LA-UR-09-7402
November 2009
EP2009-0555

Historical Investigation Report for Chaquehui Canyon Aggregate Area

Los Alamos
NATIONAL LABORATORY
EST.1943

Prepared by the Environmental Programs Directorate

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EXECUTIVE SUMMARY

The Chaquehui Canyon Aggregate Area includes a total of 51 solid waste management units (SWMUs) and areas of concern (AOCs) located in Technical Area 33 (TA-33) at Los Alamos National Laboratory (the Laboratory). Of these 51 sites, 8 have been investigated previously and/or remediated and approved for no further action, including, if appropriate, removal from the Laboratory's Hazardous Waste Facility Permit. This historical investigation report provides site descriptions, summarizes previous investigations, and presents historical analytical results for the remaining 43 sites under investigation. The background information and supporting data form the basis for the proposed sampling design necessary to complete the site investigations presented in the Chaquehui 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 fingerlike 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 above sea level. The location of the Chaquehui Canyon Aggregate Area with respect to the Laboratory technical areas (TAs) is shown in Figure 1.0-1.

The Laboratory's Environmental Programs (EP) Directorate, which includes the former Environmental Restoration (ER) Project, is participating in a national effort by DOE to clean up sites and facilities. The goal of EP is to ensure 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 historical analytical data for SWMUs and AOCs in TA-33 at the Laboratory within the Chaquehui Canyon Aggregate Area. The sites addressed in this HIR are potentially contaminated with hazardous and/or radioactive chemicals. Information on radioactive materials and radionuclides, including the results of sampling and analysis of radioactive constituents, is voluntarily provided to the New Mexico Environment Department (NMED) in accordance with DOE policy.

Corrective actions at the Laboratory are subject to the March 1, 2005, Compliance Order on Consent (the Consent Order). The purpose of this HIR is to provide supporting information for the activities necessary to complete the investigations presented in the Chaquehui Canyon Aggregate Area investigation work plan (LANL 2009, 107347). The SWMUs and AOCs are presented in this document on the basis of their regulatory status. Table 1.0-1 provides a summary of all sites within the aggregate area and their regulatory status.

Sections 2 to 5 of this HIR provide site descriptions and operational histories, previous investigations, and historical analytical data for site(s) under investigation in TA-33. 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 sites are organized by the four TA-33 operating areas within the aggregate area: Main Site (section 2); Area 6 (section 3); South Site (section 4); and the National Radio Astronomy Observatory (NRAO) (section 5). Plate 1 shows the locations of the sites under investigation in the Chaquehui Canyon Aggregate Area.

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

1.1 Data Overview

Data evaluated in this HIR include historical data collected from 1993 to 2005 as part of Resource Conservation and Recovery Act (RCRA) facility investigations (RFIs) and other corrective actions. In the Sample Management Database, all data records include a vintage code field denoting how and where samples were submitted for analyses.

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

Inorganic chemical and radionuclide data from previous investigations were compared with background values (BVs) and fallout values (FVs) (LANL 1998, 059730, p. 6-24). Organic chemicals and anthropogenic radionuclides in soil greater than a depth of 1 ft or in rock are determined to be present if detected. Data included in this report are those collected by the ER Project. Data collected by other organizations, including data collected before the RFIs, are not included.

1.2 Overview of TA-33

TA-33, also known as Hot Point (HP) Site, is located on the Lower Pajarito Plateau in the southeastern corner of the Laboratory (Plate 1). TA-33 occupies approximately 1000 acres and is currently used for experimental research activities that support the creation, delivery, and maintenance of innovative detection and energy-projection systems for remote applications in space and around the world. Structures within TA-33 are located on the mesa top, which is bounded to the north by Ancho Canyon and on the south by Chaquehui Canyon. TA-33 extends southeast to the Rio Grande, southwest to Frijoles Canyon, northeast to Ancho Canyon, and northwest to NM 4.

TA-33 was initially developed in 1947 as a test site for implosion-type initiator experiments using conventional high explosives (HE), depleted uranium (DU), and beryllium. Polonium-210 was prepared off-site and used as the radiation source for the experiments. The experiments were performed in underground chambers, on surface firing pads, and at firing sites equipped with large guns that fired projectiles into earthen berms. Initiator testing at TA-33 ceased in 1972. After 1972, TA-33 has been used for offices, laboratories, and storage in support of electronics design and fabrication and experiments formerly conducted at the Hot Dry Rock Program. An antenna for the NRAO Very Long Baseline Array radiotelescope was sited at TA-33 in 1985 and is operational. The high-pressure tritium facility (former building 33-0086) was constructed at TA-33 in 1955 and operated until 1990. The tritium facility was decommissioned and demolished in the mid-1990s.

TA-33 consists of five areas: a laboratory and office complex near the entrance of TA-33 at NM 4 (Main Site); the former western firing site (Area 6); the former southern firing site (South Site); the former eastern firing site (East Site); and the current site of the antenna for the NRAO Very Long Baseline Array radiotelescope. SWMUs and AOCs at East Site [Consolidated Unit 33-003(a)-99, Material Disposal Area (MDA) D, and SWMUs 33-004(c), 33-004(k), and 33-010(b)] are located within the South Ancho Canyon Aggregate Area and are therefore not included in this HIR.

2.0 SITES UNDER INVESTIGATION AT MAIN SITE

This section provides descriptions and history of each of the sites being investigated at TA-33 Main Site, along with descriptions and results of previous investigations. A summary of decision-level samples collected and analyses requested during previous investigations is presented in Table 2.0-1. Inorganic chemicals above BVs in previous decision-level samples are presented in Table 2.0-2. Organic chemicals

detected in previous decision-level samples are presented in Table 2.0-3. Radionuclides detected or detected above BVs/FVs in previous decision-level samples are presented in Table 2.0-4.

2.1 Consolidated Unit 33-002(a)-99, MDA K

Consolidated Unit 33-002(a)-99 consists of SWMUs 33-002(a–e) and 33-010(f) and is collectively referred to as MDA K. The SWMUs in this consolidated unit consist of the former locations of a septic system and two seepage pits with drainlines and outfalls that served the former tritium facility (building 33-0086), and a former surface disposal area. MDA K is in the southeast area of Main Site at TA-33 and boundaries of the sites overlap (Figure 2.1-1).

2.1.1 SWMU 33-002(a), Septic System

2.1.1.1 Description and History

SWMU 33-002(a) is the former location of a septic system that served the former Tritium Facility (former building 33-0086) and a nearby guard station (former building 33-0090) (Figure 2.1-1a). The septic system was installed in 1954 and consisted of a drainline, an 860-gal. septic tank (former structure 33-0093), a siphon tank, and an approximately 50-ft × 100-ft drain field. The septic system operated until 1990 when discharge of effluent from the Tritium Facility ceased; however, the septic system continued to receive effluent from the guard station until the mid-1990s. The principal waste stream received by the septic system was sanitary wastewater from former buildings 33-0086 and 33-0090. The system also received tritium- and uranium-contaminated liquids associated with operations and other releases from former building 33-0086, including two releases of plutonium-contaminated liquid in 1961 (LANL 1992, 007671, p. 3-19).

2.1.1.2 Previous Investigations

As part of the Laboratory Environmental Surveillance Program, a radiation survey was conducted in 1986 at 30 points on a 32.8-ft × 32.8-ft grid covering the area east of former building 33-0086 and at five locations in the drainage channel to the east of the grid (LANL 1992, 007671, pp. 3-27–3-34). Surface soil samples (0–0.5 ft below ground surface [bgs]) were collected from the grid points and analyzed for tritium and uranium. Sampling data showed tritium levels above background (LANL 1992, 007671, pp. 3-27–3-34). In 1989, two boreholes were drilled, one at the east end of the septic system drain field to a depth of 150 ft bgs and one just north of the septic system drain field to a depth of 174 ft bgs (LANL 1995, 050113, pp. 18–20). Eighteen samples were collected from the deeper borehole and 12 samples were collected from the other borehole. Twenty-one samples were analyzed for tritium; 20 samples were analyzed for gamma-emitting radionuclides and uranium isotopes; 21 samples were analyzed for metals, uranium, semivolatile organic compounds (SVOCs), volatile organic compounds (VOCs), polychlorinated biphenyls (PCBs), and HE; and 22 samples were analyzed for VOCs. All data collected in 1986 and 1989 are screening-level data, and because they were not collected by the ER Project, they are not presented in this report; however, the data showed detected concentrations of VOCs and tritium and metals above background.

Phase I RFI sampling activities conducted in 1993 at SWMU 33-002(a) (LANL 1995, 050113) included collecting one liquid and one sludge sample from the septic tank for waste characterization purposes; three samples at three depths (0 to 0.5 ft, 3 to 3.5 ft, and 4 to 4.5 ft bgs) from a 4.5-ft-deep borehole next to the septic tank; two samples from depths of 5 and 10 ft bgs in each of two 10-ft-deep boreholes in the drain field east of the septic tank; and surface samples (0 to 0.5 ft bgs) from two locations in the drain field (Figure 2.1-1b). All samples were analyzed for uranium, tritium, isotopic plutonium, gamma emitters,

metals, and SVOCs; seven subsurface samples were analyzed for VOCs. All data collected during the Phase I RFI are screening-level data, are summarized below, and are presented in Appendix B.

Additional Phase I RFI sampling at SWMU 33-002(a) involved drilling three deep boreholes near the eastern (downgradient) edge of the drain field to depths of 230 ft to 315 ft bgs to investigate a tritium plume (Figure 2.1-1). Ten samples were collected from borehole 33-01230 from depths of 0 to 1 ft, 10 to 11 ft, 20 to 21 ft, 30 to 31 ft, 65 to 66 ft, 92 to 93 ft, 127 to 128 ft, 150 to 151 ft, 180 to 181 ft, and 230 to 231 ft bgs. All 10 samples were analyzed for tritium, 6 samples were analyzed for metals and SVOCs, and 4 samples were analyzed for VOCs. Thirteen samples were collected from borehole 33-01231 from depths of 0 to 0.5 ft, 10 to 11 ft, 20 to 21 ft, 30 to 31 ft, 60 to 61 ft, 94 to 95 ft, 124 to 126 ft, 153 to 155 ft, 183.9 to 184.6 ft, 211.5 to 212.2 ft, 244.5 to 245 ft, 268.7 to 269 ft, and 314 to 315 ft bgs. All 13 samples were analyzed for tritium, 6 samples were analyzed for metals and SVOCs, and 5 samples were analyzed for VOCs. Twelve samples were collected from borehole 33-01232 from depths of 0 to 0.5 ft, 10 to 11 ft, 20 to 21 ft, 30 to 31 ft, 60 to 61 ft, 90 to 91 ft, 95 to 97 ft, 125 to 126 ft, 150 to 151 ft, 180 to 181 ft, 210 to 211 ft, and 240 to 241 ft bgs. All 12 samples were analyzed for tritium, 5 samples were analyzed for metals and SVOCs, and 4 samples were analyzed for VOCs. Data from the 1993 Phase I RFI are screening-level data, are summarized below, and are presented in Appendix B.

During the 1996 Phase II RFI (LANL 1997, 071478), one borehole was advanced in the septic tank drain field (borehole 33-01696), and one borehole was advanced next to the septic tank (borehole 33-01652) (Figure 2.1-1). Three samples were collected from borehole 33-01696 at depths of 2.3 to 3 ft, 8.25 to 8.7 ft, and 12.5 to 13.2 ft bgs, and three samples were collected from borehole 33-01652 at depths of 1 to 1.5 ft, 3.1 to 4.1 ft, and 12.5 to 12.9 ft bgs. All six samples were analyzed for isotopic plutonium, uranium, metals, VOCs, and SVOCs. The 1996 decision-level data are presented in this HIR. Samples collected during the 1996 Phase II RFI and the analyses requested are presented in Table 2.0-1.

During a 1997 interim action (IA), the SWMU 33-002(a) septic tank was deactivated, the tank contents were removed and disposed of as mixed low-level waste (LLW), the tank's interior was steam-cleaned, the drainline connections to the tank were plugged, and the tank was left in place. No samples were collected.

During a 2005 accelerated corrective action (ACA), the SWMU 33-002(a) septic tank, inlet and outlet drainlines and drain field were removed and disposed of as LLW (LANL 2005, 091433). Sixteen confirmation samples were collected at eight locations beneath the septic tank inlet line from two depths beneath the bottom of the drainline (0 to 0.5 ft and 2 to 2.5 ft bgs). Sampling locations were biased to drainline joints, elbows, and cleanouts; no soil staining, elevated radiation, or VOC field-screening readings were observed along the drainline. Six confirmation samples were collected from two depths (0 to 0.5 ft and 2 to 3 ft bgs) at one location beneath the septic tank inlet, one location beneath the septic tank outlet and at one location in the center of the septic tank excavation after it was removed (Figure 2.1-1). Samples collected beneath the inlet drainline, septic tank and septic tank inlet and outlet connection were analyzed for isotopic uranium, tritium, isotopic plutonium, gamma-emitting radionuclides, americium-241, metals, perchlorate, PCBs, VOCs, SVOCs, high explosives (HE), strontium-90, nitrate, and cyanide. Twenty-six confirmation samples were collected from two depths (0 to 0.5 ft and 2 to 3 ft bgs) at 13 locations along the outlet drainline and within the drain field beneath the bottom of the drainlines. While the sample collection paperwork was being prepared for the samples collected beneath the outlet drainline and drain field, the analytical suite was inadvertently changed to include total petroleum hydrocarbons (TPH) diesel range organics (DRO) instead of the HE analysis. Therefore, there are no HE analytical data in the confirmation samples collected in the septic tank drain field after the drainlines were removed. The decision-level data are presented in this HIR. Samples collected during the ACA and the analyses requested are presented in Table 2.0-1.

2.1.1.3 Analytical Results

Phase I RFI data showed antimony, arsenic, barium, beryllium, cadmium, chromium, lead, nickel, selenium, silver, uranium, and zinc either detected above BVs or with detection limits above BVs. Antimony and arsenic were each detected above BVs in one tuff sample. Barium, beryllium, nickel and selenium were each detected in one basalt sample; there are no BVs for basalt. Cadmium was detected above of the soil BV in five samples and above the tuff BV in one sample. Chromium was detected above the soil BV in one sample and above the tuff BV in one sample and was detected in one basalt sample, for which there is no BV. Lead was detected above the soil BV in two samples and was detected in one basalt sample, for which there is no BV. Silver was detected above the soil BV in one sample and above the tuff BV in one sample. Uranium was detected above the soil BV in 11 samples, above the tuff BV in 4 samples, and was detected in 1 basalt sample, for which there is no BV. Zinc was detected above the soil BV in three samples, above the tuff BV in one sample, and was detected in one basalt sample, for which there is no BV.

Thirteen organic chemicals [acetone; benzo(a)anthracene; benzo(a)pyrene; benzo(b)fluoranthene; benzo(g,h,i)perylene; benzo(k)fluoranthene; bis(2-ethylhexyl)phthalate; chrysene; di-n-butylphthalate; fluoranthene; indeno(1,2,3-cd)pyrene; phenanthrene; and pyrene] were each detected in the Phase I RFI samples.

Radionuclides detected or detected above FVs were cesium-137, plutonium-238, plutonium-239/240, and tritium. Cesium-137 was detected in one subsurface soil sample, six tuff samples, and one basalt sample. Plutonium-238 was detected in eight subsurface soil samples, eight tuff samples, and one basalt sample. Plutonium-239/240 was detected in nine subsurface soil samples, eight tuff samples, and one basalt sample. Tritium was detected in 15 soil samples, 28 tuff samples, and 3 basalt samples.

Decision-level data from the Phase II RFI and ACA samples are presented in Tables 2.0-2, 2.0-3, and 2.0-4. Inorganic chemicals above BVs included aluminum, arsenic, barium, calcium, chromium, copper, lead, magnesium, mercury, nickel, nitrate, perchlorate, selenium, silver, uranium, vanadium, and zinc. Aluminum was detected above the tuff BV in nine samples. Arsenic was detected above the tuff BV in 11 samples. Barium was detected above the tuff BV in 11 samples and was detected above the soil BV in one sample. Calcium was detected above the soil BV in 3 samples and above the tuff BV in 18 samples. Chromium was detected above the soil BV in one sample and above the tuff BV in six samples. Copper was detected above the soil BV in 7 samples and above the tuff BV in 13 samples. Lead was detected above the soil BV in one sample and above the tuff BV in five samples. Magnesium was detected above the tuff BV in eight samples. Mercury was detected above the soil BV in six samples and above the tuff BV in five samples. Nickel was detected above the tuff BV in three samples. Nitrate was detected in 27 soil samples and 9 tuff samples; there is no BV for nitrate. Perchlorate was detected in 19 soil samples and 1 tuff sample; there is no BV for perchlorate. Selenium was detected above the tuff BV in 3 samples, and detection limits were above the tuff BV for 16 samples. Silver was detected above the soil BV in one sample, and detection limits were above the soil BV for three samples. Silver was also detected above the tuff BV in one sample. Uranium was detected above the soil BV in five samples and above the tuff BV in one sample. Vanadium was detected above the tuff BV in two samples. Zinc was detected above the soil BV in five samples and above the tuff BV in two samples. Antimony, cadmium, and total cyanide were not detected above soil and tuff BVs but had detection limits above BVs. Sampling locations and detected results for inorganic chemicals above BVs are shown on Plate 2.

Twenty-eight organic chemicals [acenaphthene; acenaphthylene; acetone; anthracene; Aroclor-1242; Aroclor-1254; Aroclor-1260; benzo(a)anthracene; benzo(a)pyrene; benzo(b)fluoranthene; benzo(g,h,i)perylene; bis(2-ethylhexyl)phthalate; bromobenzene; 2-butanone; 4-chloroaniline; chrysene; di-n-butylphtalate; dibenzofuran; fluoranthene; fluorene; indeno(1,2,3-cd)pyrene; 2-methylnaphthalene;

naphthalene; phenanthrene; pyrene; tetrachloroethene; toluene; and TPH-DRO] were detected. Bromobenzene, 4-chloroaniline, and dibenzofuran were each detected in one sample. Acenaphthylene, 2-butanone, and TPH-DRO were each detected in two samples. Aroclor-1242 was detected in three samples. Acetone, Aroclor-1260, and tetrachloroethene were each detected in five samples. Di-n-butylphtalate was detected in six samples. Benzo(a)anthracene and toluene were each detected in eight samples. Methylnaphthalene-2 was detected in 10 samples. Aroclor-1254 was detected in 12 samples. Naphthalene was detected in 14 samples. Benzo(g,h,i)perylene and indeno(1,2,3-cd)pyrene were each detected in 16 samples. Fluorene was detected in 17 samples. Acenaphthene, anthracene, benzo(a)pyrene, benzo(b)fluoranthene, chrysene, and phenanthrene were each detected in 18 samples. Fluoranthene and pyrene were each detected in 19 samples. Bis(2-ethylhexyl)phthalate was detected in 20 samples. Sampling locations and detected results for organic chemicals are shown on Plate 3.

Radionuclides detected or detected above BVs/FVs were americium-241, plutonium-238, plutonium-239/240, uranium-235/236, and tritium. Americium-241 was detected above the soil FV in one surface sample. Plutonium-238 was detected above the soil FV in one surface soil sample and was detected in one tuff sample. Plutonium-239/240 was detected above the soil FV in one surface sample. Uranium-235/236 was detected above the tuff BV in one sample, and uranium-238 was detected above the tuff BV in one sample. Tritium was detected in 35 subsurface soil samples and 31 tuff samples. Sampling locations and the results for radionuclides detected or detected above BVs/FVs are shown on Plate 4.

2.1.2 SWMU 33-002(b), Seepage Pit

2.1.2.1 Description and History

SWMU 33-002(b) is the location of a former seepage pit (former structure 33-0134) connected to sinks and floor drains in former building 33-0086 (Figure 2.1-1a). The seepage pit was an unlined, rubble-filled pit 6 ft in diameter and 8 ft deep, with a 3-in. concrete lid. Discharges to the seepage pit began in 1955 and ceased in 1959. The drainline discharging to the seepage pit was subsequently extended through the pit and routed approximately 75 ft downslope to daylight at an outfall [SWMU 33-002(e)] for the discharge of stormwater from roof drains on former building 33-0086. Wastes discharged to the SWMU 33-002(b) seepage pit between 1955 and 1959 contained organic solvents, including ethanol, methanol, trichlorethene (TCE), benzene, and acetone. Some of these solvents were contaminated with tritium. The SWMU 33-002(b) seepage pit also may have received beryllium, mercury, and DU.

2.1.2.2 Previous Investigations

In 1989, one surface sample (0 to 0.5 ft bgs) was collected at the location of the SWMU 33-002(b) seepage pit (structure 33-0134) (LANL 1995, 050113, pp. 40–41) and analyzed for metals, PCBs/pesticides, tritium, and gamma-emitting radionuclides. Data from the 1989 investigation are screening-level data and are not presented in this report; however, the data showed only tritium was detected.

Phase I RFI activities conducted at SWMU 33-002(b) in 1993 (LANL 1995, 050113) consisted of collecting a single soil sample from a depth of 5 ft bgs within the seepage pit, augering a 2.5-ft-deep borehole next to the seepage pit to the soil-tuff interface, and collecting two soil samples from depths of 0 to 0.5 ft and 2.5 to 3 ft bgs (Figure 2.1-1b). Samples were analyzed for uranium, tritium, isotopic plutonium, gamma-emitting radionuclides, metals, VOCs, and SVOCs; the sample collected within the seepage pit was also analyzed for PCBs/pesticides. Data from the 1993 Phase I RFI are screening-level data, are summarized below, and are presented in Appendix B.

Phase II RFI activities were conducted at SWMU 33-002(b) in 1996 (LANL 1997, 071478). A borehole was advanced through the SWMU 33-002(b) seepage pit to a depth of 117.4 ft bgs (Figure 2.1-1b). Twenty-five samples were collected at depth intervals of approximately 5 ft and analyzed for tritium. In addition, three samples collected within the first 15 ft were analyzed for uranium, isotopic plutonium, metals, VOCs, and SVOCs. The 1996 decision-level data are presented in this HIR. Samples collected during the 1996 Phase II RFI and the analyses requested are presented in Table 2.0-1.

During a 2005 ACA, the SWMU 33-002(b) inlet and outlet drainlines for the seepage pit were removed and disposed of as LLW, and the entire seepage pit was excavated and disposed of as mixed LLW (LANL 2005, 091433). The seepage pit location was overexcavated to dimensions of 9 ft in diameter × 8 ft deep. Twenty-two confirmation samples were collected from two depths beneath the bottom of the drainlines (0 to 0.5 ft and 2 to 2.5 ft bgs) at three locations beneath the remaining seepage pit inlet line and eight locations along the seepage pit outlet line (Figure 2.1-1b). Sampling locations were biased to drainline joints and elbows; no soil staining, elevated radiation, or VOC field-screening readings were observed along the drainlines. Four confirmation samples were collected from two depths (0 to 0.5 ft and 2 to 3 ft bgs) at two locations in the bottom of the seepage pit excavation and analyzed for isotopic uranium, tritium, isotopic plutonium, gamma-emitting radionuclides, americium-241, metals, perchlorate, PCBs, VOCs, SVOCs, HE, strontium-90, nitrate, and cyanide. Samples collected during the 2005 ACA and the analyses requested for the decision-level data are presented in Table 2.0-1.

2.1.2.3 Analytical Results

Uranium was detected above the soil BV in two 1993 Phase I RFI samples; no other inorganic chemicals were detected above BVs. No organic chemicals were detected in the Phase I RFI samples. Radionuclides detected or detected above FVs were plutonium-238, plutonium-239/240, and tritium. Plutonium-238 was detected in one sample. Plutonium-239/240 was detected above the soil FV in one surface sample and was detected in one subsurface sample. Tritium was detected in two samples.

Decision-level data from the Phase II RFI and ACA samples are presented in Tables 2.0-2, 2.0-3, and 2.0-4. Inorganic chemicals detected above BVs were aluminum, arsenic, barium, calcium, chromium, cobalt, copper, lead, magnesium, mercury, nickel, nitrate, perchlorate, selenium, uranium, and vanadium. Aluminum was detected above the tuff BV in four samples. Arsenic was detected above the tuff BV in four samples. Barium was detected above the tuff BV in nine samples. Calcium was detected above the tuff BV in 13 samples. Chromium was detected above the tuff BV in three samples. Cobalt was detected above the tuff BV in two samples. Copper was detected above the soil BV in one sample and above the tuff BV in 13 samples. Lead was detected above the tuff BV in one sample. Magnesium was detected above the tuff BV in four samples. Mercury was detected above the tuff BV in seven samples. Nickel was detected above the tuff BV in three samples. Nitrate was detected in 3 soil samples and 15 tuff samples; there is no BV for nitrate. Perchlorate was detected in 3 soil samples and 14 tuff samples; there is no BV for perchlorate. Selenium was detected above the tuff BV in four samples. Detection limits for selenium were above the tuff BV for 18 samples. Uranium was detected above the tuff BV in one sample. Vanadium was detected above the tuff BV in two samples. Antimony and total cyanide were not detected above soil and tuff BVs but had detection limits above BVs. Sampling locations and detected results for inorganic chemicals above BVs are shown in Figure 2.1-2.

Twenty-six organic chemicals [acenaphthene; acetone; anthracene; Aroclor-1254; benzo(a)anthracene; benzo(a)pyrene; benzo(b)fluoranthene; benzo(g,h,i)perylene; benzo(k)fluoranthene; benzoic acid; chrysene; di-n-butylphtalate; fluoranthene; fluorene; indeno(1,2,3-cd)pyrene; 4-isopropyltoluene; methylene chloride; 2-methylnaphthalene; naphthalene; phenanthrene; pyrene; tetrachloroethene; toluene; 1,1,1-trichloroethane (TCA); TPH-DRO; and TCE] were detected. TPH-DRO, TCA, di-n-

butylphthalate, fluorene, 2-methylnaphthalene, and naphthalene were each detected in one sample. Acenaphthene; anthracene; benzo(a)anthracene; benzo(g,h,i)perylene; benzoic acid; indeno(1,2,3-cd)pyrene; and benzo(k)fluoranthene were each detected in two samples. Aroclor-1254, benzo(a)pyrene, benzo(b)fluoranthene, chrysene, and toluene were each detected in three samples. Methylene chloride, phenanthrene, and pyrene were each detected in five samples. Fluoranthene and trichloroethene were each detected in six samples. Tetrachloroethene was detected in seven samples. Acetone was detected in eight samples. Sampling locations and detected results for organic chemicals are shown in Figure 2.1-3.

Radionuclides detected or detected above BVs/FVs were americium-241, strontium-90, uranium-235/236, and tritium. Americium-241 was detected in two tuff samples. Strontium-90 was detected in four tuff samples. Uranium-235/236 was detected above the tuff BV in two samples. Tritium was detected in 3 subsurface soil samples and 37 tuff samples. Sampling locations and results for radionuclides detected or detected above BVs/FVs are shown in Figure 2.1-4.

2.1.3 SWMU 33-002(c), Seepage Pit

2.1.3.1 Description and History

SWMU 33-002(c) is the location of a former seepage pit (former structure 33-0133) constructed in 1955 that received discharges from sinks and floor drains in former building 33-0086 (Figure 2.1-1a). The seepage pit was an unlined, rubble-filled pit that was 6 ft in diameter and 8 ft deep, with a 3-in.-thick concrete lid. Discharges to the seepage pit ceased in 1959. When the SWMU 33-002(c) seepage pit was deactivated, a drainline for noncontact cooling water from former building 33-0086 was extended through the pit and routed approximately 90 ft downslope to create an outfall [SWMU 33-002(d)]. Wastes discharged to the SWMU 33-002(c) seepage pit contained tritium and organic chemical solvents, including TCE, methanol, ethanol, acetone, and propanol (LANL 1992, 007671, p. 3-19).

2.1.3.2 Previous Investigations

In 1989, two surface samples were collected at the location of the SWMU 33-002(c) seepage pit (former structure 33-0133) (LANL 1995, 050113, p. 45) and analyzed for metals, PCBs/pesticides, SVOCs, VOCs, tritium, and gamma-emitting radionuclides. Data from the 1989 investigation are screening-level data and are not presented in this HIR; however, the data showed tritium and SVOCs were detected.

Phase I RFI activities conducted at SWMU 33-002(b) in 1993 (LANL 1995, 050113) consisted of collecting two soil samples from depths of 0 to 0.5 ft and 0 to 1.5 ft bgs within the seepage pit, augering a 5.5-ft-deep borehole next to the seepage pit to the soil-tuff interface, and collecting three soil samples from depths of 0 to 0.5 ft and 2.5 to 3 ft, and 5 to 5.5 ft bgs (Figure 2.1-1b). The samples were analyzed for uranium, tritium, isotopic plutonium, gamma-emitting radionuclides, metals, VOCs, and SVOCs; the samples collected in the seepage pit were also analyzed for PCBs/pesticides. Data from the 1993 Phase I RFI are screening-level data, are summarized below, and are presented in Appendix B.

During Phase II RFI activities conducted SWMU 33-002(c) in 1996 (LANL 1997, 071478), a borehole was advanced through the SWMU 33-002(b) seepage pit to a depth of 62 ft bgs (Figure 2.1-1b). Twenty-five samples were collected at depth intervals of approximately 5 ft and analyzed for uranium and isotopic plutonium. In addition, three samples collected within the first 12 ft were analyzed for tritium, metals, uranium, VOCs, and SVOCs. The 1996 decision-level data are presented in this HIR. Samples collected during the 1996 Phase II RFI and the analyses requested for the decision-level data are presented in Table 2.0-1.

During a 2005 ACA, the inlet and outlet drainlines for the SWMU 33-002(c) seepage pit were removed and disposed of as LLW, and the entire seepage pit was excavated and disposed of as mixed LLW (LANL 2005, 091433). The seepage pit location was overexcavated to dimensions of 9 ft in diameter × 10 ft deep. The outlet drainline discharged to the SWMU 33-002(d) outfall. Sixteen confirmation samples were collected from two depths beneath the bottom of the drainlines (0 to 0.5 ft and 2 to 2.5 ft bgs) at three locations beneath the remaining seepage pit inlet line and five locations along the seepage pit outlet line (Figure 2.1-1b). Sampling locations were biased to drainline joints; no soil staining, elevated radiation, or VOC field-screening readings were observed along the drainlines. Four confirmation samples were collected from two depths (0 to 0.5 ft and 2 to 3 ft bgs) at two locations in the bottom of the seepage pit excavation and analyzed for isotopic uranium, tritium, isotopic plutonium, gamma-emitting radionuclides, americium-241, metals, perchlorate, PCBs, VOCs, SVOCs, HE, strontium-90, nitrate, and cyanide. Samples collected during the 2005 ACA and the analyses requested for the decision-level data are presented in Table 2.0-1.

2.1.3.3 Analytical Results

Uranium was detected above the soil BV in two 1993 Phase I RFI samples; no other inorganic chemicals were detected above BV. No organic chemicals were detected in the Phase I RFI samples. Radionuclides detected or detected above FVs were plutonium-238, plutonium-239/240, and tritium. Plutonium-238 was detected in one subsurface sample. Plutonium-239/240 was detected above the soil FV in one surface sample and was detected in one subsurface sample. Tritium was detected in two samples.

Decision-level data from the Phase II RFI and ACA samples are presented in Tables 2.0-2, 2.0-3, and 2.0-4. Inorganic chemicals above BV were aluminum, arsenic, barium, cadmium, calcium, chromium, copper, lead, magnesium, mercury, nickel, nitrate, perchlorate, selenium, silver, and vanadium. Aluminum was detected above the tuff BV in four samples. Arsenic was detected above the tuff BV in two samples. Barium was detected above the tuff BV in 14 samples. Cadmium was detected above the tuff BV in one sample. Calcium was detected above the tuff BV in 17 samples. Chromium was detected above the tuff BV in six samples. Copper was detected above the tuff BV in five samples. Total cyanide was detected slightly above the BV in one tuff sample and detection limits were above the tuff BV for 11 samples. Lead was detected above the tuff BV in three samples. Magnesium was detected above the tuff BV in two samples. Mercury was detected above the tuff BV in 12 samples. Nickel was detected above the tuff BV in two samples. Nitrate was detected in eight tuff samples; there is no BV for nitrate. Perchlorate was detected in nine tuff samples; there is no BV for perchlorate. Selenium was detected above the tuff BV in nine samples. Detection limits for selenium were above the tuff BV for three samples. Silver was detected above the tuff BV in one sample. Zinc was detected above the tuff BV in two samples. Antimony was not detected above the tuff BV but had detection limits above the BV. Sampling locations and results above BVs for inorganic chemicals are shown in Figure 2.1-5.

Twenty-one organic chemicals [acenaphthene; anthracene; Aroclor-1254; Aroclor-1260; benzo(a)anthracene; benzo(a)pyrene; benzo(b)fluoranthene; benzo(g,h,i)perylene; benzo(k)fluoranthene; chrysene; di-n-butylphtalate; fluoranthene; fluorene; indeno(1,2,3-cd)pyrene; 2-methylnaphthalene; naphthalene; phenanthrene; pyrene; tetrachloroethene; TPH-DRO; and TCE] were detected. Acenaphthene, fluorene, 2-methylnaphthalene, and naphthalene were each detected in two samples. Anthracene, Aroclor-1260, benzo(a)anthracene, and benzo(k)fluoranthene were each detected in three samples. Aroclor-1254 and benzo(g,h,i)perylene were each detected in four samples. Benzo(a)pyrene was detected in seven samples. Benzo(b)fluoranthene and chrysene were each detected in six samples. Di-n-butylphtalate, tetrachloroethene, TPH-DRO, and TCE were each detected in one sample. Fluoroanthene was detected in 11 samples. Indeno(1,2,3-cd)pyrene was detected in five samples.

Phenanthrene and pyrene were each detected in 10 samples. Sampling locations and detected results for organic chemicals are shown in Figure 2.1-6.

Radionuclides detected or detected above FVs were americium-241, cesium-137, plutonium-238, plutonium-239, strontium-90, and tritium. Americium-241, cesium-137, and plutonium-239/240 were each detected in one tuff sample. Plutonium-238 and strontium-90 were each detected in three tuff samples. Tritium was detected in 29 tuff samples. Sampling locations and results for radionuclides detected or detected above BVs/FVs are shown in Figure 2.1-7.

2.1.4 SWMU 33-002(d), Outfall

2.1.4.1 Description and History

SWMU 33-002(d) is a former outfall that discharged noncontact cooling water from former building 33-0086 (Figure 2.1-1a). This outfall was created when the SWMU 33-002(c) seepage pit was deactivated and disconnected from the building 33-0086 drainline. At that time, the drainline to the seepage pit was extended 90 ft to the east to create an outfall for the discharge of noncontact cooling water. The outfall operated under the Laboratory's National Pollutant Discharge Elimination System permit until July 11, 1995, when it was removed from the permit. The drainline that discharged to this outfall was removed in 2005.

2.1.4.2 Previous Investigations

In 1989, two composite surface samples (0 to 6 in bgs) were collected at the SWMU 33-002(d) outfall (LANL 1995, 050113, p. 49) and analyzed for metals, PCBs/pesticides, SVOCs, VOCs, tritium, and gamma-emitting radionuclides. Data from the 1989 investigation are screening-level data and are not presented in this HIR; however, the data showed cadmium and chromium were detected above background and tritium and VOCs were detected.

