5.50	Fill	—	—	—	0.135	—	—
AAC0228	50-03024	6.00–7.00	Qbt 3	—	—	—	0.108	—	—
AAC0254	50-03025	5.00–6.10	Fill	—	—	—	—	0.1968487	—
AAC0255	50-03025	6.10–7.00	Qbt 3	—	—	—	—	0.1943905	—
AAC0256	50-03026	6.00–7.00	Fill	—	—	—	—	0.2216251	—
AAC0257	50-03026	7.00–8.00	Qbt 3	—	—	—	0.016	0.2696491	—
AAC0210	50-03027	2.00–2.50	Fill	—	—	—	0.009	0.0803 (J)	—
AAC0211	50-03027	5.50–6.00	Qbt 3	—	—	0.027 (J)	0.09	0.0360 (J)	—
AAC0258	50-03028	0.80–1.50	Fill	—	—	0.002	0.059	—	—
AAC0229	50-03030	1.00–1.50	Fill	—	—	—	0.05	0.8399521	—
AAC0230	50-03030	5.50–6.50	Qbt 3	—	—	—	—	1.300737	—
AAC0225	50-03031	1.50–2.50	Fill	—	—	—	—	0.4570025	—
AAC0232	50-03031	5.00–6.00	Qbt 3	—	—	—	—	2.596487	—
AAC0233	50-03032	0.75–2.00	Fill	—	—	—	0.117	0.1986747	—
AAC0235	50-03032	3.80–5.00	Fill	—	—	—	0.061	0.168	—
AAC0234	50-03032	5.50–6.50	Qbt 3	—	—	—	—	0.5246193	—
AAC0236	50-03033	7.00–8.00	Fill	—	—	—	—	1.097514	—
AAC0237	50-03033	8.00–9.00	Qbt 3	—	—	—	0.007	0.6798884	—
AAC0238	50-03034	7.90–8.90	Fill	—	—	—	0.047	—	—
AAC0240	50-03035	6.75–7.85	Fill	—	—	—	0.018	—	—
AAC0242	50-03036	8.50–9.50	Fill	—	—	—	—	0.5898795	—
AAC0243	50-03036	9.50–10.00	Qbt 3	—	—	—	—	0.3725806	—
AAC0244	50-03037	6.00–7.00	Fill	—	—	—	0.014	—	—
AAC0247	50-03038	8.50–9.50	Fill	—	—	—	0.036	—	—
AAA2459	50-05031	0.00–0.50	Soil	—	—	—	0.691	0.1127894 (J)	—

Note: All values in pCi/g.

[a] Background/fallout values are from LANL 1998, 059730.

[b] Fallout value applies to samples collected from 0–0.5 ft only.

[c] na = Not available.

[d] — = Analyte not reported (detect or nondetect) above BV/FV or not detected.

Table 5.8-1
Samples Collected at SWMU 50-006(a)

Sample ID	Location ID	Depth (ft)	Media	Anions	Metals	Perchlorate	Phosphorus	PAH	PCBs	Pesticides	SVOCs	VOCs	Americium-241	Gamma Spectroscopy	Tritium	Isotopic Plutonium	Isotopic Uranium	Strontium-90
AAA2519	50-06500	0–0.5	Soil	—[a]	—	—	—	—	—	—	14749[b]	—	—	14750	14750	14750	14750	14750
AAA2520	50-06501	0–0.5	Soil	—	—	—	—	—	14749	—	14749	—	—	14750	14750	14750	14750	14750
AAA2521	50-06502	0–0.5	Soil	—	—	—	—	—	—	—	14749	—	—	14750	14750	14750	14750	14750
AAA2721	50-06502	3–4	Soil	—	—	—	—	—	—	—	14749	—	—	14750	14750	14750	14750	14750
AAA2522	50-06503	0–0.5	Soil	—	—	—	—	—	—	—	14749	—	—	14750	14750	14750	14750	14750
AAA2715	50-06503	1.5–2.5	Soil	—	—	—	—	—	—	—	14749	—	—	14750	14750	14750	14750	14750
AAA2720	50-06503	3–4	Soil	—	—	—	—	—	—	—	14749	—	—	14750	14750	14750	14750	14750
AAA2523	50-06504	0–0.5	Soil	—	—	—	—	—	14749	—	14749	—	—	14750	14750	14750	14750	14750
AAA2524	50-06505	0–0.5	Soil	—	—	—	—	—	14749	—	14749	—	—	14750	14750	14750	14750	14750
AAA2525	50-06506	0–0.5	Soil	—	—	—	—	—	14749	—	14749	—	—	14750	14750	14750	14750	14750
AAA2716	50-06506	1.5–2.5	Soil	—	—	—	—	—	14749	—	14749	—	—	14750	14750	14750	14750	14750
AAA2722	50-06506	3–4	Soil	—	—	—	—	—	14749	—	14749	—	—	14750	14750	14750	14750	14750
AAA2526	50-06507	0–0.5	Soil	—	—	—	—	—	14749	—	14749	—	—	14750	14750	14750	14750	14750
AAA2717	50-06507	1.5–2.5	Soil	—	—	—	—	—	14749	—	14749	—	—	14750	14750	14750	14750	14750
AAA2527	50-06508	0–0.5	Sediment	—	—	—	—	—	—	—	14749	—	—	14750	14750	14750	14750	14750
AAA2688	50-06508	1.5–2.5	Sediment	—	—	—	—	—	—	—	14749	—	—	14750	14750	14750	14750	14750
AAA2723	50-06508	3–4	Sediment	—	—	—	—	—	—	—	14749	—	—	14750	14750	14750	14750	14750
AAA2528	50-06509	0–0.5	Sediment	—	—	—	—	—	—	—	14749	—	—	14750	14750	14750	14750	14750
AAA2529	50-06510	0–0.5	Sediment	—	—	—	—	—	—	—	14749	—	—	14750	14750	14750	14750	14750
AAA2530	50-06511	0–0.5	Sediment	—	14715	—	—	—	—	—	14716	—	—	14717	14717	14717	14717	14717
AAA2709	50-06511	1.5–2.5	Soil	—	14715	—	—	—	—	—	14716	—	—	14717	14717	14717	14717	14717
AAA2532	50-06513	0–0.5	Soil	—	14715	—	—	—	—	—	14716	—	—	14717	14717	14717	14717	14717
AAA3240	50-06514	1.5–2.5	Sediment	—	—	—	—	—	—	—	—	—	15114	15114	15114	15114	15114	15114
AAA3241	50-06514	3–4	Sediment	—	—	—	—	—	—	—	—	—	15114	15114	15114	15114	15114	15114
AAA2534	50-06515	0–0.5	Sediment	—	14715	—	—	—	—	—	14716	—	—	14717	14717	14717	14717	14717
AAA2535	50-06516	0–0.5	Sediment	—	14715	—	—	—	—	—	14716	—	—	14717	14717	14717	14717	14717
AAA2536	50-06517	0–0.5	Sediment	—	14715	—	—	—	—	—	14716	—	—	14717	14717	14717	14717	14717
AAA2711	50-06517	3–4	Sediment	—	14715	—	—	—	—	—	14716	—	—	14717	14717	14717	14717	14717
AAA2537	50-06518	0–0.5	Sediment	—	14715	—	—	—	—	—	14716	—	—	14717	14717	14717	14717	14717
AAA2708	50-06518	1.5–2.5	Sediment	—	14715	—	—	—	—	—	14716	—	—	14717	14717	14717	14717	14717
AAA2714	50-06518	3–4	Sediment	—	14715	—	—	—	—	—	14716	—	—	14717	14717	14717	14717	14717
AAA2538	50-06519	0–0.5	Sediment	—	14715	—	—	—	—	—	14716	—	—	14717	14717	14717	14717	14717
AAA2539	50-06520	0–0.5	Sediment	—	14715	—	—	—	—	—	14716	—	—	14717	14717	14717	14717	14717

Table 5.8-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Anions	Metals	Perchlorate	Phosphorus	PAH	PCBs	Pesticides	SVOCs	VOCs	Americium-241	Gamma Spectroscopy	Tritium	Isotopic Plutonium	Isotopic Uranium	Strontium-90
CAMO-05-61156	50-06520	0–0.98	Sediment	3449S	3449S	3448S	3449S	3448S	3448S	3448S	3448S	—	—	3449S	—	3449S	—	3449S
AAA2710	50-06520	1.5–2.5	Sediment	—	14715	—	—	—	—	—	14716	—	—	14717	14717	14717	14717	14717
AAA2713	50-06520	3–4	Sediment	—	14715	—	—	—	—	—	14716	—	—	14717	14717	14717	14717	14717
AAA2540	50-06521	0–0.5	Sediment	—	14715	—	—	—	—	—	14716	—	—	14717	14717	14717	14717	14717
AAA2637	50-06522	0–0.5	Sediment	—	14715	—	—	—	—	—	14716	—	—	14717	14717	14717	14717	14717
AAA2707	50-06522	1.5–2.5	Sediment	—	14715	—	—	—	—	—	14716	—	—	14717	14717	14717	14717	14717
AAA2712	50-06522	3–4	Sediment	—	14715	—	—	—	—	—	14716	—	—	14717	14717	14717	14717	14717
AAA2638	50-06523	0–0.5	Sediment	—	14702	—	—	—	—	—	14703	—	—	14704	14704	14704	14704	14704
AAA2639	50-06524	0–0.5	Sediment	—	14702	—	—	—	—	—	14703	—	—	14704	14704	14704	14704	14704
AAA2640	50-06525	0–0.5	Soil	—	14702	—	—	—	—	—	14703	—	—	14704	14704	14704	14704	14704
AAA2641	50-06526	0–0.5	Soil	—	14702	—	—	—	—	—	14703	—	—	14704	14704	14704	14704	14704
AAA2642	50-06527	0–0.5	Sediment	—	14702	—	—	—	—	—	14703	—	—	14704	14704	14704	14704	14704
AAA2643	50-06528	0–0.5	Sediment	—	14702	—	—	—	—	—	14703	—	—	14704	14704	14704	14704	14704
AAA2682	50-06528	1.5–2.5	Sediment	—	14702	—	—	—	—	—	14703	—	—	14704	14704	14704	14704	14704
AAA2685	50-06528	3–4	Sediment	—	14702	—	—	—	—	—	14703	—	—	14704	14704	14704	14704	14704
AAA2644	50-06529	0–0.5	Sediment	—	14702	—	—	—	—	—	14703	—	—	14704	14704	14704	14704	14704
AAA2683	50-06529	1.5–2.5	Sediment	—	14702	—	—	—	—	—	14703	—	—	14704	14704	14704	14704	14704
AAA2684	50-06529	3–4	Sediment	—	14702	—	—	—	—	—	14703	—	—	14704	14704	14704	14704	14704
AAA2645	50-06530	0–0.5	Sediment	—	14702	—	—	—	—	—	14703	—	—	14704	14704	14704	14704	14704
AAA2646	50-06531	0–0.5	Sediment	—	14702	—	—	—	—	—	14703	—	—	14704	14704	14704	14704	14704
AAA2705	50-06531	1.5–2.5	Sediment	—	14702	—	—	—	—	—	14703	—	—	14704	14704	14704	14704	14704
AAA2706	50-06531	3–4	Sediment	—	14702	—	—	—	—	—	14703	—	—	14704	14704	14704	14704	14704
AAA2647	50-06532	0–0.5	Sediment	—	14702	—	—	—	—	—	14703	—	—	14704	14704	14704	14704	14704
AAA2648	50-06533	0–0.5	Sediment	—	14702	—	—	—	—	—	14703	—	—	14704	14704	14704	14704	14704
AAA2681	50-06533	1.5–2.5	Sediment	—	14702	—	—	—	—	—	14703	—	—	14704	14704	14704	14704	14704
AAA2686	50-06533	3–4	Sediment	—	14702	—	—	—	—	—	14703	—	—	14704	14704	14704	14704	14704
AAA2649	50-06534	0–0.5	Sediment	—	14702	—	—	—	—	—	14703	—	—	14704	14704	14704	14704	14704
AAA2650	50-06535	0–0.5	Sediment	—	14671	—	—	—	—	—	14672	—	—	14673	14673	14673	14673	14673
AAA2659	50-06535	1.5–2.5	Sediment	—	14671	—	—	—	—	—	14672	—	—	14673	14673	14673	14673	14673
AAA2660	50-06535	3–4	Sediment	—	14671	—	—	—	—	—	14672	—	—	14673	14673	14673	14673	14673
AAA2651	50-06536	0–0.5	Sediment	—	14671	—	—	—	—	—	14672	—	—	14673	14673	14673	14673	14673
AAA2661	50-06536	1.5–2.5	Sediment	—	14671	—	—	—	—	—	14672	—	—	14673	14673	14673	14673	14673
AAA2662	50-06536	3–4	Sediment	—	14671	—	—	—	—	—	14672	—	—	14673	14673	14673	14673	14673
AAA2652	50-06537	0–0.5	Sediment	—	14671	—	—	—	—	—	14672	—	—	14673	14673	14673	14673	14673

Table 5.8-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Anions	Metals	Perchlorate	Phosphorus	PAH	PCBs	Pesticides	SVOCs	VOCs	Americium-241	Gamma Spectroscopy	Tritium	Isotopic Plutonium	Isotopic Uranium	Strontium-90
AAA2663	50-06537	1.5–2.5	Sediment	—	14671	—	—	—	—	—	14672	—	—	14673	14673	14673	14673	14673
AAA2664	50-06537	3–4	Sediment	—	14671	—	—	—	—	—	14672	—	—	14673	14673	14673	14673	14673
AAA2653	50-06538	0–0.5	Sediment	—	14671	—	—	—	—	—	14672	—	—	14673	14673	14673	14673	14673
AAA2665	50-06538	1.5–2.5	Sediment	—	14671	—	—	—	—	—	14672	—	—	14673	14673	14673	14673	14673
AAA2666	50-06538	3–4	Sediment	—	14671	—	—	—	—	—	14672	—	—	14673	14673	14673	14673	14673
AAA2654	50-06539	0–0.5	Sediment	—	14671	—	—	—	—	—	14672	—	—	14673	14673	14673	14673	14673
AAA2667	50-06539	1.5–2.5	Sediment	—	14671	—	—	—	—	—	14672	—	—	14673	14673	14673	14673	14673
AAA2668	50-06539	3–4	Sediment	—	14671	—	—	—	—	—	14672	—	—	14673	14673	14673	14673	14673
AAA2655	50-06540	0–0.5	Sediment	—	14671	—	—	—	—	—	14672	—	—	14673	14673	14673	14673	14673
AAA2669	50-06540	1.5–2.5	Sediment	—	14671	—	—	—	—	—	14672	—	—	14673	14673	14673	14673	14673
AAA2670	50-06540	3–4	Sediment	—	14671	—	—	—	—	—	14672	—	—	14673	14673	14673	14673	14673
AAA2656	50-06541	0–0.5	Sediment	—	14671	—	—	—	—	—	14672	—	—	14673	14673	14673	14673	14673
AAA2671	50-06541	1.5–2.5	Sediment	—	14671	—	—	—	—	—	14672	—	—	14673	14673	14673	14673	14673
AAA2672	50-06541	3–4	Sediment	—	14671	—	—	—	—	—	14672	—	—	14673	14673	14673	14673	14673
AAA2657	50-06542	0–0.5	Sediment	—	14671	—	—	—	—	—	14672	—	—	14673	14673	14673	14673	14673
AAA2673	50-06542	1.5–2.5	Sediment	—	14671	—	—	—	—	—	14672	—	—	14673	14673	14673	14673	14673
AAA2674	50-06542	3–4	Sediment	—	14671	—	—	—	—	—	14672	—	—	14673	14673	14673	14673	14673
AAA2658	50-06543	0–0.5	Soil	—	14671	—	—	—	—	—	14672	—	—	14673	14673	14673	14673	14673
AAA2675	50-06543	1.5–2.5	Soil	—	14671	—	—	—	—	—	14672	—	—	14673	14673	14673	14673	14673
AAA2676	50-06543	3–4	Soil	—	14671	—	—	—	—	—	14672	—	—	14673	14673	14673	14673	14673
AAA3229	50-06550	0–0.5	Sediment	—	—	—	—	—	14979	—	14979	14979	14981	14981	14981	14981	14981	14981
AAA3228	50-06551	0–0.5	Sediment	—	—	—	—	—	14979	—	14979	14979	14981	14981	14981	14981	14981	14981
AAA3218	50-06551	1.5–2.5	Sediment	—	—	—	—	—	14979	—	14979	14979	14981	14981	14981	14981	14981	14981
AAA3212	50-06551	3–4	Sediment	—	—	—	—	—	14979	—	14979	14979	14981	14981	14981	14981	14981	14981
AAA3219	50-06552	0–0.5	Sediment	—	—	—	—	—	14979	—	14979	14979	14981	14981	14981	14981	14981	14981
AAA3216	50-06552	3–4	Sediment	—	—	—	—	—	14979	—	14979	14979	14981	14981	14981	14981	14981	14981
AAA3215	50-06553	0–0.5	Sediment	—	—	—	—	—	14979	—	14979	14979	14981	14981	14981	14981	14981	14981
AAA3205	50-06554	0–0.5	Sediment	—	—	—	—	—	14979	—	14979	14979	14981	14981	14981	14981	14981	14981
AAA3210	50-06554	1.5–2.5	Sediment	—	—	—	—	—	14979	—	14979	14979	14981	14981	14981	14981	14981	14981
AAA3209	50-06554	3–4	Sediment	—	—	—	—	—	14979	—	14979	14979	14981	14981	14981	14981	14981	14981
AAA3203	50-06555	0–0.5	Sediment	—	—	—	—	—	14979	—	14979	14979	14981	14981	14981	14981	14981	14981
AAA3213	50-06556	0–0.5	Sediment	—	—	—	—	—	14979	—	14979	14979	14981	14981	14981	14981	14981	14981
AAA3217	50-06556	1.5–2.5	Sediment	—	—	—	—	—	14979	—	14979	14979	14981	14981	14981	14981	14981	14981
AAA3223	50-06557	0–0.5	Sediment	—	—	—	—	—	14979	—	14979	14979	14981	14981	14981	14981	14981	14981