The Phase I RFI conducted in 1993 at SWMU 33-002(d) (LANL 1995, 050113) consisted of collecting four surface samples (0 to 0.5 ft bgs) from four locations within the outfall and along the drainage channel east of the outfall (Figure 2.1-1b). The samples were analyzed for uranium, tritium, isotopic plutonium, gamma-emitting radionuclides, metals, and SVOCs. In addition, one sample was analyzed for PCBs, and three samples were analyzed for pesticides. Data from the 1993 Phase I RFI are screening-level data, are summarized below, and are presented in Appendix B.

The drainage channel below the SWMU 33-002(d) outfall was resampled in December 1994 to determine whether tritium concentrations had changed after approximately 1.5 yr. Three surface samples (0 to 0.5 ft bgs) were collected from three locations at or near the original sampling locations and analyzed for tritium. These supplemental data are also screening-level data, are summarized below, and are presented in Appendix B.

The drainline from the SWMU 33-002(c) seepage pit that discharged to the SWMU 33-002(d) outfall was removed during the 2005 ACA (section 2.1.2.2). No confirmation samples were collected within the outfall area or drainage.

2.1.4.3 Analytical Results

Metals detected above BVs in the 1993 Phase I RFI samples were cadmium, chromium, lead, silver, uranium, and zinc. Cadmium and zinc were detected above the soil BVs in three samples. Chromium was

detected above the soil BV in two samples. Lead was detected above the soil BV in two samples. Silver was detected above the soil BV in two samples. Uranium was detected above the soil BV in four samples.

Eleven organic chemicals [aldrin; Aroclor-1254; alpha-BHC (benzene hexachloride); delta-BHC; chrysene; 4,4-DDD (dichlorodiphenyldichloroethane); 4,4-DDT (dichlorophenyltrichloroethylene); endosulfan; fluoranthene; pyrene; and total PCBs] were detected in the Phase I RFI samples.

Tritium was detected in seven samples; no other radionuclides were detected or detected above BVs/FVs.

No decision-level data are available for SWMU 33-002(d).

2.1.5 SWMU 33-002(e), Outfall

2.1.5.1 Description and History

SWMU 33-002(e) consists of a roof drain and outfall at former building 33-0086. This drainline was 2 in. in diameter, approximately 90 ft long, and discharged to an outfall southeast of former building 33-0086 (Figure 2.1-1a). This outfall was created when the SWMU 33-002(b) seepage pit was deactivated and disconnected from the building 33-0086 drainline. At that time, the drainline to the seepage pit was extended 90 ft to the east to create an outfall for discharge of stormwater from roof drains on former building 33-0086. Stormwater discharges from these roof drains potentially contained tritium associated with releases from the former building 33-0086 air-emission stacks.

2.1.5.2 Previous Investigations

In 1989, one surface sample (0 to 0.5 ft bgs) was collected at the SWMU 33-002(e) outfall (LANL 1995, 050113, p. 56) (Figure 2.1-1b). The sample was analyzed for metals, PCBs/pesticides, SVOCs, VOCs, tritium, uranium, HE, and gamma-emitting radionuclides. Data from the 1989 investigation are screening-level data and are not presented in this HIR; however, the data showed tritium, VOCs, and SVOCs (polycyclic aromatic hydrocarbons [PAHs]) were detected.

Phase I RFI activities conducted in 1993 at SWMU 33-002(e) (LANL 1995, 050113) consisted of collecting three surface samples (0 to 0.5 ft bgs) from three locations within the outfall area and drainage channel. The samples were analyzed for tritium and SVOCs. Data from the 1993 Phase I RFI are screening-level data, are summarized below, and are presented in Appendix B.

The drainline from the SWMU 33-002(b) seepage pit that discharged to the SWMU 33-002(e) outfall was removed during the 2005 ACA (section 2.1.2.2). No confirmation samples were collected within the outfall area or drainage.

2.1.5.3 Analytical Results

Phase I RFI data showed no metals detected above BVs.

Seventeen organic chemicals [acenaphthene; anthracene; benzo(a)anthracene; benzo(a)pyrene; benzo(b)fluoranthene; benzo(g,h,i)perylene; benzo(k)fluoranthene; chrysene; dibenz(a,h)anthracene; dibenzofuran; fluoranthene; fluorene; indeno(1,2,3-cd)pyrene; 2-methylnaphthalene; naphthalene; phenanthrene; and pyrene] were detected in the Phase I RFI soil samples.

Tritium was detected in three soil samples; no other radionuclides were detected or detected above BVs/FVs.

No decision-level data are available for SWMU 33-002(e).

2.1.6 SWMU 33-010(f), Surface Disposal Area

2.1.6.1 Description and History

SWMU 33-010(f) is a surface disposal area (Figure 2.1-1a). The history of the site and the origins of the wastes are not known. The 1990 SWMU report states the SWMU was observed during a 1987 ER Project reconnaissance and describes it as concrete, cans, and metal pieces that littered the area east of former building 33-0086 (LANL 1990, 007513). The RFI report (LANL 1995, 071262) describes this SWMU as consisting of two small surface disposal areas located 300 ft southeast of former building 33-0086 and approximately 50 ft apart. One of the areas is described as approximately 15 ft^2 and the other as approximately 10 ft × 20 ft. Materials at the site included pieces of concrete; piles of tuff and cured asphalt; rusted metal cans, rebar, and strapping bands; and other debris. Although the source of these materials is not known, some are believed to be associated with roadwork activities.

2.1.6.2 Previous Investigations

Phase I RFI activities conducted in 1993 at SWMU 33-010(f) consisted of collecting two surface samples (0 to 0.5 ft bgs) from two locations, one at each small disposal area (Figure 2.1-1b). Both samples were analyzed for tritium, gamma-emitting radionuclides, and metals. One of the samples was also analyzed for pesticides and herbicides. Data from the 1993 Phase I RFI are screening-level data, are summarized below, and are presented in Appendix B.

2.1.6.3 Analytical Results

Phase I RFI data showed no metals detected above BVs. Two organic chemicals (4,4-DDE and endosulfan II) were detected in one sample. Tritium was detected in two samples; no other radionuclides were detected or detected above BVs/FVs.

No decision-level data are available for SWMU 33-010(f).

2.2 Consolidated Unit 33-004(a)-00, Main Site

Consolidated Unit 33-004(a)-00 consists of SWMUs 33-004(a, h, and i); 33-011(d); 33-015; and 33-017. The SWMUs in this consolidated unit consist of a septic system, three outfalls, a storage area, an incinerator, and operational releases. All the SWMUs are geographically located in the northeast corner of TA-33 Main Site, and the boundaries of some of the SWMUs overlap (Figures 2.2-1a and 2.2-2). The SWMUs that comprise this consolidated unit are generally associated with early operations at TA-33, which involved initiator development from 1950 to 1972. These SWMUs are not associated with the former TA-33 tritium facility (building 33-0086) or the tritium operations conducted at TA-33.

2.2.1 SWMU 33-004(a), Septic System

2.2.1.1 Description and History

SWMU 33-004(a) consists of a septic tank (structure 33-0031), associated drainlines, two seepage pits, and a drain field. The septic tank has a capacity of 1360 gal. and is located 50 ft northeast of building

33-0039 (Figure 2.2-1a). This septic tank is in use and serves all major buildings at the TA-33 Main Site. Septic tank 33-0031 received sanitary wastewater from a laboratory/office building (building 33-0019) and a storage building (building 33-0027). Industrial liquid wastes from building 33-0019 were discharged to a separate outfall. Septic tank 33-0031 discharged to a 90-ft × 80-ft drain field located approximately 200 ft northeast of the septic tank. This drain field is constructed of rows of 4-in. vitrified-clay tiles spaced approximately 10 ft apart. In 1951, the system was redesigned to accept industrial wastes from laboratories in buildings 33-0019, 33-0113, and 33-0114 and the machine shop in building 33-0039. Also in 1951, two 4-ft-diameter × 50-ft-deep gravel-filled seepage pits were constructed to receive the discharge from septic tank 33-0031, and the drain field was disconnected and removed from service. The seepage pits continue to receive the effluent from the septic tank.

A 1993 study of drains and discharges at TA-33 identified the following sources of discharges to this septic system: restrooms, water fountains, showers, laboratory floor drains, and sink drains in building 33-0019; janitor's closet sink drains in buildings 33-0019 and 33-0113; a floor drain in a shop in building 33-0039; a sink drain in a shop in building 33-0113; and roof drains from building 33-0019 (Santa Fe Engineering Ltd. 1992, 062036, Tables 2, 6, 7, and 13). The specific materials that may have been discharged to these drains are not well documented. A 1954 memorandum mentions occurrences of mercury spills in the electronics laboratory in building 33-0019, and spilled mercury could potentially have been released to the drains (Jordan 1954, 007918). The shop in building 33-0113 was primarily used to machine uranium but was also used for processing plastics and spray painting (Hyatt 1956, 007929).

2.2.1.2 Previous Investigations

During the 1993 Phase I RFI conducted at SWMU 33-004(a), one sludge sample and one liquid sample were collected from septic tank 33-0031 (LANL 1995, 071300) and analyzed for metals, SVOCs, VOCs, uranium, tritium, and gamma-emitting radionuclides. A borehole was drilled to a depth of 15 ft next to the septic tank and one surface sample (0 to 0.5 ft) and two subsurface samples (3 to 5 ft and 13 to 15 ft) were collected (Figure 2.2-1b). All samples were analyzed for metals, SVOCs, tritium, uranium, and gamma-emitting radionuclides. The two subsurface samples were also analyzed for VOCs. A borehole was drilled next to each seepage pit to a depth of 50 ft, and four samples were collected at four depths from each of these boreholes (7 to 9 ft or 8 to 10 ft, 22 to 24 ft, 37 to 39 ft, and 47 to 49 ft). All samples were analyzed for metals, SVOCs, VOCs, tritium, and gamma-emitting radionuclides, and all but one of the samples were also analyzed for uranium. Four surface (0 to 0.5 ft) and two subsurface (1.5 ft) samples were collected from random locations in the drain field and analyzed for metals, SVOCs, uranium, tritium, and gamma-emitting radionuclides; the subsurface samples were also analyzed for VOCs. Two of the surface samples were also analyzed for herbicides, pesticides, and PCBs. Data from the 1993 Phase I RFI are screening-level data, are summarized below, and are presented in Appendix B.

In 1994, four additional samples were collected from the drain field to better characterize potential releases (LANL 1995, 071300) (Figure 2.2-1b). These subsurface samples (1 to 2 ft, 2 to 3 ft, and 2.5 to 3.5 ft) were collected at joints in the vitrified clay tiles and submitted for laboratory analysis of metals, SVOCs, VOCs, tritium, uranium, and gamma-emitting radionuclides. Data from the 1994 sampling are screening-level data, are summarized below, and are presented in Appendix B.

In 1997, the ER Project collected one soil sample at each of three locations (below the tank, under the inlet, and under the outlet) (Figure 2.2-1b). Soil samples were analyzed for metals and VOCs (Michelotti and Kidman 1997, 074002). Samples collected during 1997 and the analyses requested are presented in Table 2.0-1.

2.2.1.3 Analytical Results

Metals detected in the liquid sample from the septic tank were barium, lead, mercury, uranium, and zinc. Metals detected in the sludge sample were arsenic, barium, cadmium, chromium, lead, nickel, silver, uranium, and zinc. Four organic chemicals (chloroform, 4-methylphenol, phenol, and toluene) were detected in the liquid sample from the septic tank. Thirty-six organic chemicals [benzo(a)anthracene; benzo(a)pyrene; benzo(b)fluoranthene; benzo(g,h,i)perylene; benzo(k)fluoranthene; bis(2-ethylhexyl)phthalate; 2-butanone; butylbenzylphthalate; n-butylbenzene; sec-butylbenzene; tert-butylbenzene; carbon disulfide; chloroform; chrysene; di-n-butylphthalate; di-n-octylphthalate; 1,4-dichlorobenzene; 1,1-dichloroethane; ethylbenzene; fluoranthene; indeno(1,2,3-cd)pyrene; isopropylbenzene; 4-isopropyltoluene; methylene chloride; 4-methylphenol; phenanthrene; propylbenzene; pyrene; 1,1,2,2-tetrachloroethane; tetrachloroethene; toluene; 1,1,2-trichloro-1,2,2-trifluoroethane; TCA; TCE; 1,2,4-trimethylbenzene; and total xylenes] were detected in the sludge sample. Tritium was the detected in both the liquid and sludge samples.

Lead, mercury, uranium, and zinc were detected above BVs in samples from the 1993 RFI borehole next to the septic tank. Lead was detected above the soil BV in one sample. Mercury was detected above the soil BV in one sample. Uranium was detected above the soil BV in all three samples. Zinc was detected above the soil BV in one sample. Antimony, cadmium, and silver were not detected but had detection limits above the soil BVs. Eight organic chemicals [benzo(a)anthracene; benzo(a)pyrene; benzo(k)fluoranthene; chrysene; di-n-butylphthalate; fluoranthene; phenanthrene; and pyrene] were detected in two samples from the borehole next to the septic tank. Radionuclides detected were cesium-137 and tritium. Cesium-137 was detected one subsurface sample. Tritium was detected in one surface sample and two subsurface samples.

Uranium and zinc were detected above BVs in the 1993 RFI samples from the drain field. Uranium was detected above soil BV in six samples, and zinc was detected above the soil BV in two samples. Antimony, cadmium, and silver were not detected above BVs but had detection limits above the soil BVs. Four organic chemicals (Aroclor-1254, di-n-butylphthalate, fluoranthene, and pyrene) were detected in four samples from the drain field. Tritium was detected in four surface samples and both subsurface samples.

Uranium was detected above the soil BV in two 1993 RFI samples from the boreholes adjacent to the seepage pits. Antimony, selenium, and silver were not detected above BVs but had detection limits above the soil BVs. Di-n-butylphthalate was detected in one sample. Cesium-137 was detected in one subsurface sample, and tritium was detected in seven subsurface samples.

Metals detected above BVs in samples collected from the drain field in 1994 were cadmium, chromium, copper, lead, mercury, selenium, silver, uranium, vanadium, and zinc. Cadmium, selenium, and vanadium were each detected above the soil BV in one sample. Chromium was detected above the soil BV in two samples. Copper, lead, mercury, silver, and zinc were detected above soil BVs in all four samples. Uranium was detected above the soil BV in three samples. Antimony was not detected above BV but had detection limits above the soil BV.

Seventeen organic chemicals [acenaphthene; acenaphthalene; anthracene; benzo(a)anthracene; benzo(a)pyrene; benzo(b)fluoranthene; benzo(g,h,i)perylene; benzo(k)fluoranthene; bis(2-ethylhexyl)phaltate; chrysene; di-n-butylphthalate; dibenz(a,h)anthracene; fluoranthene; fluorene; indeno(1,2,3-cd)pyrene; phenanthrene; and pyrene] were detected in four samples from the drain field.

Cesium-137 and tritium were detected in all four subsurface samples.

Decision-level data from the 1997 samples are presented in Tables 2.0-2 and 2.0-3. Metals detected above BVs in samples collected under and next to the septic tank in 1997 were lead and zinc. Lead was detected above the BV in one soil sample. Zinc was detected above the BV in two soil samples. Antimony and uranium were not detected above BVs but had detection limits above the soil BVs. Sampling locations and results for inorganic chemicals above BVs are shown in Figure 2.2-3.

Methylene chloride was detected in the one soil sample. Sampling locations and detected results for organic chemicals are shown in Figure 2.2-4.

2.2.2 SWMU 33-004(h), Outfall

2.2.2.1 Description and History

SWMU 33-004(h) consists of an outfall associated with a warehouse (building 33-0020) located at the south side of Main Site (Figure 2.2-1a). The warehouse was constructed in 1950 and used from 1952 to 1972 to store materials associated with initiator tests, including beryllium and uranium. The building subsequently was cleaned and used by other groups as a light laboratory and for general storage. The RFI work plan for Operable Unit (OU) 1122 states historical engineering drawings show an 8-in.-diameter VCP drain exiting the southeast corner of the building, which reportedly discharged to an outfall (LANL 1992, 007671, p. 3-23). A study of building drains at TA-33 identified two floor drains in building 33-0020 but could not locate an outfall. The study also noted there was no source of water in the building (Santa Fe Engineering, 1993, 062036, p. 5).

2.2.2.2 Previous Investigations

A Phase I RFI was conducted at SWMU 33-004(h) in 1993 (LANL 1995, 071262). Because the outfall could not be located visually, a geophysical survey was conducted to identify the possible location of the drainline. Three sampling locations were selected based on the results of the geophysical survey. These locations were at, and downgradient of, the location where the geophysical survey results indicated the outfall should have discharged. Three surface samples (0 to 0.5 ft) were collected at these locations (Figure 2.2-1b) and submitted for laboratory analysis of metals, tritium, uranium, and gamma-emitting radionuclides. One sample also was submitted for laboratory analysis of herbicides and pesticides. Data from 1993 Phase I RFI are screening-level data, are summarized below, and are presented in Appendix B.

2.2.2.3 Analytical Results

Metals detected above BVs in the 1993 Phase I RFI samples were cadmium, lead, nickel, uranium, and zinc. Cadmium, nickel, uranium, and zinc were detected above the soil BVs in two samples. Lead was detected above the soil BV in one sample. Two organic chemicals (endosulfan II and p,p'-DDE) were detected in one sample. No radionuclides were detected or detected above the soil BVs/FVs.

No decision-level data are available for SWMU 33-004(h).

2.2.3 SWMU 33-004(i), Outfalls

2.2.3.1 Description and History

SWMU 33-004(i) consists of two outfalls associated with a machine shop (building 33-0039) located near the east side of Main Site (Figure 2.2-1a). This machine shop was completed in 1951 and housed a welding and soldering bench that used cadmium and silver, a lead-melting facility, a beryllium-machining

room, and a sand blaster. Cadmium, uranium, stainless steel, and polystyrene plastic also were machined in the building. Machine shop operations ceased in the late 1990s. The outfalls are associated with two 4-in.-diameter vitrified clay pipes (VCPs), which run to the east of building 33-0039. The northernmost of the two outfalls is located approximately 30 ft east of the building, and the other outfall is located approximately 40 ft east of the building.

The sources of discharge to these outfalls are not known. A study of building drains at TA-33 confirmed wastewater discharges from building 33-0039 are connected to the SWMU 33-004(a) septic system (Santa Fe Engineering 1993, 062036, p. 7).

2.2.3.2 Previous Investigations

During the 1993 Phase I RFI conducted at SWMU 33-004(i), a geophysical survey was performed, and the drainlines and outfalls were located (LANL 1995, 071262). Surface samples (0 to 0.5 ft) were collected at each outfall and at two locations in the drainages downstream of each outfall, for a total of six samples (Figure 2.2-1b), and submitted for laboratory analysis of metals, SVOCs, tritium, uranium, and gamma-emitting radionuclides. One sample was also analyzed for herbicides and pesticides. Data from the 1993 Phase I RFI are screening-level data, are summarized below, and are presented in Appendix B.

2.2.3.3 Analytical Results

Metals detected above BVs in samples collected during the 1993 Phase I RFI were cadmium, chromium, lead, nickel, uranium, and zinc. Cadmium was detected above the soil BV in three samples. Chromium was detected above the soil BV in one sample. Lead and zinc were detected above the soil BV in five samples. Nickel was detected above the soil BV in one sample. Uranium was detected above the soil BV in six samples. Eleven organic chemicals [acenaphthene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, fluoranthene, fluorene, phenanthrene, and pyrene] were detected in six samples. No radionuclides were detected or detected above soil BVs/FVs.

Decision-level data are not available for SWMU 33-004(i).

2.2.4 SWMU 33-011(d), Former Storage Area

2.2.4.1 Description and History

SWMU 33-011(d) consists of a storage area located on the asphalt next to a warehouse (building 33-0020) near the south side of Main Site (Figure 2.2-1a). Beryllium and uranium were stored around building 33-0020 from 1950 to 1972. In addition, recovered scrap from shots containing uranium, beryllium, and tungsten was stored south of building 33-0020. The amount of uranium stored at this site is reported to have been “tons” (Ahlquist 1983, 006854). Much of the material stored here was salvaged for use elsewhere. A 1987 site survey found no materials stored at this location (LANL 1992, 007671, p. 3-24).

2.2.4.2 Previous Investigations

During the Phase I RFI conducted at SWMU 33-011(d) in 1993, two asphalt samples and three soil samples beneath the asphalt were collected at three sampling locations (LANL 1995, 071300). Soil samples were collected at depth intervals of 0.17 to 0.5 ft below the surface of the asphalt (Figure 2.2-1b). All samples were submitted for laboratory analysis of metals, uranium, and gamma-

emitting radionuclides. Two soil samples were also analyzed for tritium and isotopic plutonium. Data from the 1993 Phase I RFI are screening-level data, are summarized below, and are presented in Appendix B.

Based on the results of the Phase I RFI, Phase II sampling was performed in 1996 to better characterize contamination at the site (LANL 1997, 071478). One surface (0 to 0.5 ft bgs) and one subsurface sample (0.17 to 0.58 ft, 0.42 to 0.67 ft, 0.5 to 0.67 ft, 0.5 to 0.75 ft, and 0.67 to 1 ft bgs) were collected at each of seven locations. Six of these locations were beneath asphalt, and one location was in a drainage south of the asphalt. Six subsurface samples were collected beneath the asphalt at the soil-tuff interface. All samples collected from beneath the asphalt were submitted for laboratory analysis of metals and uranium. The two samples from the drainage were submitted for analysis of isotopic uranium. Samples collected during the 1996 Phase II RFI and the analyses requested are presented in Table 2.0-1.

2.2.4.3 Analytical Results

Metals detected above BVs during the 1993 Phase I sampling were beryllium, cadmium, lead, nickel, uranium, and zinc. Beryllium and cadmium were each detected above the BV for soil in one sample. Lead and uranium were detected above the soil BV in three samples. Nickel and zinc were detected above the soil BVs in two samples. Antimony and silver were not detected above BVs but had detection limits above the soil BVs. Radionuclides detected or detected above FVs were plutonium-238, plutonium-239, and tritium. Plutonium-238 was detected above the soil FV in two samples, and plutonium-239 was detected above the soil FV in one sample. Tritium was detected in two samples.

Decision-level data from the 1996 Phase II RFI samples are presented in Table 2.0-2. Metals detected above BVs were calcium, iron, lead, mercury, uranium, vanadium, and zinc. Calcium and iron were detected above the soil BVs in one sample. Lead was detected above the soil BV in three samples. Mercury and zinc were detected above the soil BVs in two samples. Uranium and vanadium were each detected above the tuff BVs in one sample. Antimony, cadmium, silver, and thallium were not detected above BVs but had detection limits above soil and tuff BVs. No uranium isotopes were detected above BV. Sampling locations and results for inorganic chemicals above BV are shown in Figure 2.2-5.

2.2.5 SWMU 33-015, Incinerator

2.2.5.1 Description and History

SWMU 33-015 consists of an incinerator (structure 33-0110) located approximately 50 ft southeast of building 33-0039 on a hillside that slopes to a side wash of Chaquehui Canyon (Figure 2.2-1a). The incinerator is approximately 4 ft × 4 ft × 6 ft high and is mounted on a concrete base. The incinerator was previously used to burn uncontaminated office trash. The incinerator was used first in 1955. The date it ceased to be used is not known.

2.2.5.2 Previous Investigations

During the Phase I RFI at SWMU 33-015 in 1993, two surface soil samples (0 to 0.5 ft bgs) were collected, one from each of the two downslope corners of the concrete base (LANL 1995, 071262) (Figure 2.2-1b). These samples were submitted for laboratory analysis of metals, tritium, uranium, and gamma-emitting radionuclides. Data from the 1993 Phase I RFI are screening-level data, are summarized below, and are presented in Appendix B.

2.2.5.3 Analytical Results

Metals detected above BVs in the 1993 RFI were cadmium, lead, silver, uranium, and zinc. Cadmium, silver, uranium, and zinc were each detected above the soil BV in two samples. Lead was detected above the soil BV in one sample. No radionuclides were detected or detected above FVs for soil.

No decision-level data are available for SWMU 33-015.

2.2.6 SWMU 33-017, Potential Soil Contamination

2.2.6.1 Description and History

SWMU 33-017 consists of areas potentially impacted by operational releases from the TA-33 Main Site. SWMU 33-017 is located at the northern and eastern edges of Main Site and is approximately 600 ft long × 100 ft to 600 ft wide (Figure 2.2-1a). The site generally slopes downward to the east and is at the head of a small drainage tributary of Chaquehui Canyon. SWMU 33-017 is potentially impacted by runoff from the paved areas of the TA-33 Main Site complex, by deposition from airborne releases from TA-33 Main Site facilities, and by operational releases from an area east of building 33-0039 used for vehicle maintenance. Operations conducted within Main Site included uranium processing and machining, cadmium and silver welding and soldering, lead melting and casting, cadmium and beryllium machining, and tritium processing and decontamination. These operations began in 1949 and most continued until 1972. Following these operations, some buildings were used for offices and electronics laboratories.

2.2.6.2 Previous Investigations

A Phase I RFI was conducted at SWMU 33-017 during 1993 (LANL 1995, 071300). To characterize the extent of general sitewide contamination from operational releases, 42 surface samples (0 to 0.5 ft, 0 to 0.66 ft, or 0 to 0.75 ft bgs) were collected at 41 locations, which were random offsets from a 100-ft grid overlying the Main Site and 4 radial extensions from the grid (Figure 2.2-1b). To characterize the extent of contamination of surface drainages, 19 surface samples (0 to 0.5 ft bgs) and 1 subsurface sample (0.5 to 1.5 ft bgs) were collected from drainage channels that receive runoff from the Main Site (Figure 2.2-2). To characterize potential contamination that resulted from releases at the vehicle maintenance area, five surface samples (0 to 0.5 ft bgs) were collected from this area. All 67 samples were submitted for laboratory analysis of metals and gamma-emitting radionuclides. Sixty-six of these samples were also submitted for analysis of SVOCs, 65 for isotopic plutonium, and 64 for tritium and uranium. In addition, 13 samples were submitted for analysis of herbicides, 8 for pesticides, and 3 for PCBs. Data from the 1993 Phase I RFI are screening-level data, are summarized below, and are presented in Appendix B.

A Phase II RFI was conducted at SWMU 33-017 in 1996 (LANL 1997, 071478). The area of investigation focused on the eastern side of building 33-0039 at the location of the former vehicle maintenance area. Twenty-four surface soil samples (0 to 0.5 ft bgs) and one subsurface sample (1 to 1.5 ft bgs) were collected from 24 locations (Figure 2.2-1b). Eighteen samples were submitted for laboratory analysis of SVOCs, and the remaining seven samples were submitted for laboratory analysis of PCBs. Samples collected during the 1996 Phase II RFI and the analyses requested are presented in Table 2.0-1.

2.2.6.3 Analytical Results

Metals detected above BVs during the 1993 Phase I RFI were arsenic, cadmium, chromium, lead, nickel, silver, uranium, and zinc. Arsenic was detected above the BV for soil in one sample. Cadmium was detected above the BV for soil in 24 samples. Lead was detected above the BV for soil in 17 samples.

Nickel was detected above the BV for soil in eight samples. Silver was detected above the BV for soil in seven samples. Uranium was detected above the BV for soil in 61 samples. Zinc was detected above the BV for soil in 21 samples. Antimony was not detected above BV, but had detection limits above the soil BV.

Twenty-three organic chemicals [acenaphthene; aniline, anthracene; benzo(a)anthracene; benzo(a)pyrene; benzon(b)fluoranthene; benzo(g,h,i)perylene; benzo(k)fluoranthene; beta-BHC; bis-(2-ethylhexyl)phthalate; chrysene; p,p'-DDE; dibenzo(a,h)anthracene; dibenzofuran; dieldrin; di-n-butylphthalate; endrin; fluoranthene; fluorene; indeno(1,2,3-cd)pyrene; naphthalene; phenanthrene; and pyrene] were detected in 17 samples.

Cesium-137, plutonium-238, plutonium-239/240, and tritium were detected or detected above the FVs. Cesium-137 was detected above the soil FV in five surface samples. Plutonium-238 was detected in one subsurface sample. Plutonium-239/240 was detected above the soil FV in four surface samples and was also detected in one subsurface sample. Tritium was detected in 64 samples.

Decision-level data from the 1996 Phase II RFI samples are presented in Table 2.0-3. Twenty-two organic chemicals [acenaphthene; anthracene; Aroclor-1254; Aroclor-1260; benzo(a)anthracene; benzo(a)pyrene; benzon(b)fluoranthene; benzo(g,h,i)perylene; benzo(k)fluoranthene; benzoic acid; butylbenzylphthalate; chrysene; di-n-butylphthalate; dibenz(a,h)anthracene; dibenzofuran; fluoranthene; fluorene; indeno(1,2,3-cd)pyrene; 2-methylnaphthalene; naphthalene; phenanthrene; and pyrene] were detected in 24 samples from the vehicle maintenance area. Sampling locations and detected results for organic chemicals are shown on Plate 5.

2.3 Consolidated Unit 33-005(a)-00

Consolidated Unit 33-005(a)-00 consists of SWMUs 33-005(a–c) and 33-011(a). The SWMUs in this consolidated unit consist of a former septic system, former drainlines, and a former drum storage area (Figure 2.3-1). These SWMUs are geographically located in the Main Site area of TA-33 across West Road, approximately 325 ft west of the former tritium facility (former building 33-0086) and are associated with managing liquid and solid wastes generated at former building 33-0021. Building 33-0021 was constructed in 1950 and originally housed glove boxes used to section projectiles for initiator tests. The projectiles contained uranium, beryllium, and polonium-210. Building 33-0021 was later used for other experiments involving plutonium. An accidental release of a mixture of plutonium and beryllium powders in April 1960 contaminated the entire building, which was decontaminated within weeks but was never used again. In 1974, the building, septic system, drains, drainlines, and leach field were removed, and the entire area was decontaminated and restored (Cox et al. 1975, 009728). Any soil containing gross-alpha radioactivity above 20 pCi/g was excavated. Soil over much of the site was removed down to bedrock. Radioactive debris and soil were disposed of at MDA G at TA-54. Excavations were backfilled with clean fill and revegetated.

2.3.1 SWMU 33-005(a), Former Septic System

2.3.1.1 Description and History

SWMU 33-005(a) consists of the former septic system that served restrooms and change-room lavatories in former building 33-0021 (Figure 2.3-1). Drainlines discharged to a manhole (former structure 33-0074), which drained to a septic tank (former structure 33-0032). The outfall for the septic system was reported to be a few ft south of the septic tank (LANL 1992, 007671, pp. 3-21–3-25). Building 33-0021 and all associated building drainlines and the septic system and septic system drainlines were removed in 1974 and disposed of at MDA G at TA-54 (LANL 1995, 071262, pp. 71–79). Soil was removed until radiation

readings were below detection levels of approximately 20 pCi/g gross alpha, and the area was backfilled with clean fill and leveled.

2.3.1.2 Previous Investigations

The 1993 Phase I RFI at SWMU 33-005(a) consisted of advancing one borehole at the location of the former septic tank and collecting one surface sample (0 to 0.5 ft bgs) and one subsurface sample (2 to 2.5 ft bgs). Because backfill at the site was thinner than anticipated, the depth of the borehole was less than specified in the RFI work plan (LANL 1992, 007671, pp. 3-21–3-25). Three surface samples (0 to 0.5 ft bgs) were collected at the former location of the outfall and at two locations in the drainage downslope of the outfall (Figure 2.3-1). Samples were field screened for radioactivity and organic chemicals and submitted for analysis of metals, gamma-emitting radionuclides, isotopic plutonium, and SVOCs; the subsurface sample was analyzed for VOCs (LANL 1995, 071262, pp. 71–78). Data from the 1993 Phase I RFI are screening-level data, are summarized below, and are presented in Appendix B.

2.3.1.3 Analytical Results

Metals detected above BVs in the 1993 Phase I RFI samples were uranium and zinc. Uranium was detected above the soil BV in five samples, and zinc was detected above the soil BV in one sample. Fifteen organic chemicals were detected in two 1993 Phase I RFI samples [acenaphthene; acetone; anthracene; benzo(a)anthracene; benzo(a)pyrene; benzo(b)fluoranthene; benzo(g,h,i)perylene; benzo(k)fluoranthene; chrysene; fluoranthene; fluorene; indeno(1,2,3-cd)pyrene; naphthalene; phenanthrene; and pyrene]. Cesium-137 and plutonium-239/240 were detected or detected above FVs. Cesium-137 was detected above the soil FV in one surface sample, and plutonium-239/240 was detected at above the soil FV in two surface samples.

Decision-level data are not available for SWMU 33-005(a).

2.3.2 SWMU 33-005(b), Former Drainline

2.3.2.1 Description and History

SWMU 33-005(b) consists of a former drainline that served a sink, floor drain, and safety shower in the counting room of former building 33-0021 (Figure 2.3-1). No information concerning the quantities or characteristics of wastes associated with this SWMU is available. The drainline discharged to an outfall located northwest of former building 33-0021 (Cox et al. 1975, 009728, p. 3 and Figure 7).

2.3.2.2 Previous Investigations

Phase I RFI activities at the SWMU 33-005(b) drainline in 1993 involved collecting three surface samples (0 to 0.5 ft bgs): one at the former location of the outfall, as determined from engineering drawings and topography; one at the location in the drainage downslope of the outfall; and one at the location upslope of the outfall (Figure 2.3-1). The samples were field screened for radioactivity and organic chemicals and submitted for analysis of metals, gamma-emitting radionuclides, isotopic plutonium, and SVOCs (LANL 1995, 071262, pp. 71–78). Data from the 1993 Phase I RFI are screening-level data, are summarized below, and are presented in Appendix B.

Based on a review of site drawings and descriptions provided in the document titled “Disposition of TA-33-21, A Plutonium Contaminated Experimental Facility” (Cox et al. 1975, 009728), the former drainline that connected to a sink, floor drain, and safety shower in the counting room in former building 33-0021 actually exited the building at the northwest corner, and the outfall was located approximately

50 ft northwest of the building. Therefore, the 1993 RFI samples were not collected near the location of the former drainline and outfall, as intended.

2.3.2.3 Analytical Results

Uranium and zinc were detected above BVs in the 1993 Phase I RFI samples. Uranium was detected above the soil BV in three samples, and zinc was detected above the soil BV in one sample. Twenty-one organic chemicals [acenaphthene; acenaphthalene; anthracene; benzo(a)anthracene; benzo(a)pyrene; benzo[b]fluoranthene; benzo(g,h,i)perylene; benzo(k)fluoranthene; chrysene; dibenz(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 in two samples. Plutonium-239/240 was detected above the soil FV in one surface sample.

Decision-level data are not available for SWMU 33-005(b).

2.3.3 SWMU 33-005(c), Former Drainline

2.3.3.1 Description and History

SWMU 33-005(c) is a former drainline that served sink, shower, and glove box drains in the process and hot-change rooms of former building 33-0021 (Figure 2.3-1). The drainline discharged to a leach field located approximately 50 ft south of the building. This line was removed during the 1974 removal activities. Approximately 30 ft of the drainline trench was found to be contaminated, resulting in the removal of 8.2 ft^3 of contaminated soil (LANL 1992, 007671, pp. 3-21–3-25).

2.3.3.2 Previous Investigations

During the Phase I RFI conducted at the SWMU 33-005(c) drainline in 1993, four surface samples (0 to 0.5 ft bgs) and four subsurface samples (1 to 1.5 ft) were collected from four boreholes. One borehole was advanced at the location of the former leach field, as determined from engineering drawings and site topography, and the others were advanced at random locations in the vicinity of the leach field (Figure 2.3-1). Three boreholes were advanced to a depth of 2 ft and one to a depth of 5 ft. Samples were field screened for radioactivity and organic chemicals and submitted for analysis of metals, gamma-emitting radionuclides, isotopic plutonium, and SVOCs. In addition, one surface sample and one subsurface sample were analyzed for VOCs, PCBs, pesticides, and herbicides. Data from the 1993 Phase I RFI are screening-level data, are summarized below, and are presented in Appendix B.

2.3.3.3 Analytical Results

Cadmium and uranium were detected above BVs in the 1993 Phase I RFI samples. Cadmium was detected above the soil BV in two samples and uranium was detected above the soil BV in eight samples. Seven organic chemicals (acetone, butyl benzyl phthalate, di-n-butyl phthalate, fluoranthene, 4-isopropyltoluene, phenanthrene, and pyrene) were detected in seven RFI samples. No radionuclides were detected or detected above BVs/FVs.

Decision-level data are not available for SWMU 33-005(c).

2.3.4 SWMU 33-011(a), Former Storage Area

2.3.4.1 Description and History

SWMU 33-011(a) is a former drum storage area located directly south of former building 33-0021 (Figure 2.3-1). This unpaved area occupied 0.25 acre and was used to store 55-gal. drums of waste oil. The drums were stored on pallets or directly on the soil and are present in an aerial photograph taken in 1986 (Koogle and Pouls Engineering 1986, 017907). During the implementation of the Phase I RFI in 1993, SWMU 33-011(a) was used to store drilling equipment, including a drilling pipe associated with the Hot Dry Rock Program.

2.3.4.2 Previous Investigations

During the Phase I RFI conducted at SWMU 33-011(a) in 1993, three surface samples (0 to 0.5 ft bgs) were collected from three locations based on the former drum storage area location shown in the 1986 aerial photograph (Koogle and Pouls Engineering 1986, 017907) (Figure 2.3-1). Samples were field screened for radioactivity and organic chemicals and submitted for analysis of SVOCs and PCBs. One sample also was submitted for analysis of metals, gamma-emitting radionuclides, isotopic plutonium, pesticides, and herbicides. Data from the 1993 Phase I RFI are screening-level data, are summarized below, and are presented in Appendix B.

2.3.4.3 Analytical Results

Lead was the only metal detected above BVs in the 1993 Phase I RFI samples and was detected above the soil BV in one sample. Seventeen organic chemicals [anthracene; benzo(a)anthracene; benzo(a)pyrene; benzo(b)fluoranthene; benzo(g,h,i)perylene; benzo(k)fluoranthene; chrysene, 4,4'-DDE; 4.4'-DDT; dieldrin; 2,4-endosulfan I; endosulfan II; endrin aldehyde; fluoranthene; indeno(1,2,3-cd)pyrene; phenanthrene; and pyrene] were detected in two RFI samples. No radionuclides were detected or detected above BVs/FVs.

Decision-level data are not available for SWMU 33-011(a).

2.4 AOC 33-008(c), Surface Disposal Area

2.4.1 Description and History

AOC 33-008(c) is a former surface disposal area located east of Main Site buildings 33-0039 and 33-0113 outside of the Main Site security fence (Figure 2.4-1). This former disposal site consisted of two areas: one near a culvert discharge where glass bottles and other debris were discovered and the other an area of surface debris situated north of the culvert. The culvert receives stormwater runoff from Main Site, is directly east of building 33-039, and is located in a drainage channel that leads to a tributary of Chaquehui Canyon. Debris observed included machined metal turnings, cable, glass bottles, and general trash on the ground surface and in the channel downstream of the culvert. The outlines of a possible trenched area are visible in aerial photographs from 1958 (USAF 1958, 015987). A small asphalt pad is located at the west end of the northern area and a partially full bottle was present on the ground surface. In 1999, a best management practice (BMP) was performed, and all visible debris was removed from the watercourse (LANL 2000, 068748, p. 5).

2.4.2 Previous Investigations

During the 1996 Phase I RFI conducted at AOC 33-008(c), geophysical surveys using metal detection and electromagnetic induction were conducted at the suspected fill areas. The survey of the areas near the culvert showed the presence of shallow metallic debris but did not indicate the presence of a landfill or buried debris (LANL 1996, 054963, p. 8). The survey of the trench area did not identify geophysical anomalies. Nine surface samples (0 to 0.5 ft) were collected from nine locations within the three areas of surface debris and the drainage channel. Two subsurface samples (0.5 to 0.83 ft and 1 to 1.5 ft bgs) were collected at the culvert and 40 ft downgradient of the culvert. Ten subsurface samples were collected from four boreholes drilled in the area near the culvert (Figure 2.4-1). Samples were collected from depth intervals of 1 to 2 ft, 3 to 5 ft, and 5 to 7 ft bgs from borehole 33-01679; from depth intervals of 0 to 0.5 ft, 1 to 2 ft, and 2 to 4 ft bgs from borehole 33-01680; from depth intervals of 0.5 to 1.25 ft, and 5 to 6 ft bgs from borehole 33-01681; and from depth intervals of 0 to 1 ft and 1 to 2 ft bgs from borehole 33-01682. The samples were screened for inorganic chemicals using an x-ray fluorescence (XRF) spectrometer. All samples were submitted for analysis of metals, cyanide, SVOCs, VOCs, and total uranium (LANL 1996, 054963, p. 6). Samples collected during the 1996 Phase I RFI and the analyses requested are presented in Table 2.0-1.

In 1999, a BMP was performed to remove all visible debris from the area at AOC 33-008(c) and from the watercourse. A total volume of 40-gal. of debris was removed from the area and from the water course. Two sediment catchments were constructed within the drainage below the eastern end of the culvert to prevent the migration of contaminated sediment. The first catchment was constructed 15 ft below the culvert, and the second was constructed 200 ft below the culvert (IT Corporation 1999, 065351, p. 1).

2.4.3 Analytical Results

Decision-level data from the 1996 Phase I RFI samples are presented in Tables 2.0-2 and 2.0-3. Aluminum, antimony, arsenic, barium, cadmium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, mercury, nickel, selenium, silver, thallium, uranium, vanadium, and zinc were above BVs. Aluminum was detected above the tuff BV in one sample and above the sediment BV in one sample. Antimony was detected above the soil BV in two samples, above the tuff BV in one sample, and above the sediment BV in six samples. Arsenic was detected above the sediment BV in five samples. Barium was detected above the sediment BV in five samples and above the tuff BV in one sample. Cadmium was detected above the soil BV in 3 samples, above the tuff BV in 2 samples, and above the sediment BV in 10 samples. Calcium was detected above the sediment BV in two samples. Chromium was detected above the soil BV in two samples, above the tuff BV in three samples, and above the sediment BV in eight samples. Cobalt was detected above the sediment BV in five samples and above the soil BV in three samples. Copper was detected above the soil BV in 4 samples, above the tuff BV in 2 samples, and above the sediment BV in 14 samples. Iron was detected above the soil BV in three samples, above the sediment BV in four samples, and above the tuff BV in one sample. Lead was detected above the soil BV in 3 samples, above the tuff BV in 3 samples, and above the sediment BV in 10 samples. Magnesium was detected above the tuff BV in one sample. Manganese was detected above the soil BV in three samples and above the sediment BV in four samples. Mercury was detected above the soil BV in 3 samples, above the tuff BV in 2 samples, and above the sediment BV in 11 samples. Nickel was detected above the soil BV in three samples, above the tuff BV in three samples, and above the sediment BV in eight samples. Selenium was detected above the sediment BV in one sample. Silver was detected above the soil BV in 2 samples, above the tuff BV in 1 sample, and above the sediment BV in 11 samples. Thallium was detected above soil BV in one sample and above the sediment BV in one sample. Uranium was detected above the soil BV in 6 samples, above the tuff BV in 3 samples, and above the sediment BV in 11 samples. Vanadium was detected above the tuff BV in two samples and

above the sediment BV in two samples. Zinc was detected above the soil BV in 3 samples, above the tuff BV in 3 samples, and above the sediment BV in 11 samples. Sampling locations and results for inorganic chemicals above BVs are shown on Plate 6.

Thirty-nine organic chemicals were detected in 16 1996 Phase I RFI samples [acenaphthene; acetone; anthracene; azobenzene; benzo(a)anthracene; benzo(a)pyrene; benzo(b)fluoranthene; benzo(g,h,i)perylene; benzo(k)fluoranthene; benzoic acid, bis(2-ethylhexyl)phthalate; 2-butanone; carbazole; chrysene; di-n-butylphthalate; dibenz(a,h)anthracene; dibenzofuran; di-n-butylphthalate; dibenz(a,h)anthracene; 1,4-dichlorobenzene; 2,4-dimethylphenol; fluoranthene; fluorene; 2-hexanone; indeno(1,2,3-cd)pyrene; methylene chloride; 2-methylnaphthalene; 2-methylphenol; 4-methylphenol; naphthalene; phenanthrene; phenol; pyrene; pyridine; TCA; toluene; TCE; 1,2,4-trimethylbenzene; and xylene] were detected. Sampling locations and detected results for organic chemicals are shown on Plate 7.

2.5 SWMU 33-011(e), Former Storage Area

2.5.1 Description and History

SWMU 33-011(e) is a former drum-storage area located at the south end of TA-33 Main Site, approximately 30 ft northwest of building 33-0022, a former HE storage magazine (Figure 2.5-1). The area is unpaved and slopes gradually to the southwest. Drums containing unknown materials were previously stored at this area. The date that materials were first stored at this site is unknown. At the time the OU 1122 RFI work plan was prepared in 1992, all the drums had been removed from the site and the area had been cleared (LANL 1992, 007671, p. 3-25). The site is currently not used.

2.5.2 Previous Investigations

Previous environmental investigations at SWMU 33-011(e) include soil sampling conducted in 1987. The results of this sampling reported uranium and gamma-emitting radionuclides above background (LANL 1990, 007513).

During the Phase I RFI conducted at SWMU 33-011(e) in 1993, two surface samples (0 to 0.5 ft bgs) were collected from two random locations within a 20-ft × 100-ft area to the northwest of building 33-0022 where the drums were believed to have been stored (LANL 1995, 071262). All samples were submitted for laboratory analysis of uranium and gamma-emitting radionuclides. One sample was also submitted for analysis of herbicides and pesticides. Data from the 1993 Phase I RFI are screening-level data, are summarized below, and are presented in Appendix B.

2.5.3 Analytical Results

Uranium was detected above the soil BV in both samples collected during the 1993 Phase I RFI. No organic chemicals were detected and no radionuclides were detected or detected above the soil BVs/FVs.

No decision-level data are available for SWMU 33-011(e).

2.6 SWMU 33-012(a), Former Storage Area

2.6.1 Description and History

SWMU 33-012(a) is a former drum storage area for a machine shop (building 33-0039) (Figure 2.6-1). This storage area is an asphalt pad located on the east side of building 33-0039, between the building and a storage shed. The asphalt pad is approximately 20 ft wide × 20 ft long. The area was used to accumulate 55-gal. drums of solvents and solvent-contaminated oil that potentially may have been contaminated with PCBs and metals. The drums were placed on pallets or directly on the asphalt pad. The 1990 SWMU report notes the presence of multiple oil stains at this site (LANL 1990, 007513). The 1992 RFI work plan, however, states no evidence of oil staining was found (LANL 1992, 007671). The asphalt pad is level, and the ground surface east of building 33-0039 slopes to the east. The beginning date of operation of the storage area is not known; however, building 33-0039 was constructed in 1951. The storage area was deactivated in 1992 or 1993.

2.6.2 Previous Investigations

A Phase I RFI was conducted at SWMU 33-012(a) in 1993 (LANL 1995, 071262). A grid-based radiation survey was conducted, and no anomalies were identified. Soil samples were collected at two random locations within the pad and at two locations on the edge of the pad (Figure 2.6-1). All samples were collected beneath the asphalt, and the depth intervals sampled were 0 to 0.33 ft, 0 to 0.5 ft, 0.5 to 0.8 ft, and 0.8 to 1.2 ft bgs and submitted for analysis of metals, SVOCs, PCBs, and gamma-emitting radionuclides. One sample was also submitted for analysis of herbicides and pesticides. Data from the 1993 Phase I RFI are screening-level data, are summarized below, and are presented in Appendix B.

2.6.3 Analytical Results

Metals detected above BVs during the 1993 Phase I RFI were cadmium, chromium, lead, nickel, and zinc. Cadmium, lead, and zinc were each detected above soil BVs in three samples. Chromium and nickel were detected above the soil BV in one sample. Eleven organic chemicals [Aroclor-1254; benzo(a)anthracene; benzo(b)fluoranthene; benzo(k)fluoranthene; bis(2-ethylhexyl)phthalate; chrysene; 4,4'-DDT; fluoranthene; phenanthrene; pyrene; and total PCBs] were detected in three samples. No radionuclides were detected or detected above BVs/FVs.

No decision-level data are available for SWMU 33-012(a).

2.7 SWMU 33-016, Sump, Drainline, and Outfall

2.7.1 Description and History

SWMU 33-016 is a previously used sump and associated drainline and outfall at a process bunker (structure 33-0023) located in the southern portion of Main Site (Figure 2.7-1). The concrete sump is 3 ft × 2 ft × 2 ft deep and is located next to the northwest corner of the bunker's exterior wall, near the door. A drainline leads from the sump to an outfall approximately 250 ft southwest of the building to a small side canyon to Chaquehui Canyon. The sump was connected to a sink and floor drain in the bunker, which was constructed in 1950. From 1950 to 1972, the bunker was used as a trim building to prepare propellant charges for gun tests at South Site. Structure 33-0023 was subsequently used until 1994 to store lithologic cores from the Hot Dry Rock Program. In addition to the sink and floor drain, the sump also may have received rainwater and snowmelt. The sump was decommissioned in 1995.

2.7.2 Previous Investigations

During the Phase I RFI conducted at SWMU 33-016 in 1993, two liquid and two sludge samples were collected from the sump for waste characterization purposes (LANL 1995, 050113, pp. 53–57). One surface sample (0 to 0.5 ft bgs) and two subsurface samples (3 to 5 ft and 10 to 12 ft bgs) were collected from a single borehole advanced to a depth of 12 ft next to the sump. In addition, four surface samples (0 to 0.5 ft bgs) were collected at and downslope of the outfall (Figure 2.7-1). Samples were field screened for radioactivity, organic chemicals, and HE and submitted for analysis of SVOCs and HE. The subsurface samples were also analyzed for VOCs. Data from the 1993 Phase I RFI are screening-level data, are summarized below, and are presented in Appendix B.

A voluntary corrective action (VCA) implemented at SWMU 33-016 in 1995 involved removing the sump contents, filling the sump with approximately 3 yd^3 of sand and gravel, and capping the sump with 1 ft of concrete (LANL 1995, 050113, Addendum 1, pp. 1–2).

2.7.3 Analytical Results

Two organic chemicals [acetone and bis(2-ethylhexyl) phthalate] were detected in three 1993 Phase I RFI samples.

No decision-level data are available for SWMU 33-016.

2.8 AOC C-33-001, Former Transformer

2.8.1 Description and History

AOC C-33-001 consists of a former electrical transformer (former structure 33-0124) at the TA-33 Main Site (Figure 2.8-1) mounted on a 15 ft × 50 ft concrete pad next to the east wall of building 33-0114. The transformer was located next to the northeast wall of building 33-0114 and was bounded by asphalt to the north, east, and south. The pad was enclosed by a fence and accessible only through a locked gate. Because this transformer was placed into service in the 1950s, the oil in the transformer may have contained PCBs. Oil stains were observed on the concrete pad and leaks from the transformer were observed during routine inspections conducted between September 1985 and March 1992. In 1992, the transformer was replaced by a non-PCB transformer. Sampling conducted during transformer replacement was limited to areas where the old transformer had been placed temporarily during removal.

2.8.2 Previous Investigations

The 1992 RFI work plan stated that the transformer pad was to be cleaned and sampled during planned transformer replacement activities and proposed no additional sampling (LANL 1992, 007671, p. 3-26). When the ER Project conducted Phase I RFI activities at TA-33 in 1993, it determined that the sampling conducted during transformer replacement had not met the RFI objectives. The RFI report, therefore, recommended additional sampling to determine whether historical releases of PCBs had occurred. The proposed sampling included field screening the stained areas on the concrete pad and the soil around the perimeter of the pad. If field screening detected PCBs in soil at the perimeter of the pad, additional screening samples were to be collected at greater distances from the pad until the extent of PCB contamination had been bounded (LANL 1995, 050113, pp. 90–93).

In 1996, sampling was conducted at AOC C-33-001. Five samples were collected and submitted to an off-site laboratory for analysis of PCBs/pesticides (Figure 2.8-1). Samples collected in 1996 and the analyses requested are presented in Table 2.0-1. The sampling results have not been presented in a report.

A BMP plan, written and implemented in 1999, consisted of PCB cleanup using a vacuum system on the asphalt area between buildings 33-0113 and 33-0114. The field team began by vacuuming the area closest to the transformer pad next to building 33-0114 and then continued to pick up sediment present in low-lying depressions on the asphalt. Special emphasis was placed within cracks and potholes that had developed over the years. In addition, the field team followed a low-grade slope from building 33-0114 east between buildings 33-0113 and 33-0039, which potentially could carry off surface sediment during storm events. A total volume of 55-gal. of material was collected.

2.8.3 Analytical Results

Decision-level data from the 1996 sampling event are presented in Table 2.0-3. Aroclor-1260 was detected in four soil samples. Sampling locations and detected results for organic chemicals are shown in Figure 2.8-2.

2.9 AOC C-33-003, Potential Soil Contamination

2.9.1 Description and History

AOC C-33-003 consists of two soil fill areas located at Main Site (Figure 2.9-1). This fill was used to level sites for two portable trailers. One of the trailers (structure 33-0169) was installed next to the Main Site water tower. The filled area to accommodate trailer 33-0169 is approximately 100 ft × 100 ft × 4 ft deep. The other trailer (structure 33-0170) was installed north of building 33-0114. The filled area to accommodate trailer 33-0170 is approximately 70 ft × 90 ft × 7 ft deep. Both trailers were installed in January 1984 and removed in June 1988. After the trailers were removed, no further improvements were made to these sites. Three projectiles, one of which contained uranium, were discovered at the fill area near the water tower during brush-clearing activities conducted in the spring of 1996. The source of these projectiles appears to have been the fill material that was obtained from the cinder cone located in Area 6, just west of Main Site. Projectiles historically were fired into the base of the cinder cone during experiments conducted at the Area 6 firing area [SWMU 33-007(c)].

2.9.2 Previous Investigations

Previous environmental investigations at AOC C-33-003 include geophysical investigations conducted at both fill areas in 1997. The results of these surveys included anomalies that may have been indicative of other projectiles. AOC C-33-003 was not included in the RFI work plan for TA-33 because it was discovered after the work plan had been prepared.

A VCA was implemented at AOC C-33-003 in 1999 (LANL 1999, 063678). Fill material was excavated until native soil or tuff was encountered. A total of 408.5 yd^3 of fill material was excavated. Radiation surveys of the excavated areas showed no readings greater than 2 times local background. Confirmation samples were collected to verify cleanup levels had been achieved. Confirmation samples consisted of surface and subsurface samples collected at each of four locations at each excavation site (Figure 2.9-1). The samples were submitted for laboratory analysis of metals, isotopic uranium, and organic chemicals. Two additional samples were collected from the drainage at the site near the water tower (there is no drainage at the other filled area) and submitted for laboratory analysis of metals and isotopic uranium. The excavated material was transported to a Segmented Gate System (SGS) treatment plant, where radioactive materials were separated from the fill. The SGS unit consisted of conveyor systems, radiation detectors, and computer controls programmed to divert soil and debris with radioactivity above a cleanup criterion of 50 pCi/g. A total of 1.45 yd^3 of contaminated fill was separated and disposed of as LLW at MDA G at TA-54. Three samples of the treated fill were collected to verify decontamination. Two of these

samples were submitted for laboratory analysis of metals, total uranium, tritium, and organic chemicals. The third sample was submitted for analysis of isotopic uranium and organic chemicals. The decontaminated fill was returned to the site and the site was restored and revegetated (LANL 2000, 066889, pp. 22–35). Confirmation samples collected during the 1999 VCA and the analyses requested are presented in Table 2.0-1.

2.9.3 Analytical Results

Decision-level data from the 1999 VCA confirmation samples are presented in Tables 2.0-2, 2.0-3, and 2.0-4. Metals detected above BVs in the confirmation samples from the excavated areas were antimony, barium, calcium, cobalt, copper, lead, magnesium, nickel, and selenium. Antimony was detected above the soil BV in seven samples and above the sediment BV in one sample. Barium was detected above the tuff BV in five samples and above the sediment BV in one sample. Calcium was detected above the soil BV in three samples, above the tuff BV in two samples, and above the sediment BV in one sample. Cobalt was detected above the soil BV in four samples, above the tuff BV in one sample, and above the sediment BV in two samples. Copper was detected above the soil BV in four samples, above the tuff BV in eight samples, and above the sediment BV in two samples. Lead was detected above the tuff BV in two samples and above the sediment BV in two samples. Magnesium was detected above the soil BV in six samples and above the sediment BV in two samples. Nickel was detected above the soil BV in six samples and above the sediment BV in two samples. Selenium was detected above the soil BV in one sample, above the tuff BV in two samples, and above the sediment BV in two samples. Sampling locations and results for inorganic chemicals above BVs are shown in Figure 2.9-2.

Eighteen organic chemicals were detected in confirmation samples from the excavated areas: acenaphthene; anthracene; benzene; benzo(a)anthracene; benzo(a)pyrene; benzo(b)fluoranthene; benzo(g,h,i)perylene; benzo(k)fluoranthene; bis(2-ethylhexyl)phthalate; chrysene; fluoranthene; fluorene; indeno(1,2,3-cd)pyrene; naphthalene; phenanthrene; pyrene; toluene; and TCE. Sampling locations and detected results for organic chemicals are shown in Figure 2.9-3.

Radionuclides detected above BVs in the confirmation samples from the excavated areas were uranium-234 and uranium-238; both radionuclides were detected above the soil BVs in two samples. Sampling locations and results for radionuclides detected above BVs are shown in Figure 2.9-4.

3.0 SITES UNDER INVESTIGATION AT AREA 6

This section provides descriptions and history of each of the sites being investigated at Area 6, along with descriptions and results of previous investigations. A summary of decision-level samples collected and analyses requested during previous investigations is presented in Table 3.0-1.

3.1 SWMU 33-004(d), Septic System

3.1.1 Description and History

SWMU 33-004(d) consists of an abandoned septic tank (structure 33-0121) and associated drainline and drain field located at Area 6 (Figure 3.1-1). Septic tank 33-0121, located approximately 100 ft east of building 33-0016, is constructed of corrugated iron and has a capacity of 500 gal. Septic tank 33-0121 received wastewater from a toilet and sink in a former laboratory building (building 33-0001). Building 33-0001 and associated machine shop building 33-0002 were built on skids and moved on site in 1946 or 1947 (Ahlquist 1983, 006854). Although use of building 33-0001 was discontinued in 1991 and the building was removed in 1994, the septic tank is still in place. While building 33-0001 was occupied,

effluent was discharged from the septic tank to a drain field located approximately 20 ft east of the tank. The drain field is constructed of a single row of vitrified-clay tiles installed in gravel approximately 5 ft below grade. The RFI work plan (LANL 1992, 007671) states an outfall from the drain field was buried in a side wash of Chaquehui Canyon. Land surface at the tank location slopes east approximately 200 ft to a shallow drainage eroded into the bedrock that flows south.

Building 33-0001 was used from 1948 to 1955 to support nonexplosive initiator tests conducted at Area 6. In 1958, the building was used to grow crystals of potassium niobate and possibly other types of crystals (aluminates, titanates, tungstates, etc.) (Schulte 1958, 007946). Silver plating was also reportedly performed in this building (Ahlquist 1983, 006854). Later, building 33-0001 was used as office space and for storage until use of the building was discontinued in 1991. A 1993 study of drains and discharges at TA-33 identified the only discharges to the septic system were from a lavatory, toilet, and sink drain (Santa Fe Engineering 1993, 062036, Table 1).

3.1.2 Previous Investigations

A Phase I RFI was conducted at SWMU 33-004(d) in 1993 (LANL 1995, 071262). The RFI work plan specified collecting samples of the tank contents. At the time of the investigation, however, the tank was dry and samples could not be collected. Three shallow (7 to 8 ft bgs) boreholes were sampled during the investigation. One borehole was placed next to the tank, and two were placed downslope of the tank along the drain field. At each borehole, samples were collected at the surface (0 to 0.2 ft bgs or 0 to 0.5 ft bgs) and at two subsurface intervals (3 to 5 ft, 4.5 to 5 ft, 6.3 to 8 ft, 6.5 to 7 ft, or 7.5 to 8 ft bgs). A total of three surface and six subsurface samples were collected. Six additional surface samples (0 to 0.5 ft bgs) were collected at six locations on the slope below the outfall and along the drainage (Figure 3.1-1). All samples were submitted for laboratory analysis of metals, cyanide, uranium, SVOCs, and gamma-emitting radionuclides. Four of the subsurface samples from the boreholes along the drainlines were also submitted for analysis of VOCs. The two subsurface samples from the borehole nearest the septic tank were later resampled and submitted for laboratory analysis of VOCs. Data from the 1993 Phase I RFI are screening-level data, are summarized below, and are presented in Appendix B.

3.1.3 Analytical Results

Inorganic chemicals detected above BVs during the 1993 Phase I RFI were cadmium, cyanide, lead, nickel, uranium, and zinc. Cadmium was detected above the soil BV in three samples. Cyanide was detected above the soil BV in three samples. Lead and nickel were each detected slightly above the soil BVs in two samples. Uranium was detected above the soil BV in 14 samples. Zinc was above the soil BV in three samples. Four organic chemicals (acetone, fluoranthene, phenanthrene, and pyrene) were detected. Acetone was detected in four samples and the other organic chemicals were detected in one sample. No radionuclides were detected or detected above BVs/FVs.

Decision-level data for SWMU 33-004(d) are not available.

3.2 Consolidated Unit 33-004(g)-00, Area 6 Firing Site

Consolidated Unit 33-004(g)-00 consists of SWMUs 33-004(g) and 33-007(c), an outfall and firing areas located in the northwest corner of TA-33 (Figure 3.1-1). The SWMUs are associated with past activities in Area 6, including initiator tests conducted from 1949 to 1955.

3.2.1 SWMU 33-004(g), Drainline and Outfall

3.2.1.1 Description and History

SWMU 33-004(g) is an outfall and associated drainline that discharged wastewater from building 33-0016. This outfall is located at the end of a VCP that runs west approximately 50 ft from the northwest corner of building 33-0016 (Figure 3.1-1). The pipe daylights at the edge of a level area above a drainage channel that leads to a tributary of Chaquehui Canyon. The ground surface below the outfall slopes steeply down to the tributary channel, which is approximately 70 ft lower than the outfall. A culvert under a roadway, approximately 60 ft southwest of the outfall, receives runoff from most of the paved portion of Area 6. Building 33-0016 was constructed in 1949 as a gun building for initiator tests. It housed a gas gun used to fire projectiles as well as to store electronic equipment used to measure neutron production. Large-bore (2- to 5-in.-diameter) guns were also mounted on concrete pads around building 33-0016 and used to fire projectiles containing initiator test assemblies. These activities continued until 1955. Photographs may have been developed in building 33-0016 or in a small trailer parked next to the drainage from the site (LANL 1992, 071262, p. 57). In 1956, building 33-0016 was used to make and machine laminating materials containing barium, lead, titanium, and zinc (Milford 1956, 007934). Toxic fumes were reportedly released from a fume hood in the building used to cure epoxy resins (Hyatt 1957, 007939). Building 33-0016 later was used as a library and storage building and has been empty since 1991. A study of drains and discharges at TA-33 identified no discharges from building 33-0016 (Santa Fe Engineering 1993, 062036, p. 4). Thus, the source of the discharge to the SWMU 33-004(g) outfall is not known.

A long-time TA-33 staff member reported that the drainline from building 33-0016 also served two trailers that were parked on the pad north of the building when Area 6 was occupied. One trailer was used for assembly and the other contained a darkroom (Hoard 1991, 009734).

3.2.1.2 Previous Investigations

A Phase I RFI was conducted at SWMU 33-004(g) in 1993 (LANL 1992, 007671). The outfall was located and surface samples (0 to 0.5 ft bgs) were collected at the outfall and at three locations downstream of the outfall. Downstream sampling locations were in sediment traps in the drainage channel that leads to the tributary channel and were approximately 100 ft apart. Another surface sample (0 to 0.5 ft bgs) was collected at the culvert discharge point southwest of the outfall (Figure 3.1-1). All samples were submitted for laboratory analysis of metals, uranium, SVOCs, HE, and gamma-emitting radionuclides. Data from the 1993 Phase I RFI are screening-level data, are summarized below, and are presented in Appendix B.

3.2.1.3 Analytical Results

Metals detected above BVs in the 1993 Phase I RFI samples were barium, cadmium, lead, nickel, silver, uranium, and zinc. Barium, lead, and silver were detected above the soil BVs in one sample. Cadmium was detected above the soil BV in three samples. Nickel was detected above the soil BV in four samples. Uranium was detected above the soil BV in five samples. Zinc was detected above the soil BV in four samples. Bis(2-ethylhexyl)phthalate was detected in one sample. No radionuclides were detected or detected above soil BVs/FVs.

Decision-level data are not available for SWMU 33-004(g).

3.2.2 SWMU 33-007(c), Firing Sites

3.2.2.1 Description and History

SWMU 33-007(c) consists of abandoned firing areas associated with the initiator tests conducted at Area 6. The firing areas included firing pads and two catcher boxes (Figure 3.1-1). One pad was located immediately west of building 33-0016. The catcher boxes were located approximately 20 ft south of building 33-0016 and were approximately 6 ft × 6 ft, constructed of timber, and filled with soil, wood chips, and vermiculite. Guns (2- to 5-in. bore) were placed on the concrete pads and used to fire projectiles containing test assemblies into targets placed in front of the catcher boxes. Materials used in the projectiles included beryllium, polonium-210, uranium, copper, lead, tungsten, and stainless steel (Hoard 1991, 009733). The projectiles frequently cracked open, contaminating the pads and surrounding area with polonium-210. Contaminated areas on the guns and pads were painted with lead-based paint to fix surface contamination (LANL 1992, 007671, p. 3-42).

Several other firing pads were on a level area excavated into a basaltic cinder cone southwest of building 33-0016. This area was used to test nuclear gun mock-ups (Hoard 1991, 009733). A 4-in. to 5-in. bore gun was used to fire projectiles into the back of the excavation. The back of the excavation currently extends about 75 ft farther back than when the site was in use (Hoard 1991, 009734).

A 1951 memorandum describes a test at Area 6 that resulted in leakage of radioactive material from a projectile. The site was cleaned up by using a bulldozer to scrape away the contaminated soil and embankment (Buckland 1951, 007845). A 1954 memorandum describes decontamination of one of the Area 6 gun barrels. The memorandum describes removing loose material and leaving impregnated spots as high as 1 million counts per minute. Contaminated surface dirt was bulldozed from the shot area into the adjacent canyon (LASL 1954, 107465).

3.2.2.2 Previous Investigations

A Phase I RFI was conducted at SWMU 33-007(c) in 1993 (LANL 1992, 007671). Fourteen surface samples (0 to 0.5 ft bgs) were collected from 14 locations around the firing areas (Figure 3.1-1). All samples were submitted for laboratory analysis of metals, HE, and gamma-emitting radionuclides, and all but one of the samples were also submitted for uranium analysis. In addition, three samples were submitted for analysis of herbicides, two for pesticides, and two for PCBs. Data from the 1993 Phase I RFI are screening-level data, are summarized below, and are presented in Appendix B.

Additional RFI activities were conducted in 1994, including trenching through the catcher-box area. Chunks of uranium and several experimental devices were discovered during trenching. No external radiation was measured from the experimental devices. Eight soil samples were collected from six locations within the trench (4 ft bgs), and one additional soil sample was collected next to the trench (4 ft bgs). These samples were submitted for laboratory analysis of metals and uranium, and three samples were also analyzed for isotopic uranium. Data from the 1994 Phase I RFI showed metals detected above BVs and isotopes of uranium detected above BVs; because these sampling locations were subsequently excavated during the 1996 VCA (discussed below), the data are not presented in this HIR.

Based on the results of the RFI, an IA was conducted at SWMU 33-007(c) in 1995 (LANL 1996, 052919). It involved stabilizing the site to prevent migration of the contamination identified during the RFI. A high-density polyethylene cover was placed over the catcher boxes to prevent run-on and runoff of precipitation. Additionally, the culvert west of building 33-0016 was dammed with sandbags to prevent water from entering the culvert.

In April and May 1996, a pilot test of the SGS and containerized vat leach (CVL) system was conducted using the soil in the catcher boxes. The SGS was used to radiologically screen the soil in the catcher boxes and separate the soil into clean and contaminated fractions. The CVL was then used to treat the contaminated soil by leaching uranium from the soil. Approximately 200 yd^3 of soil was removed from the catcher boxes and processed. Fifty-six experimental projectiles totaling 1720 lb were discovered as the soil was being screened before it was placed in the SGS. These projectiles were stored pending final disposition.

In conjunction with the pilot test, a VCA plan for SWMU 33-007(c) was prepared in 1996 (LANL 1996, 054906). The objective of the VCA was to verify the effectiveness of the SGS and CVL processes for remediating uranium-contaminated soil.

The VCA was implemented in 1996 (LANL 1996, 062541). The clean soil separated using the SGS treatment was sampled to determine whether it met cleanup levels. Thirteen samples were collected from the stockpile of clean soil processed through the SGS. An additional eight confirmation samples were collected from the bottoms and sides of the catcher box excavations (Figure 3.1-1). All samples were submitted for laboratory analysis of isotopic uranium. After sampling confirmed the soil met cleanup levels, it was returned to the site. The projectiles previously placed into storage were characterized and disposed of as LLW. Confirmation samples collected in 1996 and the analyses requested are presented in Table 3.0-1.

3.2.2.3 Analytical Results

Metals detected above BVs during the 1993 RFI sampling were arsenic, barium, beryllium, cadmium, chromium, lead, nickel, uranium, and zinc. Arsenic and beryllium were each detected above the soil BVs in two samples. Barium and lead were detected above the soil BVs in five samples. Cadmium and chromium were detected above the soil BVs in four samples. Nickel was detected above the BV for soil in 11 samples. Uranium was detected above the BV for soil in 13 samples. Zinc was detected above BV in eight samples. Aroclor-1254, Aroclor-1260, and 2,4-dichlorophenoxyacetic acid were each detected in one sample. No radionuclides were detected or detected above soil BVs/FVs.

Metals detected above BVs in the 1994 catcher box trench samples were cadmium, lead, mercury, nickel, selenium, uranium, and zinc. Cadmium and uranium were each detected above the soil BVs in eight samples. Lead and zinc were detected above the soil BVs in one sample. Mercury and nickel were each detected above the soil BVs in five samples. Selenium was detected above the soil BV in three samples. Antimony was not detected above BV but had detection limits above the soil BV. No radionuclides were detected above soil BVs/FVs.