Table 5.8-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Anions	Metals	Perchlorate	Phosphorus	PAH	PCBs	Pesticides	SVOCs	VOCs	Americium-241	Gamma Spectroscopy	Tritium	Isotopic Plutonium	Isotopic Uranium	Strontium-90
AAA3224	50-06557	1.5–2.5	Sediment	—	—	—	—	—	14979	—	14979	14979	14981	14981	14981	14981	14981	14981
AAA3208	50-06557	3–4	Sediment	—	—	—	—	—	14979	—	14979	14979	14981	14981	14981	14981	14981	14981
AAA3225	50-06558	0–0.5	Sediment	—	—	—	—	—	14979	—	14979	14979	14981	14981	14981	14981	14981	14981
AAA3201	50-06558	1.5–2.5	Sediment	—	—	—	—	—	14979	—	14979	14979	14981	14981	14981	14981	14981	14981
AAA3202	50-06558	3–4	Sediment	—	—	—	—	—	14979	—	14979	14979	14981	14981	14981	14981	14981	14981
AAA3211	50-06559	0–0.5	Sediment	—	—	—	—	—	14979	—	14979	14979	14981	14981	14981	14981	14981	14981
AAA3206	50-06560	0–0.5	Sediment	—	—	—	—	—	14979	—	14979	14979	14981	14981	14981	14981	14981	14981
AAA3207	50-06561	0–0.5	Sediment	—	—	—	—	—	14979	—	14979	14979	14981	14981	14981	14981	14981	14981
AAA3214	50-06562	0–0.5	Soil	—	—	—	—	—	14979	—	14979	14979	14981	14981	14981	14981	14981	14981
AAA3200	50-06563	0–0.5	Sediment	—	—	—	—	—	14979	—	14979	14979	14981	14981	14981	14981	14981	14981
AAA3204	50-06564	0–0.5	Sediment	—	—	—	—	—	14979	—	14979	14979	14981	14981	14981	14981	14981	14981
AAA3221	50-06565	0–0.5	Sediment	—	—	—	—	—	—	—	—	—	15114	15114	15114	15114	15114	15114
AAA3220	50-06565	1.5–2.5	Sediment	—	—	—	—	—	—	—	—	—	15114	15114	15114	15114	15114	15114
AAA3226	50-06565	3–4	Sediment	—	—	—	—	—	—	—	—	—	15114	15114	15114	15114	15114	15114
AAA3230	50-06566	0–0.5	Sediment	—	—	—	—	—	—	—	—	—	15114	15114	15114	15114	15114	15114
AAA3231	50-06566	1.5–2.5	Sediment	—	—	—	—	—	—	—	—	—	15114	15114	15114	15114	15114	15114
AAA3232	50-06566	3–4	Sediment	—	—	—	—	—	—	—	—	—	15114	15114	15114	15114	15114	15114
AAA3233	50-06567	0–0.5	Sediment	—	—	—	—	—	—	—	—	—	15114	15114	15114	15114	15114	15114
AAA3234	50-06567	1.5–2.5	Sediment	—	—	—	—	—	—	—	—	—	15114	15114	15114	15114	15114	15114
AAA3235	50-06567	3–4	Sediment	—	—	—	—	—	—	—	—	—	15114	15114	15114	15114	15114	15114
AAA3236	50-06568	0–0.5	Sediment	—	—	—	—	—	—	—	—	—	15114	15114	15114	15114	15114	15114
AAA3237	50-06568	1.5–2.5	Sediment	—	—	—	—	—	—	—	—	—	15114	15114	15114	15114	15114	15114
AAA3238	50-06568	3–4	Sediment	—	—	—	—	—	—	—	—	—	15114	15114	15114	15114	15114	15114

[a] — =Analysis not requested.

[b] Analytical request number.

Table 5.8-2
Inorganic Chemicals above BVs or Detected without BV at SWMU 50-006(a)

Sample ID	Location ID	Depth (ft)	Media	Antimony	Barium	Cadmium	Lead	Nickel	Selenium	Silver	Thallium	Total Phosphorus
Soil Background Value[a]				**0.83**	**295**	**0.4**	**22.3**	**15.4**	**1.52**	**1**	**0.73**	**na[b]**
Sediment Background Value[a]				**0.83**	**127**	**0.4**	**19.7**	**9.38**	**0.3**	**1**	**0.73**	**na**
AAA2530	50-06511	0.00–0.50	Sediment	11.2 (UJ)	—[c]	0.8 (U)	—	—	0.6 (U)	1.4 (U)	1 (U)	—
AAA2709	50-06511	1.50–2.50	Soil	11.2 (UJ)	—	0.84 (J)	—	—	—	1.4 (U)	1 (U)	—
AAA2532	50-06513	0.00–0.50	Soil	11.2 (UJ)	—	0.8 (U)	—	—	—	1.4 (U)	1 (U)	—
AAA2534	50-06515	0.00–0.50	Sediment	11.2 (UJ)	—	0.8 (U)	—	—	0.6 (U)	1.4 (U)	1 (U)	—
AAA2535	50-06516	0.00–0.50	Sediment	11.2 (UJ)	—	0.91 (J)	—	—	0.6 (U)	1.4 (U)	1 (UJ)	—
AAA2536	50-06517	0.00–0.50	Sediment	11.2 (U)	—	1	—	—	0.6 (U)	1.4 (U)	1 (U)	—
AAA2711	50-06517	3.00–4.00	Sediment	11.2 (UJ)	—	0.87 (J)	—	—	0.6 (U)	1.4 (U)	1 (U)	—
AAA2537	50-06518	0.00–0.50	Sediment	11.2 (UJ)	—	0.8 (U)	—	—	0.6 (U)	1.4 (U)	1 (U)	—
AAA2708	50-06518	1.50–2.50	Sediment	11.2 (UJ)	—	0.8 (U)	—	—	0.6 (U)	1.4 (U)	1 (U)	—
AAA2714	50-06518	3.00–4.00	Sediment	11.2 (UJ)	—	0.8 (U)	—	—	0.6 (U)	1.4 (U)	1 (U)	—
AAA2538	50-06519	0.00–0.50	Sediment	11.2 (UJ)	—	0.8 (U)	—	—	0.6 (U)	1.4 (U)	1 (U)	—
AAA2539	50-06520	0.00–0.50	Sediment	11.2 (UJ)	—	0.8 (U)	—	—	0.6 (U)	1.4 (U)	1 (U)	—
CAMO-05-61156	50-06520	0.00–0.98	Sediment	—	—	0.496 (U)	—	—	1.49 (U)	—	—	93.3
AAA2710	50-06520	1.50–2.50	Sediment	11.2 (UJ)	—	0.98 (J)	—	—	0.6 (U)	1.4 (U)	1 (U)	—
AAA2713	50-06520	3.00–4.00	Sediment	11.2 (UJ)	—	0.8 (U)	—	—	0.6 (U)	1.4 (U)	1 (U)	—
AAA2540	50-06521	0.00–0.50	Sediment	11.2 (UJ)	—	1.4	—	—	0.6 (U)	1.4 (U)	1 (U)	—
AAA2637	50-06522	0.00–0.50	Sediment	11.2 (UJ)	—	0.8 (U)	—	—	0.6 (U)	1.4 (U)	1 (U)	—
AAA2707	50-06522	1.50–2.50	Sediment	11.2 (UJ)	—	0.8 (U)	—	—	0.6 (U)	1.4 (U)	1 (U)	—
AAA2712	50-06522	3.00–4.00	Sediment	11.2 (UJ)	—	0.8 (U)	—	—	0.6 (U)	1.4 (U)	1 (U)	—
AAA2638	50-06523	0.00–0.50	Sediment	11.2 (UJ)	—	1	—	—	0.6 (U)	1.4 (U)	1 (U)	—

Table 5.8-2 (continued)

Sample ID	Location ID	Depth (ft)	Media	Antimony	Barium	Cadmium	Lead	Nickel	Selenium	Silver	Thallium	Total Phosphorus
Soil Background Value[a]				**0.83**	**295**	**0.4**	**22.3**	**15.4**	**1.52**	**1**	**0.73**	**na[b]**
Sediment Background Value[a]				**0.83**	**127**	**0.4**	**19.7**	**9.38**	**0.3**	**1**	**0.73**	**na**
AAA2639	50-06524	0.00–0.50	Sediment	11.2 (UJ)	—	1	—	—	3 (U)	1.4 (U)	1 (U)	—
AAA2640	50-06525	0.00–0.50	Soil	11.2 (UJ)	—	1.7	—	—	3 (U)	1.4 (U)	1 (U)	—
AAA2641	50-06526	0.00–0.50	Soil	11.2 (UJ)	—	1	—	—	—	1.4 (U)	1 (U)	—
AAA2642	50-06527	0.00–0.50	Sediment	11.2 (UJ)	—	1.1	—	—	0.6 (U)	1.4 (U)	1 (U)	—
AAA2643	50-06528	0.00–0.50	Sediment	11.2 (UJ)	—	1.2	—	11.4	0.6 (U)	1.4 (U)	1 (U)	—
AAA2682	50-06528	1.50–2.50	Sediment	11.2 (UJ)	—	1.3	39.1	—	0.6 (U)	1.4 (U)	1 (U)	—
AAA2685	50-06528	3.00–4.00	Sediment	11.2 (UJ)	—	0.8 (U)	—	—	0.6 (U)	1.4 (U)	1 (U)	—
AAA2644	50-06529	0.00–0.50	Sediment	11.2 (UJ)	—	0.8 (U)	—	—	0.6 (U)	1.4 (U)	1 (U)	—
AAA2683	50-06529	1.50–2.50	Sediment	11.2 (UJ)	—	1.1	—	—	0.6 (U)	1.4 (U)	1 (U)	—
AAA2684	50-06529	3.00–4.00	Sediment	11.2 (UJ)	—	0.8 (U)	—	—	0.6 (U)	1.4 (U)	1 (U)	—
AAA2645	50-06530	0.00–0.50	Sediment	11.2 (UJ)	—	0.84 (J)	—	—	0.6 (U)	1.4 (U)	1 (U)	—
AAA2646	50-06531	0.00–0.50	Sediment	11.2 (UJ)	—	0.83 (J)	20.4	—	0.6 (U)	1.4 (U)	1 (U)	—
AAA2705	50-06531	1.50–2.50	Sediment	11.2 (UJ)	—	1.3	—	9.7	0.6 (U)	1.4 (U)	1 (U)	—
AAA2706	50-06531	3.00–4.00	Sediment	11.2 (UJ)	—	1.3	—	—	0.6 (U)	1.4 (U)	1 (U)	—
AAA2647	50-06532	0.00–0.50	Sediment	11.2 (UJ)	—	0.8 (U)	—	—	0.6 (U)	1.4 (U)	1 (U)	—
AAA2648	50-06533	0.00–0.50	Sediment	11.2 (UJ)	—	0.8 (U)	—	—	0.62 (J)	1.4 (U)	1 (U)	—
AAA2681	50-06533	1.50–2.50	Sediment	11.2 (UJ)	129	0.8 (U)	—	—	0.6 (U)	1.4 (U)	1 (U)	—
AAA2686	50-06533	3.00–4.00	Sediment	11.2 (UJ)	—	0.8 (U)	—	—	0.6 (U)	1.4 (U)	1 (U)	—
AAA2649	50-06534	0.00–0.50	Sediment	11.2 (UJ)	—	1.2	—	—	0.6 (U)	1.4 (U)	1 (U)	—
AAA2650	50-06535	0.00–0.50	Sediment	11.2 (UJ)	—	0.8 (U)	—	—	0.6 (U)	1.4 (U)	1 (U)	—
AAA2659	50-06535	1.50–2.50	Sediment	11.2 (UJ)	—	0.8 (U)	—	—	0.6 (U)	1.4 (U)	1 (U)	—

Table 5.8-2 (continued)

Sample ID	Location ID	Depth (ft)	Media	Antimony	Barium	Cadmium	Lead	Nickel	Selenium	Silver	Thallium	Total Phosphorus
Soil Background Value[a]				**0.83**	**295**	**0.4**	**22.3**	**15.4**	**1.52**	**1**	**0.73**	**na[b]**
Sediment Background Value[a]				**0.83**	**127**	**0.4**	**19.7**	**9.38**	**0.3**	**1**	**0.73**	**na**
AAA2660	50-06535	3.00–4.00	Sediment	11.2 (UJ)	—	0.8 (U)	—	—	0.6 (U)	1.4 (U)	1 (U)	—
AAA2651	50-06536	0.00–0.50	Sediment	11.2 (UJ)	—	0.8 (U)	—	—	0.6 (U)	1.4 (U)	1 (U)	—
AAA2661	50-06536	1.50–2.50	Sediment	11.2 (UJ)	—	0.92 (J)	30.4 (J-)	—	0.6 (U)	1.4 (U)	1 (U)	—
AAA2662	50-06536	3.00–4.00	Sediment	11.2 (UJ)	—	0.8 (U)	—	—	0.6 (U)	1.4 (U)	1 (U)	—
AAA2652	50-06537	0.00–0.50	Sediment	11.2 (UJ)	—	0.92 (J)	—	—	0.6 (U)	1.4 (U)	1 (U)	—
AAA2663	50-06537	1.50–2.50	Sediment	11.2 (UJ)	—	0.8 (U)	—	—	0.6 (U)	1.4 (U)	1 (U)	—
AAA2664	50-06537	3.00–4.00	Sediment	11.2 (UJ)	—	0.8 (U)	—	—	0.6 (U)	1.4 (U)	1 (U)	—
AAA2653	50-06538	0.00–0.50	Sediment	11.2 (UJ)	—	0.8 (U)	—	—	0.6 (U)	1.4 (U)	1 (U)	—
AAA2665	50-06538	1.50–2.50	Sediment	11.2 (UJ)	—	0.8 (U)	—	—	0.6 (U)	1.4 (U)	1 (U)	—
AAA2666	50-06538	3.00–4.00	Sediment	11.2 (UJ)	—	0.8 (U)	—	—	3 (U)	1.4 (U)	1 (U)	—
AAA2654	50-06539	0.00–0.50	Sediment	11.2 (UJ)	—	0.8 (U)	—	—	0.6 (U)	1.4 (U)	1 (U)	—
AAA2667	50-06539	1.50–2.50	Sediment	11.2 (UJ)	—	0.8 (U)	23.8 (J-)	—	0.6 (U)	1.4 (U)	1 (U)	—
AAA2668	50-06539	3.00–4.00	Sediment	11.2 (UJ)	—	0.8 (U)	—	—	0.6 (U)	1.4 (U)	1 (U)	—
AAA2655	50-06540	0.00–0.50	Sediment	11.2 (UJ)	—	0.8 (U)	—	—	0.6 (U)	1.4 (U)	1 (U)	—
AAA2669	50-06540	1.50–2.50	Sediment	11.2 (UJ)	—	0.8 (U)	—	—	0.6 (U)	1.4 (U)	1 (U)	—
AAA2670	50-06540	3.00–4.00	Sediment	11.2 (UJ)	—	0.8 (U)	—	—	0.6 (U)	1.4 (U)	1 (U)	—
AAA2656	50-06541	0.00–0.50	Sediment	11.2 (UJ)	—	0.8 (U)	—	58.9	0.6 (U)	1.4 (U)	1 (U)	—
AAA2671	50-06541	1.50–2.50	Sediment	11.2 (UJ)	—	0.8 (U)	—	—	0.6 (U)	1.4 (U)	1 (U)	—
AAA2672	50-06541	3.00–4.00	Sediment	11.2 (UJ)	—	0.8 (U)	—	—	0.6 (U)	1.4 (U)	1 (U)	—
AAA2657	50-06542	0.00–0.50	Sediment	11.2 (UJ)	—	0.8 (U)	—	—	0.6 (U)	1.4 (U)	1 (U)	—
AAA2673	50-06542	1.50–2.50	Sediment	11.2 (UJ)	—	0.8 (U)	—	—	0.6 (U)	1.4 (U)	1 (U)	—

Table 5.8-2 (continued)

Sample ID	Location ID	Depth (ft)	Media	Antimony	Barium	Cadmium	Lead	Nickel	Selenium	Silver	Thallium	Total Phosphorus
Soil Background Value[a]				**0.83**	**295**	**0.4**	**22.3**	**15.4**	**1.52**	**1**	**0.73**	**na[b]**
Sediment Background Value[a]				**0.83**	**127**	**0.4**	**19.7**	**9.38**	**0.3**	**1**	**0.73**	**na**
AAA2674	50-06542	3.00–4.00	Sediment	11.2 (UJ)	—	0.8 (U)	—	—	0.6 (U)	1.4 (U)	1 (U)	—
AAA2658	50-06543	0.00–0.50	Soil	11.2 (UJ)	—	0.8 (U)	—	—	—	1.4 (U)	1 (U)	—
AAA2675	50-06543	1.50–2.50	Soil	11.2 (UJ)	—	0.8 (U)	—	—	—	1.4 (U)	1 (U)	—
AAA2676	50-06543	3.00–4.00	Soil	11.2 (UJ)	—	0.8 (U)	—	—	—	1.4 (U)	1 (U)	—

Note: All values in mg/kg.