No uranium isotopes were detected above BV in any of the confirmation samples collected from the bottoms and sides of the excavation. Sampling performed on the clean soil pile determined 95% upper confidence bounds on the mean activity of uranium-234, uranium-235, and uranium-238 to be 15.8 pCi/g, 0.515 pCi/g, and 15.7 pCi/g, respectively; these values are all substantially below the respective cleanup levels of 114 pCi/g, 72 pCi/g, and 116 pCi/g, respectively.

3.3 SWMU 33-009, Surface Disposal Area

3.3.1 Description and History

SWMU 33-009 is a former surface disposal area located in Area 6, west of the TA-33 Main Site (Figure 3.1-1). The disposal site includes an area approximately 100 ft long × 75 ft wide that has been leveled into the side of a natural basaltic cinder cone as well as an area that extends approximately 80 ft

down the slope of the cinder cone. The slope continues below the disposal site until it reaches a tributary of Chaquehui Canyon. The debris within this surface disposal area is believed to be associated with the activities at a nearby gun-firing site [SWMU 33-007(c)]. This gun-firing site operated from 1949 to 1955. When the firing area became contaminated as a result of firing activities, contaminated soil and debris were bulldozed over the edge of the canyon. SWMU 33-009 also received various debris from general operations at TA-33, including metal wastes, light bulbs, tires, and drums. In 1960, the site received uranium turnings from the building 33-0113 machine shop. In addition, from 1967 to 1972, the site served as a storage and disposal site for defective electrical capacitors from the Sherwood Project. These capacitors had an average weight of 300 lb and were about 4 to 6 ft^3 in volume (Reider 1967, 007471). Disposal of the capacitors at this site ceased in 1972, at which time defective capacitors were sent to Area L at TA-54 for disposal (Reider 1972, 008204).

In December 1974, the site was partially cleaned up as part of general cleanup activities conducted at TA-33. Several truck loads of material were taken to MDA G for disposal. Material removed from the site included DU pieces, electrical capacitors, metal turnings, old tires, and fluorescent light tubes (Ahlquist 1983, 006854). A radiation survey was performed after the cleanup. The area was surveyed at intervals of about 10 ft across the slope and 16 ft up and down the slope. Radiation above background was not detected (Smith 1974, 006911). Not all material was removed in 1974. Broken glass and chunks of metal were still present when the RFI was conducted in 1993. An empty capacitor containing small amounts of PCB-contaminated oil was also discovered partially buried on the site in 1994 and was removed (LANL 1995, 071300, p. 38).

3.3.2 Previous Investigations

During the 1993 Phase I RFI conducted at SWMU 33-009, a geophysical survey that used magnetic and electromagnetic methods detected no anomalies that could not be attributed to site features (LANL 1995, 071300). Six surface samples (0 to 0.5 ft) were collected from six locations in the former disposal area, and four surface samples (0 to 0.5 ft) were collected from four locations in the drainage channel downslope of the disposal area (Figure 3.1-1). All samples were submitted for laboratory analysis of metals, uranium, SVOCs, PCBs, and gamma-emitting radionuclides. One of the samples from the disposal area was also submitted for analysis of herbicides and pesticides. The four drainage samples also were submitted for HE analysis. When the capacitor was discovered on the hillside in 1994, a sample of the soil beneath the capacitor was collected and submitted for laboratory analysis of PCBs. Two samples of the residual oil inside the capacitor were also collected and submitted for PCB analysis. Data from the 1993 Phase I RFI are screening-level data, are summarized below, and are presented in Appendix B. The 1994 sampling of the soil beneath the capacitor was performed by Laboratory PCB waste management staff; the data are summarized below but are not included in Appendix B.

3.3.3 Analytical Results

Metals detected above BVs during the 1993 Phase I RFI were cadmium, lead, nickel, uranium, and zinc. Cadmium was detected above the soil BV in three samples. Lead was detected above the soil BV in one sample. Nickel was detected above the soil BV in nine samples. Uranium was detected above the soil BV in 10 samples. Zinc was detected above the soil BV in three samples. Aroclor-1254 was detected in five samples. No radionuclides were detected.

Aroclor-1254 was detected in the 1994 soil sample collected beneath the capacitor at 2 mg/kg. The two oil samples contained 140 mg/kg and 195 mg/kg of Aroclor-1254.

Decision-level data are not available for SWMU 33-009.

4.0 SITES UNDER INVESTIGATION AT SOUTH SITE

This section provides descriptions and history of each of the sites being investigated at South Site, along with site descriptions and results of previous investigations. A summary of decision-level samples collected and the analyses requested during previous investigations is presented in Table 4.0-1. Inorganic chemicals detected above BVs in previous decision-level samples are presented in Table 4.0-2. Organic chemicals detected in previous decision-level samples are presented in Table 4.0-3. Radionuclides detected or detected above BVs/FVs in previous decision-level samples are presented in Table 4.0-4.

4.1 Consolidated Unit 33-001(a)-99, MDA E

Consolidated Unit 33-001(a)-99, which consists of SWMUs 33-001(a–e), is collectively referred to as MDA E. The SWMUs in this consolidated unit consist of waste disposal pits and an underground test chamber and shaft. This consolidated unit is located at the south end of TA-33 near the edge of Chaquehui Canyon. It occupies an area approximately 140 ft × 220 ft and is enclosed by an 8-ft fence.

SWMUs 33-001(a–d) are abandoned waste disposal pits 1 through 4, respectively. SWMU 33-001(e) is a former test chamber (structure 33-0029) and shaft (structure 33-0003). The test chamber and shaft were abandoned in place in April 1950, and use of the disposal pits ceased in 1963. Two additional pits (pits 5 and 6) are also located within the fenced area of MDA E. No documentation indicates if pits 5 and 6 were ever used, and they are not designated as SWMUs or AOCs. Based on the 1962 recommendations, radiation control area signs were posted around the fenced sides of MDA E, pit 2 was covered with approximately 2 ft of dirt, and all excess equipment and debris were removed from the site (Rogers 1977, 005708, p. E-5). Currently, MDA E is surrounded by a fence, and the area is vegetated with trees, shrubs, and grasses.

4.1.1 Description and History

4.1.1.1 SWMU 33-001(a), Disposal Pit 1

SWMU 33-001(a), disposal pit 1, is located inside the western edge of the fenced area of MDA E (Figure 4.1-1). The pit dimensions are approximately 15 ft × 75 ft × 7 ft deep. Documentation indicates pit 1 contains polonium-beryllium contaminated targets. The pit may also contain spent projectiles, uranium components, beryllium, and explosive test shot debris. The pit was backfilled and compacted in 1963 (Rogers 1977, 005708, p. E-1).

4.1.1.2 SWMU 33-001(b), Disposal Pit 2

SWMU 33-001(b), disposal pit 2, is located along the southern edge of the fenced area of MDA E (Figure 4.1-1). Pit dimensions are approximately 15 ft × 45 ft × 7 ft deep. Explosive test shot debris and a spent explosives device were buried in pit 2. According to engineering drawing R-3644, pit 2 was open in November 1962 and was backfilled sometime during 1963 (Rogers 1977, 005708, p. E-1)

4.1.1.3 SWMU 33-001(c), Disposal Pit 3

SWMU 33-001(c), disposal pit 3, is located near the southeast corner of the fenced area of MDA E (Figure 4.1-1). Pit dimensions are approximately 5 ft in diameter and 7 ft deep. Pit 3 reportedly contains a can of beryllium dust immersed in kerosene (Rogers 1977, 005708, p. E-1) and may have contained other explosive test shot debris. Pit 3 was closed in September 1951 and backfilled.

4.1.1.4 SWMU 33-001(d), Disposal Pit 4

SWMU 33-001(d), disposal pit 4, is located along the east fence line of MDA E (Figure 4.1-1). Pit dimensions are approximately 15 ft × 100 ft × 7 ft deep. Pit 4 contains explosive test shot debris, a spent explosives device, and miscellaneous radioactive material (Rogers 1977, 005708, p. E-1). According to Rogers (1977, 005708, p. E-1), pit 4 was still used for disposal during the 1960s. It was backfilled sometime before 1977.

4.1.1.5 SWMU 33-001(e), Shot Chamber

SWMU 33-001(e) consists of an underground chamber, designated chamber 3 (structure 33-0029), and an associated underground elevator shaft (structure 33-0003) (Figure 4.1-1). A portable cable building (33-0030) was attached to the elevator shaft and housed electrical and ventilation equipment for both the chamber and the shaft. The chamber and shaft were constructed between 1949 and 1950. The chamber was constructed of 2-ft-thick concrete walls, and its dimensions were 11 ft × 14 ft. The chamber was situated 46 ft bgs. The elevator shaft was constructed of wood, iron, and concrete and its dimensions were 6 ft by 8 ft by 60 ft tall. The bottom of the shaft was 48 ft bgs. Chamber 33-0029 collapsed during an experiment conducted in April 1950 and was left in place. According to engineering drawing R-152 the portable cable building and the aboveground portions of the elevator shaft were removed by 1954. The chamber was used to conduct tests involving explosives, beryllium, and tungsten (LANL 1992, 007671, p. 3-51).

4.1.2 Previous Investigations

The Laboratory's Environmental Surveillance Program conducted surface and subsurface sampling at MDA E in 1982 and 1983; additional subsurface sampling was conducted in 1989 (LANL 1992, 007671, pp. 3-55–3-60). These sampling efforts were undertaken to determine whether releases from MDA E had occurred. In 1982, samples were collected from two 50-ft boreholes located outside the MDA E fence at multiple depth intervals (0 to 3 ft, 3 to 8 ft, 8 to 13 ft, 13 to 18 ft, 18 to 23 ft, 23 to 28 ft, 28 to 33 ft, 33 to 38 ft, 38 to 43 ft, and 43 to 48 ft bgs) and analyzed for tritium, uranium, and cesium-137. Tritium was detected in four samples, but these results were suspect because of the low moisture content of the samples. Uranium was detected above the BV in all 20 samples, and cesium-137 was detected slightly above the FV in 5 samples. In 1983, 90 surface samples were collected within MDA E from 45 random locations on a 30-ft × 30-ft sampling grid. Samples were collected from intervals of 0 to 0.4 in. and 0.4 to 2.5 in. and analyzed for tritium, uranium, and cesium-137. Tritium and uranium were detected or detected above the soil BVs in 88 of the 90 samples, and cesium-137 was detected above the soil FV in eight samples. In 1989, six boreholes were advanced within MDA E to depths ranging from 9 ft to 59 ft bgs. Nineteen samples were collected from numerous depths (4 ft, 9 ft, 13 ft, 14 ft, 28 ft, 29 ft, 44 ft, 54 ft and 59 ft bgs) and analyzed for tritium, uranium, and lead (LANL 1992, 007671, pp. 3-55–3-60). Tritium was detected in all but one sample. Uranium was detected above the BV in 16 samples, and lead was detected above the BV in 3 samples from one borehole (LANL 1992, 007671, pp. 3-56 and 3-60).

As part of 1996 Phase I RFI activities performed at South Site, two boreholes were drilled within the fenced area at MDA E. Each borehole was drill to 40 ft bgs, and four samples were collected from each borehole. Samples were collected from 1.7 to 1.9 ft, 17 to 17.4 ft, 24 to 25 ft, and 39 to 40 ft in the first borehole and from 1 to 2 ft, 14 to 15 ft, 24 to 25 ft, and 39 to 40 ft in the second borehole. All samples were submitted for laboratory analysis of HE, metals, VOCs, SVOCs, gamma-emitting radionuclides, isotopic plutonium, and tritium. Samples collected during the 1996 Phase I RFI and the analyses requested are presented in Table 4.0-1.

4.1.3 Analytical Results

Decision-level data from the 1996 Phase I RFI samples are presented in Tables 4.0-2, 4.0-3, and 4.0-4. Inorganic chemicals detected above BVs included calcium, selenium, and uranium. Calcium was detected above the soil BV in one sample and above the tuff BV in one sample. Selenium was detected above the soil BV in one sample. Uranium was detected above the tuff BV in two samples. Sampling locations and results for inorganic chemicals above BVs are shown in Figure 4.1-2.

Six organic chemicals [acetone; bis(2-ethylhexyl)phthalate; naphthalene; toluene; 1,2,3-trichlorobenzene; and 1,3,5-trinitrobenzene] were detected in the RFI samples. Toluene; 1,2,3-trichlorobenzene; and 1,2,4-trichlorobenzene were each detected in one soil sample. Acetone was detected in two tuff samples. Naphthalene was detected in one soil sample and one tuff sample. Bis(2-ethylhexyl)phthalate was detected in one soil and four tuff samples. Sampling locations and detected results for organic chemicals are shown in Figure 4.1-3.

Tritium was detected in two soil samples and six tuff samples. Sampling locations and results for tritium are shown in Figure 4.1-4.

4.2 SWMU 33-004(b), Septic System

4.2.1 Description and History

SWMU 33-004(b) consists of an abandoned septic tank (structure 33-0033) and its associated drainline and outfall located at South Site (Figure 4.2-1). This septic tank received wastewater from building 33-0024, a control building constructed in 1949 to support experiments conducted at underground chamber 33-0029 [SWMU 33-001(e)] and possibly at firing pad 33-0026 [SWMU 33-006(a)]. The septic tank had a capacity of 730 gal. and is located approximately 300 ft south of building 33-0024. The tank was connected to building 33-0024 with a 6-in.-diameter steel pipe. A 6-in.-diameter steel pipe connected the septic tank to an outfall located approximately 35 ft southwest of the tank (LANL 1995, 051903, p. 37). The outfall is situated on the southern rim of Chaquehui Canyon. Building 33-0024 housed a darkroom and electronic equipment and was also used for storage. There is no documented historical use of hazardous or radioactive materials in building 33-0024, although photographic chemicals were probably used (LANL 1992, 007671, p. 3-52).

4.2.2 Previous Investigations

During the 1994 Phase I RFI conducted at SWMU 33-004(b), one surface (0 to 0.5 ft) and two subsurface samples (3.5 to 4 ft and 5 to 6 ft) were collected at a location approximately 5 ft south of the septic tank (Figure 4.2-1). Three surface samples (0 to 0.5 ft) were collected at three locations at and downslope of the outfall. Liquid and sludge were not present in the tank. One sediment sample was collected from the bottom of the tank (LANL 1995, 051903, p. 38). Samples were field screened for radioactivity and organic chemicals and submitted for laboratory analysis of metals, cyanide, VOCs, SVOCs, and cesium-137. Data from the 1994 Phase I RFI are screening-level data, are summarized below, and are presented in Appendix B.

In 1995, one borehole was drilled approximately 4 ft west of the septic tank to a depth of 10.5 ft bgs. One sample was collected from a depth of 8.5 to 10.5 ft and submitted for analysis of metals, cyanide, VOCs, SVOCs, and total uranium. The single sample collected in 1995 and the analyses requested are presented in Table 4.0-1.

4.2.3 Analytical Results

Inorganic chemicals detected above BVs in the Phase I RFI samples collected in 1994 were aluminum, barium, calcium, chromium, copper, cyanide, iron, lead, magnesium, silver, and uranium. Aluminum, barium, chromium, and magnesium were each detected above the tuff BV in two samples. Calcium was detected above the soil BV in three samples and above the tuff BV in two samples. Copper was detected above the soil BV in two samples. Cyanide was detected above the soil BV in three samples. Iron was detected above the soil BV in two samples and above the tuff BV in two samples. Lead, silver, and uranium were each detected above soil BVs in one sample.

Six organic chemicals [benzo(b)fluoranthene, di-n-butylphthalate, fluoranthene, methylene chloride, phenanthrene, and pyrene] were detected in three Phase I RFI soil and tuff samples. Cesium-137 was detected in two subsurface samples.

Inorganic chemicals detected above soil BVs in the sediment sample from the septic tank were arsenic, chromium, copper, cyanide, lead, nickel, mercury, silver, and zinc. Eleven organic chemicals [acetone; anthracene; benzo(a)anthracene; benzo(b)fluoranthene; benzo(a)pyrene; chrysene; di-n-butylphthalate; fluoranthene; isopropyl alcohol; phenanthrene; and 1,1,2-trichloroethane] were detected in the sediment sample from inside the septic tank.

Decision-level data from the single 1995 RFI sample are presented in Tables 4.0-2 and 4.0-3. Metals detected above BVs or with detection limits above BVs were antimony, calcium, chromium, cyanide, selenium, and uranium. Sampling locations and results for inorganic chemicals above BVs are shown in Figure 4.2-2. Bis(2-ethylhexyl)phthalate was detected in the single RFI sample collected in 1995. Sampling locations and detected results for organic chemicals are shown in Figure 4.2-3.

4.3 Consolidated Unit 33-004(j)-00

Consolidated Unit 33-004(j)-00 consists of SWMUs 33-004(j), 33-006(a), 33-007(b), 33-008(a), 33-010(c and h), 33-011(c), and 33-014. The SWMUs in this consolidated unit consist of an outfall, a firing site and associated debris area, gun-firing sites, a landfill, two surface disposal sites, a radioactive materials storage area, and an open-burning area. These SWMUs are located in the south central portion of TA-33 and were all abandoned. South Site was used primarily from 1950 through 1956 to test initiators, and the SWMUs that comprise this consolidated unit are associated with this use.

4.3.1 SWMU 33-004(j), Drainline and Outfall

4.3.1.1 Description and History

SWMU 33-004(j) consists of a 4-in. steel drainpipe and outfall connected to structure 33-0026, a culvert located immediately east of structure 33-0026, and the drainage channel that flows south and empties into Chaquehui Canyon (Figure 4.3-1). The pipe is connected to a drain located on the concrete pad at the entrance to structure 33-0026. Structure 33-0026 housed electronic equipment used for experiments on the shot pad [SWMU 33-006(a)] located directly above the structure. The drainpipe extends 75 ft southeast and discharges to an open channel that drains into Chaquehui Canyon. The culvert is situated beneath the unpaved portion of the road that extends beyond structure 33-0026. The upper portion of the drainage channel where both the outfall pipe and the culvert discharge has been cut into the tuff (LANL 1995, 051903, pp. 48–49).

4.3.1.2 Previous Investigations

During the 1994 Phase I RFI conducted at SWMU 33-004(j), four surface soil samples (0 to 0.5 ft) were collected from four locations. Two locations were at the culvert discharge point approximately 75 ft south of structure 33-0026. Two samples collected as part of the SWMU 33-006(a) investigation were collected from one location at the outfall, and one location in the drainage located approximately 30 ft south of the outfall. These samples were used to characterize SWMU 33-004(j) as well as SWMU 33-006(a) (LANL 1995, 051903, p. 49). Samples were field screened for radioactivity and submitted for analysis of metals, cesium-137, and total uranium. The two samples collected at the outfall and in the drainage were also analyzed for HE. Data from the 1994 Phase I RFI are screening-level data, are summarized below, and are presented in Appendix B.

4.3.1.3 Analytical Results

Metals detected above BVs in the Phase I RFI samples were copper and uranium, each detected above the soil BVs in two samples. No organic chemicals were detected and no radionuclides were detected or detected above BVs/FVs.

Decision-level data are not available for SWMU 33-004(j).

4.3.2 SWMU 33-006(a), Firing Site

4.3.2.1 Description and History

SWMU 33-006(a) is a shot pad at South Site where implosion studies were conducted (Figure 4.3-2). The shot pad was a 50-ft-diameter circular area located immediately north of and next to structure 33-0026, an X-unit chamber (i.e., a control chamber containing a firing voltage distribution system used for the remote detonation of test firings). Structure 33-0026 was completed in 1950. Implosion tests performed at the shot pad contained up to 5000 lb of HE. Before detonations, wooden boxes covered the assemblages. Detonations from the shot pad scattered debris, shrapnel, and wood fragments over the mesa top of South Site and into Chaquehui Canyon. Shrapnel has been found at distances up to a mile away from the shot pad. The shot pad has not been used since 1955, when implosion testing was discontinued at TA-33. Currently, the pad is covered with up to a foot or more of sand and firing site debris (LANL 1995, 051903, p. 58).

4.3.2.2 Previous Investigations

Phase I RFI activities conducted at the SWMU 33-006(a) shot pad and surrounding area in 1994 involved collecting 46 surface soil samples (0 to 0.5 ft) from 42 randomly selected locations across SWMU 33-006(a). In addition, 11 surface soil samples (0 to 0.5 ft) were collected from 10 locations in the drainage that receives runoff from the site (Figure 4.3-2). Samples were field screened for radioactivity and HE and submitted for analysis of metals, gamma-emitting radionuclides, and HE. In addition, two of the drainage samples were submitted for analysis of PCBs, pesticides, and herbicides (LANL 1995, 051903, p. 59). Data collected during Phase I RFI activities are screening-level data, are summarized below, and are presented in Appendix B.

An IA was performed at SWMU 33-006(a) in 1996 and was designed to remove contaminated debris within a half-mile radius from the SWMU 33-006(a) shot pad and to prevent the off-site migration into Chaquehui Canyon (LANL 1997, 055865). Firing-site shrapnel and debris were removed from mesa-top areas and drainages along the southern rim of Chaquehui Canyon within Bandelier National Monument,

from drainage channels along the northern rim of Chaquehui Canyon, and from the canyon bottom. A total of 1261 lb of debris was removed during the IA. Of the total, 770 lb was radioactively contaminated. For waste management purposes, all the debris was screened with an XRF detector to determine whether hazardous metals were present. A total of 20 lb of the debris contained lead and was handled as hazardous waste. Approximately 20 lb of the debris contained lead, was radioactively contaminated, and was handled as mixed waste. The remaining 451 lb of debris was nonhazardous and nonradioactive waste and was recycled.

In 1996, eight surface samples (0 to 0.5 ft) were collected from eight locations that had been previously sampled during the 1994 Phase I RFI (Figure 4.3-2) and submitted for analysis of HE (LANL 1997, 071478, p. 69). Two organic chemicals, 1,3-dinitrobenzene and 1,3,5-trinitrobenzene, were detected at trace concentrations in one sample (0333-96-0588) from sampling location 33-01448, directly south of building 33-0025. This sampling location is actually in SWMU 33-007(b). Since 1996, the entire area south of building 33-0025 [SWMU 33-007(b)] has been significantly disturbed by the installation of new utilities during the complete renovation of building 33-0025.

4.3.2.3 Analytical Results

Metals detected above BVs in samples collected during the 1994 Phase I RFI were aluminum, arsenic, barium, cadmium, calcium, chromium, copper, iron, lead, magnesium, manganese, selenium, silver, uranium, vanadium, and zinc. Aluminum was detected above the tuff BV in four samples. Arsenic was detected above the soil BV in one sample. Barium was detected above the tuff BV in four samples and above the sediment BV in one sample. Cadmium was detected above the soil BV in one sample and above the tuff BV in one sample. Calcium was detected above the soil BV in four samples and above the tuff BV in four samples. Chromium was detected above the soil BV in two samples and above the tuff BV in three samples. Copper was detected above the soil BV in 21 soil samples, above the tuff BV in 4 samples, and above the sediment BV in 10 samples. Iron was detected above the tuff BV in five samples. Lead was detected above the soil BV in three samples and above the tuff BV in three samples. Magnesium was detected above the tuff BV in three samples. Manganese was detected above the tuff BV in two samples. Selenium was detected above the soil BV in one sample. Silver was detected above the soil BV in four samples and above the tuff BV in two samples. Uranium was detected above the soil BV in 25 samples, above the tuff BV in 4 samples, and above the sediment BV in 10 samples. Vanadium was detected above the tuff BV in one sample. Zinc was detected above the soil BV in five samples and above the tuff BV in four samples.

Five organic chemicals [4-amino-2,6-dinitritoluene; 2-amino-4,6-dinitrotoluene; nitrobenzene; 2-nitrotoluene; 3-nitrotoluene; 4-nitrotoluene; RDX (hexahydro-1,3,5-trinitro-1,3,5 triazine); tetryl; and 1,3,5-trinitrobenzene] were detected in five Phase I RFI samples.

Radionuclides detected or detected above BVs/FVs were cesium-137, plutonium-238, plutonium-239/240, and tritium. Cesium-137 was detected above the soil FV in three surface samples and was detected in five tuff samples or subsurface soil samples. Plutonium-238 and plutonium-239/240 were each detected in two subsurface soil samples. Tritium was detected in six sediment samples.

4.3.3 SWMU 33-007(b), Firing Sites

4.3.3.1 Description and History

SWMU 33-007(b) consists of two former gun-firing sites. The first area is located approximately 600 ft north of structure 33-0026 [SWMU 33-006(a)] and consists of a 6-ft × 6-ft concrete pad and gun mount

(structure 33-0085), a u-shaped soil berm (structure 33-0043), and a catcher box (Figure 4.3-3). The berm and catcher box were constructed in August 1950. The concrete pad and gun mount were constructed in June 1952. This area was used to test free-recoil weapons. Tests involved firing projectiles into the berm and the catcher box. Projectiles fired from the guns contained uranium, beryllium, titanium, and tritium housed inside steel casings. Activities at South Site were discontinued in the late 1950s (LANL 1992, 007671, p.3-53). This area was used to support atmospheric physics measurements during the late 1980s and early 1990s. Structures associated with these activities include a tower (structure 33-0203) constructed in 1987 and two trailers (structures 33-0201 and 33-0202). All structures have been removed.

The second site was located approximately 400 ft northwest of structure 33-0026 and included a gun building (structure 33-0025) and a soil berm (structure 33-0063). Both structures were built in 1950. The gun building housed 2-in. to 4-in. bore guns that were used to fire projectiles into berm 33-0063. The projectiles used at this site contained uranium, beryllium, and tungsten. Firing site activities at SWMU 33-007(b) were discontinued in the late 1950s (LANL 1992, 007671, p. 3-53). A VCA was performed in 1999 during which time berm 33-0063 was removed. Treated soil was returned back to the location of the former berm, and the site was graded, compacted, and reseeded with native seed. Recently, approximately 1 to 2 ft of engineered fill has been placed over the location of the former berm. Building 33-0025 was renovated in 2005 and 2006.

4.3.3.2 Previous Investigations

Phase I RFI activities were conducted at both areas of SWMU 33-007(b) in 1994. Activities at the first site (structure 33-0043) involved collecting 11 surface soil samples (0 to 0.5 ft) from 11 locations (Figure 4.3-3). These samples were field screened for radioactivity, organic chemicals, and HE and submitted for laboratory analysis of metals, gamma-emitting radionuclides, SVOCs, and HE (LANL 1995, 051903, p. 94).

Three surface locations were resampled in 1995 and analyzed for metals. Two surface soil samples (0 to 0.5 ft) were collected from the main drainage that flows southward into Chaquehui Canyon. Subsurface samples were collected from trenches excavated at berm 33-0043 and at the catcher box. A backhoe was used to excavate a trench at berm 33-0043. This trench was 20 ft in length and was excavated to approximately 7 ft below the top of berm. Five samples were collected at various distance intervals and depths along the trench transect. Sampling intervals and depths (beginning from the toe of the berm and measured from the top of the berm downward) were 3 ft in and 3 ft depth; 5 ft in and 2 ft depth; 6 ft in and 5 ft depth; 18 ft in and 5 to 7 ft depth; and 20 ft in and 5 ft depth. A backhoe was used to excavate a 20-ft-length trench at the catcher box. Five samples were collected from various distance intervals along the trench (3 ft in, 5 ft in, 10 ft in, 15 ft in, and 20 ft in), and all were collected at a depth of 6 ft below the top of the catcher box (LANL 1995, 051903, p. 94). Data collected during the 1994 Phase I RFI are screening-level data, are summarized below, and are presented in Appendix B. Samples collected in 1995 and the analyses requested are presented in Table 4.0-1.

Sampling activities at the second site (structure 33-0063) included collecting both surface and subsurface soil samples from the berm. Nine surface soil samples (0 to 0.5 ft) were collected from the surface of the berm. Three surface soil samples (0 to 0.5 ft) were collected in the drainage channel that flows westward into Chaquehui Canyon from berm 33-0063 (Figure 4.3-3). A trench was excavated into the berm and a total of 11 subsurface soil samples were collected from various depth and distance intervals from the toe of the berm. Sampling intervals and depths (beginning from the toe of the berm and measured from the top of the berm downward) were 3 ft in and 2 ft down; 4 ft in and 5 ft down; 6 ft in and 4 ft down; 7 ft in and 4 ft down; 11 ft in and 4 ft down; 12 ft in and 5 ft down; 17 ft in and 5 ft down; 19 ft in and 6 ft down; 24 ft in and 7 ft down; and 27 ft in and 5 ft down. The samples were field screened for radioactivity and

HE and submitted for analysis of metals, gamma-emitting radionuclides, and HE (LANL 1995, 051903, p. 94). Data collected during the 1994 Phase I RFI are screening-level data, are summarized below, and are presented in Appendix B.

An IA was performed at both areas of SWMU 33-007(b) in 1996 to prevent the migration of contaminants from the sites during stormwater runoff events (LANL 1996, 071478). Activities performed during the IA included the construction of straw-bale dams within the drainage channel that flows southward from berm 33-0063, constructing a sandbag retaining wall along the toe of berm 33-0043, constructing a straw-bale dam along a lower crest of berm 33-0043 to enhance a natural ponding area, spreading loose straw over the surface of the berm, and laying Poly-Jute matting over the straw to stabilize the berm slope and prevent wind and runoff migration from the site (LANL 1996, 054623, pp. 3–5) .

A VCA was performed at berm 33-0063 in 1999 (LANL 2000, 066889). All soil within the berm was excavated to undisturbed native soil and removed. The VCA used the SGS technology to separate radioactively contaminated soil and debris from nonradioactively contaminated soil and debris. A total of 1677.87 yd^3 of material was removed from berm 33-0063. Sixteen large projectiles were uncovered during the excavation activities. These projectiles were not classified and were nonradioactive. Uranium metal pieces ranging up to 5 in. in diameter were uncovered, removed, and disposed of as radioactive waste. Once the berm had been excavated to native soil, the excavated area was surveyed for radioactivity. Areas of radioactivity that exceeded 2 times local background were further excavated and resurveyed to confirm removal. Four surface soil samples (0 to 0.5 ft) and 4 subsurface samples (2 to 2.5 ft depth) were collected from four locations in the footprint of the former berm. Two surface samples (0 to 6 in. depth) were collected from the drainage located west of berm 33-0063 that empties into Chaquehui Canyon. All samples were submitted for laboratory analysis of isotopic uranium and inorganic chemicals. Soil with radioactivity levels below the cleanup criterion of 50 pCi/g was returned to the SWMU boundaries. A total of 411.63 yd^3 of soil exceeded the cleanup criterion of 50 pCi/g; the remaining 1266.24 yd^3 of soil was below the cleanup criterion and was returned to the SWMU boundary. The site was regraded, compacted, and reseeded with native vegetation (LANL 2000, 066889). Samples collected as part of the 1999 VCA and the analyses requested are presented in Table 4.0-1.

4.3.3.3 Analytical Results

Metals detected above BVs in the Phase I RFI samples include arsenic, cadmium, chromium, cobalt, copper, lead, nickel, potassium, selenium, silver, uranium, and zinc. Arsenic was detected above the soil BV in seven samples. Cadmium, cobalt, selenium, and silver were each detected above the soil BVs in one sample. Chromium was detected above the soil BV in three samples. Copper was detected above the soil BV in 13 samples. Lead and zinc were each detected above the soil BVs in three samples. Nickel was detected above the soil BV in 13 samples. Uranium was detected above the soil BV in 25 samples.

Three organic chemicals (di-n-butylphthalate; 2,4-dinitrotoluene; and nitrobenzene) were detected in two samples.

Radionuclides detected or detected above soil BVs/FVs in the 1994 Phase I RFI samples include cesium-137, uranium-234, uranium-235/236, and uranium-238. Cesium-137 was detected above the soil FV in one surface sample and detected in six subsurface samples. Uranium-234, uranium-235/236, and uranium-238 were each detected above the soil BV in one sample.

Decision-level data from the 1996 samples and 1999 VCA samples are presented in Tables 4.0-2, 4.0-3, and 4.0-4. Inorganic chemicals detected above soil BVs included cadmium, chromium, cobalt, copper, lead, nickel, selenium, thallium, and uranium. At the berm 33-0043 area, cadmium, chromium, cobalt, copper, and lead were each detected above the soil BVs in one sample. Samples were collected from the

native soil beneath the former berm 33-0063 area, and the inorganic chemicals detected above the soil BVs included cadmium, lead, and thallium. Cadmium, lead, and thallium were each detected above the soil BVs in one sample. Copper, nickel, selenium, and uranium were detected above sediment BVs in the samples collected in the drainage west of building 33-0025. Copper, nickel, and uranium were each detected above the sediment BVs in one sample. Selenium was detected above the sediment BV in two samples. Sampling locations and results for inorganic chemicals above BVs are shown in Figure 4.3-4.

Toluene was detected in the VCA samples at one location (Figure 4.3-5). Radionuclides detected above BVs from the soil beneath the former berm 33-063 were uranium-234, uranium-235/236, and uranium-238. Uranium-234 was detected above the soil BV in two samples, uranium-235/236 was detected above the soil BV in one sample, and uranium-238 was detected above the soil BV in two samples. Sampling locations and results for radionuclides above BVs are shown in Figure 4.3-6.

4.3.4 SWMU 33-008(a), Landfill

4.3.4.1 Description and History

SWMU 33-008(a) is a landfill created in 1984 during the cleanup of the TA-33 firing sites. The landfill is located inside the horseshoe-shaped berm (structure 33-0043) within SWMU 33-007(b) (Figure 4.3-7). The dimensions of the landfill are approximately 50 ft × 60 ft × 8 ft in depth. Large, uncontaminated debris including telephone poles, timbers, and railroad ties, were disposed of in this landfill. All debris was screened for radioactivity before disposal. After disposal was complete, the landfill surface was graded, and the corners of the fill area were marked with metal posts (LANL 1992, 007671, p. 3-54).

4.3.4.2 Previous Investigations

Phase I RFI activities performed at SWMU 33-008(a) in 1994 included collecting four surface soil samples (0 to 0.5 ft). Three of the samples were collected along the northern edge of the landfill, and the fourth sample was collected in the drainage west of the bermed area (Figure 4.3-7). The samples were submitted for laboratory analysis of metals, uranium, gamma-emitting radionuclides, and HE (LANL 1995, 071300, p. 84). Data from the 1994 Phase I RFI are screening-level data, are summarized below, and are presented in Appendix B.

Additional Phase I RFI activities performed in 1996 included drilling boreholes into the landfill at four randomly selected locations (Figure 4.3-7). The boreholes were drilled to the soil/tuff interface and ranged in depth from 5 ft to 12.5 ft. Four samples were collected from each borehole at various depth intervals (0 to 1 ft, 2.5 to 3 ft, 3 to 3.5 ft, and 4 to 5 ft depth; 0 to 1 ft, 2 to 2.5 ft, 2.5 to 3.5 ft, and 4 to 5 ft depth; 0 to 1 ft, 2.5 to 5 ft, 7.5 to 10 ft, and 10 to 12.5 ft depth; and 2.5 to 3.5 ft, 5 to 6 ft, 6 to 7 ft, and 9 to 10 ft). Samples were field screened for radioactivity, organic chemicals, and HE and submitted for laboratory analysis of metals, uranium, SVOCs, and HE. Samples collected during the 1996 Phase I RFI and the analyses requested are presented in Table 4.0-1.

4.3.4.3 Analytical Results

Metals detected above BVs in the 1994 Phase I RFI samples were arsenic and copper; both metals were detected above their respective soil BVs in two samples. No organic chemicals were detected.

Decision-level data from the 1996 Phase I RFI borehole samples are presented in Tables 4.0-2, 4.0-3, and 4.0-4. Inorganic chemicals detected above BVs include arsenic, calcium, copper, iron, uranium, and zinc. Arsenic was detected above the tuff BV in five samples. Calcium was detected above the soil BV in

two samples. Copper was detected above the soil BV in three samples. Iron was detected above the tuff BV in five samples. Uranium was detected above the soil BV in 11 samples and above the tuff BV in 5 samples. Zinc was detected above the soil BV in two samples and above the tuff BV in one sample. Detection limits were above BVs for antimony, cadmium, and selenium. Sampling locations and results for inorganic chemicals above BVs are shown in Figure 4.3-8.

Twenty-two organic chemicals [acenaphthene; acenaphthylene; anthracene; benzo(a)anthracene; benzo(a)pyrene; benzo(b)fluoranthene; benzo(g,h,i)perylene; benzo(k)fluoranthene; bis(2-ethylhexyl)phthalate; carbazole; 4-chloroaniline; chrysene; di-n-butylphthalate; dibenz(a,h)anthracene; dibenzofuran; fluoranthene; fluorene; indeno(1,2,3-cd)pyrene; 2-methylnaphthalene; naphthalene; phenanthrene; and pyrene] were detected. Sampling locations and detected results for organic chemicals are shown in Figure 4.3-9.

4.3.5 SWMU 33-010(c), Surface Disposal Area

4.3.5.1 Description and History

SWMU 33-010(c) is a former surface disposal area located at South Site (Figure 4.3-1) on the northern rim of Chaquehui Canyon, approximately 230 ft south of structure 33-0026. The disposal area dimensions were approximately 50 ft × 30 ft × 2 ft to 4 ft deep. The area is located along the western edge of the main South Site drainage channel. From approximately 1950 to 1955, this site was used to dispose of debris from the implosion tests conducted at SWMU 33-006(a). Debris disposed of at the site includes copper and aluminum shrapnel, pieces of electronic cable, and wood. Between shots, the shot pad and surrounding area were scraped and the debris deposited at SWMU 33-010(c) (LANL 1992, 007671, p. 3-53). A VCA was performed in 1999, and the debris pile was excavated and removed.

4.3.5.2 Previous Investigations

Phase I RFI activities conducted at SWMU 33-010(c) in 1994 involved collecting six surface soil samples (0 to 0.5 ft) from five locations on the face of the disposal pile and six sediment samples (0 to 0.5 ft) from five locations in the drainage below the disposal pile (Figure 4.3-1). Additionally, six sediment samples (0 to 0.5 ft) were collected from five locations in the drainage below the disposal pile as part of the investigation of SWMU 33-006(a) and were used to characterize SWMU 33-010(c) (LANL 1995, 051903, p. 110). Samples were field screened for radioactivity, organic chemicals, and HE and submitted for analysis of metals, gamma-emitting radionuclides, and HE. Two sediment samples were also submitted for analysis of VOCs. Phase I RFI sample data are screening level, are summarized below, and are presented in Appendix B.

A VCA was performed at SWMU 33-010(c) in 1999 (LANL 2000, 066889). All soil within the SWMU was excavated to undisturbed native soil. The VCA used the SGS to separate radioactively contaminated soil and debris from nonradioactive soil and debris. The SGS unit was initially programmed to divert soil and debris with radioactivity above a cleanup criterion of 50 pCi/g at SWMU 33-010(c). Because of the fine, homogeneous nature of the contamination in the soil from disposal area, SGS was unable to separate the material efficiently. The SGS was reprogrammed to a target cleanup criterion of 65 pCi/g, and all soil from SWMU 33-010(c) were reprocessed through the SGS unit. A total of 289.39 yd^3 of soil and debris was excavated and processed through the SGS. Once the disposal area had been excavated to native soil, the excavated area was surveyed for radioactivity. Areas of radioactivity that exceeded 2 times local background were further excavated and resurveyed to confirm removal. Four surface soil samples (0 to 0.5 ft) and four subsurface samples (2 to 2.5 ft depth) were collected from four locations within the excavated area. Three surface samples (0 to 0.5 ft) were collected from the drainage located east of the

disposal area that empties into Chaquehui Canyon (Figure 4.3-1). Samples were submitted for laboratory analysis of isotopic uranium and inorganic chemicals. Soil with radioactivity levels above the cleanup criterion of 65 pCi/g removed during the VCA was disposed of at Area G at TA-54. Soil with radioactivity levels below the cleanup criterion was returned to the SWMU. A total of 0.58 yd^3 of soil exceeded the cleanup criterion of 65 pCi/g; the remaining 288.81 yd^3 of soil was below the cleanup criterion and was returned to the SWMU boundary. The soil was regraded, compacted, and reseeded with native vegetation (LANL 2000, 066889). Confirmation samples collected during the 1999 VCA and the analyses requested are presented in Table 4.0-1.

4.3.5.3 Analytical Results

Metals detected above BVs in the 1994 Phase I RFI samples were antimony, barium, cadmium, lead, selenium, uranium, and zinc. Antimony and lead were each detected above the soil BV in four samples. Barium, cadmium, and selenium were each detected above the soil BV in two samples. Uranium was detected above the soil BV in six samples. Zinc was detected above the soil BV in three samples.

Decision-level data from the 1999 VCA confirmation samples are presented in Tables 4.0-2, 4.0-3, and 4.0-4. Metals detected above BVs include barium, copper, selenium, and silver. Barium, selenium, and silver were each detected above the sediment BVs in one sample. Copper was detected above the soil BV in two samples and above the sediment BV in three samples. Sampling locations and results for inorganic chemicals above BVs are shown in Figure 4.3-10.

Radionuclides detected above BVs in the 1999 VCA confirmation samples include uranium-234, uranium-235/236, and uranium-238; each radionuclide was detected above the soil BV in six samples and above the sediment BV in three samples. Sampling locations and results for radionuclides above BVs are shown in Figure 4.3-11.

4.3.6 SWMU 33-010(h), Surface Disposal Area

4.3.6.1 Description and History

SWMU 33-010(h) is a surface disposal area (Figure 4.3-7), located approximately 450 ft northeast of structure 33-0026 and immediately south of berm 33-0043. The area appears to be a mound of dirt, and firing-site debris is scattered on the soil surface. The debris includes metal, wood, cable, and shrapnel. The area is approximately 100 ft × 100 ft. There is no documentation regarding the history of the disposal area. The main drainage for South Site bounds the disposal area on the west, and an unimproved road is located to the east (LANL 1995, 051903, pp. 115–116).

4.3.6.2 Previous Investigations

During the 1994 Phase I RFI activities at SWMU 33-010(h), a geophysical survey was conducted to determine the presence of subsurface anomalies, and none were identified. A backhoe was used to excavate a 42 ft long trench through the center of the area. Most of the trench was 0.5 ft to 2 ft deep. Two areas along the transect were excavated to a depth of 4 ft, and every bucket of soil was surveyed for the presence of debris. Debris was not observed during the trenching activity. Two subsurface samples (4 ft) were collected from the trenched area (Figure 4.3-7), field screened for radioactivity, organic chemicals, and HE, and submitted for analysis of metals, gamma-emitting radionuclides, SVOCs, and HE (LANL 1995, 051903, p. 116). Data from the 1994 Phase I RFI are screening-level data, are summarized below, and are presented in Appendix B.

4.3.6.3 Analytical Results

No metals were detected above BVs, and no organic chemicals were detected in the Phase I RFI samples. Cesium-137 was detected in two subsurface (4 ft bgs) samples.

Decision-level data are not available for SWMU 33-010(h).

4.3.7 SWMU 33-011(c), Storage Area

4.3.7.1 Description and History

SWMU 33-011(c) is a former unpaved storage area used to hold tritium containers, called blivits, used in acceleration tests performed at TA-33 (Figure 4.3-3). This storage area was located at South Site between buildings 33-0025 and 33-0024. After acceleration tests, the blivits were placed in this area and allowed to discharge to the atmosphere. This practice was discontinued in 1972 (LANL 1992, 007671, p. 3-54).

4.3.7.2 Previous Investigations

During the 1994 Phase I RFI conducted at SWMU 33-011(c), two surface samples (0 to 0.5 ft) were collected from two locations (Figure 4.3-3), field screened for radioactivity, and submitted for analysis of metals and gamma-emitting radionuclides (LANL 1995, 051903, p. 120). Data from the 1994 Phase I RFI are screening-level data, are summarized below, and are presented in Appendix B.

4.3.7.3 Analytical Results

No metals were detected above BVs in the 1994 Phase I RFI samples. Tritium was detected in two samples.

Decision-level data are not available for SWMU 33-011(c).

4.3.8 SWMU 33-014, Open Burn Area

4.3.8.1 Description and History

SWMU 33-014 is the former location of an open burn area located approximately 300 ft north of the fence surrounding MDA E [Consolidated Unit 33-001(a)-99] (Figure 4.3-7). The soil at the burn site has been scraped to bedrock, and some bedrock is blackened from burning. This burn area was believed to have been established in 1950 when operations at South Site began and may have served all of TA-33. Materials burned at this site may have included construction debris, timber, sawdust used in catcher boxes, and black powder. It is not known when burning operations were discontinued at this site (LANL 1992, 007671, p. 3-54).

4.3.8.2 Previous Investigations

Phase I RFI activities conducted at SWMU 33-014 in 1994 involved collecting five surface samples (0 to 0.5 ft) from five locations (Figure 4.3-7), field screened for radioactivity, and HE and submitted for analysis of metals, gamma-emitting radionuclides, and HE. Two of the samples were also submitted for analysis of

SVOCs (LANL 1995, 051903, p. 123). Data from the 1994 Phase I RFI are screening-level data, are summarized below, and are presented in Appendix B.

4.3.8.3 Analytical Results

Metals detected above BVs in Phase I RFI samples were cadmium, chromium, copper, lead, mercury, nickel, uranium, and zinc. Cadmium, chromium, lead, mercury, and nickel were each detected above the soil BVs in one sample. Copper was detected above the soil BV in four samples. Uranium was detected above the soil BV in three samples. Zinc was detected above the soil BV in two samples. No organic chemicals were detected and no radionuclides were detected or detected above BVs/FVs.

Decision-level data are not available for SWMU 33-014.

4.4 SWMU 33-010(g), Surface Disposal Area

4.4.1 Description and History

SWMU 33-010(g) is a former disposal area located on the northern rim of Chaquehui Canyon (Figure 4.4-1). Debris was scattered along the rim and upper walls of the canyon. This former disposal area is located next to MDA E [Consolidated Unit 33-001(a)-99]. Some debris present at SWMU 33-010(g) (such as dead tree trunks, rocks, and scraped earth) may have originated from the initial clearing of South Site in the 1940s. Other debris, including chunks of metal, was also present. The period of operation for this disposal site is not known, but firing site operations associated with initiator testing at South Site were conducted from 1950 to 1956 (LANL 1992, 007671, p.3-54). The debris was removed and disposed of in 1995.

4.4.2 Previous Investigations

During the Phase I RFI performed at SWMU 33-010(g) in 1994, nine surface samples (0 to 0.5 ft) were collected from nine locations on the mesa top amid the debris and the canyon side below the disposal area (Figure 4.4-1). Samples were field screened for radioactivity, organic chemicals, and HE and submitted for analysis of metals, gamma-emitting radionuclides, and HE. One sample was also submitted for analysis of herbicides (LANL 1995, 051903, p. 115). Data from the 1994 Phase I RFI are screening-level data, are summarized below, and are presented in Appendix B.

A VCA was performed at SWMU 33-010(g) in 1995 (LANL 1996, 054755). The debris was field screened for radioactivity and metals. Debris smaller than 3 in. in diameter was removed if radioactive screening results were above local background levels. A total of 4 yd^3 of nonhazardous/nonradioactive debris and 2 ft^3 of radioactive debris was removed. Nonhazardous/nonradioactive metal debris was recycled. Low-level radioactive debris was disposed of at MDA G. All other nonhazardous/nonradioactive debris was disposed of at the Los Alamos County landfill (LANL 1996, 054755, p. 15).

4.4.3 Analytical Results

The only inorganic chemicals detected above the BVs in the 1994 Phase RFI samples were calcium and mercury. Calcium was detected above the soil BV in two samples, and mercury was detected above the soil BV in one sample. No organic chemicals were detected and no radionuclides were detected or detected above BVs/FVs.

Decision-level data are not available for SWMU 33-010(g).

5.0 SITES UNDER INVESTIGATION AT NRAO

This section provides descriptions and history of each of the sites being investigated at TA-33 NRAO, along with descriptions and results of previous investigations. No decision-level data have been collected previously at the NRAO site.

5.1 SWMU 33-004(m), Septic System

5.1.1 Description and History

SWMU 33-004(m) consists of a septic tank (structure 33-0179) at the NRAO site (Figure 5.1-1). Septic tank 33-0179 has a capacity of 1000 gal. and still receives wastewater from the NRAO support building (33-0178), which was constructed in 1987. The septic tank serves the restroom, kitchen, water fountain, and utility room floor drains in building 33-0178 (Santa Fe Engineering 1992, 062036, p. 10). The septic tank discharges to a leach field; both the septic tank and leach field are located outside the northeast corner of the fenced area surrounding building 33-0178 and the radiotelescope. The septic tank was excavated into bedrock, and bedrock is exposed downslope of the leach field area. There is no documented use of hazardous or radioactive materials within building 33-0178.

5.1.2 Previous Investigations

During the 1994 Phase I RFI conducted at SWMU 33-004(m), one sample of liquid and one sample of sludge were collected from the septic tank, and five surface soil samples (0 to 0.5 ft) and six subsurface soil samples (4 to 5 ft, 2 to 4 ft, and 3.5 to 4 ft bgs) were collected from three locations near the septic tank and drainline (Figure 5.1-1). The samples were field screened for organic chemicals and submitted for analysis of VOCs and SVOCs (LANL 1995, 051903, p. 54). Data from the 1994 Phase I RFI are screening-level data, are summarized below, and are presented in Appendix B.

5.1.3 Analytical Results

Five organic chemicals (acetone; ethylbenzene; toluene; 1,3,5-trimethylbenzene; and xylene) were detected in the sludge sample collected during the 1994 Phase I RFI. Two organic chemicals (acetone and toluene) were detected in the liquid sample. Organic chemicals were not detected in any of the soil samples.

Decision-level data are not available for SWMU 33-004(m).

5.2 AOC 33-011(b), Former Storage Area

5.2.1 Description and History

AOC 33-011(b) is a former storage area located just outside the northwest corner of the NRAO site at TA-33 (Figure 5.2-1). This storage area was approximately 300 ft wide × 600 ft long. Beginning in the 1950s, the site served as a storage area for equipment and materials such as tungsten, uranium, and beryllium were stored at the site. Equipment used at the TA-33 firing sites was also stored at the site. The storage area was cleaned up in 1984, and most materials and debris were removed at that time, although

some debris remains. Approximately 75% of the area had been scraped and leveled to or near the tuff bedrock.

5.2.2 Previous Investigations

During the Phase I RFI conducted at AOC 33-011(b) in 1994, 10 surface samples (0 to 0.5 ft) were collected from 10 locations. Six samples were collected at the former storage area, and four samples were collected from the drainage west of the former storage area (Figure 5.2-1). Samples were field screened for radioactivity and submitted for laboratory analysis of metals and gamma-emitting radionuclides. One sample was also submitted for analysis of organic chemicals (LANL 1995, 051903, p. 120). Data from the 1994 Phase I RFI are screening-level data, are summarized below, and are presented in Appendix B.

A VCA was performed in 1996, and all remaining surface debris was removed from the site. A total of 2 yd^3 of nonhazardous/nonradioactive debris was removed from AOC 33-011(c), and approximately 0.5 ft^3 of radioactive debris (shrapnel) was removed and disposed of at Area G at TA-54. The nonhazardous/nonradioactive metal debris was recycled by the ACE Salvage Company, and the remainder of the nonhazardous/nonradioactive debris was disposed of at the Los Alamos County landfill (LANL 1996, 054755, p. 15).

5.2.3 Analytical Results

Calcium was detected above the soil BV in two samples from the Phase I RFI. Organic chemicals were not detected in the 1994 Phase I RFI sample. Cesium-137 was detected slightly above the soil FV in two surface samples.

Decision-level data are not available for SWMU 33-011(b).

6.0 REFERENCES AND MAP DATA SOURCES

6.1 References

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

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

Ahlquist, A.J., November 1, 1983. "Conversations with Harlow Russ RE TA-33, 10/27/83," Los Alamos Scientific Laboratory memorandum to file from A.J. Ahlquist (HSE-8), Los Alamos, New Mexico. (Ahlquist 1983, 006854)

Buckland, C.W., October 20, 1951. "12 October 1951 Spill at TA-33," Los Alamos Scientific Laboratory memorandum to D.P. MacMillan (W-3) from C. Buckland (H-1), Los Alamos, New Mexico. (Buckland 1951, 007845)

Cox, E.J., R. Garde, and A.M. Valentine, July 21, 1975. "Disposition of TA-33-21, a Plutonium Contaminated Experimental Facility," Los Alamos Scientific Laboratory document LA-UR-75-1419, Los Alamos, New Mexico. (Cox et al. 1975, 009728)

EPA (U.S. Environmental Protection Agency), January 21, 2005. "EPA's Prior Decisions on SWMU/AOC Sites at Los Alamos National Laboratory (LANL)," U.S. Environmental Protection Agency letter to J. Bearzi (NMED-HRMB) from L.F. King (EPA Federal Facilities Section Chief), Dallas, Texas. (EPA 2005, 088464)

Hoard, D., September 17, 1991. "Conversation with Harlow Russ," Los Alamos National Laboratory memorandum (CLS-1/91-304-DH) to file from D. Hoard (CLS-1), Los Alamos, New Mexico. (Hoard 1991, 009734)

Hoard, D., September 17, 1991. "Conversation with John Dougherty RE TA-33," Los Alamos National Laboratory memorandum (CLS-1/91-303-DH) to file from D. Hoard (CLS-1), Los Alamos, New Mexico. (Hoard 1991, 009733)

Hyatt, E.C., June 5, 1956. "Proposed Hot Machine Shop, TA-33, Building HP-113," Los Alamos Scientific Laboratory memorandum to J. Bolton (ENG-DO) from E.C. Hyatt (H-5), Los Alamos, New Mexico. (Hyatt 1956, 007929)

Hyatt, E.C., September 27, 1957. "Fume Hood Exhaust Stack in Building HP-16, TA-33," Los Alamos Scientific Laboratory memorandum to J. Dougherty (W-3) from E.C. Hyatt (H-5), Los Alamos, New Mexico. (Hyatt 1957, 007939)

IT Corporation (International Technology Corporation), September 20, 1999. "Field Summary Report for Best Management Plan at PRS 33-008(c) and AOC-33-001, TA-33," report prepared for Los Alamos National Laboratory, Los Alamos, New Mexico. (IT Corporation 1999, 065351)

Jordan, H.S., August 2, 1954. "Industrial Hygiene Survey, TA-33," Los Alamos Scientific Laboratory memorandum to D. MacMillan (W-3) from H.S. Jordan (H-5), Los Alamos, New Mexico. (Jordan 1954, 007918)

Koogle and Pouls Engineering, November 29, 1986. "TA-33 and TA-39 aerial photograph," Los Alamos National Laboratory, Los Alamos, New Mexico. (Koogle and Pouls Engineering 1986, 017907)

LANL (Los Alamos National Laboratory), November 1990. "Solid Waste Management Units Report," Vol. III of IV (TA-26 through TA-50), Los Alamos National Laboratory document LA-UR-90-3400, Los Alamos, New Mexico. (LANL 1990, 007513)

LANL (Los Alamos National Laboratory), May 1992. "RFI Work Plan for Operable Unit 1122," Los Alamos National Laboratory document LA-UR-92-925, Los Alamos, New Mexico. (LANL 1992, 007671)

LANL (Los Alamos National Laboratory), December 1995. "RFI Report for Potential Release Sites 33-004(b), 33-004(c), 33-004(j), 33-004(m), 33-006(a), 33-006(b), 33-007(a), 33-007(b), 33-010(a), 33-010(b), 33-010(c), 33-010(d), 33-010(g), 33-010(h), 33-011(b), 33-011(c), 33-014," Los Alamos National Laboratory document LA-UR-95-4439, Los Alamos, New Mexico. (LANL 1995, 051903)

LANL (Los Alamos National Laboratory), January 31, 1995. "Field Unit 3, Operable Unit 1122, Technical Area 33, RFI Report for PRSs 33-004(d), 33-004(g), 33-004(h), 33-004(i), 33-005(a), 33-005(b), 33-005(c), 33-010(e), 33-010(f), 33-011(e), 33-012(a), 33-015, 33-007(c), 33-011(a)," Los Alamos National Laboratory document LA-UR-95-0882, Los Alamos, New Mexico. (LANL 1995, 071262)

LANL (Los Alamos National Laboratory), September 29, 1995. "RFI Report for MDA K, PRSs 33-002(a,b,c,d,e)," Los Alamos National Laboratory, Los Alamos, New Mexico. (LANL 1995, 050113)

LANL (Los Alamos National Laboratory), September 29, 1995. "RFI Report for Field Unit 3, Operable Unit 1122, Technical Area 33, RFI Report for PRSs 33-003(a), 33-004(a), 33-007(c), 33-009, 33-011(d), 33-013, 33-016, 33-017, Revised Sampling Plans for PRSs 33-003(b), 33-004(k), 33-008(a), 33-008(b), C-33-001, C-33-002," Los Alamos National Laboratory document LA-UR-95-3626, Los Alamos, New Mexico. (LANL 1995, 071300)

LANL (Los Alamos National Laboratory), February 1996. "Interim Action Report for Potential Release Site 33-007(c)," Los Alamos National Laboratory document LA-UR-96-710, Los Alamos, New Mexico. (LANL 1996, 052919)

LANL (Los Alamos National Laboratory), May 1996. "Interim Action Report for Potential Release Site 33-007(b)," Los Alamos National Laboratory, Los Alamos, New Mexico. (LANL 1996, 054623)

LANL (Los Alamos National Laboratory), June 1996. "Voluntary Corrective Action Completion Report for Solid Waste Management Units at TA-33, 33-010(a), Canyon-Side Disposal Area, 33-010(d), Surface Disposal Area, 33-010(g), Canyon-Side Disposal Area, 33-011(b), General Storage Area," Los Alamos National Laboratory document LA-UR-96-1839, Los Alamos, New Mexico. (LANL 1996, 054755)

LANL (Los Alamos National Laboratory), July 1996. "Sampling and Analysis Plan, PRS 33-008(c)," Los Alamos National Laboratory, Los Alamos, New Mexico. (LANL 1996, 054963)

LANL (Los Alamos National Laboratory), August 1996. "Voluntary Corrective Action Plan for a Solid Waste Management Unit at TA-33, 33-007(c)," Los Alamos National Laboratory document LA-UR-96-2942, Los Alamos, New Mexico. (LANL 1996, 054906)

LANL (Los Alamos National Laboratory), September 1996. "Voluntary Corrective Action Report for a Solid Waste Management Unit at TA-33, 33-007(c)," Los Alamos National Laboratory document LA-UR-96-3198, Los Alamos, New Mexico. (LANL 1996, 062541)

LANL (Los Alamos National Laboratory), March 1997. "Interim Action Report for Potential Release Site 33-006(a), Operable Unit 1122, Technical Area 33," Los Alamos National Laboratory document LA-UR-97-641, Los Alamos, New Mexico. (LANL 1997, 055865)

LANL (Los Alamos National Laboratory), September 1997. "NFA Report for Potential Release Sites 33-002(b–c), 33-003(b), 33-004(k), 33-006(a), 33-008(a–b), 33-011(d), 33-013, 33-017 (located in former Operable Unit 1122)," Los Alamos National Laboratory document LA-UR-97-2944, Los Alamos, New Mexico. (LANL 1997, 071478)

LANL (Los Alamos National Laboratory), September 22, 1998. "Inorganic and Radionuclide Background Data for Soils, Canyon Sediments, and Bandelier Tuff at Los Alamos National Laboratory," Los Alamos National Laboratory document LA-UR-98-4847, Los Alamos, New Mexico. (LANL 1998, 059730)

LANL (Los Alamos National Laboratory), March 23, 1999. "VCA Plan for Potential Release Sites 33-007(b), 33-010(c), C-33-003," Los Alamos National Laboratory document LA-UR-99-3002, Los Alamos, New Mexico. (LANL 1999, 063678)

LANL (Los Alamos National Laboratory), August 18, 2000. "Submittal of Response to Request for Supplemental Information (RSI) for the Voluntary Corrective Action (VCA) Plan for Potential Release Sites (PRSs) 33-007(b), 33-010(c), and C-33-003 [and attached 'Segmented Gate System, Voluntary Corrective Action Status Report for Potential Release Sites 33-007(b), 33-010(c), C-33-033]," Los Alamos National Laboratory letter (ER2000-0171) to J. Kieling (NMED-HWB) from J.A. Canepa (LANL) and T.J. Taylor (DOE-LAAO), Los Alamos, New Mexico. (LANL 2000, 066889)

LANL (Los Alamos National Laboratory), September 29, 2000. "Annual Transmittal of Best Management Practices (BMPs) Installed, Inspected, and Maintained at PRSs at Los Alamos National Laboratory (LANL)," Los Alamos National Laboratory letter (ER2000-0535) to J. Young (NMED-HWB) from J. Canepa (LANL) and T.J. Taylor (DOE-LAAO), Los Alamos, New Mexico. (LANL 2000, 068748)

LANL (Los Alamos National Laboratory), April 2005. "Field Implementation Plan for Preconstruction Investigation and Removal at Solid Waste Management Unit (SWMUs) 33-002(a), an Inactive Septic System, and 33-002(c), an Inactive Sump, and 33-013, a Former Storage Area, at Technical Area 33," Los Alamos National Laboratory document LA-UR-04-8971, Los Alamos, New Mexico. (LANL 2005, 091433)

LANL (Los Alamos National Laboratory), November 2009. "Investigation Work Plan for Chaquehui Canyon Aggregate Area," Los Alamos National Laboratory document LA-UR-09-7401, Los Alamos, New Mexico. (LANL 2009, 107347)

LASL (Los Alamos Scientific Laboratory), November 1954. Excerpted pages from "H-Division Progress Report, October 20 - November 20, 1954," Los Alamos Scientific Laboratory, Los Alamos, New Mexico. (LASL 1954, 107465)

Michelotti, R., and L. Kidman, October 30, 1997. "Transfer of Responsibility for Future Contamination at TA-33-31," Los Alamos National Laboratory memorandum (ER-RM-97-65) to P. Bussolini (NIS-33) from R. Michelotti (CST-18) and L. Kidman (ICF KE), Los Alamos, New Mexico. (Michelotti and Kidman 1997, 074002)

Milford, H.C., December 14, 1956. "Visit to Group W-3 at TA-33," Los Alamos Scientific Laboratory memorandum to W-3 file from H.C. Milford, Los Alamos, New Mexico. (Milford 1956, 007934)

NMED (New Mexico Environment Department), December 23, 1998. "Approval: Class III Permit Modification to Remove Ninety-nine (99) Solid Waste Management Units from the Department of Energy/Los Alamos National Laboratory RCRA Permit NM 0890010515," New Mexico Environment Department letter to T. Taylor (DOE-LAAO) and J.C. Browne (LANL Director) from E. Kelley (NMED-HRMB), Santa Fe, New Mexico. (NMED 1998, 063042)

NMED (New Mexico Environment Department), August 30, 2006. "Approval and Certificate of Completion, Remedy Completion Report for the Investigation and Remediation of Solid Waste Management Unit 33-013, Technical Area 33," New Mexico Environment Department letter to D. Gregory (DOE-LASO) and D. McInroy (LANL) from J.P. Bearzi (NMED-HWB), Santa Fe, New Mexico. (NMED 2006, 093526)

Reider, R., July 11, 1967. "Disposal of Capacitors," Los Alamos Scientific Laboratory memorandum to J.E. Dougherty (W-3) from R. Reider (Safety Director), Los Alamos, New Mexico. (Reider 1967, 007471)

Reider, R., August 7, 1972. "Disposal of Defective Energy Storage Capacitors," Los Alamos Scientific Laboratory memorandum to distribution from R. Reider (Safety Director), Los Alamos, New Mexico. (Reider 1972, 008204)

Rogers, M.A., June 1977. "History and Environmental Setting of LASL Near-Surface Land Disposal Facilities for Radioactive Wastes (Areas A, B, C, D, E, F, G, and T)," Vol. II, Los Alamos Scientific Laboratory report LA-6848-MS, Los Alamos, New Mexico. (Rogers 1977, 005708)

Santa Fe Engineering Ltd., January 1992. "Wastewater Stream Characterization for TA-33, 39, 49 and 69, Los Alamos National Laboratory, Environmental Study, Characterization Report #26," draft report prepared for Los Alamos National Laboratory, Santa Fe, New Mexico. (Santa Fe Engineering, Ltd. 1992, 062036)

Schulte, H.F., June 24, 1958. "Control of Niobium Fumes," Los Alamos Scientific Laboratory memorandum to the file (W-3 at TA-33) from H.F. Schulte (H-5 Group Leader), Los Alamos, New Mexico. (Schulte 1958, 007946)

Smith, J., December 19, 1974. "Radiation Survey of Cleaned Up Dump Area at TA-33," Los Alamos Scientific Laboratory memorandum to J. Warren (H-8) from J. Smith (H-8), Los Alamos, New Mexico. (Smith 1974, 006911)

USAF (U.S. Air Force), November 22, 1958. "TA-33 and TA-39 aerial photograph," Los Alamos Scientific Laboratory, Los Alamos, New Mexico. (USAF 1958, 015987)

6.2 Map Data Sources

Potential Release Sites; Los Alamos National Laboratory, Waste and Environmental Services Division, Environmental Data and Analysis Group, EP2009-0137; 1:2,500 Scale Data; 13 March 2009; Modified PRS boundaries contained within WES GIS Team project folder, 09-0066, until change control complete.

Canyon Reaches; Los Alamos National Laboratory, ENV Environmental Remediation and Surveillance Program, ER2002-0592; 1:24,000 Scale Data; Unknown publication date; Additional reach data contained in WES GIS Team project folder 09-0066

Aggregate Areas; Los Alamos National Laboratory, ENV Environmental Remediation & Surveillance Program, ER2005-0496; 1:2,500 Scale Data; 22 September 2005.

Former Structures of the Los Alamos Site; Los Alamos National Laboratory, Waste and Environmental Services Division, EP2008-0441; 1:2,500 Scale Data; 08 August 2008; Additional former structures contained within WES GIS Team project folder, 09-0066.

Primary Electric Grid; Los Alamos National Laboratory, KSL Site Support Services, Planning, Locating and Mapping Section; 06 January 2004; as published 15 January 2009.

Dirt Road Arcs; Los Alamos National Laboratory, KSL Site Support Services, Planning, Locating and Mapping Section; 06 January 2004; as published 15 January 2009.

Security and Industrial Fences and Gates; Los Alamos National Laboratory, KSL Site Support Services, Planning, Locating and Mapping Section; 06 January 2004; as published 15 January 2009.

Primary Gas Distribution Lines; Los Alamos National Laboratory, KSL Site Support Services, Planning, Locating and Mapping Section; 06 January 2004; as published 15 January 2009.

Paved Parking; Los Alamos National Laboratory, KSL Site Support Services, Planning, Locating and Mapping Section; 12 August 2002; as published 15 January 2009.

Paved Road Arcs; Los Alamos National Laboratory, KSL Site Support Services, Planning, Locating and Mapping Section; 06 January 2004; as published 15 January 2009.

Road Centerlines; Los Alamos National Laboratory, KSL Site Support Services, Planning, Locating and Mapping Section; 15 December 2005; as published 15 January 2009.

Sewer Line System; Los Alamos National Laboratory, KSL Site Support Services, Planning, Locating and Mapping Section; 06 January 2004; as published 15 January 2009.

Storm Drain Line Distribution System; Los Alamos National Laboratory, KSL Site Support Services, Planning, Locating and Mapping Section; 06 January 2004; as published 15 January 2009.

Structures; Los Alamos National Laboratory, KSL Site Support Services, Planning, Locating and Mapping Section; 06 January 2004; as published 15 January 2009.

Water Lines; Los Alamos National Laboratory, KSL Site Support Services, Planning, Locating and Mapping Section; 06 January 2004; as published 15 January 2009.

Hypsography, 2, 10, 20, & 100 Foot Contour Intervals; Los Alamos National Laboratory, ENV Environmental Remediation and Surveillance Program; 1991.

Technical Area Boundaries; Los Alamos National Laboratory, Site Planning & Project Initiation Group, Infrastructure Planning Office; September 2007; as published 04 December 2008.

WQH Drainage_arc; Los Alamos National Laboratory, ENV Water Quality and Hydrology Group; 1:24,000 Scale Data; 03 June 2003; Additional drainage data contained within WES GIS Team project folder 08-0030.

Point Feature Locations of the Environmental Restoration Project Database; Los Alamos National Laboratory, Waste and Environmental Services Division, EP2009-0162; 13 March 2009; Proposed sampling and modified/new point feature data contained within WES GIS Team project folder 09-0066.

Individual Permit (IP) Site Monitoring Area (SMA) Samplers; Los Alamos National Laboratory, Water Stewardship Program; Currently unpublished 2009 data contained within WES GIS Team project folder 07-0142.