[a] Background values are from LANL 1998, 059730.

[b] na = Not available.

[c] — = Analyte not reported (detect or nondetect) above BV or not detected.

Table 5.8-3
Radionuclides Detected above the BVs/FVs at SWMU 50-006(a)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cesium-137	Cobalt-60	Plutonium-238	Plutonium-239/ Plutonium-240	Strontium-90	Tritium	Uranium-234	Uranium-235	Uranium-238
Soil Background/Fallout Value[a,b]				**0.013**	**1.65**	**na[c]**	**0.023**	**0.054**	**1.31**	**na**	**2.59**	**0.2**	**2.29**
Sediment Background/Fallout Value[a,b]				**0.04**	**0.9**	**na**	**0.006**	**0.068**	**1.04**	**0.093**	**2.59**	**0.2**	**2.29**
AAA2519	50-06500	0.00–0.50	Soil	—[d]	—	—	—	—	—	0.0726	—	—	—
AAA2520	50-06501	0.00–0.50	Soil	—	—	—	—	0.058	—	0.0390	—	—	—
AAA2521	50-06502	0.00–0.50	Soil	—	—	—	—	—	—	0.0269	—	—	—
AAA2721	50-06502	3.00–4.00	Soil	—	—	—	—	1.445	—	0.0953	—	—	—
AAA2522	50-06503	0.00–0.50	Soil	—	—	—	0.067	0.19	—	0.0519	—	—	—
AAA2715	50-06503	1.50–2.50	Soil	—	—	—	—	—	—	0.0969	—	—	—
AAA2720	50-06503	3.00–4.00	Soil	—	—	—	—	0.013	—	0.1985879	—	—	—
AAA2523	50-06504	0.00–0.50	Soil	—	—	—	1.144	3.83	—	0.1170034	—	—	—
AAA2524	50-06505	0.00–0.50	Soil	—	—	—	—	—	—	0.0198783	—	—	—
AAA2525	50-06506	0.00–0.50	Soil	—	—	—	0.066	—	—	0.0322	—	—	—
AAA2716	50-06506	1.50–2.50	Soil	—	—	—	0.272	0.281	—	0.0878	—	—	—
AAA2722	50-06506	3.00–4.00	Soil	—	—	—	—	0.04	—	0.1406806	—	—	—
AAA2526	50-06507	0.00–0.50	Soil	—	—	—	0.611	0.536	—	0.1099773	—	—	—
AAA2717	50-06507	1.50–2.50	Soil	—	—	—	0.087	0.048	—	0.0848	—	—	—
AAA2527	50-06508	0.00–0.50	Sediment	—	—	—	1.674	0.746	—	0.1765435	—	—	—
AAA2688	50-06508	1.50–2.50	Sediment	—	—	—	1.734	1.067	—	0.4193302	—	—	—
AAA2723	50-06508	3.00–4.00	Sediment	—	—	—	6.018	2.207	2.11 (J-)	0.5551674	—	—	—
AAA2528	50-06509	0.00–0.50	Sediment	—	—	—	0.14	—	—	—	—	—	—
AAA2529	50-06510	0.00–0.50	Sediment	—	—	—	2.953	2.419	1.17 (J-)	0.7323288	—	—	2.72
AAA2530	50-06511	0.00–0.50	Sediment	—	—	—	—	0.356	—	—	—	—	—
AAA2709	50-06511	1.50–2.50	Soil	—	—	—	—	0.042	—	0.0307 (J)	—	—	—
AAA2532	50-06513	0.00–0.50	Soil	—	1.7296	—	0.08 (J-)	3.99	—	0.0678 (J)	—	—	2.703
AAA3240	50-06514	1.50–2.50	Sediment	0.142 (J-)	—	—	2.276 (J-)	0.408 (J-)	—	—	—	—	—
AAA3241	50-06514	3.00–4.00	Sediment	0.079 (J-)	—	—	1.522 (J-)	0.244 (J-)	—	—	—	—	—
AAA2534	50-06515	0.00–0.50	Sediment	—	—	—	1.257	0.231	—	—	—	—	—
AAA2535	50-06516	0.00–0.50	Sediment	—	2.1782	—	15.068	3.674	—	0.1877228 (J)	—	—	—
AAA2536	50-06517	0.00–0.50	Sediment	—	—	—	8.741	2.144	—	0.2615691 (J)	—	—	2.53
AAA2711	50-06517	3.00–4.00	Sediment	—	—	—	0.602	0.111	—	—	—	—	—
AAA2537	50-06518	0.00–0.50	Sediment	—	0.9085	—	8.163	1.453	—	—	—	—	—
AAA2708	50-06518	1.50–2.50	Sediment	—	—	—	1.651	0.496	—	—	—	—	—
AAA2714	50-06518	3.00–4.00	Sediment	—	—	—	2.574	0.742	—	—	—	—	—
AAA2538	50-06519	0.00–0.50	Sediment	—	1.2458	—	7.486	1.825	—	0.1077898 (J)	—	—	—

Table 5.8-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cesium-137	Cobalt-60	Plutonium-238	Plutonium-239/ Plutonium-240	Strontium-90	Tritium	Uranium-234	Uranium-235	Uranium-238
Soil Background/Fallout Value[a,b]				**0.013**	**1.65**	**na[c]**	**0.023**	**0.054**	**1.31**	**na**	**2.59**	**0.2**	**2.29**
Sediment Background/Fallout Value[a,b]				**0.04**	**0.9**	**na**	**0.006**	**0.068**	**1.04**	**0.093**	**2.59**	**0.2**	**2.29**
AAA2539	50-06520	0.00–0.50	Sediment	—	—	—	4.462	0.746 (J-)	—	—	—	—	—
CAMO-05-61156	50-06520	0.00–0.98	Sediment	0.0918	—	—	5.84	0.991	—	—	—	—	—
AAA2710	50-06520	1.50–2.50	Sediment	—	—	—	2.687	1.215	—	—	—	—	—
AAA2713	50-06520	3.00–4.00	Sediment	—	—	—	0.421	0.109	—	—	—	—	—
AAA2540	50-06521	0.00–0.50	Sediment	—	—	—	0.654	0.165	—	—	—	—	—
AAA2637	50-06522	0.00–0.50	Sediment	—	—	—	3.679	0.734	—	—	—	—	—
AAA2707	50-06522	1.50–2.50	Sediment	—	—	—	1.163	0.286	—	—	—	—	—
AAA2712	50-06522	3.00–4.00	Sediment	—	—	—	0.171	—	—	—	—	—	—
AAA2638	50-06523	0.00–0.50	Sediment	—	1.3383	—	5.913	—	—	0.2066667 (J)	—	—	—
AAA2639	50-06524	0.00–0.50	Sediment	—	—	—	0.658	—	—	—	—	—	—
AAA2640	50-06525	0.00–0.50	Soil	—	—	—	0.034	—	—	0.0853 (J)	—	0.255	3.006
AAA2641	50-06526	0.00–0.50	Soil	—	—	—	0.034	—	—	0.0397 (J)	—	—	2.525
AAA2642	50-06527	0.00–0.50	Sediment	—	—	—	0.315	—	—	—	—	—	—
AAA2643	50-06528	0.00–0.50	Sediment	—	—	—	1.822	—	—	—	—	—	—
AAA2682	50-06528	1.50–2.50	Sediment	—	1.2311	—	7.051	1.91	—	0.1011839 (J)	—	—	—
AAA2685	50-06528	3.00–4.00	Sediment	—	—	—	0.481	0.116	—	—	—	—	—
AAA2644	50-06529	0.00–0.50	Sediment	—	—	—	0.051	9.258 (J)	—	—	—	—	2.747
AAA2683	50-06529	1.50–2.50	Sediment	—	—	—	0.046	—	—	—	—	—	—
AAA2684	50-06529	3.00–4.00	Sediment	—	—	—	0.06	—	—	—	—	—	—
AAA2645	50-06530	0.00–0.50	Sediment	—	—	—	4.746	—	—	—	—	—	—
AAA2646	50-06531	0.00–0.50	Sediment	—	—	—	2.746	—	—	—	—	—	—
AAA2705	50-06531	1.50–2.50	Sediment	—	—	—	0.316	—	—	—	—	—	—
AAA2706	50-06531	3.00–4.00	Sediment	—	—	—	0.068	—	—	—	—	—	—
AAA2647	50-06532	0.00–0.50	Sediment	—	—	—	16.811	—	—	0.1384778 (J)	—	—	—
AAA2648	50-06533	0.00–0.50	Sediment	—	—	—	0.304	0.225	—	—	—	—	—
AAA2681	50-06533	1.50–2.50	Sediment	—	—	—	0.265	2.263	—	—	—	—	—
AAA2686	50-06533	3.00–4.00	Sediment	—	—	—	0.314	0.233	—	—	—	—	—
AAA2649	50-06534	0.00–0.50	Sediment	—	—	—	1.495	—	—	—	—	—	—
AAA2650	50-06535	0.00–0.50	Sediment	—	0.9021	—	5.441	—	—	0.1978581	—	—	—
AAA2659	50-06535	1.50–2.50	Sediment	—	1.5605	—	8.22	—	—	—	—	—	—
AAA2660	50-06535	3.00–4.00	Sediment	—	—	—	0.993	—	—	0.0972	—	—	—
AAA2651	50-06536	0.00–0.50	Sediment	—	1.145	—	0.494	—	—	—	—	—	—
AAA2661	50-06536	1.50–2.50	Sediment	—	1.6626	—	10.739	—	—	0.1103311	—	—	—
AAA2662	50-06536	3.00–4.00	Sediment	—	3.1869	—	12.033	—	—	0.3034217	—	—	—

Table 5.8-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cesium-137	Cobalt-60	Plutonium-238	Plutonium-239/ Plutonium-240	Strontium-90	Tritium	Uranium-234	Uranium-235	Uranium-238
Soil Background/Fallout Value[a,b]				**0.013**	**1.65**	**na[c]**	**0.023**	**0.054**	**1.31**	**na**	**2.59**	**0.2**	**2.29**
Sediment Background/Fallout Value[a,b]				**0.04**	**0.9**	**na**	**0.006**	**0.068**	**1.04**	**0.093**	**2.59**	**0.2**	**2.29**
AAA2652	50-06537	0.00–0.50	Sediment	—	1.3146	—	0.269	6.947	—	0.1057521	—	—	2.506
AAA2664	50-06537	3.00–4.00	Sediment	—	—	—	—	—	—	0.0935	—	—	—
AAA2653	50-06538	0.00–0.50	Sediment	—	—	—	2.114	—	—	0.112951	—	—	—
AAA2654	50-06539	0.00–0.50	Sediment	—	—	—	0.622	—	—	—	—	—	—
AAA2667	50-06539	1.50–2.50	Sediment	—	—	—	0.765	—	—	—	—	—	—
AAA2668	50-06539	3.00–4.00	Sediment	—	—	—	0.494	—	—	—	—	—	—
AAA2655	50-06540	0.00–0.50	Sediment	—	—	—	4.066	—	—	0.1389583	—	—	—
AAA2669	50-06540	1.50–2.50	Sediment	—	—	—	1.236	—	—	0.1111937	—	—	—
AAA2670	50-06540	3.00–4.00	Sediment	—	—	—	0.093	—	—	—	—	—	—
AAA2656	50-06541	0.00–0.50	Sediment	—	—	—	0.314	—	—	—	—	—	—
AAA2671	50-06541	1.50–2.50	Sediment	—	—	—	0.035	—	—	—	—	—	—
AAA2672	50-06541	3.00–4.00	Sediment	—	—	—	0.065	0.069	—	—	—	—	—
AAA2657	50-06542	0.00–0.50	Sediment	—	—	—	0.465	0.219	—	—	—	—	—
AAA2673	50-06542	1.50–2.50	Sediment	—	—	—	1.066	0.313	—	—	—	—	—
AAA2674	50-06542	3.00–4.00	Sediment	—	—	—	0.259	0.122	—	—	—	—	—
AAA2658	50-06543	0.00–0.50	Soil	—	—	—	—	0.436	—	0.0762	—	—	2.692
AAA2675	50-06543	1.50–2.50	Soil	—	—	—	—	0.04	—	0.0629	—	—	—
AAA2676	50-06543	3.00–4.00	Soil	—	—	—	—	—	—	0.1021286	—	—	—
AAA3229	50-06550	0.00–0.50	Sediment	0.1134 (J-)	—	—	1.125	0.376 (J)	—	—	—	—	—
AAA3228	50-06551	0.00–0.50	Sediment	0.102 (J-)	—	—	1.09	0.463 (J)	—	0.0955794	—	—	—
AAA3218	50-06551	1.50–2.50	Sediment	0.123 (J-)	—	—	0.232	0.242 (J)	—	—	—	—	—
AAA3212	50-06551	3.00–4.00	Sediment	—	—	—	0.191	—	—	—	—	—	—
AAA3219	50-06552	0.00–0.50	Sediment	2.526 (J-)	2.8439	—	25.988	8.414 (J)	—	—	—	—	—
AAA3216	50-06552	3.00–4.00	Sediment	0.679 (J-)	—	—	7.198	1.579 (J)	—	0.1245503	—	—	—
AAA3215	50-06553	0.00–0.50	Sediment	0.358	—	—	5.069	1.152	—	—	—	—	—
AAA3205	50-06554	0.00–0.50	Sediment	0.261	1.8215	—	1.065	2.653	—	0.1835391	—	—	3.049
AAA3203	50-06555	0.00–0.50	Sediment	1.36	—	—	4.066	5.142	—	0.1604218	2.735	—	3.028
AAA3213	50-06556	0.00–0.50	Sediment	2.844	3.585	1.2991	2.561	6.909	—	0.435891	—	—	—
AAA3217	50-06556	1.50–2.50	Sediment	0.863	1.5807	—	6.464	2.694	—	0.0966	—	—	—
AAA3223	50-06557	0.00–0.50	Sediment	0.347	1.4207	—	4.76	1.424	—	0.2015011	—	—	—
AAA3224	50-06557	1.50–2.50	Sediment	0.062	—	—	0.797	—	—	—	—	—	—
AAA3208	50-06557	3.00–4.00	Sediment	—	—	—	1.741	—	—	—	—	—	—
AAA3225	50-06558	0.00–0.50	Sediment	0.168	—	—	2.446	—	—	—	—	—	—
AAA3201	50-06558	1.50–2.50	Sediment	0.077	—	—	0.729	—	—	—	—	—	—