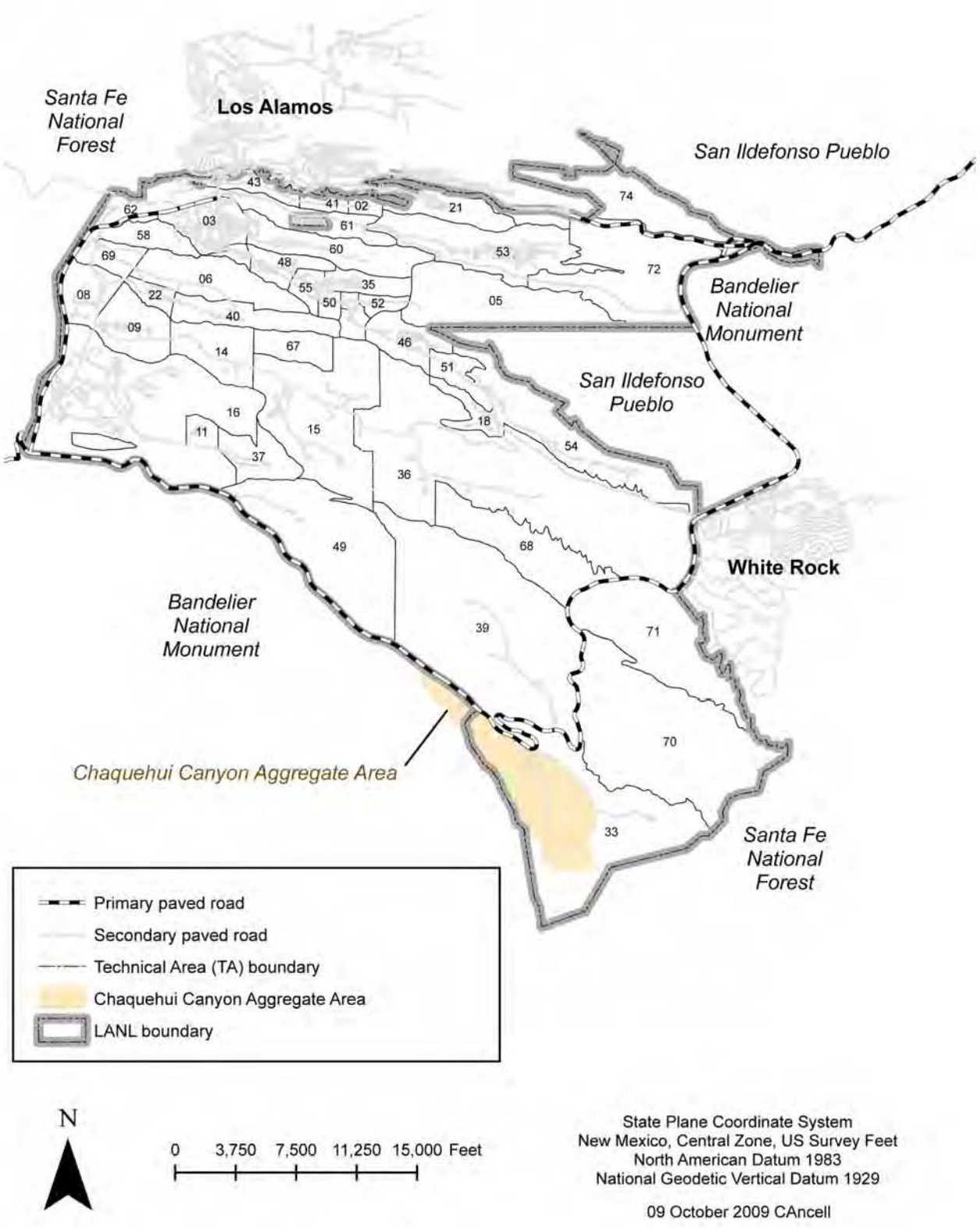


Figure 1.0-1 Chaquehui Canyon Aggregate Area with respect to Laboratory TAs and surrounding land holdings

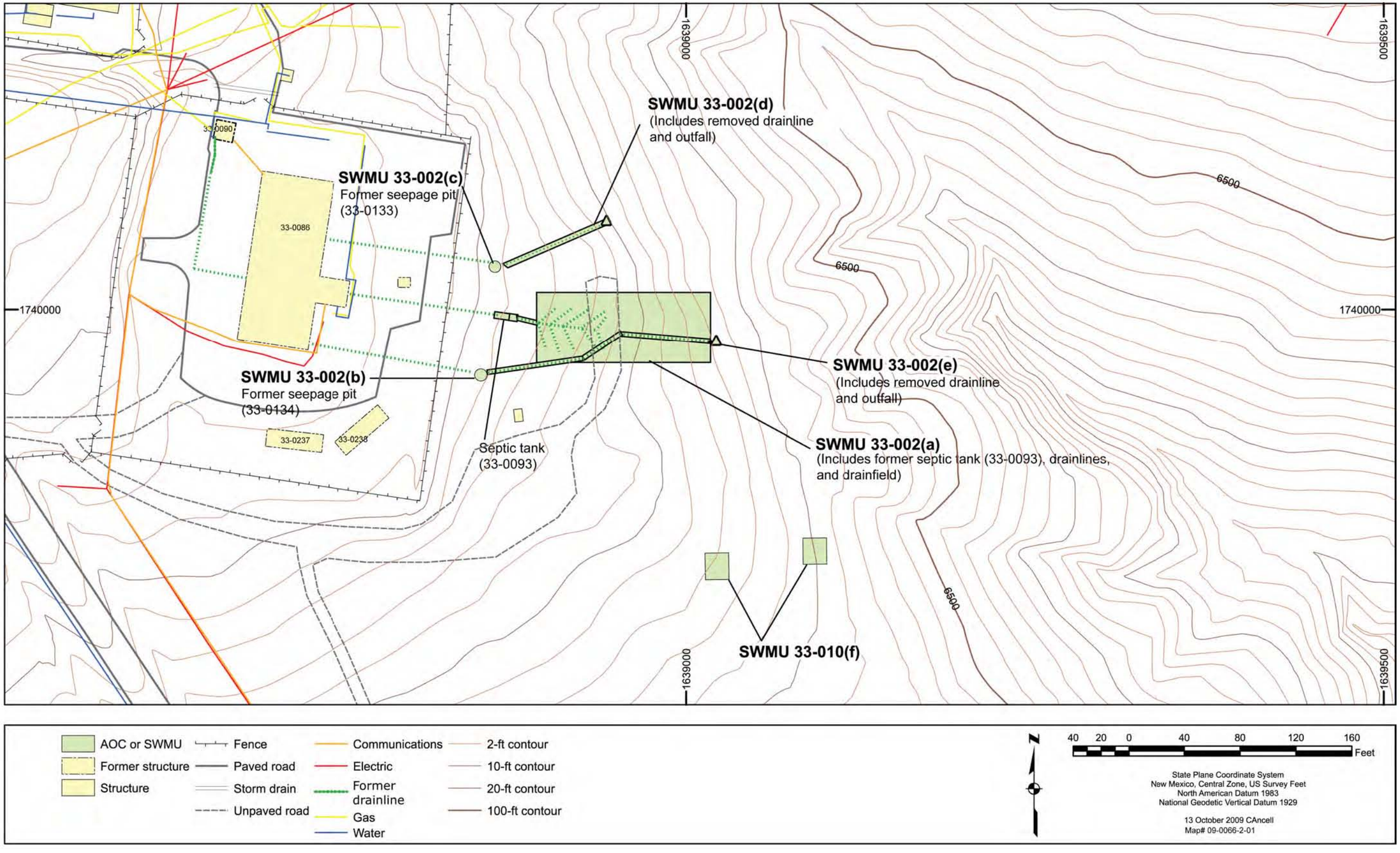


Figure 2.1-1a Site features for Consolidated Unit 33-002(a)-99

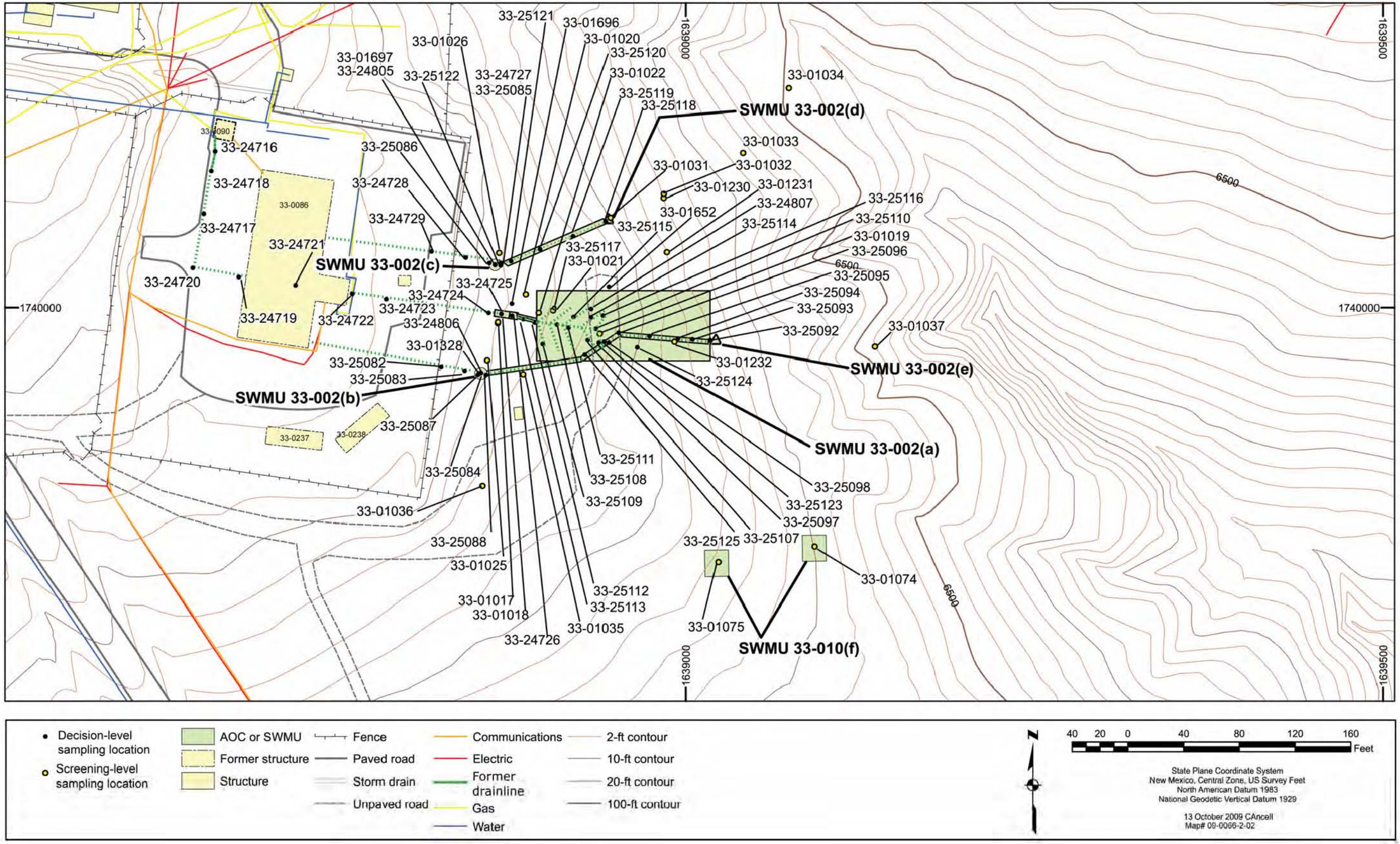


Figure 2.1-1b Historical sampling locations for Consolidated Unit 33-002(a)-99

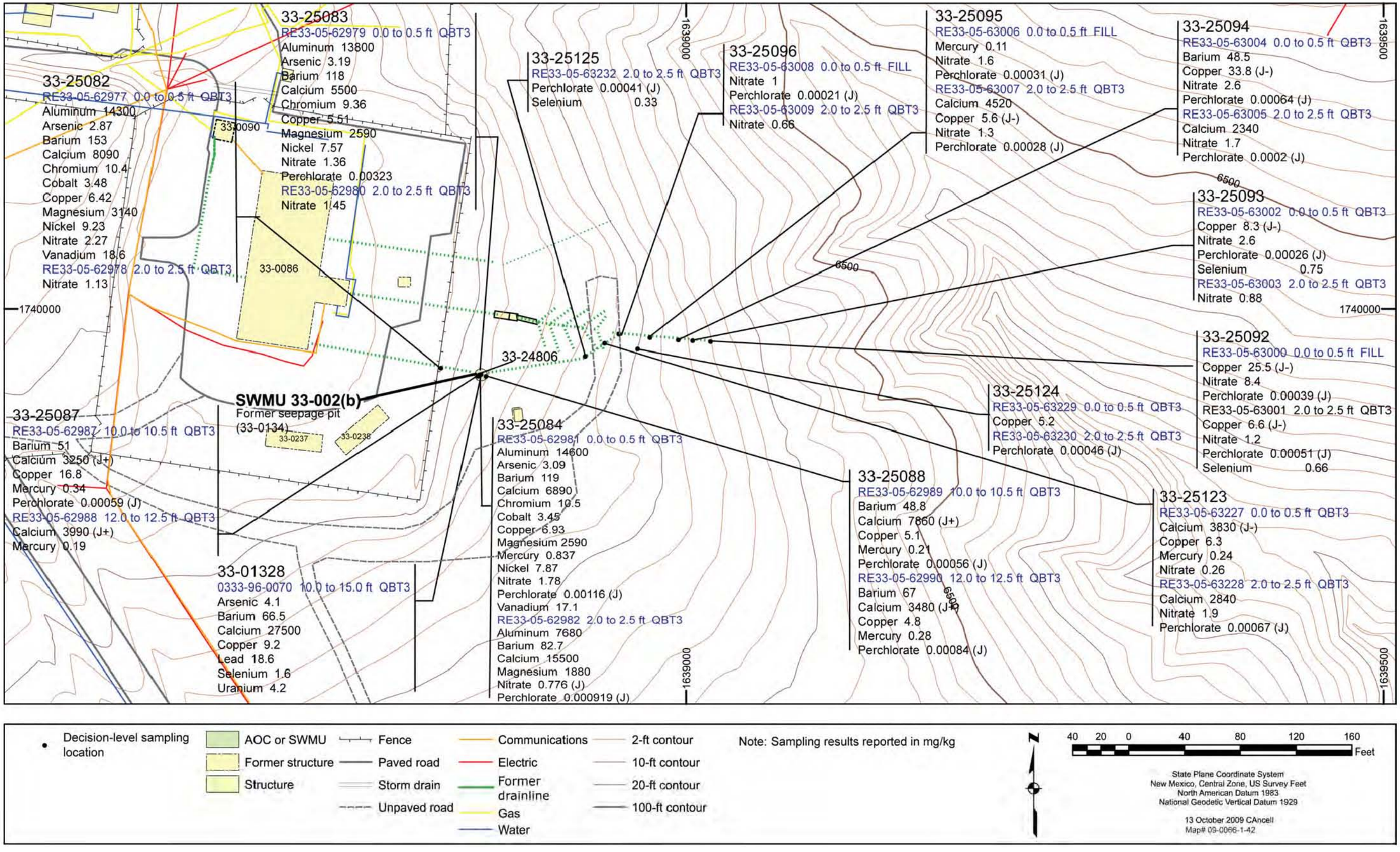


Figure 2.1-2 Inorganic chemicals detected above BVs at SWMU 33-002(b)

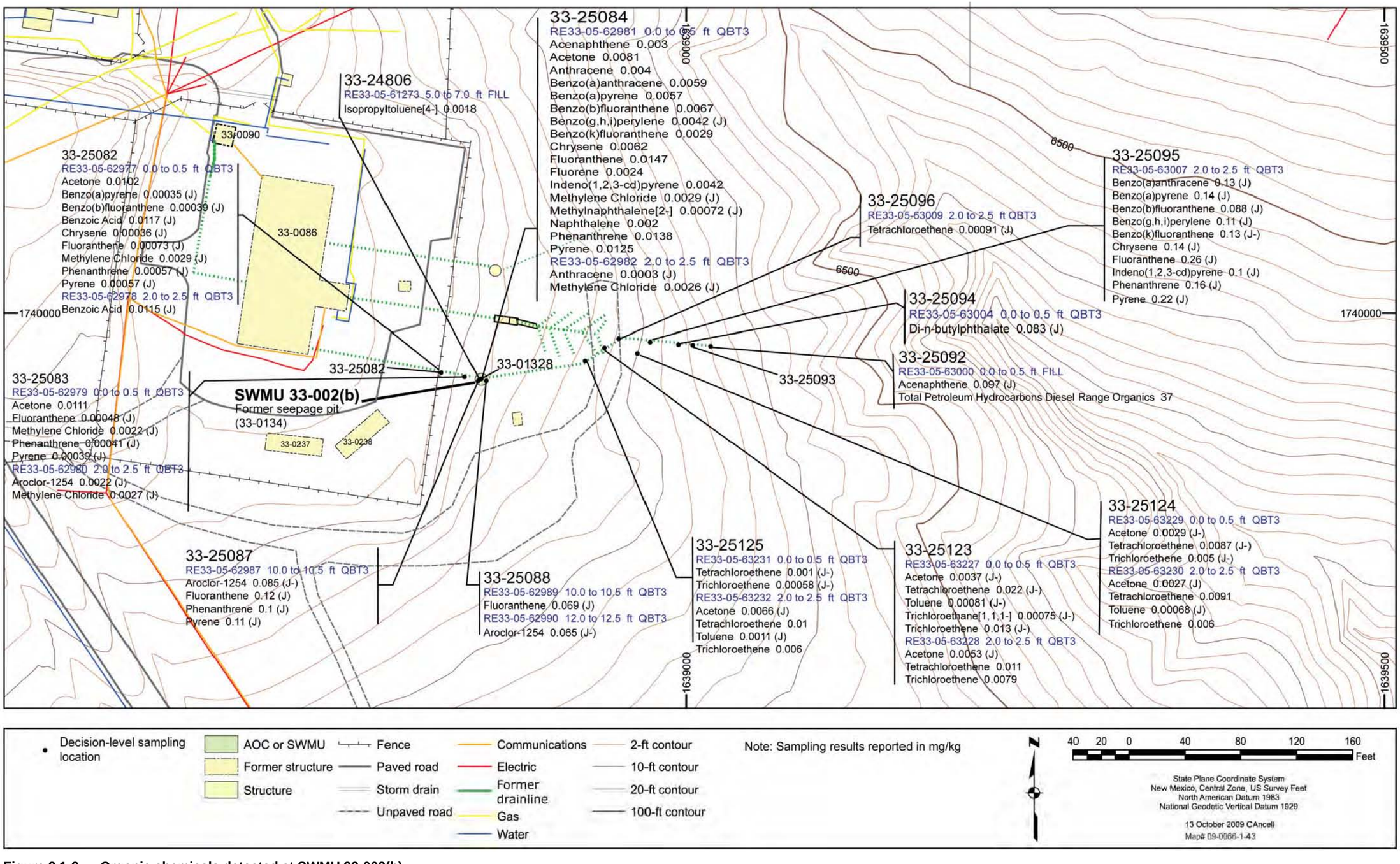


Figure 2.1-3 Organic chemicals detected at SWMU 33-002(b)

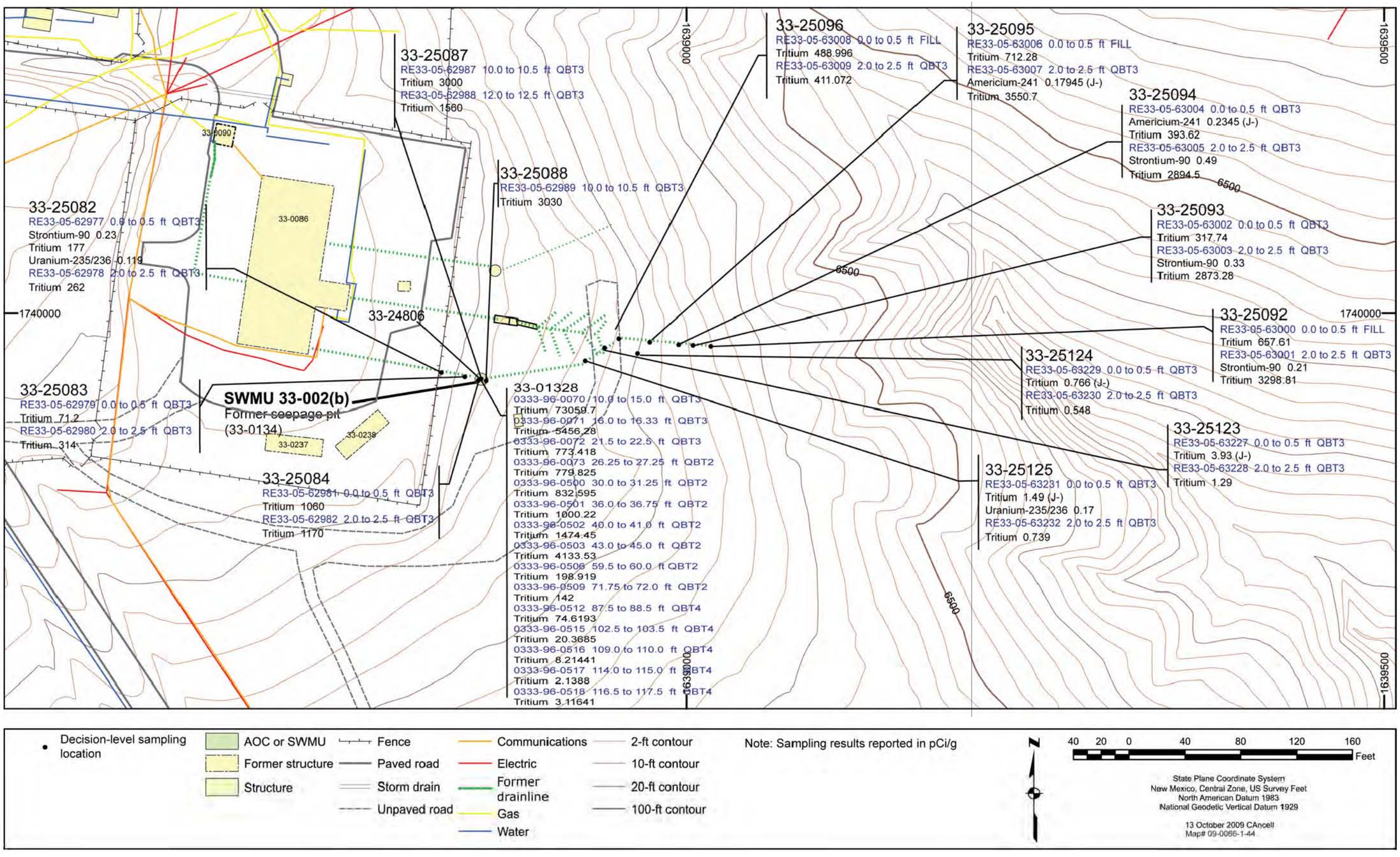


Figure 2.1-4 Radionuclides detected or detected above BVs/FVs at SWMU 33-002(b)

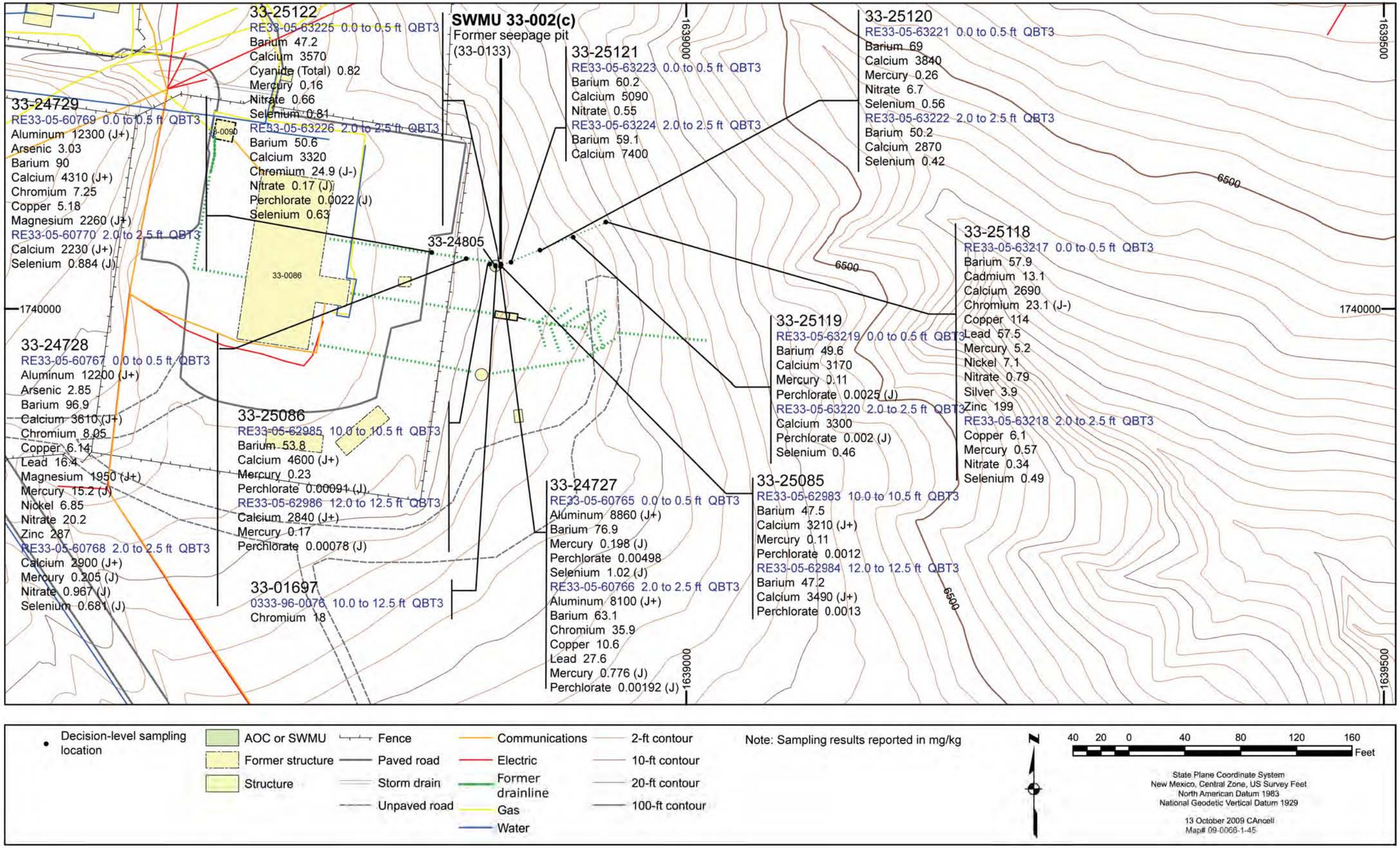


Figure 2.1-5 Inorganic chemicals detected above BVs at SWMU 33-002(c)

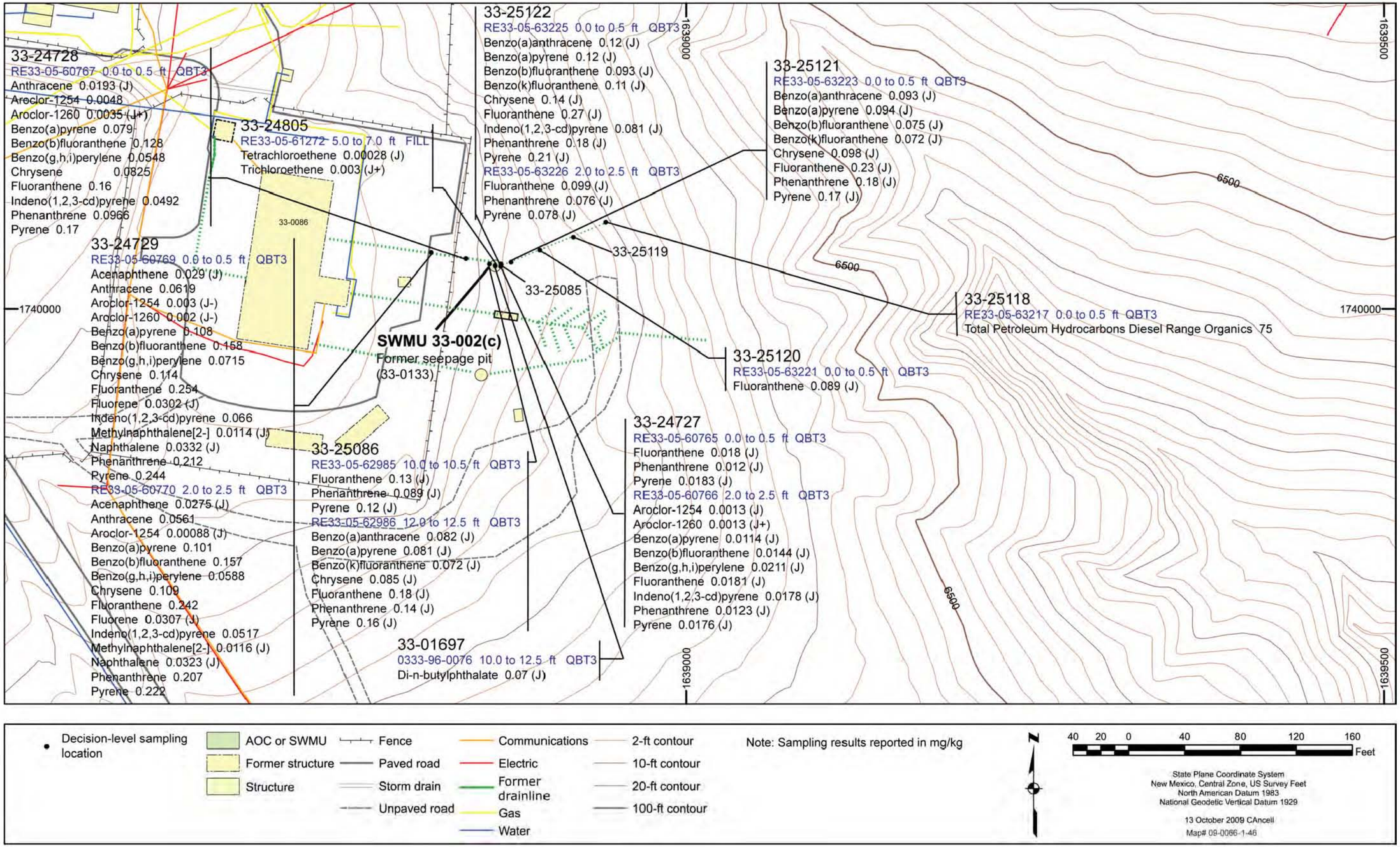


Figure 2.1-6 Organic chemicals detected at SWMU 33-002(c)

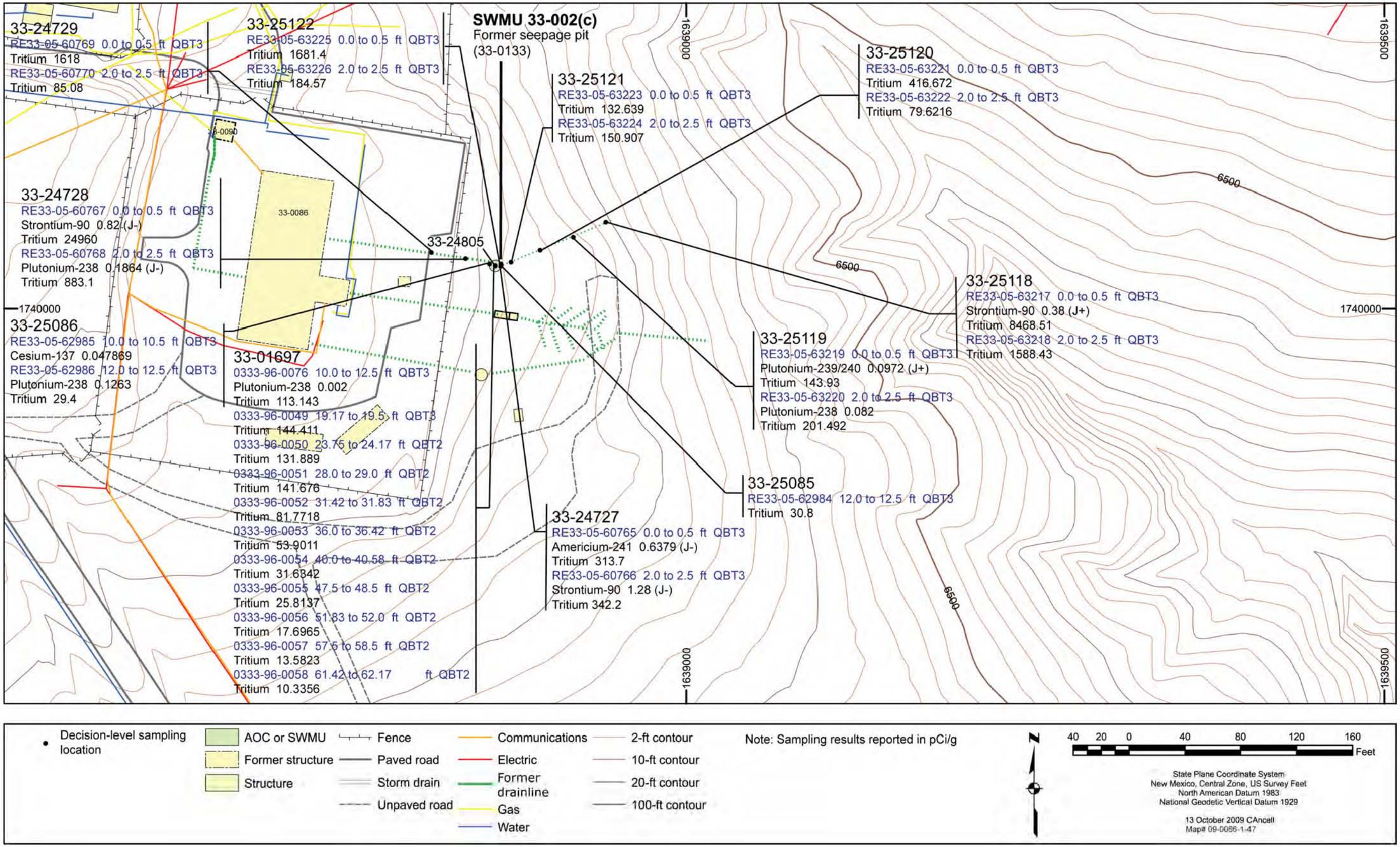


Figure 2.1-7 Radionuclides detected or detected above BVs/FVs at SWMU 33-002(c)