Table 5.8-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cesium-137	Cobalt-60	Plutonium-238	Plutonium-239/ Plutonium-240	Strontium-90	Tritium	Uranium-234	Uranium-235	Uranium-238
Soil Background/Fallout Value[a,b]				**0.013**	**1.65**	**na[c]**	**0.023**	**0.054**	**1.31**	**na**	**2.59**	**0.2**	**2.29**
Sediment Background/Fallout Value[a,b]				**0.04**	**0.9**	**na**	**0.006**	**0.068**	**1.04**	**0.093**	**2.59**	**0.2**	**2.29**
AAA3202	50-06558	3.00–4.00	Sediment	0.302	—	—	4.461	1.367	—	0.128379	—	—	—
AAA3211	50-06559	0.00–0.50	Sediment	0.258	—	—	2.502	1.198	—	0.2117759	—	—	—
AAA3206	50-06560	0.00–0.50	Sediment	1.086	—	—	16.94	4.512	—	1.222941	—	—	2.96
AAA3207	50-06561	0.00–0.50	Sediment	4.172	—	—	67.817	12.815	3.11	1.264033	—	—	—
AAA3214	50-06562	0.00–0.50	Soil	0.052	—	—	—	—	—	0.0234	—	—	—
AAA3200	50-06563	0.00–0.50	Sediment	3.219	—	—	31.711	19.51	—	—	—	—	—
AAA3204	50-06564	0.00–0.50	Sediment	0.054	—	—	0.533	—	—	—	—	—	—
AAA3221	50-06565	0.00–0.50	Sediment	0.685 (J-)	—	—	1.669 (J-)	2.194 (J-)	—	—	—	—	—
AAA3220	50-06565	1.50–2.50	Sediment	1.834 (J-)	2.07	—	16.447 (J-)	6.798 (J-)	—	0.3231511	—	—	—
AAA3226	50-06565	3.00–4.00	Sediment	1.128 (J-)	2.2445	—	13.638 (J-)	3.533 (J-)	—	0.3742328	—	—	—
AAA3230	50-06566	0.00–0.50	Sediment	1.644 (J-)	0.9107	—	37.383 (J-)	4.176 (J-)	—	—	—	—	—
AAA3231	50-06566	1.50–2.50	Sediment	1.607 (J-)	—	—	23.306 (J-)	5.649 (J-)	—	—	—	—	—
AAA3232	50-06566	3.00–4.00	Sediment	0.786 (J-)	—	—	12.894 (J-)	2.986 (J-)	—	—	—	—	—
AAA3233	50-06567	0.00–0.50	Sediment	0.135 (J-)	—	—	1.822 (J-)	0.514 (J-)	—	—	—	—	—
AAA3234	50-06567	1.50–2.50	Sediment	0.641 (J-)	—	—	11.603 (J-)	2.546 (J-)	—	0.1369249	—	—	—
AAA3235	50-06567	3.00–4.00	Sediment	0.307 (J-)	—	—	4.868 (J-)	1.428 (J-)	—	—	—	—	—
AAA3236	50-06568	0.00–0.50	Sediment	1.432 (J-)	—	—	17.71 (J-)	5.195 (J-)	1.24 (J-)	0.099319	—	—	—
AAA3237	50-06568	1.50–2.50	Sediment	1.043 (J-)	1.7569	—	33.873 (J-)	3.577 (J-)	—	0.4681765	—	—	—
AAA3238	50-06568	3.00–4.00	Sediment	0.425 (J-)	1.2493	—	4.618 (J-)	2.235 (J-)	1.33 (J-)	0.1430864	—	—	—

Note: All values in pCi/g.

[a] Background/fallout values are from LANL 1998, 059730.

[b] Fallout value applies to soil samples collected from 0–0.5 ft only and applies to sediment samples of all depth.

[c] na = Not available.

[d] — = Analyte not reported (detect or nondetect) above BV/FV or not detected.

Table 5.8-4
Organic Chemicals Detected at SWMU 50-006(a)

Sample ID	Location ID	Depth (ft)	Media	Acenaphthene	Acetone	Anthracene	Aroclor-1254	Aroclor-1260	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Benzoic Acid	Bis(2-ethylhexyl)phthalate	Butylbenzylphthalate	Carbon Tetrachloride	Chrysene
AAA2519	50-06500	0.00–0.50	Soil	—*	—	—	—	—	—	—	—	—	—	—	0.1 (J)	—	—	—
AAA2520	50-06501	0.00–0.50	Soil	—	—	—	—	0.056	—	—	—	—	—	—	—	—	—	—
AAA2721	50-06502	3.00–4.00	Soil	—	—	—	—	—	—	—	—	—	—	0.046 (J)	—	—	—	—
AAA2522	50-06503	0.00–0.50	Soil	—	—	—	—	—	—	—	—	—	—	—	0.051 (J)	—	—	—
AAA2523	50-06504	0.00–0.50	Soil	—	—	—	—	0.12	0.065 (J)	0.053 (J)	—	—	—	—	—	—	—	0.085 (J)
AAA2716	50-06506	1.50–2.50	Soil	—	—	—	—	—	—	—	—	—	—	0.068 (J)	—	—	—	—
AAA2527	50-06508	0.00–0.50	Sediment	—	—	—	—	—	—	—	—	—	—	0.13 (J)	—	—	—	0.11 (J)
AAA2723	50-06508	3.00–4.00	Sediment	—	—	—	—	—	—	—	—	—	—	0.066 (J)	—	—	—	—
AAA2528	50-06509	0.00–0.50	Sediment	0.041 (J)	—	0.04 (J)	—	—	0.44	0.67	0.87	0.25 (J)	0.27 (J)	—	—	—	—	0.72
AAA2529	50-06510	0.00–0.50	Sediment	—	—	—	—	—	—	—	0.048 (J)	—	—	—	—	—	—	0.059 (J)
AAA2530	50-06511	0.00–0.50	Sediment	—	—	—	—	—	—	—	—	—	—	—	0.51	—	—	—
AAA2709	50-06511	1.50–2.50	Soil	—	—	—	—	—	—	—	—	—	—	—	0.16 (J)	—	—	—
AAA2532	50-06513	0.00–0.50	Soil	—	—	—	—	—	—	—	—	—	—	—	0.073 (J)	—	—	—
AAA2534	50-06515	0.00–0.50	Sediment	—	—	—	—	—	—	—	—	—	—	—	0.14 (J)	—	—	—
AAA2535	50-06516	0.00–0.50	Sediment	—	—	—	—	—	0.08 (J)	0.11 (J)	0.089 (J)	0.092 (J)	0.086 (J)	—	0.081 (J)	—	—	0.11 (J)
AAA2536	50-06517	0.00–0.50	Sediment	—	—	—	—	—	0.1 (J)	0.081 (J)	0.1 (J)	—	0.079 (J)	—	0.097 (J)	—	—	0.19 (J)
AAA2711	50-06517	3.00–4.00	Sediment	—	—	—	—	—	—	—	—	—	—	—	0.1 (J)	—	—	—
AAA2537	50-06518	0.00–0.50	Sediment	—	—	—	—	—	—	—	—	—	—	—	0.2 (J)	—	—	—
AAA2708	50-06518	1.50–2.50	Sediment	—	—	—	—	—	—	—	—	—	—	—	0.24 (J)	—	—	—
AAA2714	50-06518	3.00–4.00	Sediment	—	—	—	—	—	—	—	—	—	—	—	0.1 (J-)	—	—	—
AAA2538	50-06519	0.00–0.50	Sediment	—	—	—	—	—	0.15 (J)	0.19 (J)	0.18 (J)	—	0.13 (J)	0.044 (J)	0.058 (J)	—	—	0.2 (J)
AAA2539	50-06520	0.00–0.50	Sediment	—	—	—	—	—	0.13 (J)	0.13 (J)	0.16 (J)	0.13 (J)	0.1 (J)	—	0.041 (J)	—	—	0.17 (J)
CAMO-05-61156	50-06520	0.00–0.98	Sediment	0.0213 (J)	—	0.0816	0.0124 (J)	0.0479	0.482	0.735	0.224	0.374	—	—	—	—	—	0.629
AAA2710	50-06520	1.50–2.50	Sediment	—	—	—	—	—	0.038 (J)	—	—	—	—	—	0.041 (J)	—	—	0.04 (J)
AAA2713	50-06520	3.00–4.00	Sediment	0.51	—	0.9	—	—	0.68	0.53	0.44	0.3 (J)	0.53	—	0.059 (J)	—	—	0.72
AAA2540	50-06521	0.00–0.50	Sediment	—	—	—	—	—	—	—	—	—	—	—	0.07 (J)	—	—	—
AAA2637	50-06522	0.00–0.50	Sediment	—	—	0.072 (J)	—	—	0.37	0.41	0.38	0.37	0.36	—	0.072 (J)	—	—	0.49
AAA2707	50-06522	1.50–2.50	Sediment	—	—	—	—	—	—	—	—	—	—	—	0.12 (J)	—	—	—
AAA2712	50-06522	3.00–4.00	Sediment	—	—	—	—	—	—	—	—	—	—	—	0.14 (J)	—	—	—
AAA2638	50-06523	0.00–0.50	Sediment	—	—	—	—	—	0.26 (J)	0.34 (J)	0.4 (J)	—	0.29 (J)	—	0.1 (J)	—	—	0.34 (J)
AAA2639	50-06524	0.00–0.50	Sediment	—	—	—	—	—	—	—	—	—	—	—	0.11 (J)	—	—	—

Table 5.8-4 (continued)

Sample ID	Location ID	Depth (ft)	Media	Acenaphthene	Acetone	Anthracene	Aroclor-1254	Aroclor-1260	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Benzoic Acid	Bis(2-ethylhexyl)phthalate	Butylbenzylphthalate	Carbon Tetrachloride	Chrysene
AAA2640	50-06525	0.00–0.50	Soil	—	—	—	—	—	—	—	—	—	—	—	0.064 (J)	—	—	—
AAA2641	50-06526	0.00–0.50	Soil	—	—	—	—	—	—	—	—	—	—	—	0.066 (J)	—	—	—
AAA2643	50-06528	0.00–0.50	Sediment	—	—	—	—	—	0.2 (J)	0.27 (J)	0.3 (J)	—	0.27 (J)	—	0.12 (J)	—	—	0.27 (J)
AAA2685	50-06528	3.00–4.00	Sediment	—	—	—	—	—	—	—	—	—	—	—	0.06 (J)	—	—	—
AAA2644	50-06529	0.00–0.50	Sediment	—	—	—	—	—	—	—	—	—	—	—	0.12 (J)	—	—	—
AAA2683	50-06529	1.50–2.50	Sediment	—	—	—	—	—	—	—	—	—	—	—	0.064 (J)	—	—	—
AAA2684	50-06529	3.00–4.00	Sediment	—	—	—	—	—	—	—	—	—	—	—	0.045 (J)	—	—	—
AAA2645	50-06530	0.00–0.50	Sediment	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
AAA2646	50-06531	0.00–0.50	Sediment	0.049 (J)	—	0.078 (J)	—	—	0.5	0.55	0.59	0.17 (J)	0.53	—	0.16 (J)	0.51	—	0.6
AAA2705	50-06531	1.50–2.50	Sediment	—	—	—	—	—	—	—	—	—	—	—	0.056 (J)	0.093 (J)	—	—
AAA2647	50-06532	0.00–0.50	Sediment	0.13 (J)	—	0.18 (J)	—	—	1.1	1.2	1.1	0.66	1.13	—	0.085 (J)	—	—	1.4
AAA2648	50-06533	0.00–0.50	Sediment	—	—	—	—	—	—	—	—	—	—	—	0.062 (J)	—	—	—
AAA2681	50-06533	1.50–2.50	Sediment	—	—	—	—	—	—	—	—	—	—	—	0.086 (J)	—	—	—
AAA2649	50-06534	0.00–0.50	Sediment	—	—	—	—	—	0.22 (J)	0.29 (J)	0.26 (J)	0.18 (J)	0.26 (J)	—	0.084 (J)	0.17 (J)	—	0.31 (J)
AAA2650	50-06535	0.00–0.50	Sediment	—	—	—	—	—	0.22 (J)	0.29 (J)	0.41 (J)	0.093 (J)	0.13 (J)	—	—	—	—	0.3 (J)
AAA2661	50-06536	1.50–2.50	Sediment	0.089 (J)	—	—	—	—	0.46	0.6	0.66	0.26 (J)	0.26 (J)	—	—	—	—	0.54
AAA2662	50-06536	3.00–4.00	Sediment	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
AAA2653	50-06538	0.00–0.50	Sediment	—	—	—	—	—	0.061 (J)	0.094 (J)	0.13 (J)	—	0.046 (J)	—	—	—	—	0.094 (J)
AAA2654	50-06539	0.00–0.50	Sediment	—	—	—	—	—	—	—	—	—	—	0.14 (J)	—	—	—	—
AAA2668	50-06539	3.00–4.00	Sediment	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
AAA2655	50-06540	0.00–0.50	Sediment	—	—	—	—	—	0.1 (J)	0.15 (J)	0.22 (J)	—	—	—	—	—	—	0.15 (J)
AAA2672	50-06541	3.00–4.00	Sediment	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
AAA2657	50-06542	0.00–0.50	Sediment	—	—	—	—	—	—	—	0.088 (J)	—	—	—	—	—	—	0.077 (J)
AAA2673	50-06542	1.50–2.50	Sediment	—	—	—	—	—	—	—	—	—	—	—	0.058 (J)	—	—	—
AAA3228	50-06551	0.00–0.50	Sediment	—	—	—	—	—	—	—	—	—	—	—	—	—	0.002 (J)	—
AAA3219	50-06552	0.00–0.50	Sediment	—	—	—	—	0.78 (J)	—	—	—	—	—	—	—	—	—	—
AAA3216	50-06552	3.00–4.00	Sediment	—	—	—	—	0.12 (J-)	—	—	—	—	—	—	—	—	—	—
AAA3215	50-06553	0.00–0.50	Sediment	—	—	—	—	0.082 (J-)	—	—	—	—	—	—	—	—	—	—
AAA3205	50-06554	0.00–0.50	Sediment	—	0.034 (J)	—	—	0.23 (J)	—	—	—	—	—	—	—	—	—	—
AAA3203	50-06555	0.00–0.50	Sediment	—	—	—	—	0.33	—	—	—	—	—	—	—	—	—	—
AAA3213	50-06556	0.00–0.50	Sediment	—	—	—	—	0.76	—	—	—	—	—	—	—	—	—	—
AAA3217	50-06556	1.50–2.50	Sediment	—	—	—	—	0.182 (J-)	—	—	—	—	—	—	—	—	—	—

Table 5.8-4 (continued)

Sample ID	Location ID	Depth (ft)	Media	Acenaphthene	Acetone	Anthracene	Aroclor-1254	Aroclor-1260	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Benzoic Acid	Bis(2-ethylhexyl)phthalate	Butylbenzylphthalate	Carbon Tetrachloride	Chrysene
AAA3223	50-06557	0.00–0.50	Sediment	—	—	—	—	0.2 (J)	—	—	—	—	—	—	—	—	—	—
AAA3208	50-06557	3.00–4.00	Sediment	—	0.007 (J)	—	—	—	—	—	—	—	—	—	—	—	—	—
AAA3225	50-06558	0.00–0.50	Sediment	—	0.011	—	—	—	—	—	—	—	—	—	—	—	—	—
AAA3211	50-06559	0.00–0.50	Sediment	—	0.027 (J)	—	—	0.74	—	—	—	—	—	—	—	—	—	—
AAA3206	50-06560	0.00–0.50	Sediment	—	—	—	—	0.11 (J-)	—	—	—	—	—	—	—	—	—	—
AAA3207	50-06561	0.00–0.50	Sediment	—	0.003 (J)	—	—	1.37	—	—	—	—	—	—	—	—	—	—
AAA3214	50-06562	0.00–0.50	Soil	—	0.019	—	—	—	—	—	—	—	—	—	—	—	—	—
AAA3200	50-06563	0.00–0.50	Sediment	—	—	—	—	0.12 (J)	—	—	—	—	—	—	—	—	—	—
AAA3204	50-06564	0.00–0.50	Sediment	—	0.015	—	—	—	—	—	—	—	—	—	—	—	—	—

Table 5.8-4 (continued)

Sample ID	Location ID	Depth (ft)	Media	Dibenz(a,h)anthracene	Dibenzofuran	Diethylphthalate	Di-n-butylphthalate	Fluoranthene	Fluorene	Hexanone[2-]	Indeno(1,2,3-cd)pyrene	Methyl-2-pentanone[4-]	Methylene Chloride	Methylnaphthalene[2-]	Naphthalene	Phenanthrene	Pyrene	Toluene
AAA2519	50-06500	0.00–0.50	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
AAA2520	50-06501	0.00–0.50	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
AAA2721	50-06502	3.00–4.00	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
AAA2522	50-06503	0.00–0.50	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
AAA2523	50-06504	0.00–0.50	Soil	—	—	—	—	0.15 (J)	—	—	—	—	—	—	—	0.084 (J)	0.17 (J)	—
AAA2716	50-06506	1.50–2.50	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
AAA2527	50-06508	0.00–0.50	Sediment	—	—	—	—	0.15 (J)	—	—	—	—	—	—	—	0.058 (J)	0.23 (J)	—
AAA2723	50-06508	3.00–4.00	Sediment	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
AAA2528	50-06509	0.00–0.50	Sediment	—	—	—	—	1	—	—	0.23 (J)	—	—	—	—	0.35 (J)	1.2	—
AAA2529	50-06510	0.00–0.50	Sediment	—	—	—	—	0.089 (J)	—	—	—	—	—	—	—	—	0.088 (J)	—
AAA2530	50-06511	0.00–0.50	Sediment	—	—	—	0.79 (J)	—	—	—	—	—	—	—	—	—	—	—
AAA2709	50-06511	1.50–2.50	Soil	—	—	—	1.3 (J)	—	—	—	—	—	—	—	—	—	—	—
AAA2532	50-06513	0.00–0.50	Soil	—	—	—	1.8 (J)	—	—	—	—	—	—	—	—	—	—	—
AAA2534	50-06515	0.00–0.50	Sediment	—	—	—	2.5 (J)	—	—	—	—	—	—	—	—	—	—	—
AAA2535	50-06516	0.00–0.50	Sediment	—	—	—	0.85 (J)	0.2 (J)	—	—	0.088 (J)	—	—	—	—	0.11 (J)	0.18 (J)	—
AAA2536	50-06517	0.00–0.50	Sediment	—	—	—	0.46 (J)	0.33 (J)	—	—	—	—	—	—	—	—	0.29 (J)	—
AAA2711	50-06517	3.00–4.00	Sediment	—	—	—	0.58 (J)	—	—	—	—	—	—	—	—	—	—	—
AAA2537	50-06518	0.00–0.50	Sediment	—	—	—	0.42 (J)	—	—	—	—	—	—	—	—	—	—	—
AAA2708	50-06518	1.50–2.50	Sediment	—	—	—	0.28 (J)	—	—	—	—	—	—	—	—	—	—	—
AAA2714	50-06518	3.00–4.00	Sediment	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
AAA2538	50-06519	0.00–0.50	Sediment	—	—	—	2.6 (J)	0.36 (J)	—	—	—	—	—	—	—	0.17 (J)	0.3 (J)	—
AAA2539	50-06520	0.00–0.50	Sediment	—	—	—	2.4 (J)	0.31 (J)	—	—	0.11 (J)	—	—	—	—	0.16 (J)	0.25 (J)	—
CAMO-05-61156	50-06520	0.00–0.98	Sediment	—	—	—	—	1.06	—	—	0.101	—	—	—	—	0.735	1.25	—
AAA2710	50-06520	1.50–2.50	Sediment	—	—	—	3 (J)	0.068 (J)	—	—	—	—	—	—	—	—	0.071 (J)	—
AAA2713	50-06520	3.00–4.00	Sediment	0.17 (J)	0.26 (J)	—	2.7 (J)	2.4	0.47	—	0.33 (J)	—	—	0.081 (J)	0.18 (J)	3.1	2	—
AAA2540	50-06521	0.00–0.50	Sediment	—	—	—	2.5 (J)	—	—	—	—	—	—	—	—	—	—	—
AAA2637	50-06522	0.00–0.50	Sediment	0.16 (J)	—	—	—	1	—	—	0.31 (J)	—	—	—	—	0.39	0.75	—
AAA2707	50-06522	1.50–2.50	Sediment	—	—	—	0.44 (J)	—	—	—	—	—	—	—	—	—	—	—
AAA2712	50-06522	3.00–4.00	Sediment	—	—	—	0.33 (J)	—	—	—	—	—	—	—	—	—	—	—
AAA2638	50-06523	0.00–0.50	Sediment	—	—	—	—	0.61	—	—	—	—	—	—	—	0.2 (J)	0.45	—
AAA2639	50-06524	0.00–0.50	Sediment	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
AAA2640	50-06525	0.00–0.50	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
AAA2641	50-06526	0.00–0.50	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
AAA2643	50-06528	0.00–0.50	Sediment	—	—	—	—	0.45	—	—	—	—	—	—	—	0.14 (J)	0.39 (J)	—

Table 5.8-4 (continued)

Sample ID	Location ID	Depth (ft)	Media	Dibenz(a,h)anthracene	Dibenzofuran	Diethylphthalate	Di-n-butylphthalate	Fluoranthene	Fluorene	Hexanone[2-]	Indeno(1,2,3-cd)pyrene	Methyl-2-pentanone[4-]	Methylene Chloride	Methylnaphthalene[2-]	Naphthalene	Phenanthrene	Pyrene	Toluene
AAA2685	50-06528	3.00–4.00	Sediment	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
AAA2644	50-06529	0.00–0.50	Sediment	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
AAA2683	50-06529	1.50–2.50	Sediment	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
AAA2684	50-06529	3.00–4.00	Sediment	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
AAA2645	50-06530	0.00–0.50	Sediment	—	—	—	—	—	—	—	—	—	—	—	—	—	0.042 (J)	—
AAA2646	50-06531	0.00–0.50	Sediment	—	—	—	—	1.1	—	—	0.2 (J)	—	—	—	—	0.44	0.88	—
AAA2705	50-06531	1.50–2.50	Sediment	—	—	—	—	0.052 (J)	—	—	—	—	—	—	—	—	0.041 (J)	—
AAA2647	50-06532	0.00–0.50	Sediment	0.18 (J)	—	—	—	1.9	0.08 (J)	—	0.66	—	—	—	—	1.1	2.4	—
AAA2648	50-06533	0.00–0.50	Sediment	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
AAA2681	50-06533	1.50–2.50	Sediment	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
AAA2649	50-06534	0.00–0.50	Sediment	—	—	—	—	0.35 (J)	—	—	0.17 (J)	—	—	—	—	0.17 (J)	0.53	—
AAA2650	50-06535	0.00–0.50	Sediment	—	—	—	—	0.48	—	—	0.098 (J)	—	—	—	—	—	0.54	—
AAA2661	50-06536	1.50–2.50	Sediment	—	—	—	—	1	—	—	0.29 (J)	—	—	—	—	0.5	1.2	—
AAA2662	50-06536	3.00–4.00	Sediment	—	—	—	—	0.06 (J)	—	—	—	—	—	—	—	—	0.057 (J)	—
AAA2653	50-06538	0.00–0.50	Sediment	—	—	—	—	0.13 (J)	—	—	—	—	—	—	—	—	0.14 (J)	—
AAA2654	50-06539	0.00–0.50	Sediment	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
AAA2668	50-06539	3.00–4.00	Sediment	—	—	—	—	0.075 (J)	—	—	—	—	—	—	—	—	0.069 (J)	—
AAA2655	50-06540	0.00–0.50	Sediment	—	—	—	—	0.25 (J)	—	—	—	—	—	—	—	0.1 (J)	0.25 (J)	—
AAA2672	50-06541	3.00–4.00	Sediment	—	—	0.1 (J)	—	—	—	—	—	—	—	—	—	—	—	—
AAA2657	50-06542	0.00–0.50	Sediment	—	—	—	—	0.21 (J)	—	—	0.036 (J)	—	—	—	—	0.12 (J)	0.23 (J)	—
AAA2673	50-06542	1.50–2.50	Sediment	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
AAA3228	50-06551	0.00–0.50	Sediment	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.009 (J)
AAA3219	50-06552	0.00–0.50	Sediment	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.003 (J)
AAA3216	50-06552	3.00–4.00	Sediment	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
AAA3215	50-06553	0.00–0.50	Sediment	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.005 (J)
AAA3205	50-06554	0.00–0.50	Sediment	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
AAA3203	50-06555	0.00–0.50	Sediment	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
AAA3213	50-06556	0.00–0.50	Sediment	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.022 (J)
AAA3217	50-06556	1.50–2.50	Sediment	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
AAA3223	50-06557	0.00–0.50	Sediment	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.006 (J)
AAA3208	50-06557	3.00–4.00	Sediment	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
AAA3225	50-06558	0.00–0.50	Sediment	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
AAA3211	50-06559	0.00–0.50	Sediment	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.016 (J)
AAA3206	50-06560	0.00–0.50	Sediment	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Table 5.8-4 (continued)

Sample ID	Location ID	Depth (ft)	Media	Dibenz(a,h)anthracene	Dibenzofuran	Diethylphthalate	Di-n-butylphthalate	Fluoranthene	Fluorene	Hexanone[2-]	Indeno(1,2,3-cd)pyrene	Methyl-2-pentanone[4-]	Methylene Chloride	Methylnaphthalene[2-]	Naphthalene	Phenanthrene	Pyrene	Toluene
AAA3207	50-06561	0.00–0.50	Sediment	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.007 (J)
AAA3214	50-06562	0.00–0.50	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.008 (J)
AAA3200	50-06563	0.00–0.50	Sediment	—	—	—	—	—	—	0.014	—	—	0.002 (J)	—	—	—	—	0.005 (J)
AAA3204	50-06564	0.00–0.50	Sediment	—	—	—	—	—	—	—	—	0.008 (J)	—	—	—	—	—	0.002 (J)

Note: All values in mg/kg.

* — = Analyte not detected.

Table 5.9-1
Samples Collected at SWMU 50-006(c)

Sample ID	Location ID	Depth (ft)	Media	SVOCs	Gamma Spectroscopy	Tritium	Isotopic Plutonium	Isotopic Uranium	Strontium-90
AAA2439	50-05001	0–0.5	Soil	14633[a]	14634	14634	14634	14634	14634
AAA2440	50-05002	0–0.5	Soil	14633	14634	14634	14634	14634	14634
AAA2441	50-05003	0–0.5	Soil	14633	14634	14634	14634	14634	14634
AAA2442	50-05004	0–0.5	Soil	14633	14634	14634	14634	14634	14634
AAA2443	50-05005	0–0.5	Sediment	14633	14634	14634	14634	14634	14634
AAA2444	50-05006	0–0.5	Sediment	14633	14634	14634	14634	14634	14634
AAA2445	50-05007	0–0.5	Sediment	14633	14634	14634	14634	14634	14634
AAA2446	50-05008	0–0.5	Sediment	14633	14634	14634	14634	14634	14634
AAA2447	50-05009	0–0.5	Soil	14633	14634	14634	14634	14634	14634
AAA2448	50-05020	0–0.5	Soil	14633	14634	14634	14634	14634	14634
AAA2449	50-05021	0–0.5	Soil	14633	14634	14634	14634	14634	14634
AAA2450	50-05022	0–0.5	Soil	14633	14634	14634	14634	14634	14634
AAA2451	50-05023	0–0.5	Sediment	14633	14634	14634	14634	14634	14634
AAA2452	50-05024	0–0.5	Sediment	14633	14634	14634	14634	14634	14634
AAA2453	50-05025	0–0.5	Soil	14633	14634	14634	14634	14634	14634
AAA2454	50-05026	0–0.5	Soil	14633	14634	14634	14634	14634	14634
AAA2455	50-05027	0–0.5	Soil	14633	14634	14634	14634	14634	14634
AAA2456	50-05028	0–0.5	Soil	14633	14634	14634	14634	14634	14634
AAA2457	50-05029	0–0.5	Soil	14633	14634	14634	14634	14634	14634
AAA2458	50-05030	0–0.5	Soil	14633	14634	14634	14634	14634	14634
AAA2459	50-05031	0–0.5	Soil	14633	14634	14634	14634	14634	14634
AAA2460	50-05041	0–0.5	Soil	14643	14644	14644	14644	14644	—[b]
AAA2461	50-05042	0–0.5	Soil	14643	14644	14644	14644	14644	—
AAA2462	50-05043	0–0.5	Soil	14643	14644	14644	14644	14644	—
AAA2463	50-05044	0–0.5	Soil	14643	14644	14644	14644	14644	—
AAA2464	50-05045	0–0.5	Soil	14643	14644	14644	14644	14644	—
AAA2465	50-05046	0–0.5	Soil	14643	14644	14644	14644	14644	—
AAA2466	50-05047	0–0.5	Soil	14643	14644	14644	14644	14644	—
AAA2467	50-05048	0–0.5	Soil	14643	14644	14644	14644	14644	—
AAA2468	50-05060	0–0.5	Soil	14643	14644	14644	14644	14644	—
AAA2469	50-05061	0–0.5	Soil	14643	14644	14644	14644	14644	—
AAA2470	50-05062	0–0.5	Soil	—	14600	14600	14600	14600	—
AAA2471	50-05063	0–0.5	Fill	—	14600	14600	14600	14600	—

Table 5.9-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	SVOCs	Gamma Spectroscopy	Tritium	Isotopic Plutonium	Isotopic Uranium	Strontium-90
AAA2472	50-05064	0–0.5	Sediment	—	14600	14600	14600	14600	—
AAA2473	50-05065	0–0.5	Sediment	—	14600	14600	14600	14600	—
AAA2474	50-05066	0–0.5	Sediment	—	14600	14600	14600	14600	—
AAA2475	50-05067	0–0.5	Soil	—	14600	14600	14600	14600	—
AAA2476	50-05068	0–0.5	Soil	—	14600	14600	14600	14600	—
AAA2477	50-05069	0–0.5	Soil	—	14600	14600	14600	14600	—
AAA2478	50-05070	0–0.5	Soil	14643	14644	14644	14644	14644	—
AAA2479	50-05080	0–0.5	Soil	14643	14644	14644	14644	14644	—
AAA2480	50-05081	0–0.5	Soil	14643	14644	14644	14644	14644	—
AAA2481	50-05082	0–0.5	Soil	14643	14644	14644	14644	14644	—
AAA2482	50-05083	0–0.5	Soil	14643	14644	14644	14644	14644	—
AAA2483	50-05084	0–0.5	Soil	14643	14644	14644	14644	14644	—
AAA2484	50-05085	0–0.5	Soil	14643	14644	14644	14644	14644	—
AAA2485	50-05086	0–0.5	Soil	14643	14644	14644	14644	14644	—
AAA2486	50-05087	0–0.5	Soil	14643	14644	14644	14644	14644	—
AAA2487	50-05088	0–0.5	Soil	14643	14644	14644	14644	14644	—
AAA2488	50-05089	0–0.5	Soil	14643	14644	14644	14644	14644	—
AAA2489	50-05090	0–0.5	Soil	14643	14644	14644	14644	14644	—

[a] Analytical request number.

[b] — =Analysis not requested.

Table 5.9-2
Radionuclides Detected or Detected above FVs/BVs at SWMU 50-006(c)

Sample ID	Location ID	Depth (ft)	Media	Cobalt-60	Plutonium-238	Plutonium-239/ Plutonium-240	Thorium-232	Tritium
Soil Background/Fallout Value[a,b]				**na[c]**	**0.023**	**0.054**	**2.33**	**na**
Sediment Background/Fallout Value[a,b]				**na**	**0.006**	**0.068**	**2.33**	**0.093**
AAA2439	50-05001	0.00–0.50	Soil	—[d]	—	—	—	0.0348
AAA2440	50-05002	0.00–0.50	Soil	—	—	—	—	0.0226
AAA2441	50-05003	0.00–0.50	Soil	—	—	0.072	—	0.1574661
AAA2442	50-05004	0.00–0.50	Soil	—	—	0.069	—	0.0682
AAA2443	50-05005	0.00–0.50	Sediment	—	0.013	0.07	—	—
AAA2444	50-05006	0.00–0.50	Sediment	—	0.016	—	—	—
AAA2445	50-05007	0.00–0.50	Sediment	—	0.023	0.086	—	—
AAA2447	50-05009	0.00–0.50	Soil	—	0.09	0.206	—	0.3234597
AAA2448	50-05020	0.00–0.50	Soil	—	0.089	0.171	—	0.0596
AAA2449	50-05021	0.00–0.50	Soil	—	—	—	—	0.0472
AAA2450	50-05022	0.00–0.50	Soil	—	—	—	—	0.0316
AAA2452	50-05024	0.00–0.50	Sediment	1.5192	0.021	—	—	—
AAA2453	50-05025	0.00–0.50	Soil	—	—	—	—	0.0420304
AAA2454	50-05026	0.00–0.50	Soil	—	—	—	—	0.0297
AAA2455	50-05027	0.00–0.50	Soil	—	—	—	4.0285	0.0319
AAA2456	50-05028	0.00–0.50	Soil	—	—	—	—	0.0489
AAA2457	50-05029	0.00–0.50	Soil	—	—	—	—	0.056875
AAA2458	50-05030	0.00–0.50	Soil	—	—	0.066	—	0.0364
AAA2459	50-05031	0.00–0.50	Soil	—	—	0.691	—	0.1127894
AAA2460	50-05041	0.00–0.50	Soil	—	0.025	0.055	—	0.0403 (J)
AAA2461	50-05042	0.00–0.50	Soil	—	—	0.456	—	0.0774 (J)
AAA2462	50-05043	0.00–0.50	Soil	—	0.033	0.121	—	0.0395 (J)
AAA2463	50-05044	0.00–0.50	Soil	—	—	0.094	—	0.0260 (J)
AAA2464	50-05045	0.00–0.50	Soil	—	0.033	0.791	—	0.0232 (J)
AAA2465	50-05046	0.00–0.50	Soil	—	—	—	—	0.0290 (J)
AAA2466	50-05047	0.00–0.50	Soil	—	—	0.285	—	0.0423 (J)
AAA2467	50-05048	0.00–0.50	Soil	—	0.127	0.744	—	—
AAA2468	50-05060	0.00–0.50	Soil	—	—	—	—	0.0260 (J)
AAA2469	50-05061	0.00–0.50	Soil	—	0.052	1.606	—	0.0547 (J)
AAA2470	50-05062	0.00–0.50	Soil	—	—	0.097 (J)	—	—
AAA2471	50-05063	0.00–0.50	Fill	—	—	—	—	0.00877
AAA2472	50-05064	0.00–0.50	Sediment	—	—	0.124 (J)	—	0.2496534