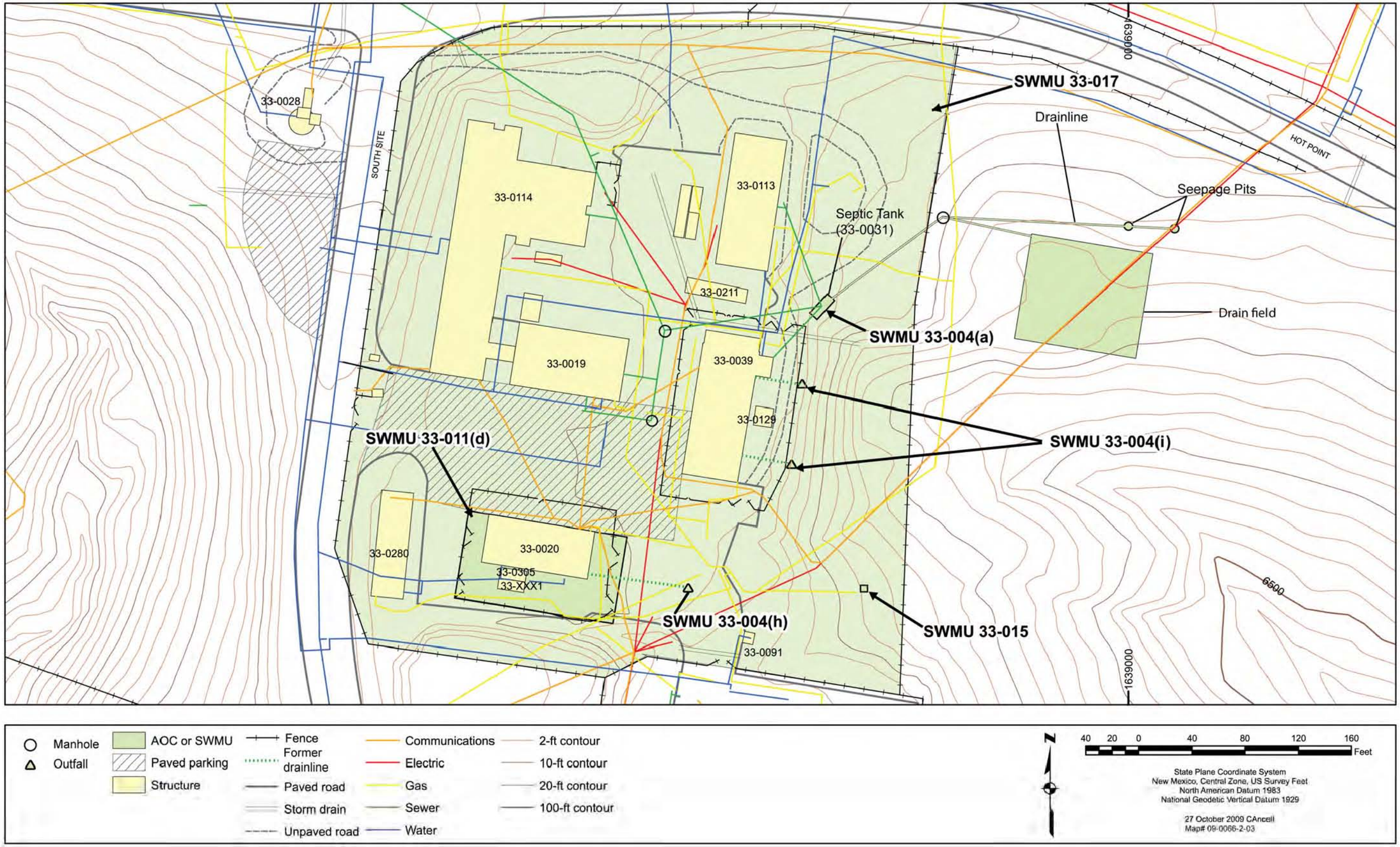


Figure 2.2-1a Site features for Consolidated Unit 33-004(a)-00

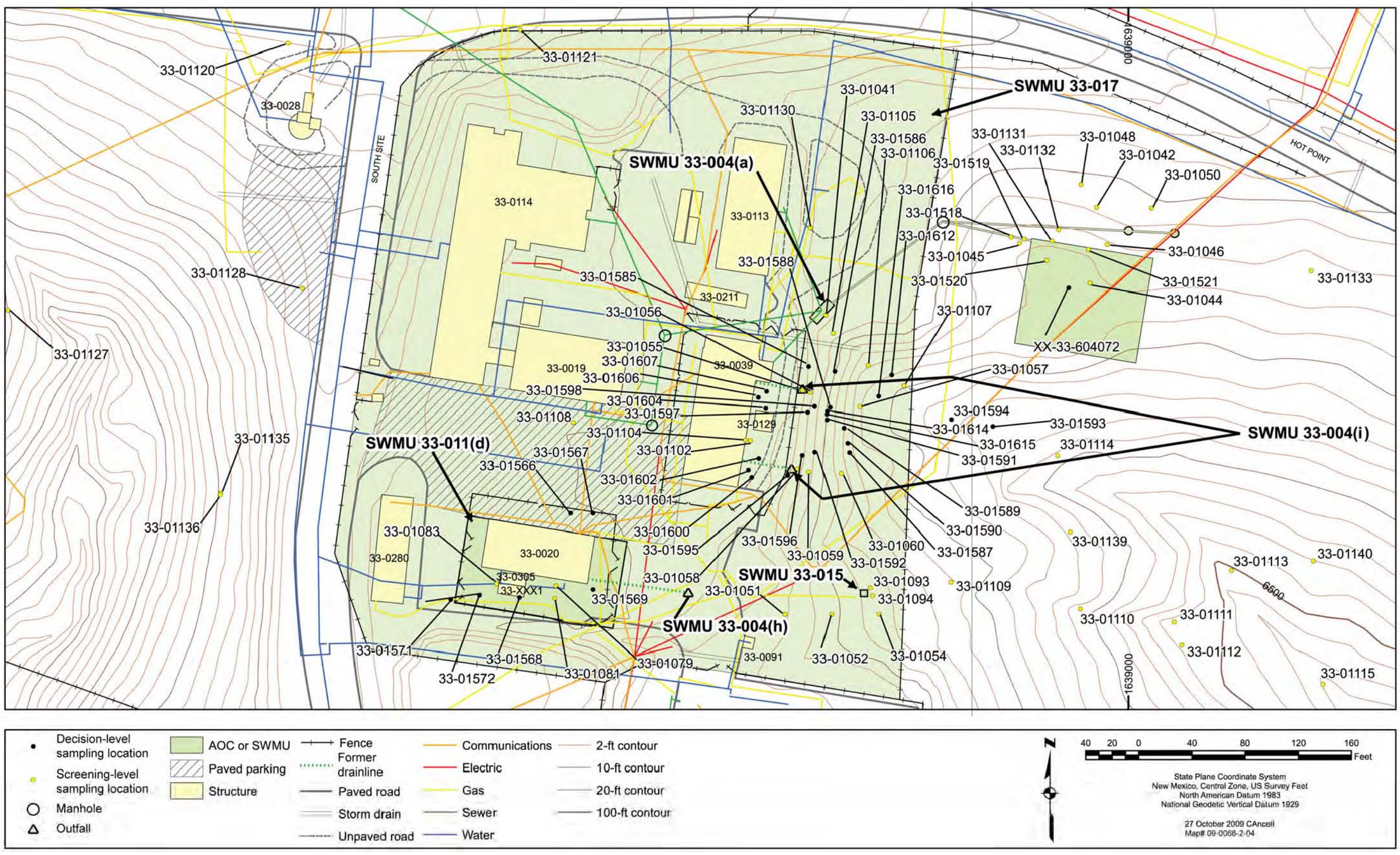


Figure 2.2-1b Historical sampling locations for Consolidated Unit 33-004(a)-00

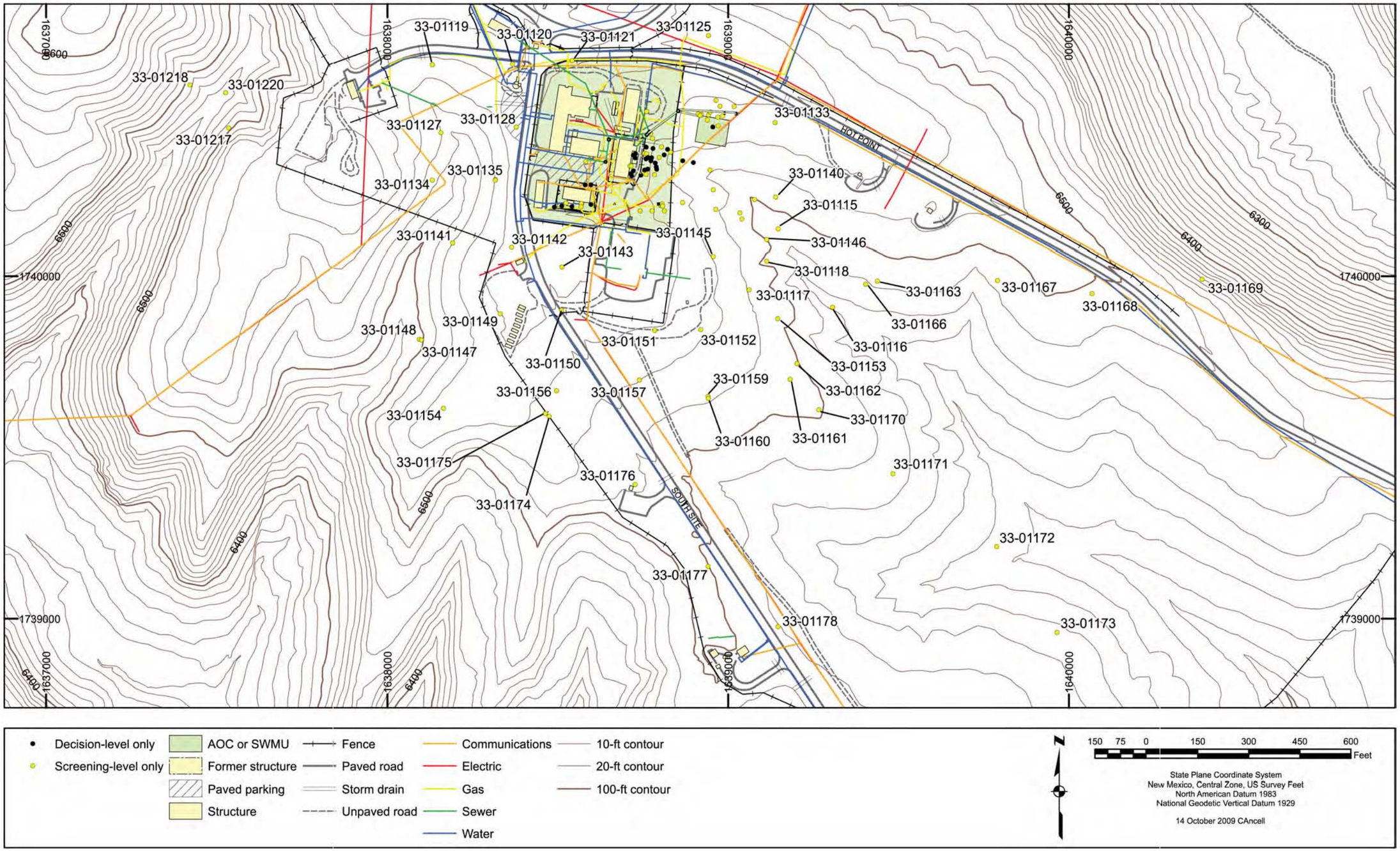


Figure 2.2-2 Site features and historical drainage sampling locations for Consolidated Unit 33-004(a)-00

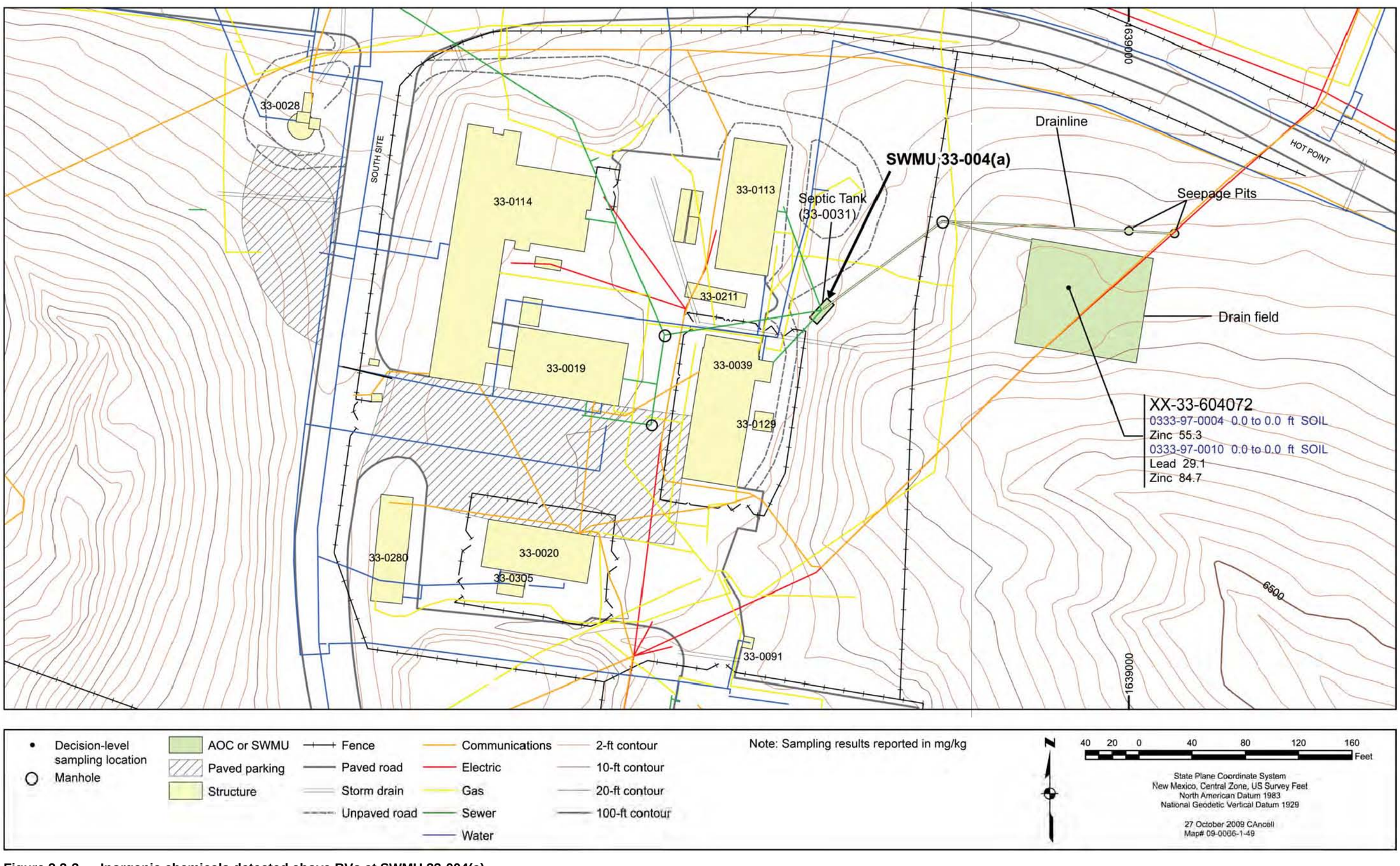


Figure 2.2-3 Inorganic chemicals detected above BVs at SWMU 33-004(a)

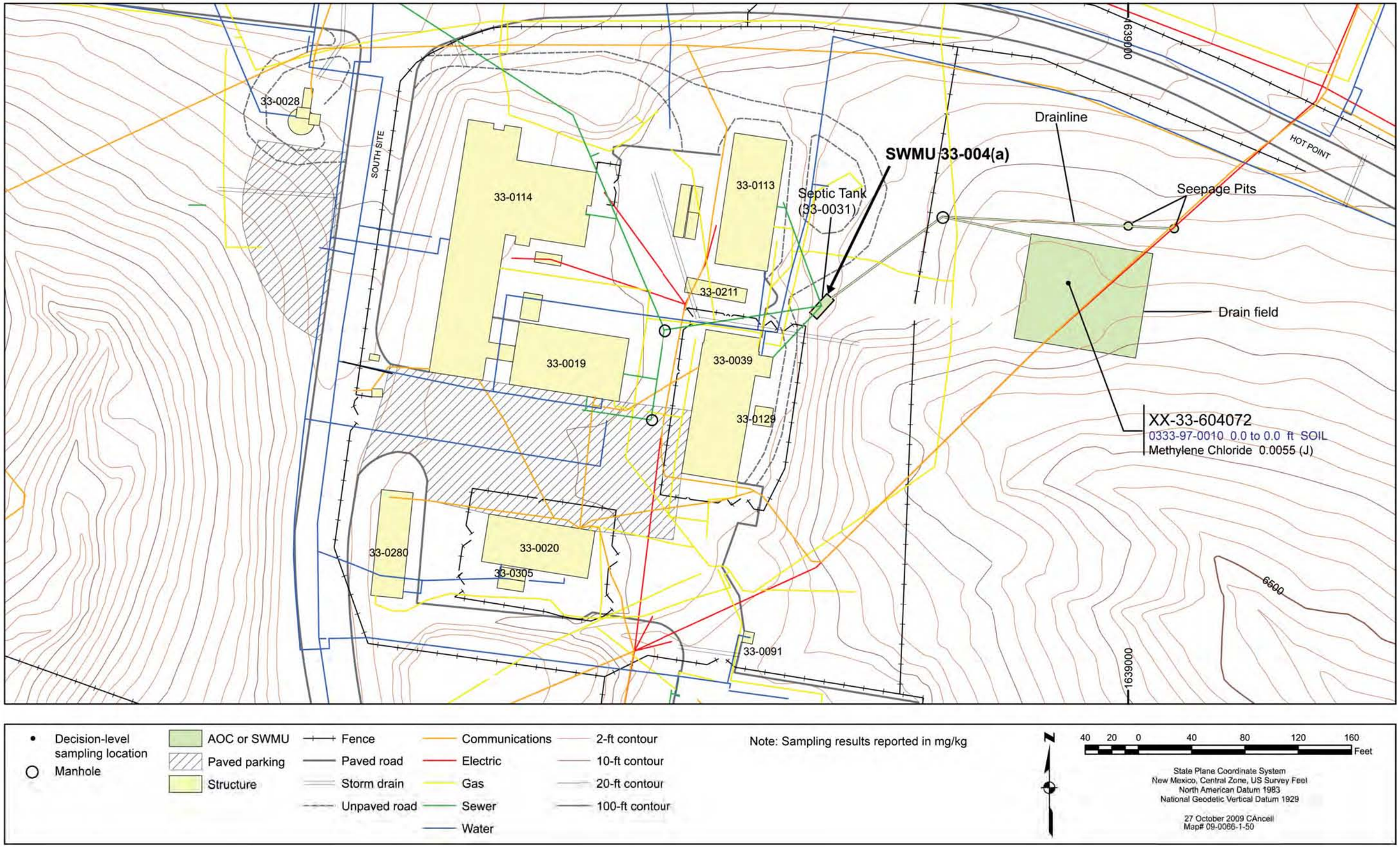


Figure 2.2-4 Organic chemicals detected at SWMU 33-004(a)

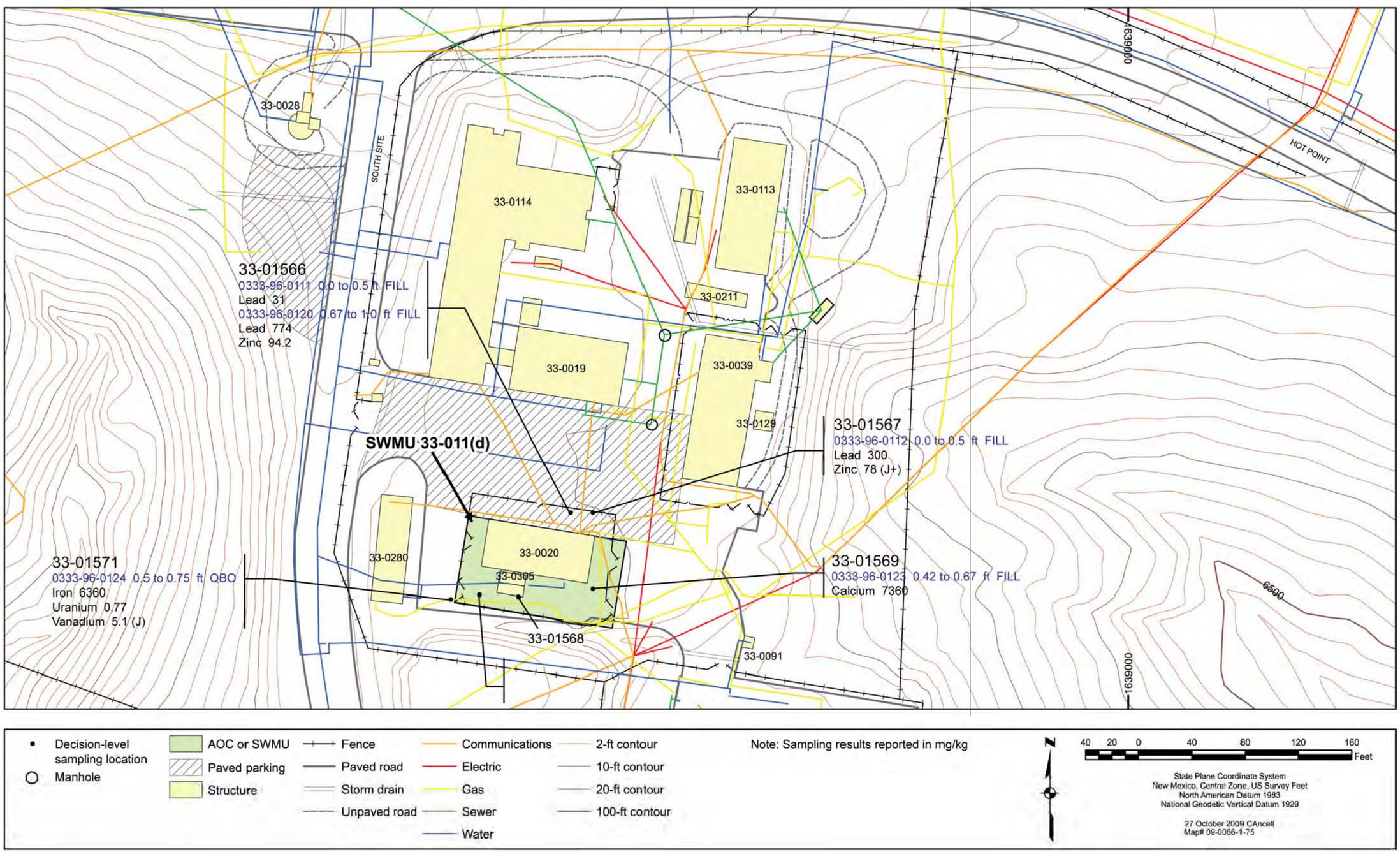


Figure 2.2-5 Inorganic chemicals detected above BVs at SWMU 33-011(d)

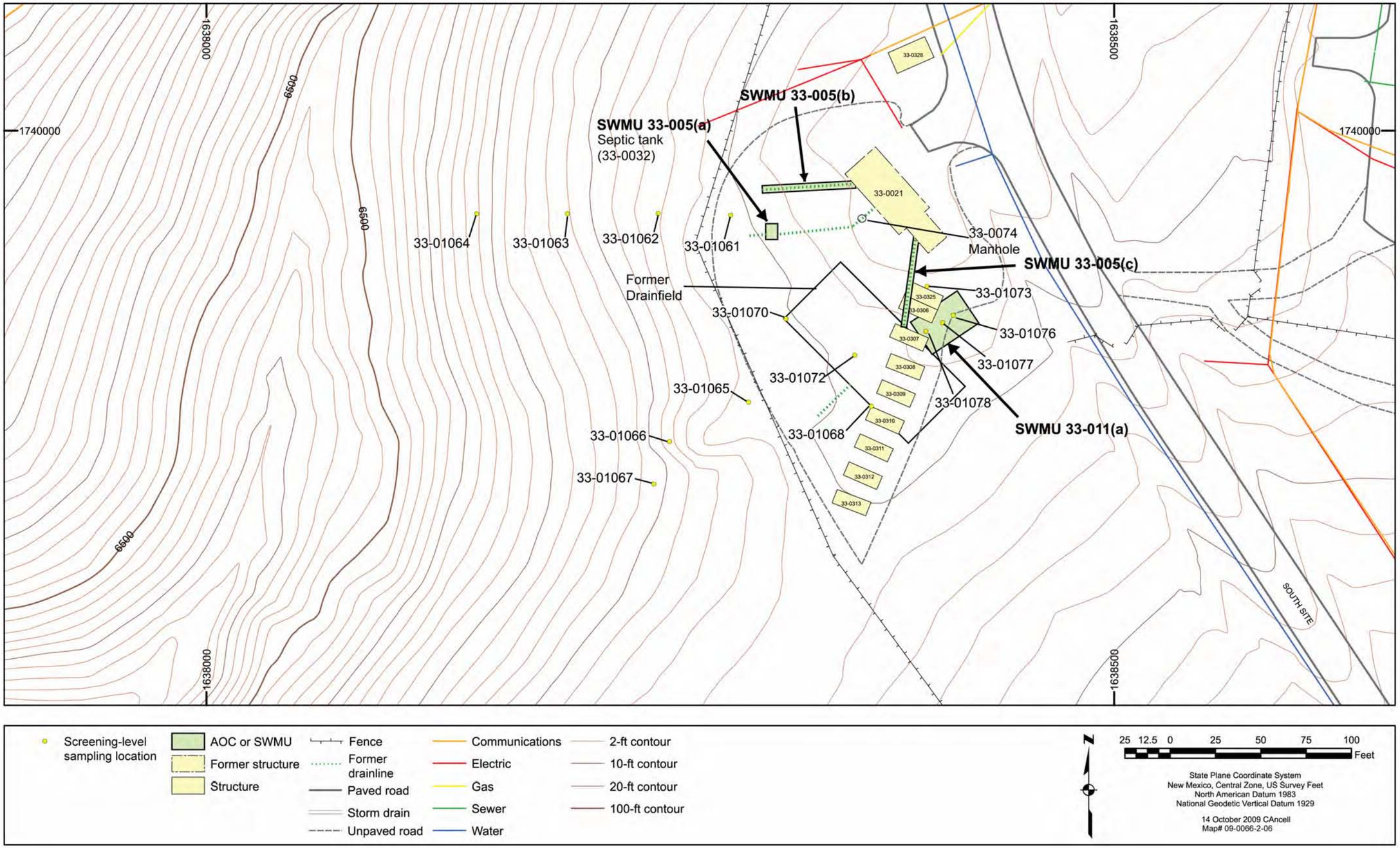


Figure 2.3-1 Site features and historical sampling locations for Consolidated Unit 33-005(a)-00

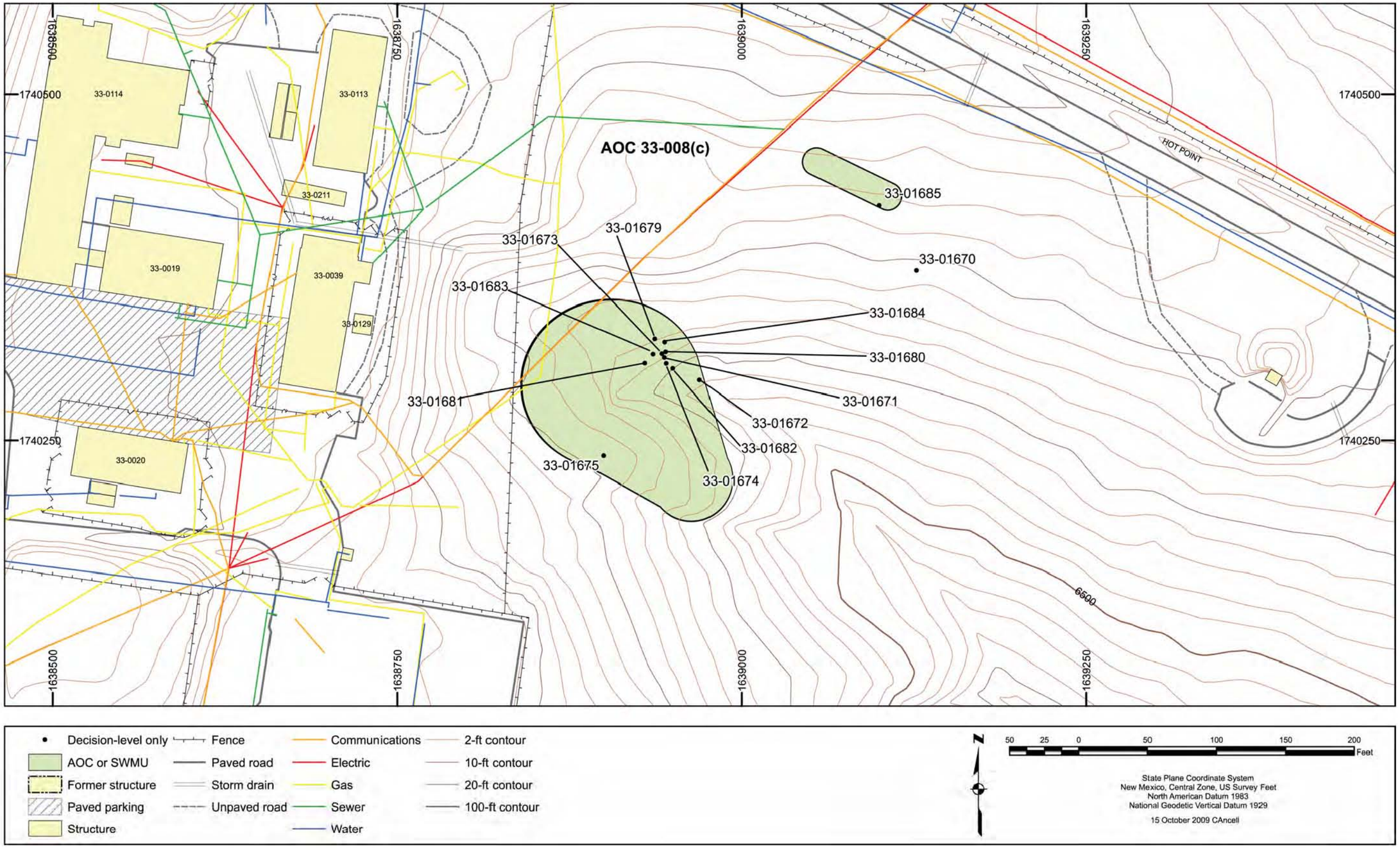


Figure 2.4-1 Site features and historical sampling locations for AOC 33-008(c)

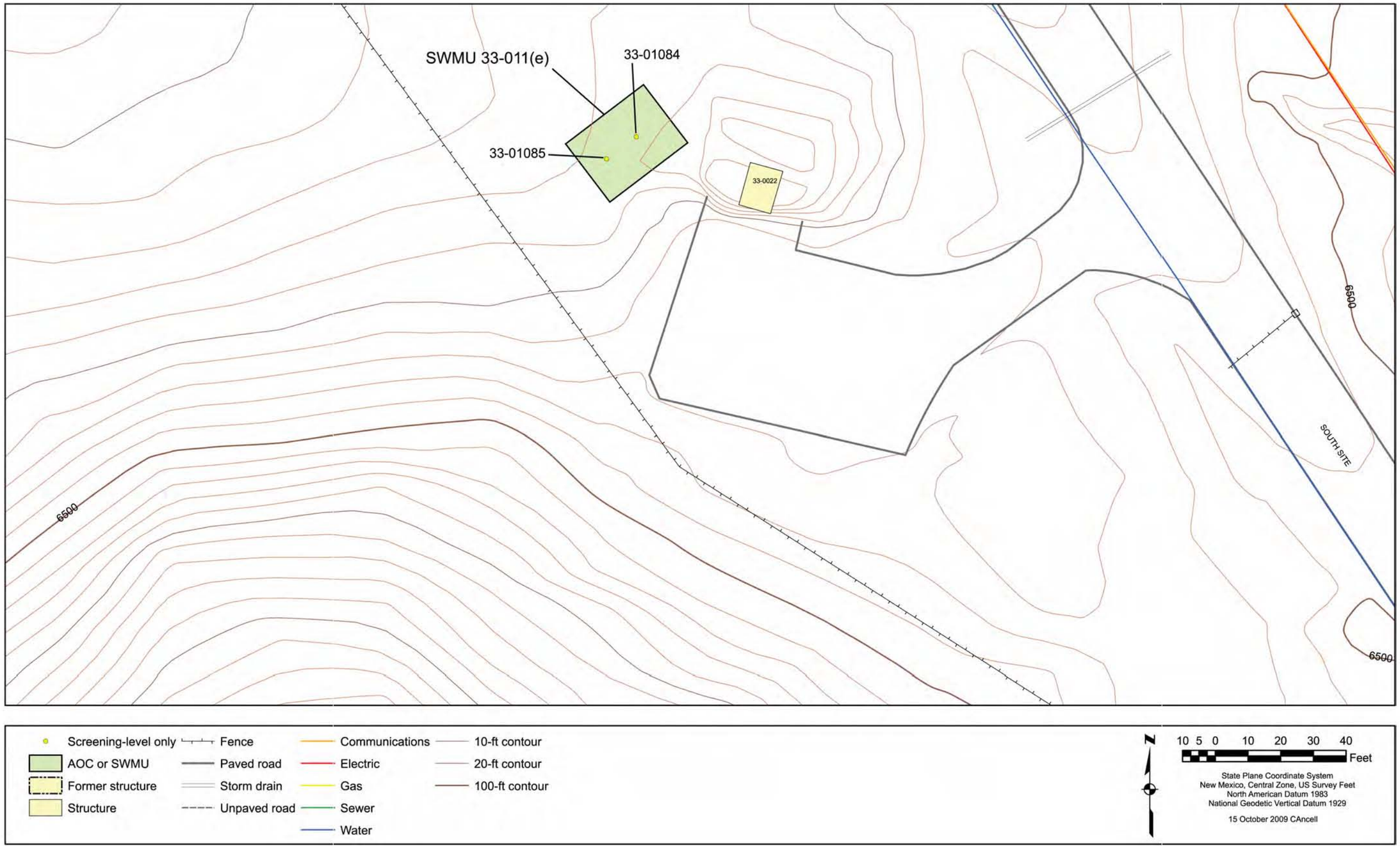


Figure 2.5-1 Site features and historical sampling locations for SWMU 33-011(e)

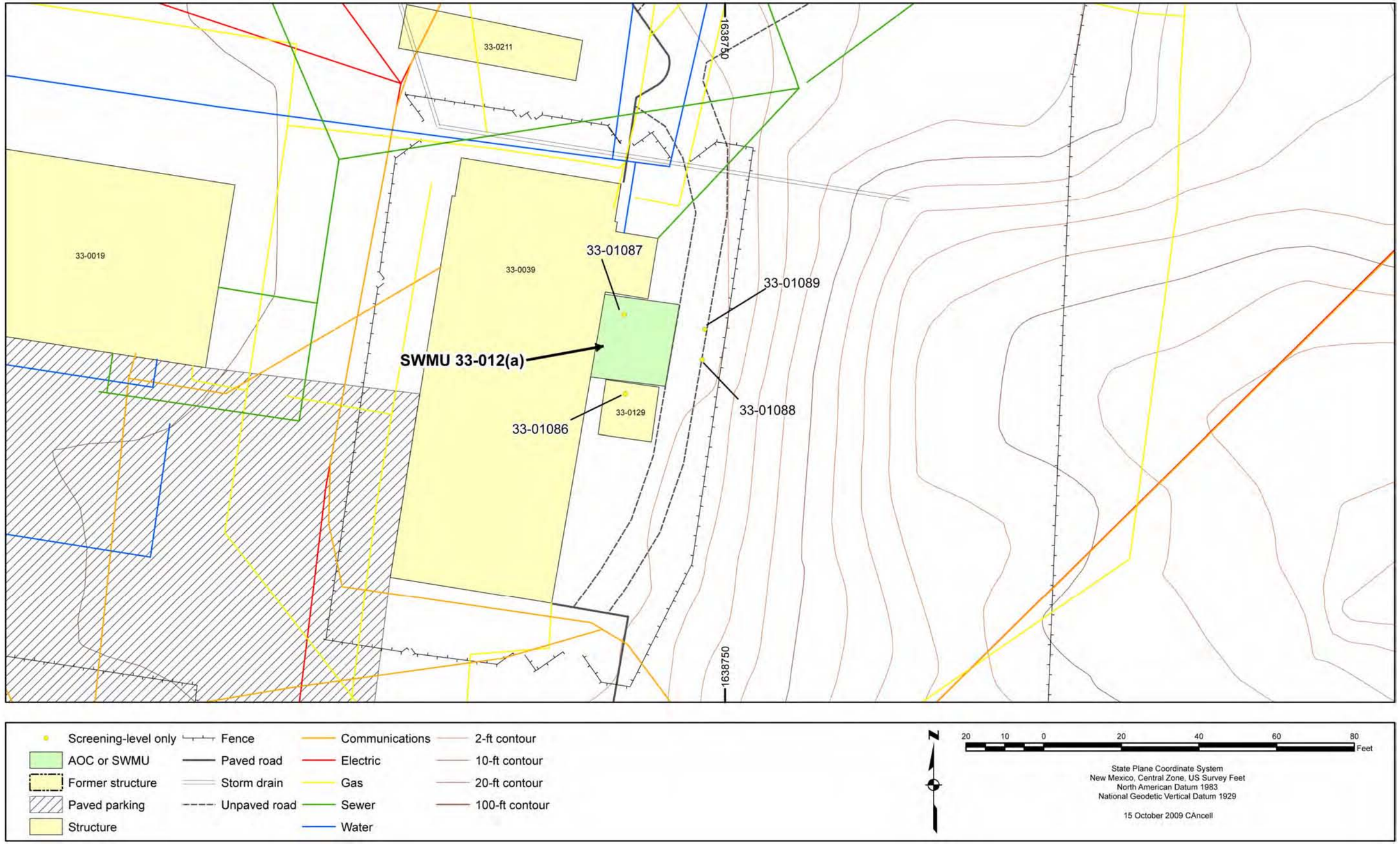


Figure 2.6-1 Site features and historical sampling locations for SWMU 33-012(a)