Table 5.9-2 (continued)

Sample ID	Location ID	Depth (ft)	Media	Cobalt-60	Plutonium-238	Plutonium-239/ Plutonium-240	Thorium-232	Tritium
Soil Background/Fallout Value[a,b]				**na[c]**	**0.023**	**0.054**	**2.33**	**na**
Sediment Background/Fallout Value[a,b]				**na**	**0.006**	**0.068**	**2.33**	**0.093**
AAA2473	50-05065	0.00–0.50	Sediment	—	0.039	0.979	—	—
AAA2474	50-05066	0.00–0.50	Sediment	—	0.017	0.251 (J)	—	—
AAA2475	50-05067	0.00–0.50	Soil	—	—	—	—	0.0359
AAA2476	50-05068	0.00–0.50	Soil	—	0.028	0.763	—	0.0290
AAA2477	50-05069	0.00–0.50	Soil	—	—	0.13 (J)	—	0.0391
AAA2478	50-05070	0.00–0.50	Soil	—	—	0.316 (J)	—	0.0471 (J)
AAA2479	50-05080	0.00–0.50	Soil	—	—	—	—	0.0532 (J)
AAA2480	50-05081	0.00–0.50	Soil	—	—	—	—	0.0357 (J)
AAA2481	50-05082	0.00–0.50	Soil	—	—	0.162 (J)	—	0.0750 (J)
AAA2482	50-05083	0.00–0.50	Soil	—	—	0.187 (J)	—	0.0498 (J)
AAA2483	50-05084	0.00–0.50	Soil	—	—	0.076 (J)	—	0.0627 (J)
AAA2484	50-05085	0.00–0.50	Soil	—	—	—	—	0.112065 (J)
AAA2485	50-05086	0.00–0.50	Soil	—	—	1.395 (J)	—	0.0533 (J)
AAA2486	50-05087	0.00–0.50	Soil	—	—	0.435 (J)	—	0.0662 (J)
AAA2487	50-05088	0.00–0.50	Soil	—	—	—	—	0.0889 (J)
AAA2488	50-05089	0.00–0.50	Soil	—	—	—	—	0.0519774 (J)
AAA2489	50-05090	0.00–0.50	Soil	—	—	0.126 (J)	—	0.1098693 (J)

Note: All values in pCi/g.

[a] Background/fallout values are from LANL 1998, 059730.

[b] Fallout value applies to soil samples collected from 0–0.5 ft only and applies to sediment samples of all depth.

[c] na = Not available.

[d] — = Analyte not reported (detect or nondetect) above BV/FV or not detected.

Table 5.9-3
Organic Chemicals Detected at SWMU 50-006(c)

Sample ID	Location ID	Depth (ft)	Media	Acenaphthene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Bis(2-ethylhexyl)phthalate	Chrysene	Dibenz(a,h)anthracene	Diethylphthalate	Di-n-butylphthalate	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Phenanthrene	Pyrene
AAA2440	50-05002	0.00–0.50	Soil	—*	—	0.79	0.98	0.93	1	0.53	—	0.91	—	—	—	1.5	—	0.76	0.67	2.1
AAA2441	50-05003	0.00–0.50	Soil	—	—	—	—	—	—	—	—	—	—	—	—	0.75	—	—	0.64	0.74
AAA2445	50-05007	0.00–0.50	Sediment	—	—	1.2	1.3	1.4	1.2	1	—	1.5	0.55	—	—	2.8	—	1.1	1	2.1
AAA2447	50-05009	0.00–0.50	Soil	—	—	0.61	0.7	0.66	0.5	0.43	—	0.68	—	—	—	2.1	—	0.55	1.8	1.8
AAA2460	50-05041	0.00–0.50	Soil	—	—	0.29 (J)	0.36	0.34 (J)	0.28 (J)	0.32 (J)	—	0.37	—	—	—	0.7	—	0.27 (J)	0.38	0.74
AAA2461	50-05042	0.00–0.50	Soil	0.26 (J)	0.41	0.67	0.71	0.57	0.58	0.51	—	0.74	0.31 (J)	—	1.8	1.9	0.23 (J)	0.54	1.8	2
AAA2463	50-05044	0.00–0.50	Soil	—	—	—	—	—	—	—	0.7 (J)	—	—	—	—	—	—	—	—	—
AAA2465	50-05046	0.00–0.50	Soil	—	—	—	—	—	—	—	—	—	—	—	—	0.22 (J)	—	—	—	0.28 (J)
AAA2466	50-05047	0.00–0.50	Soil	0.15 (J)	0.21 (J)	0.3 (J)	0.32 (J)	0.24 (J)	—	0.23 (J)	—	0.31 (J)	—	—	—	0.89	—	0.2 (J)	0.91	0.93
AAA2467	50-05048	0.00–0.50	Soil	—	—	—	0.12 (J)	—	—	—	—	—	—	—	—	0.33 (J)	—	—	0.28 (J)	0.32 (J)
AAA2469	50-05061	0.00–0.50	Soil	0.14 (J)	0.3 (J)	1.8	2.4	2.2	1.4	1.4	—	2.9	0.69	—	—	4.1	—	1.6	2.1	4.8
AAA2484	50-05085	0.00–0.50	Soil	—	—	0.45	0.63	0.5	0.36 (J)	0.42	0.69 (J)	0.67	0.3 (J)	—	—	0.95	—	0.38 (J)	0.63	1.1
AAA2486	50-05087	0.00–0.50	Soil	—	—	—	—	—	—	—	—	—	—	0.21 (J)	—	—	—	—	—	—

Note: All values in mg/kg.

* — = Analyte not detected.

Table 5.10-1
Samples Collected at SWMU 50-006(d)

Sample ID	Location ID	Depth (ft)	Media	PCBs	SVOCs	Gamma Spectroscopy	Tritium	Isotopic Plutonium	Isotopic Uranium	Strontium-90
AAA2492	50-06000	0–0.5	Sediment	—[a]	14813[b]	14818	14818	14818	14818	14818
AAA2493	50-06001	0–0.5	Sediment	14813	14813	14818	14818	14818	14818	14818
AAA2494	50-06002	0–0.5	Sediment	—	—	14818	14818	14818	14818	14818
AAA2750	50-06002	1.5–2.5	Sediment	—	14813	14818	14818	14818	14818	14818
AAA2752	50-06002	3–4	Sediment	—	14813	14818	14818	14818	14818	14818
AAA2495	50-06003	0–0.5	Soil	—	14813	14818	14818	14818	14818	14818
AAA2496	50-06004	0–0.5	Sediment	—	14813	14818	14818	14818	14818	14818
AAA2497	50-06005	0–0.5	Sediment	—	14813	14818	14818	14818	14818	14818
AAA2753	50-06005	3–4	Sediment	—	14813	14818	14818	14818	14818	14818
AAA2498	50-06006	0–0.5	Sediment	14813	—	14818	14818	14818	14818	14818
AAA2499	50-06007	0–0.5	Sediment	14813	14813	14818	14818	14818	14818	14818
AAA2749	50-06007	1.5–2.5	Sediment	14813	14813	14818	14818	14818	14818	14818
AAA2500	50-06008	0–0.5	Sediment	—	14813	14818	14818	14818	14818	14818
AAA2748	50-06008	1.5–2.5	Soil	—	14813	14818	14818	14818	14818	14818
AAA2751	50-06008	3–4	Soil	—	14813	14818	14818	14818	14818	14818
AAA2501	50-06009	0–0.5	Soil	—	14788	14797	14797	14797	14797	14797
AAA2739	50-06009	3–4	Soil	—	14788	14797	14797	14797	14797	14797
AAA2502	50-06010	0–0.5	Sediment	—	14788	14797	14797	14797	14797	14797
AAA2503	50-06011	0–0.5	Soil	14788	14788	14797	14797	14797	14797	14797
AAA2504	50-06012	0–0.5	Soil	—	14788	14797	14797	14797	14797	14797
AAA2743	50-06012	1.5–2.5	Soil	14788	14788	14797	14797	14797	14797	14797
AAA2505	50-06013	0–0.5	Sediment	—	14788	14797	14797	14797	14797	14797
AAA2506	50-06014	0–0.5	Sediment	—	14788	14797	14797	14797	14797	14797
AAA2725	50-06014	1.5–2.5	Sediment	—	14788	14797	14797	14797	14797	14797
AAA2507	50-06015	0–0.5	Soil	—	14788	14797	14797	14797	14797	14797
AAA2747	50-06015	3–4	Soil	—	14788	14797	14797	14797	14797	14797
AAA2508	50-06016	0–0.5	Sediment	14788	14788	14797	14797	14797	14797	14797
AAA2744	50-06016	1.5–2.5	Sediment	14788	14788	14797	14797	14797	14797	14797
AAA2509	50-06017	0–0.5	Soil	14788	14788	14797	14797	14797	14797	14797
AAA2735	50-06017	3–4	Soil	14788	14788	14797	14797	14797	14797	14797
AAA2510	50-06018	0–0.5	Sediment	14762	14762	14763	14763	14763	14763	14763
AAA2728	50-06018	1.5–2.5	Sediment	14762	14762	14763	14763	14763	14763	14763
AAA2736	50-06018	3–4	Sediment	14762	14762	14763	14763	14763	14763	14763

Table 5.10-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	PCBs	SVOCs	Gamma Spectroscopy	Tritium	Isotopic Plutonium	Isotopic Uranium	Strontium-90
AAA2511	50-06019	0–0.5	Soil	—	14762	14763	14763	14763	14763	14763
AAA2726	50-06019	1.5–2.5	Soil	—	14762	14763	14763	14763	14763	14763
AAA2733	50-06019	3–4	Soil	—	14762	14763	14763	14763	14763	14763
AAA2512	50-06020	0–0.5	Soil	—	14762	14763	14763	14763	14763	14763
AAA2732	50-06020	1.5–2.5	Soil	—	14762	14763	14763	14763	14763	14763
AAA2740	50-06020	3–4	Soil	—	14762	14763	14763	14763	14763	14763
AAA2513	50-06021	0–0.5	Soil	—	14762	14763	14763	14763	14763	14763
AAA2727	50-06021	1.5–2.5	Soil	—	14762	14763	14763	14763	14763	14763
AAA2738	50-06021	3–4	Soil	—	14762	14763	14763	14763	14763	14763
AAA2514	50-06022	0–0.5	Sediment	—	14762	14763	14763	14763	14763	14763
AAA2731	50-06022	1.5–2.5	Sediment	—	14762	14763	14763	14763	14763	14763
AAA2741	50-06022	3–4	Sediment	—	14762	14763	14763	14763	14763	14763
AAA2515	50-06023	0–0.5	Soil	14762	14762	14763	14763	14763	14763	14763
AAA2729	50-06023	1.5–2.5	Soil	—	14762	14763	14763	14763	14763	14763
AAA2734	50-06023	3–4	Soil	—	14762	14763	14763	14763	14763	14763
AAA2516	50-06024	0–0.5	Soil	—	14762	14763	14763	14763	14763	14763
AAA2724	50-06024	1.5–2.5	Soil	—	14762	14763	14763	14763	14763	14763
AAA2517	50-06025	0–0.5	Sediment	14762	14762	14763	14763	14763	14763	14763
AAA2518	50-06026	0–0.5	Sediment	—	14762	14763	14763	14763	14763	14763

[a] — =Analysis not requested.

[b] Analytical request number.

Table 5.10-2
Radionuclides Detected or Detected above BVs/FVs at SWMU 50-006(d)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cesium-137	Cobalt-60	Plutonium-238	Plutonium-239/ Plutonium-240	Strontium-90	Tritium	Uranium-234	Uranium-235	Uranium-238
Soil Background/Fallout Value[a,b]				**0.013**	**1.65**	**na[c]**	**0.023**	**0.054**	**1.31**	**na**	**2.59**	**0.2**	**2.29**
Sediment Background/Fallout Value[a,b]				**0.04**	**0.9**	**na**	**0.006**	**0.068**	**1.04**	**0.093**	**2.59**	**0.2**	**2.29**
AAA2492	50-06000	0.00–0.50	Sediment	7.22	3.48	—[d]	1.96	4.803	—	4.544124	—	—	—
AAA2493	50-06001	0.00–0.50	Sediment	14.33	5.71	1.82	4.414	11.681	—	60.14518	—	—	—
AAA2494	50-06002	0.00–0.50	Sediment	—	5.44	0.93	1.913	3.971	1.83 (J-)	4.860529	—	—	—
AAA2750	50-06002	1.50–2.50	Sediment	71.003	67.27	—	12.421 (J-)	47.816 (J-)	18.3 (J-)	29.02662	—	—	—
AAA2752	50-06002	3.00–4.00	Sediment	18.57	187.49	—	13.804 (J-)	20.667 (J-)	8.43 (J-)	55.16522	3.056	—	—
AAA2495	50-06003	0.00–0.50	Soil	—	2.96	—	0.078	0.444	—	0.1307317	5.022	0.315	6.068
AAA2496	50-06004	0.00–0.50	Sediment	—	—	—	—	—	—	0.2487805	—	—	—
AAA2753	50-06005	3.00–4.00	Sediment	—	—	—	—	—	—	0.1504501	—	—	—
AAA2498	50-06006	0.00–0.50	Sediment	16.53	19.13	1.47	3.084	13.231	—	0.8413963	—	—	—
AAA2499	50-06007	0.00–0.50	Sediment	9.24	13.25	2.66	2.855	11.014	—	98.21634	—	—	—
AAA2749	50-06007	1.50–2.50	Sediment	18.03	29.37	5.22	6.666	19.235	—	105.0239	—	—	—
AAA2500	50-06008	0.00–0.50	Sediment	—	3.56	—	0.597	0.802	1.38 (J-)	0.6144407	3.556	—	4.189
AAA2748	50-06008	1.50–2.50	Soil	—	—	—	—	—	—	0.1957895	—	—	—
AAA2751	50-06008	3.00–4.00	Soil	—	—	—	0.354	0.308	2.48 (J-)	19.66192	—	—	—
AAA2501	50-06009	0.00–0.50	Soil	—	4.76	—	0.24	0.927	—	0.5675	5.608	0.258	7.125
AAA2739	50-06009	3.00–4.00	Soil	—	—	—	0.026	—	—	0.1394487	—	—	—
AAA2502	50-06010	0.00–0.50	Sediment	—	77.9	2.7	4.093	10.43	1.49 (J-)	2.309425	—	—	—
AAA2503	50-06011	0.00–0.50	Soil	—	11.7	—	0.865	1.519	—	0.6387982	3.918	—	5.086
AAA2504	50-06012	0.00–0.50	Soil	—	—	0.93	0.668	1.375	—	0.2741414	—	—	—
AAA2743	50-06012	1.50–2.50	Soil	—	18.6	0.76	0.337	0.904	0.94 (J-)	0.4056553	—	—	—

Table 5.10-2 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cesium-137	Cobalt-60	Plutonium-238	Plutonium-239/ Plutonium-240	Strontium-90	Tritium	Uranium-234	Uranium-235	Uranium-238
Soil Background/Fallout Value[a,b]				**0.013**	**1.65**	**na[c]**	**0.023**	**0.054**	**1.31**	**na**	**2.59**	**0.2**	**2.29**
Sediment Background/Fallout Value[a,b]				**0.04**	**0.9**	**na**	**0.006**	**0.068**	**1.04**	**0.093**	**2.59**	**0.2**	**2.29**
AAA2505	50-06013	0.00–0.50	Sediment	24.2	—	2.24	3.669	19.732	1.17 (J-)	10.15438	—	—	—
AAA2725	50-06014	1.50–2.50	Sediment	—	—	—	0.014	—	—	—	—	—	—
AAA2507	50-06015	0.00–0.50	Soil	—	7.58	—	0.439	1.252	5.14 (J-)	1.120617	5.48	0.243	6.785
AAA2747	50-06015	3.00–4.00	Soil	—	3.43	—	0.236	0.166	—	0.3225316	—	—	—
AAA2508	50-06016	0.00–0.50	Sediment	6.64	28.3	1.98	2.727	5.106	—	10.78075	—	—	—
AAA2744	50-06016	1.50–2.50	Sediment	—	32.3	3.01	2.401	3.947	2.33 (J-)	15.4203	—	—	—
AAA2509	50-06017	0.00–0.50	Soil	—	2.89	—	0.05	0.311	1.48 (J-)	0.6859471	3.79	—	4.48
AAA2735	50-06017	3.00–4.00	Soil	—	—	—	—	0.021	—	1.325789	—	—	—
AAA2510	50-06018	0.00–0.50	Sediment	19.081	31.563	3.2158	4.186	16.134	1.71 (J-)	30.36303	—	—	—
AAA2728	50-06018	1.50–2.50	Sediment	18.257	34.082	2.0415	2.793	15.596	1.87 (J-)	31.58693	—	—	—
AAA2736	50-06018	3.00–4.00	Sediment	10.531	37.286	—	3.096	7.339	3.1 (J-)	31.93234	—	—	—
AAA2511	50-06019	0.00–0.50	Soil	—	—	—	0.03	0.155	—	0.2264021	—	—	—
AAA2726	50-06019	1.50–2.50	Soil	—	1.0177	—	0.185	0.512	—	6.769277	—	—	—
AAA2733	50-06019	3.00–4.00	Soil	—	—	—	0.031	0.064	—	11.88753	—	—	—
AAA2512	50-06020	0.00–0.50	Soil	—	—	—	—	0.154	1.37 (J-)	0.3833333	2.991	—	3.254
AAA2732	50-06020	1.50–2.50	Soil	—	—	—	—	0.157	—	0.4263084	—	—	—
AAA2740	50-06020	3.00–4.00	Soil	—	—	—	—	0.025	—	0.8909643	—	—	—
AAA2513	50-06021	0.00–0.50	Soil	18.221	67.685	2.4397	5.909	17.555	3.01 (J-)	0.6089937	—	—	—
AAA2727	50-06021	1.50–2.50	Soil	—	203.02	—	8.522	4.294	4.44 (J-)	0.451745	—	—	—
AAA2738	50-06021	3.00–4.00	Soil	—	113.99	—	9.513	6.075	3.95 (J-)	0.7163303	—	—	—
AAA2514	50-06022	0.00–0.50	Sediment	—	14.258	1.1791	1.107	2.965	—	3.632461	—	—	—
AAA2731	50-06022	1.50–2.50	Sediment	9.4383	62.148	0.7825	2.508	13.376	2.62 (J-)	7.153747	—	—	—

Table 5.10-2 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cesium-137	Cobalt-60	Plutonium-238	Plutonium-239/ Plutonium-240	Strontium-90	Tritium	Uranium-234	Uranium-235	Uranium-238
Soil Background/Fallout Value[a,b]				**0.013**	**1.65**	**na[c]**	**0.023**	**0.054**	**1.31**	**na**	**2.59**	**0.2**	**2.29**
Sediment Background/Fallout Value[a,b]				**0.04**	**0.9**	**na**	**0.006**	**0.068**	**1.04**	**0.093**	**2.59**	**0.2**	**2.29**
AAA2741	50-06022	3.00–4.00	Sediment	—	373.1099	—	11.358	10.59	4.03 (J-)	5.831671	—	—	—
AAA2515	50-06023	0.00–0.50	Soil	—	50.146	1.1045	7.372	4.889	2.75 (J-)	0.6421755	—	—	—
AAA2729	50-06023	1.50–2.50	Soil	—	7.6197	—	0.809	0.351	3.63 (J-)	2.00912	—	—	—
AAA2734	50-06023	3.00–4.00	Soil	—	50.176	0.8782	0.189	0.824	4.82 (J-)	2.065197	—	—	—
AAA2516	50-06024	0.00–0.50	Soil	—	6.0491	—	1.295	5.702	—	0.554994	—	—	—
AAA2724	50-06024	1.50–2.50	Soil	14.979	20.945	—	4.235	10.71	—	1.593491	—	—	—
AAA2517	50-06025	0.00–0.50	Sediment	7.6766	43.533	2.39	3.556	7.881	1.48 (J-)	4.521383	—	—	—
AAA2518	50-06026	0.00–0.50	Sediment	9.014	32.945	1.1217	4.18	13.214	1.48 (J-)	3.275669	—	—	2.349

Note: All values in pCi/g.

[a] Background/fallout values are from LANL 1998, 059730.

[b] Fallout value applies to soil samples collected from 0–0.5 ft only and applies to sediment samples of all depth.

[c] na = Not available.

[d] — = Analyte not reported (detect or nondetect) above BV/FV or not detected.

Table 5.10-3
Organic Chemicals Detected at SWMU 50-006(d)

Sample ID	Location ID	Depth (ft)	Media	Aroclor-1260	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzoic Acid	Bis(2-ethylhexyl)phthalate	Chrysene	Fluoranthene	Phenanthrene	Pyrene
AAA2753	50-06005	3.00–4.00	Sediment	—*	—	—	—	5.7	—	—	—	—	—
AAA2503	50-06011	0.00–0.50	Soil	0.053	—	—	—	—	—	—	—	—	—
AAA2736	50-06018	3.00–4.00	Sediment	—	—	—	—	0.061 (J)	—	—	—	—	—
AAA2740	50-06020	3.00–4.00	Soil	—	—	—	—	0.21 (J)	—	—	—	—	—
AAA2513	50-06021	0.00–0.50	Soil	—	—	—	—	0.039 (J)	—	—	—	—	—
AAA2731	50-06022	1.50–2.50	Sediment	—	—	—	—	0.044 (J)	—	—	—	—	—
AAA2741	50-06022	3.00–4.00	Sediment	—	—	—	—	—	0.046 (J)	—	—	—	—
AAA2515	50-06023	0.00–0.50	Soil	—	0.12 (J)	0.12 (J)	0.16 (J)	0.083 (J)	—	0.18 (J)	0.17 (J)	0.05 (J)	0.18 (J)
AAA2729	50-06023	1.50–2.50	Soil	—	0.058 (J)	0.06 (J)	0.077 (J)	0.053 (J)	0.041 (J)	0.076 (J)	0.13 (J)	0.13 (J)	0.11 (J)
AAA2724	50-06024	1.50–2.50	Soil	—	—	—	—	0.13 (J)	—	—	—	—	—
AAA2518	50-06026	0.00–0.50	Sediment	—	—	—	—	0.17 (J)	—	—	—	—	—

Note: All values in mg/kg.

* — = Analyte not detected.

Table 5.15-1
Samples Collected at SWMU 50-011(a)

Sample ID	Location ID	Depth (ft)	Media	Metals	Perchlorate	VOCs	Americium-241	Gamma Spectroscopy	Tritium	Isotopic Plutonium	Isotopic Uranium
AAC0276	50-03011	7–8	Fill	20190[a]	—[b]	—	—	20195	20195	20195	20195
AAC0277	50-03011	8–9	Qbt 3	20190	—	—	—	20195	20195	20195	20195
AAC0285	50-03042	6.6–7.5	Qbt 3	20190	—	—	—	20195	20195	20195	20195
AAC0296	50-03042	8–9	Qbt 3	20190	—	—	—	20195	20195	20195	20195
AAC0287	50-03043	6–7	Qbt 3	20190	—	—	—	20195	20195	20195	20195
AAC0295	50-03043	7.8–8.5	Qbt 3	20190	—	—	—	20195	20195	20195	20195
AAC0289	50-03044	7.3–8.8	Qbt 3	20190	—	—	—	20195	20195	20195	20195
MD50-04-55783	50-23548	52.5–55	Qbt 2	2406S	2406S	2405S	2407S	2407S	2407S	2407S	2407S
MD50-04-55784	50-23548	57.5–60	Qbt 2	2406S	2406S	2405S	2407S	2407S	2407S	2407S	2407S
MD50-04-55785	50-23549	50–52.5	Qbt 2	2406S	2406S	2405S	2407S	2407S	2407S	2407S	2407S
MD50-04-55786	50-23549	57.5–60	Qbt 2	2406S	2406S	2405S	2407S	2407S	2407S	2407S	2407S

[a] Analytical request number.

[b] — =Analysis not requested.

Table 5.15-2
Inorganic Chemicals above BVs at SWMU 50-011(a)

Sample ID	Location ID	Depth (ft)	Media	Antimony	Selenium
Qbt 2,3,4 Background Value[a]				**0.5**	**0.3**
Soil Background Value[a]				**0.83**	**1.52**
AAC0276	50-03011	7.00–8.00	Fill	4.6 (U)	—[b]
AAC0277	50-03011	8.00–9.00	Qbt 3	4.4 (U)	0.53 (U)
AAC0285	50-03042	6.60–7.50	Qbt 3	4.6 (U)	0.55 (U)
AAC0296	50-03042	8.00–9.00	Qbt 3	4.5 (U)	0.57 (J)
AAC0287	50-03043	6.00–7.00	Qbt 3	4.6 (U)	0.55 (U)
AAC0295	50-03043	7.80–8.50	Qbt 3	4.5 (U)	0.53 (U)
AAC0289	50-03044	7.30–8.80	Qbt 3	4.7 (U)	0.56 (U)
MD50-04-55783	50-23548	52.50–55.00	Qbt 2	—	0.551 (U)
MD50-04-55784	50-23548	57.50–60.00	Qbt 2	—	0.332 (J)
MD50-04-55786	50-23549	57.50–60.00	Qbt 2	—	0.533 (U)

Note: All values in mg/kg.
[a] Background values are from LANL 1998, 059730.
[b] — = Analyte not reported (detect or nondetect) above BV or not detected.

Table 5.15-3
Radionuclides Detected at SWMU 50-011(a)

Sample ID	Location ID	Depth (ft)	Media	Plutonium-238	Plutonium-239/ Plutonium-240	Tritium
Soil Fallout Value[a,b]				**0.023**	**0.054**	**na[c]**
Qbt 2,3,4 Fallout Value[a,b]				**na**	**na**	**na**
AAC0276	50-03011	7.00–8.00	Fill	0.03	0.06	1.415309
AAC0277	50-03011	8.00–9.00	Qbt 3	—[d]	—	0.7514852
AAC0285	50-03042	6.60–7.50	Qbt 3	—	—	0.4558577
AAC0296	50-03042	8.00–9.00	Qbt 3	—	0.02	0.2937838
AAC0287	50-03043	6.00–7.00	Qbt 3	0.007	0.02	0.8533741
AAC0295	50-03043	7.80–8.50	Qbt 3	0.011	—	0.2997122
AAC0289	50-03044	7.30–8.80	Qbt 3	—	—	1.315881
MD50-04-55783	50-23548	52.50–55.00	Qbt 2	—	—	0.0821
MD50-04-55784	50-23548	57.50–60.00	Qbt 2	—	—	0.048
MD50-04-55785	50-23549	50.00–52.50	Qbt 2	0.0326	0.0506	—
MD50-04-55786	50-23549	57.50–60.00	Qbt 2	—	—	0.0351

Note: All values in pCi/g.
[a] Fallout values are from LANL 1998, 059730.
[b] Fallout value applies to samples collected from 0–0.5 ft only.
[c] na = Not available.
[d] — = Analyte not detected.

Table 5.15-4
Organic Chemicals Detected at SWMU 50-011(a)

Sample ID	Location ID	Depth (ft)	Media	Acetone
MD50-04-55783	50-23548	52.50–55.00	Qbt 2	0.0191
MD50-04-55784	50-23548	57.50–60.00	Qbt 2	0.0143
MD50-04-55785	50-23549	50.00–52.50	Qbt 2	0.0252
MD50-04-55786	50-23549	57.50–60.00	Qbt 2	0.0332

Note: All values in mg/kg.

Appendix A

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

A-1.0 ACRONYMS AND ABBREVIATIONS

AOC	area of concern
BV	background value
CFR	Code of Federal Regulations [U.S.]
CMR	Chemistry and Metallurgy Research
D&D	decontamination and decommissioning
DOE	Department of Energy [U.S.]
DOE-LAAO	Department of Energy–Los Alamos Area Office [U.S.; now Los Alamos Site Office (LASO)]
DRO	diesel range organics
EDTA	ethylenediaminetetraacetic acid
EM	Environmental Management [LANL division]
EP	Environmental Programs [Directorate]
EPA	Environmental Protection Agency [U.S.]
EQL	estimated quantitation limit
ER	environmental restoration
FV	fallout value
GPR	ground-penetrating radar
HIR	historical investigation report
LANL	Los Alamos National Laboratory
IA	interim action
LAAO	Los Alamos Area Office [name changed to LASO in December 2002]
LANL	Los Alamos National Laboratory
LLW	low-level waste
MDA	material disposal area
NFA	no further action
NMAC	New Mexico Administrative Code
NMED	New Mexico Environment Department
NMHWA	New Mexico Hazardous Waste Act
NMSA	New Mexico Statutes Annotated
NPDES	National Pollutant Discharge Elimination System
OU	operable unit
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl

ppm	part(s) per million
PVC	polyvinyl chloride
QA	quality assurance
QC	quality control
RCRA	Resource Conservation and Recovery Act
RFI	RCRA facility investigation
RLW	radioactive liquid waste
RLWTF	Radioactive Liquid Waste Treatment Facility
SAP	sampling and analysis plan
SVOC	semivolatile organic compound
SWMU	solid waste management unit
SWSC	Sanitary Wastewater Systems Consolidation
TA	technical area
TAL	target analyte list [EPA]
TPH	total petroleum hydrocarbons
TRU	transuranic
TSCA	Toxic Substances Control Act
VCA	voluntary corrective action
VCP	vitrified clay pipe
VOC	volatile organic compound
WWTP	wastewater treatment plant

A-2.0 GLOSSARY

administrative authority—For Los Alamos National Laboratory, one or more regulatory agencies, such as the New Mexico Environment Department, the U.S. Environmental Protection Agency, or the U.S. Department of Energy, as appropriate.

aggregate—At the Los Alamos National Laboratory, an area within a *watershed* containing solid waste management units (SWMUs) and/or areas of concern (AOCs), and the media affected or potentially affected by releases from those SWMUs and/or AOCs. Aggregates are designated to promote efficient and effective corrective action activities.

analysis—A critical evaluation, usually made by breaking a subject (either material or intellectual) down into its constituent parts, then describing the parts and their relationship to the whole. Analyses may include physical analysis, chemical analysis, toxicological analysis, and knowledge-of-process determinations.

analyte—The element, nuclide, or ion a chemical analysis seeks to identify and/or quantify; the chemical constituent of interest.

analytical method—A procedure or technique for systematically performing an activity.

aquifer—An underground geological formation (or group of formations) containing water that is the source of groundwater for wells and springs.

area of concern—(1) A release that may warrant investigation or remediation and is not a solid waste management unit (SWMU). (2) An area at Los Alamos National Laboratory that may have had a release of a hazardous waste or a hazardous constituent but is not a SWMU.

as low as reasonably achievable (ALARA)—(1) An approach to radiation protection for controlling or managing exposure (both individual and collective) to the work force and the general public. (2) An approach for controlling or managing releases of radioactive material to the environment at levels as low as social, technical, economic, practical, and public-policy considerations permit. ALARA is not a dose limit.

background concentration—Naturally occurring concentrations of an inorganic chemical or radionuclide in soil, sediment, or tuff.

background value (BV)—A statistically derived concentration (i.e., the upper tolerance limit [UTL]) of a chemical used to represent the background data set. If a UTL cannot be derived, either the detection limit or maximum reported value in the background data set is used.

blank—A sample that is expected to have a negligible or unmeasurable amount of an analyte. Results of blank sample analyses indicate whether field samples might have been contaminated during the sample collection, transport, storage, preparation, or analysis processes.

borehole—(1) A hole drilled or bored into the ground, usually for exploratory or economic purposes. (2) A hole into which casing, screen, and other materials may be installed to construct a well.

canyon—A stream-cut chasm or gorge, the sides of which are composed of cliffs or a series of cliffs rising from the chasm’s bed. Canyons are characteristic of arid or semiarid regions where downcutting by streams greatly exceeds weathering.

chain of custody—An unbroken, documented trail of accountability that is designed to ensure the uncompromised physical integrity of samples, data, and records.

chemical—Any naturally occurring or human-made substance characterized by a definite molecular composition.

chemical analysis—A process used to measure one or more attributes of a sample in a clearly defined, controlled, and systematic manner. Chemical analysis often requires treating a sample chemically or physically before measurement.

chemical of potential concern (COPC)—A detected chemical compound or element that has the potential to adversely affect human receptors as a result of its concentration, distribution, and toxicity.

chemical of potential ecological concern—A detected chemical compound or element that has the potential to adversely affect ecological receptors as a result of its concentration, distribution, and toxicity.

cleanup—A series of actions taken to deal with the release, or threat of a release, of a hazardous substance that could affect humans and/or the environment. The term cleanup is sometimes used interchangeably with the terms remedial action, removal action, or corrective action.

cleanup levels—Media-specific contaminant concentration levels that must be met by a selected corrective action. Cleanup levels are established by using criteria such as the protection of human health and the environment; compliance with regulatory requirements; reduction of toxicity, mobility, or volume through treatment; long- and short-term effectiveness; implementability; and cost.

Code of Federal Regulations (CFR)—A document that codifies all rules of the executive departments and agencies of the federal government. The code is divided into 50 volumes, known as titles. Title 40 of the CFR (referenced as 40 CFR) covers environmental regulations.

Compliance Order on Consent (Consent Order)—For the Environmental Remediation and Surveillance Program, an enforcement document signed by the New Mexico Environment Department, the U.S. Department of Energy, and the Regents of the University of California on March 1, 2005, which prescribes the requirements for corrective action at Los Alamos National Laboratory. The purposes of the Consent Order are (1) to define the nature and extent of releases of contaminants at, or from, the facility; (2) to identify and evaluate, where needed, alternatives for corrective measures to clean up contaminants in the environment and prevent or mitigate the migration of contaminants at, or from, the facility; and (3) to implement such corrective measures. The Consent Order supersedes the corrective action requirements previously specified in Module VIII of the Laboratory's Hazardous Waste Facility Permit.

Consent Order—See Compliance Order on Consent.

consolidated unit—A group of solid waste management units (SWMUs), or SWMUs and areas of concern, which generally are geographically proximate and have been combined for the purposes of investigation, reporting, or remediation.

contaminant—(1) Chemicals and radionuclides present in environmental media or on debris above background levels. (2) According to the March 1, 2005, Compliance Order on Consent (Consent Order), any hazardous waste listed or identified as characteristic in 40 Code of Federal Regulations (CFR) 261 (incorporated by 20.4.1.200 New Mexico Administrative Code [NMAC]); any hazardous constituent listed in 40 CFR 261 Appendix VIII (incorporated by 20.4.1.200 NMAC) or 40 CFR 264 Appendix IX (incorporated by 20.4.1.500 NMAC); any groundwater contaminant listed in the Water Quality Control Commission (WQCC) Regulations at 20.6.3.3103 NMAC; any toxic pollutant listed in the WQCC Regulations at 20.6.2.7 NMAC; explosive compounds; nitrate; and perchlorate. (Note: Under the Consent Order, the term "contaminant" does not include radionuclides or the radioactive portion of mixed waste.)

contract analytical laboratory—An analytical laboratory under contract to the University of California to analyze samples from work performed at Los Alamos National Laboratory.

corrective action—(1) In the Resource Conservation and Recovery Act, an action taken to rectify conditions potentially adverse to human health or the environment. (2) In the quality assurance field, the process of rectifying and preventing nonconformances.

decommissioning—The permanent removal of facilities and their components from service after the discontinued use of structures or buildings that are deemed no longer useful. Decommissioning must take place in accordance with regulatory requirements and applicable environmental policies.

decontamination—The removal of unwanted material from the surface of, or from within, another material.

detect (detection)—An analytical result, as reported by an analytical laboratory, that denotes a chemical or radionuclide to be present in a sample at a given concentration.

detection limit—The minimum concentration that can be determined by a single measurement of an instrument. A detection limit implies a specified statistical confidence that the analytical concentration is greater than zero.

discharge—The accidental or intentional spilling, leaking, pumping, pouring, emitting, emptying, or dumping of hazardous waste into, or on, any land or water.

disposal—The discharge, deposit, injection, dumping, spilling, leaking, or placing of any solid waste or hazardous waste into, or on, any land or water so that such solid waste or hazardous waste or any constituent thereof may enter the environment or be emitted into the air or discharged into any waters, including groundwaters.

effluent—Wastewater (treated or untreated) that flows out of a treatment plant, sewer, or industrial outfall. Generally refers to wastes discharged into surface waters.

Environmental Restoration (ER) Project—A Los Alamos National Laboratory project established in 1989 as part of a U.S. Department of Energy nationwide program, and precursor of today's Environmental Remediation and Surveillance (ERS) Program. This program is designed (1) to investigate hazardous and/or radioactive materials that may be present in the environment as a result of past Laboratory operations, (2) to determine if the materials currently pose an unacceptable risk to human health or the environment, and (3) to remediate (clean up, stabilize, or restore) those sites where unacceptable risk is still present.

environmental samples—Air, soil, water, or other media samples that have been collected from streams, wells, and soils, or other locations, and that are not expected to exhibit properties classified as hazardous by the U.S. Department of Transportation.

ER data—Data derived from samples that have been collected and paid for through Environmental Remediation and Surveillance Program funding.

ER database (ERDB)—A database housing analytical and other programmatic information for the Environmental Remediation and Surveillance Program. The ERDB currently contains about 3 million analyses in 300 tables.

ER identification (ER ID) number—A unique identifier assigned by the Environmental Remediation and Surveillance Program's Records Processing Facility to each document when it is submitted as a final record.

facility—All contiguous land (and structures, other appurtenances, and improvements on the land) used for treating, storing, or disposing of hazardous waste. A facility may consist of several treatment, storage, or disposal operational units. For the purpose of implementing a corrective action, a facility is all the contiguous property that is under the control of the owner or operator seeking a permit under Subtitle C of the Resource Conservation and Recovery Act.

fallout radionuclides—Radionuclides that are present at globally elevated levels in the environment as a result of fallout from world-wide atomic weapons tests. The Los Alamos National Laboratory (the Laboratory) background data sets consist of environmental surveillance samples taken from marginal and regional locations for the following radionuclides associated with fallout: tritium, cesium-137, americium-241, plutonium-238, plutonium-239/240, and strontium-90. Samples were collected from regional and marginal locations in the Laboratory's vicinity that were (1) representative of geological media found within Laboratory boundaries, and (2) were not impacted by Laboratory operations.

fallout value—The concentration of fallout radionuclides in surface soil (0-6 in.) that represent deposition from atmospheric fallout (resulting from world-wide atomic weapons tests) and are unrelated to Laboratory activities.

Federal Register—The official daily publication for Rules, Proposed Rules, and Notices from federal agencies and organizations, as well as Executive Orders and other presidential documents.

field duplicate (replicate) samples—Two separate, independent samples taken from the same source, which are collected as collocated samples (i.e., equally representative of a sample matrix at a given location and time).

Hazardous and Solid Waste Amendments (HSWA)—Public Law No. 98-616, 98 Stat. 3221, enacted in 1984, which amended the Resource Conservation and Recovery Act of 1976 (42 United States Code § 6901 et seq).

hazardous constituent (hazardous waste constituent)—According to the March 1, 2005, Compliance Order of Consent (Consent Order), any constituent identified in Appendix VIII of Part 261, Title 40 Code of Federal Regulations (CFR) (incorporated by 20.4.1.200 New Mexico Administrative Code [NMAC]) or any constituent identified in 40 CFR 264, Appendix IX (incorporated by 20.4.1.500 NMAC).

Hazardous Waste Bureau—The New Mexico Environment Department bureau charged with providing regulatory oversight and technical guidance to New Mexico hazardous waste generators and to treatment, storage, and disposal facilities, as required by the New Mexico Hazardous Waste Act.

Hazardous Waste Facility Permit—The authorization issued to Los Alamos National Laboratory (the Laboratory) by the New Mexico Environment Department that allows the Laboratory to operate as a hazardous waste treatment, storage, and disposal facility.

HSWA module—See Module VIII.

hydrogen-ion activity (pH)—The effective concentration (activity) of dissociated hydrogen ions (H+); a measure of the acidity or alkalinity of a solution that is numerically equal to 7 for neutral solutions, increases with alkalinity, and decreases as acidity increases.

material disposal area (MDA)—A subset of the solid waste management units at Los Alamos National Laboratory (the Laboratory) that include disposal units such as trenches, pits, and shafts. Historically, various disposal areas (but not all) were designated by the Laboratory as MDAs.

medium (environmental)—Any material capable of absorbing or transporting constituents. Examples of media include tuffs, soils and sediments derived from these tuffs, surface water, soil water, groundwater, air, structural surfaces, and debris.

migration—The movement of inorganic and organic chemical species through unsaturated or saturated materials.

migration pathway—A route (e.g., a stream or subsurface flow path) for the potential movement of contaminants to environmental receptors (plants, humans, or other animals).

Module VIII—Module VIII of the Los Alamos National Laboratory (the Laboratory) Hazardous Waste Facility Permit. This permit allows the Laboratory to operate as a hazardous-waste treatment, storage, and disposal facility. From 1990 to 2005, Module VIII included requirements from the Hazardous and Solid Waste Amendments. These requirements have been superceded by the March 1, 2005, Compliance Order on Consent (Consent Order).

National Pollutant Discharge Elimination System—The national program for issuing, modifying, revoking and reissuing, terminating, monitoring, and enforcing permits to discharge wastewater or storm water, and for imposing and enforcing pretreatment requirements under the Clean Water Act.

no further action—Under the Resource Conservation and Recovery Act, a corrective-action determination whereby, based on evidence or risk, no further investigation or remediation is warranted.

nondetect—A result that is less than the method detection limit.

non-ER data—Data derived from samples collected by, and paid for by, sources other than the Environmental Remediation and Surveillance Program.

notice of deficiency—A written notification from the administrative authority to a facility owner/operator following the review of a permit application or other permit-related plan or report. A notice of deficiency requests additional information before a decision can be made regarding the original plan or report.

operable units (OUs)—At Los Alamos National Laboratory, 24 areas originally established for administering the Environmental Remediation and Surveillance Program. Set up as groups of potential release sites, the OUs were aggregated according to geographic proximity for the purposes of planning and conducting Resource Conservation and Recovery Act (RCRA) facility assessments and RCRA facility investigations. As the project matured, it became apparent that there were too many areas to allow efficient communication and to ensure consistency in approach. In 1994, the 24 OUs were reduced to 6 administrative field units.

outfall—A place where effluent is discharged into receiving waters.

permit—An authorization, license, or equivalent control document issued by the U.S. Environmental Protection Agency or an approved state agency to implement the requirements of an environmental regulation.

permit modification—A change to a condition in a facility's permit, initiated by either a request from the permittee or by the administrative authority's action.

polychlorinated biphenyls (PCBs)—Any chemical substance limited to the biphenyl molecule that has been chlorinated to varying degrees, or any combination that contains such substances. PCBs are colorless, odorless compounds that are chemically, electrically, and thermally stable and have proven to be toxic to both humans and other animals.

potential release site—A term for a potentially contaminated site at Los Alamos National Laboratory that refers to solid waste management units and areas of concern.

quality assurance/quality control—A system of procedures, checks, audits, and corrective actions set up to ensure that all U.S. Environmental Protection Agency research design and performance, environmental monitoring and sampling, and other technical and reporting activities are of the highest achievable quality.

quality control—See quality assurance/quality control.

quality-control sample—A specimen that, upon analysis, is intended to provide information that is useful for adjusting, controlling, or verifying the continuing acceptability of sampling and/or analysis activities in progress.

radiation—A stream of particles or electromagnetic waves emitted by atoms and molecules of a radioactive substance as a result of nuclear decay. The particles or waves emitted can consist of neutrons, positrons, alpha particles, beta particles, or gamma radiation.

radionuclide—Radioactive particle (human-made or natural) with a distinct atomic weight number.

RCRA facility investigation (RFI)—A Resource Conservation and Recovery Act (RCRA) investigation that determines if a release has occurred and characterizes the nature and extent of contamination at a hazardous waste facility. The RFI is generally equivalent to the remedial investigation portion of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) process.

regional aquifer—Geologic material(s) or unit(s) of regional extent whose saturated portion yields significant quantities of water to wells, contains the regional zone of saturation, and is characterized by the regional water table or potentiometric surface.

release—Any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing of hazardous waste or hazardous constituents into the environment.

remediation—(1) The process of reducing the concentration of a contaminant (or contaminants) in air, water, or soil media to a level that poses an acceptable risk to human health and the environment. (2) The act of restoring a contaminated area to a usable condition based on specified standards.

request for supplemental information—A request issued by the administrative authority (AA) that states that some aspect(s) of a plan or report does not meet the AA's requirements and that additional information is needed.

runoff—The portion of the precipitation on a drainage area that is discharged from the area.

sample—A portion of a material (e.g., rock, soil, water, or air), which, alone or in combination with other portions, is expected to be representative of the material or area from which it is taken. Samples are typically either sent to a laboratory for analysis or inspection or are analyzed in the field. When referring to samples of environmental media, the term field sample may be used.

screening action level (SAL)—A radionuclide's medium-specific concentration level; it is calculated by using conservative criteria below which it is generally assumed that no potential exists for a dose that is unacceptable to human health. The derivation of a SAL is based on conservative exposure and on land-use assumptions. However, if an applicable regulatory standard exists that is less than the value derived, it is used in place of the SAL.

sediment—(1) A mass of fragmented inorganic solid that comes from the weathering of rock and is carried or dropped by air, water, gravity, or ice. (2) A mass that is accumulated by any other natural agent and that forms in layers on the earth's surface (e.g., sand, gravel, silt, mud, fill, or loess). (3) A solid material that is not in solution and is either distributed through the liquid or has settled out of the liquid.

site characterization—Defining the pathways and methods of migration of hazardous waste or constituents, including the media affected; the extent, direction and speed of the contaminants; complicating factors influencing movement; or concentration profiles.

slope—A ratio of units of elevation change to units of horizontal change, usually expressed in degrees.

soil—(1) A material that overlies bedrock and has been subject to soil-forming processes. (2) A sample media group that includes naturally occurring and artificial fill materials.

soil screening level (SSL)—The concentration of a chemical (inorganic or organic) below which no potential for unacceptable risk to human health exists. The derivation of an SSL is based on conservative exposure and land-use assumptions, and on target levels of either a hazard quotient of 1.0 for a noncarcinogenic chemical or a cancer risk of 10^{-5} for a carcinogenic chemical.

solid waste management unit (SWMU)—(1) Any discernible site at which solid wastes have been placed at any time, whether or not the site use was intended to be the management of solid or hazardous waste. SWMUs include any site at a facility at which solid wastes have been routinely and systematically released. This definition includes regulated sites (i.e., landfills, surface impoundments, waste piles, and land treatment sites), but does not include passive leakage or one-time spills from production areas and sites in which wastes have not been managed (e.g., product storage areas). (2) According to the March 1, 2005, Compliance Order on Consent (Consent Order), any discernible site at which solid waste has been placed at any time, and from which the New

Mexico Environment Department determines there may be a risk of a release of hazardous waste or hazardous waste constituents (hazardous constituents), whether or not the site use was intended to be the management of solid or hazardous waste. Such sites include any area in Los Alamos National Laboratory at which solid wastes have been routinely and systematically released; they do not include one-time spills.

surface sample—A sample taken at a collection depth that is (or was) representative of the medium's surface during the period of investigative interest. A typical depth interval for a surface sample is 0 to 6 in. for mesa-top locations, but may be up to several feet in sediment-deposition areas within canyons.

target analyte—A chemical or parameter, the concentration, mass, or magnitude of which is designed to be quantified by a particular test method.

technical area (TA)—At Los Alamos National Laboratory, an administrative unit of operational organization (e.g., TA-21).

topography—The physical or natural features of an object or entity and their structural relationships.

tuff—Consolidated volcanic ash, composed largely of fragments produced by volcanic eruptions.

underground storage tank—A tank located at least partially underground and designed to hold gasoline or other petroleum products or chemicals.

U.S. Department of Energy—The federal agency that sponsors energy research and regulates nuclear materials for weapons production.

U.S. Environmental Protection Agency (EPA)—The federal agency responsible for enforcing environmental laws. Although state regulatory agencies may be authorized to administer some of this responsibility, EPA retains oversight authority to ensure the protection of human health and the environment.

watershed—A region or basin drained by, or contributing waters to, a river, stream, lake, or other body of water and separated from adjacent drainage areas by a divide, such as a mesa, ridge, or other geologic feature.

welded tuff—A volcanic deposit hardened by the action of heat, pressures from overlying material, and hot gases.

work plan—A document that specifies the activities to be performed when implementing an investigation or remedy. At a minimum, the work plan should identify the scope of the work to be performed, specify the procedures to be used to perform the work, and present a schedule for performing the work. The work plan may also present the technical basis for performing the work.

A-3.0 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 (km^2)	0.3861	square miles (mi^2)
hectares (ha)	2.5	acres
square meters (m^2)	10.764	square feet (ft^2)
cubic meters (m^3)	35.31	cubic feet (ft^3)
kilograms (kg)	2.2046	pounds (lb)
grams (g)	0.0353	ounces (oz)
grams per cubic centimeter (g/cm^3)	62.422	pounds per cubic foot (lb/ft^3)
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-4.0 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

Upper Mortandad Canyon Aggregate Area Analytical Data
(on CD included with this document)