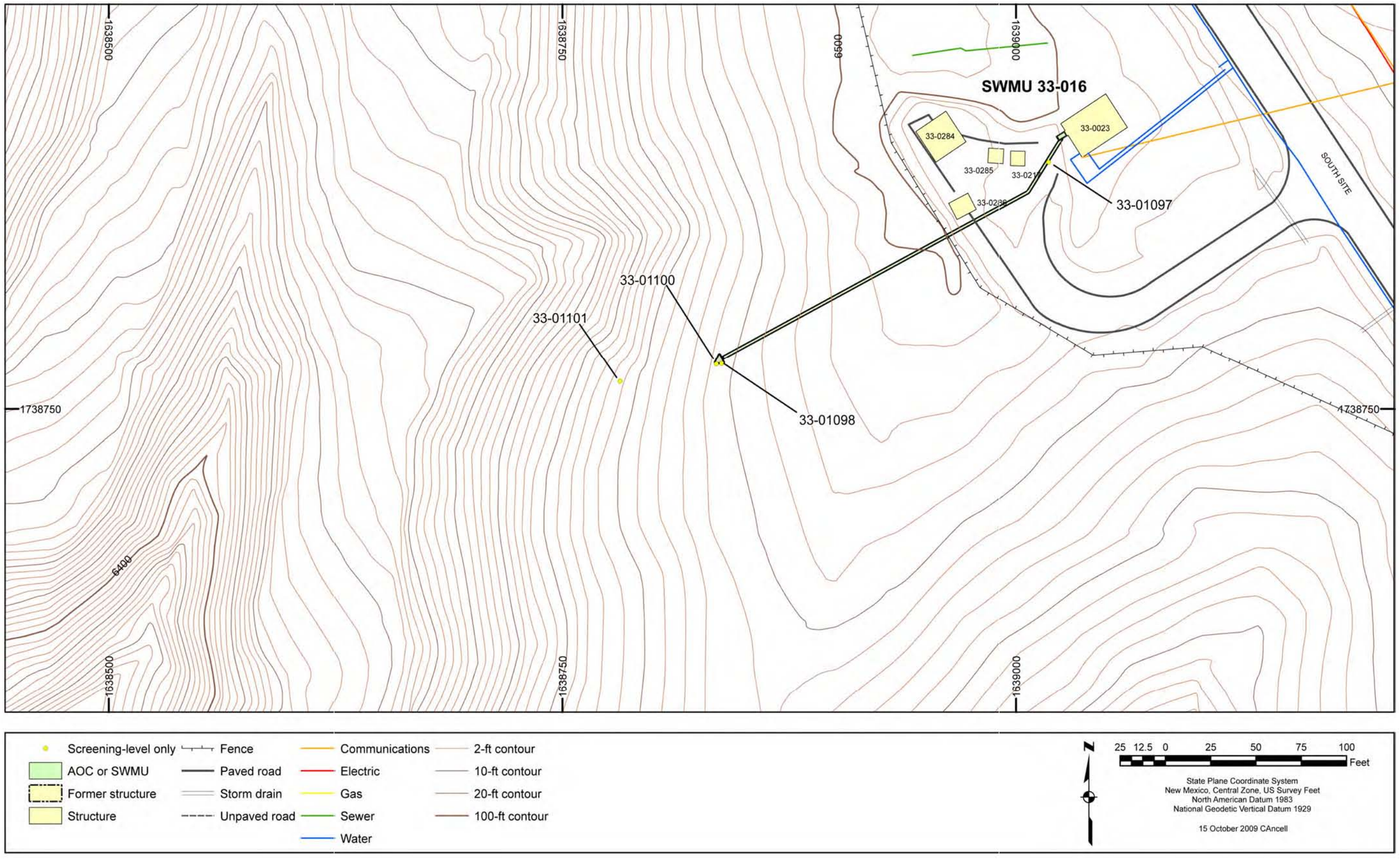


Figure 2.7-1 Site features and historical sampling locations for SWMU 33-016

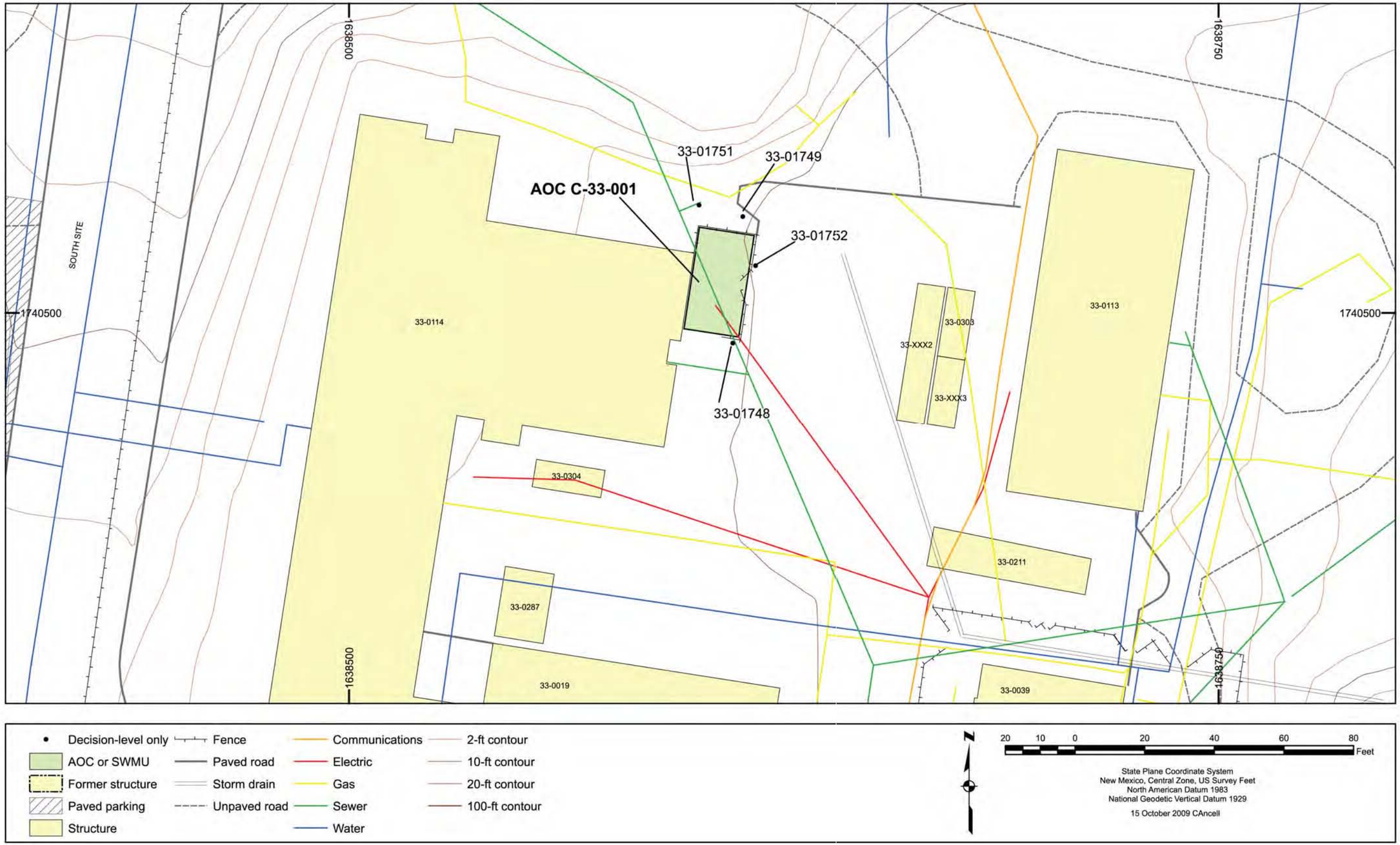


Figure 2.8-1 Site features and historical sampling locations for AOC C-33-001

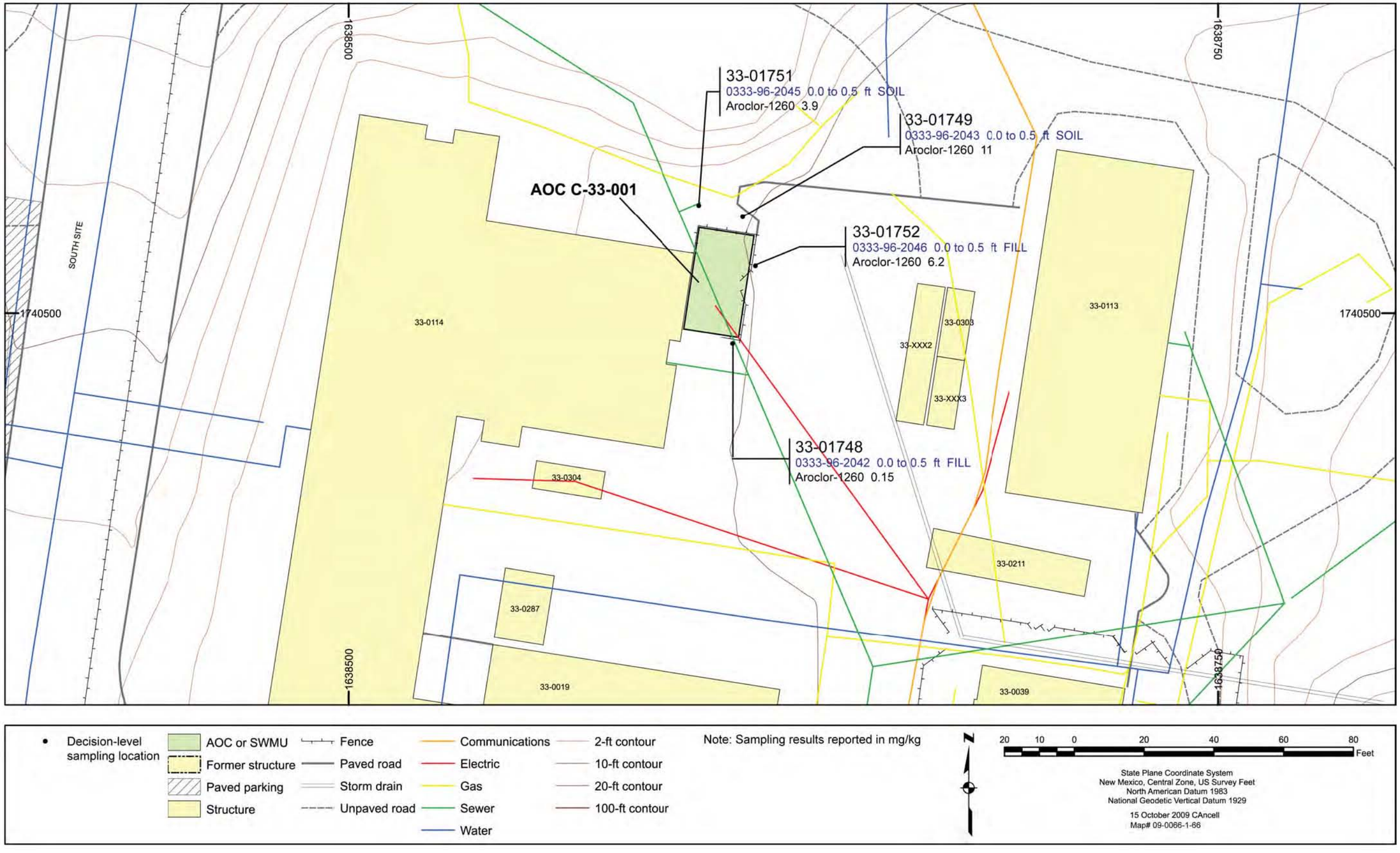


Figure 2.8-2 Organic chemicals detected at AOC C-33-001

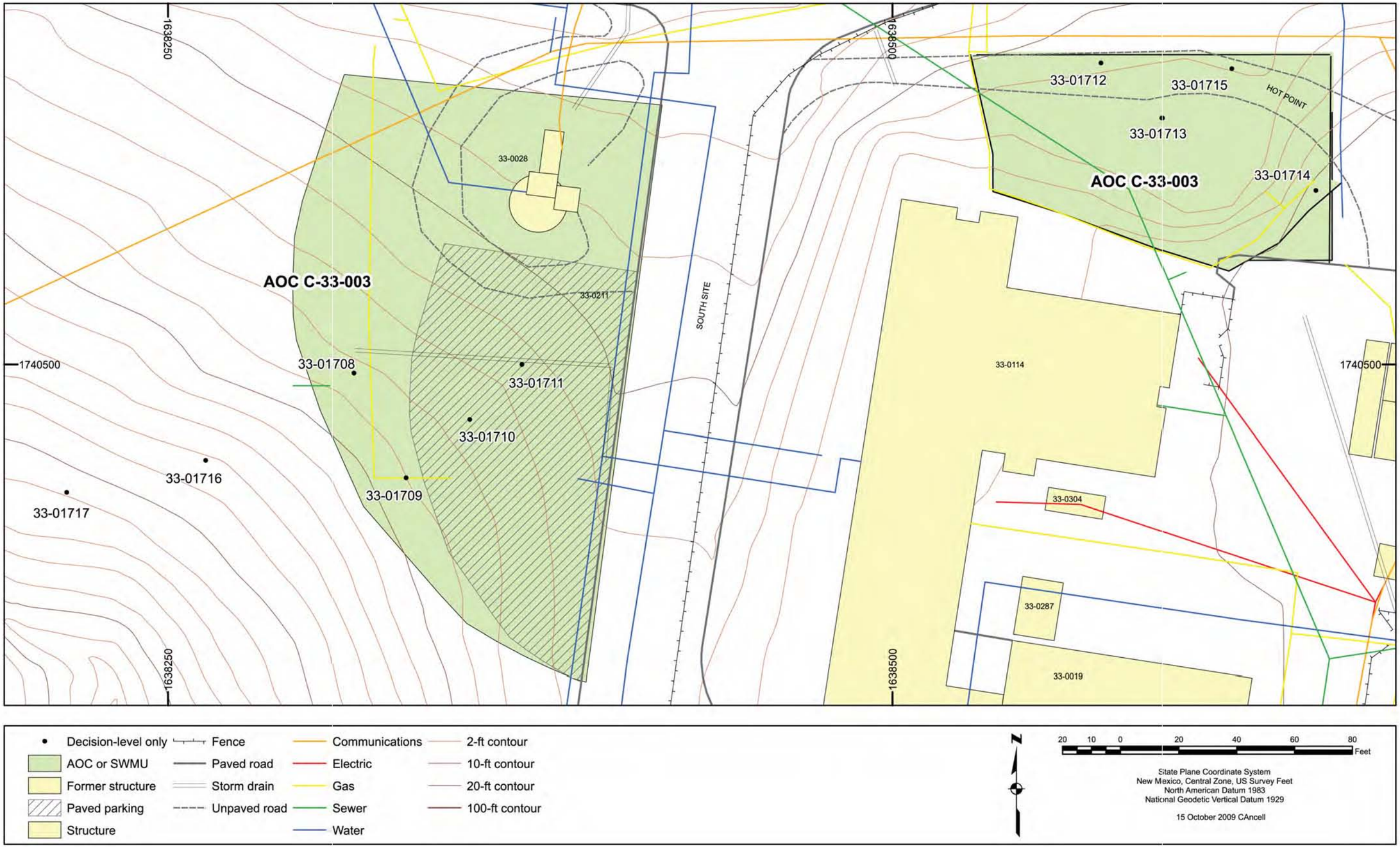


Figure 2.9-1 Site features and historical sampling locations for AOC C-33-003

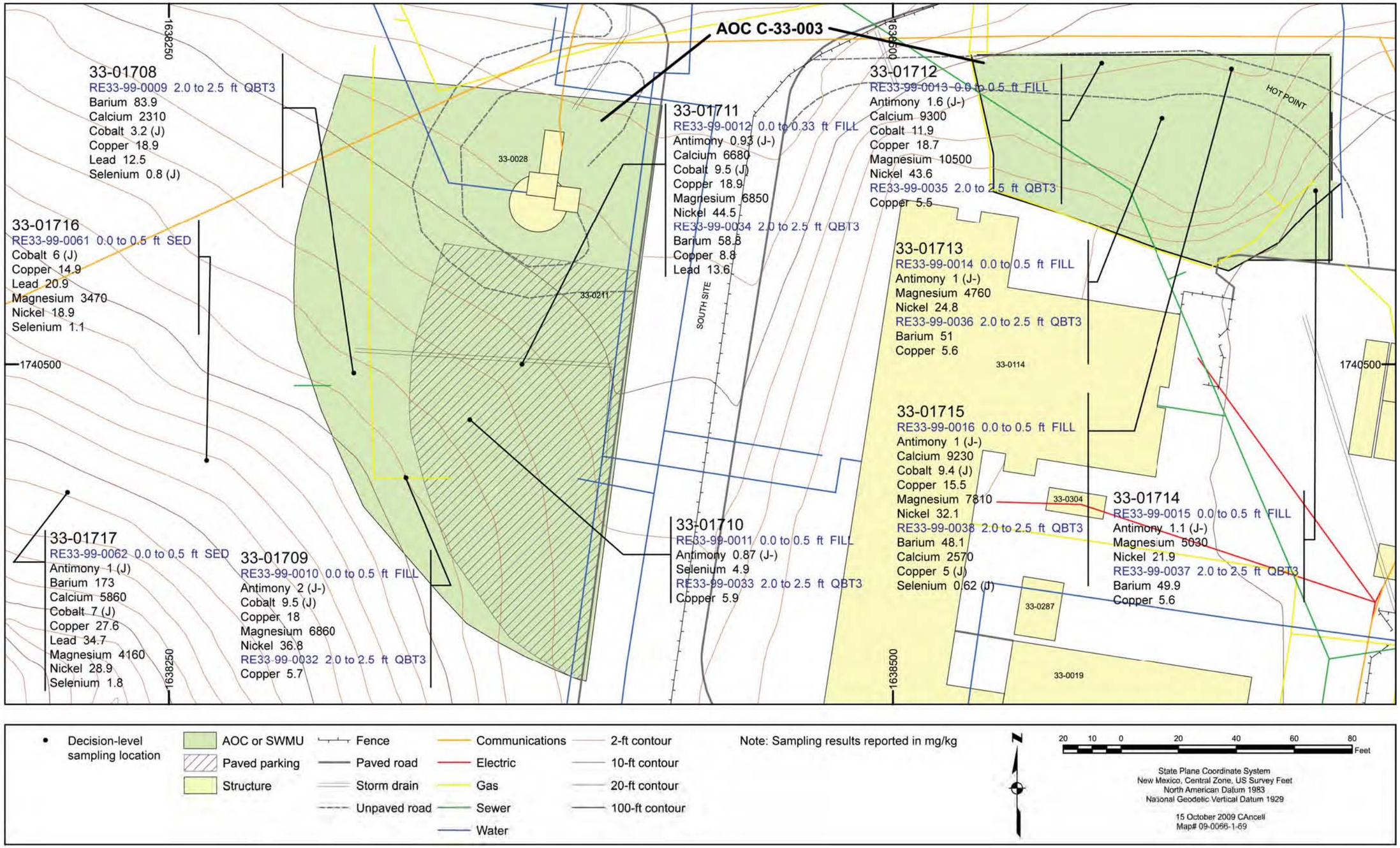


Figure 2.9-2 Inorganic chemicals detected above BVs at AOC C-33-003

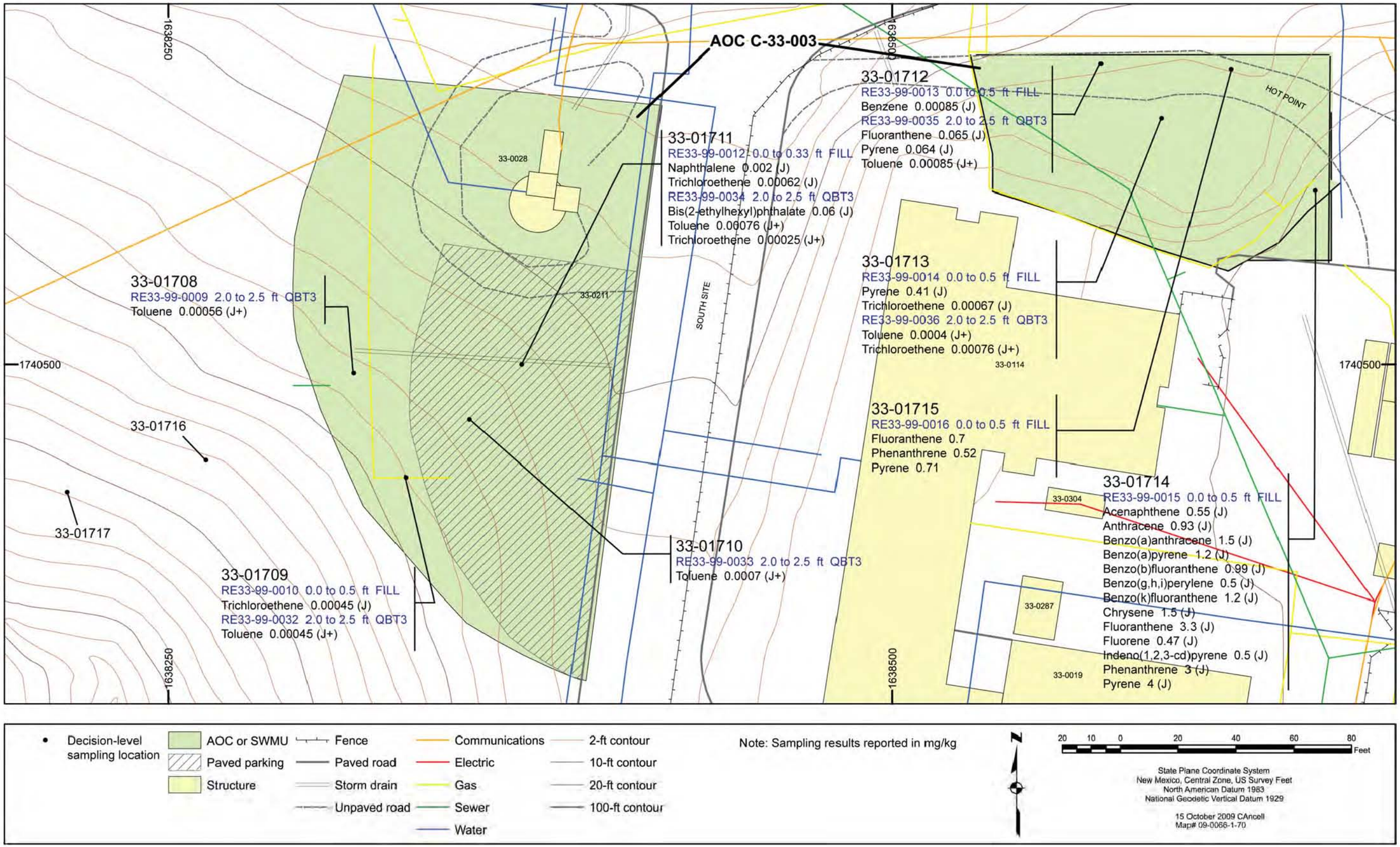


Figure 2.9-3 Organic chemicals detected at AOC C-33-003

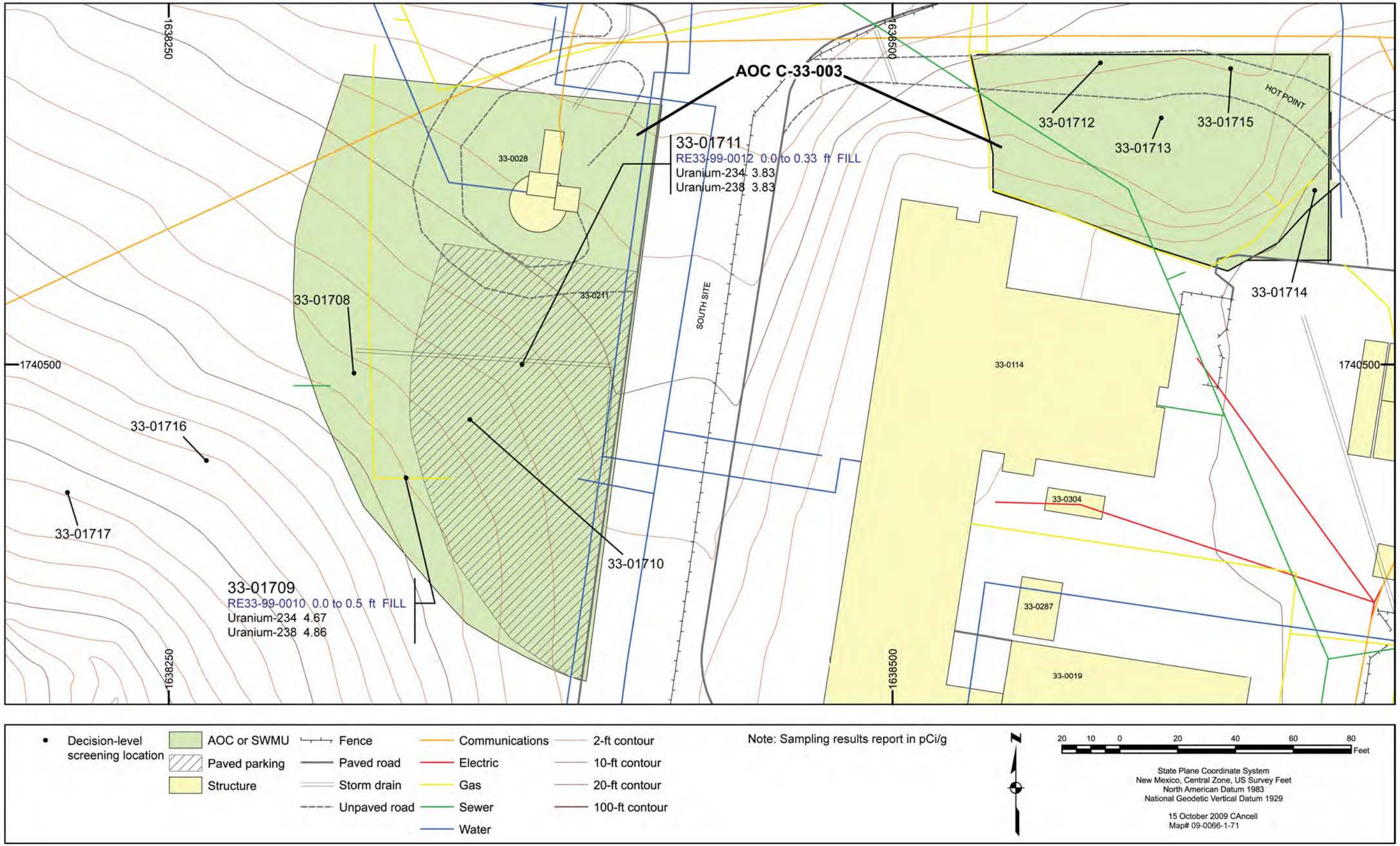


Figure 2.9-4 Radionuclides detected or detected above BVs/FVs at AOC C-33-003

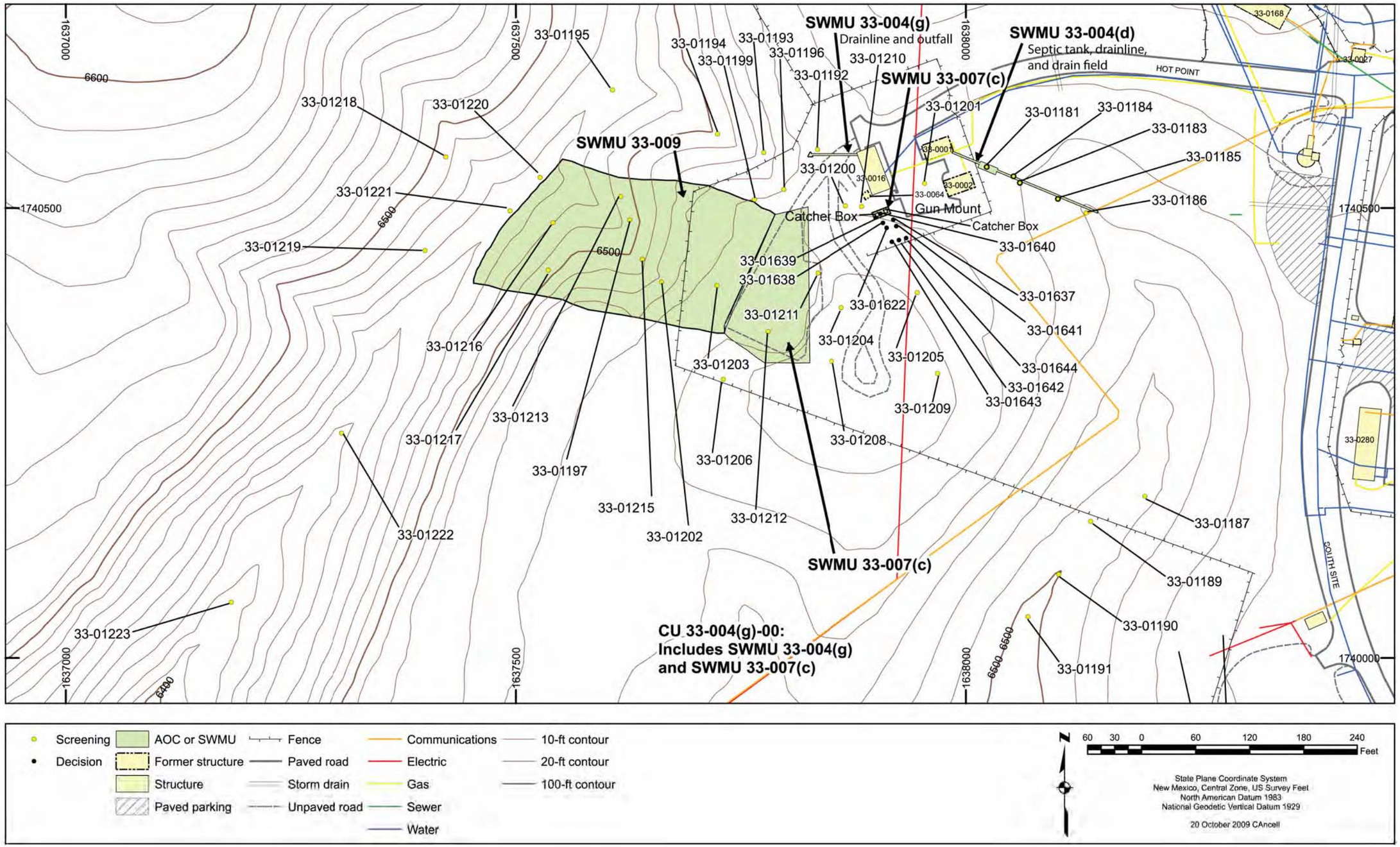


Figure 3.1-1 Site features and historical sampling locations for Consolidated Unit 33-004(g)-00 and SWMUs 33-004(d) and 33-009

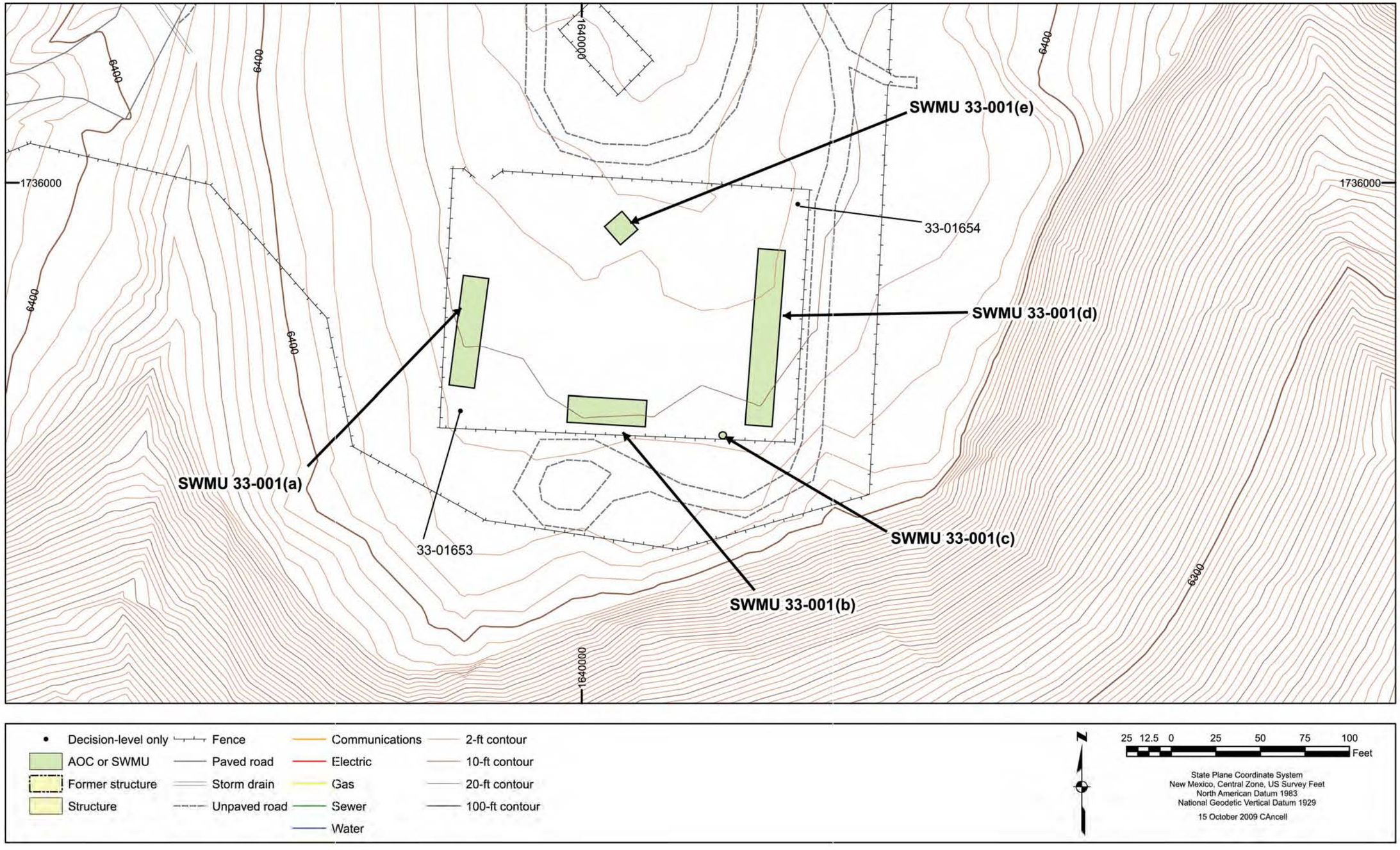


Figure 4.1-1 Site features and historical sampling locations for Consolidated Unit 33-001(a)-99

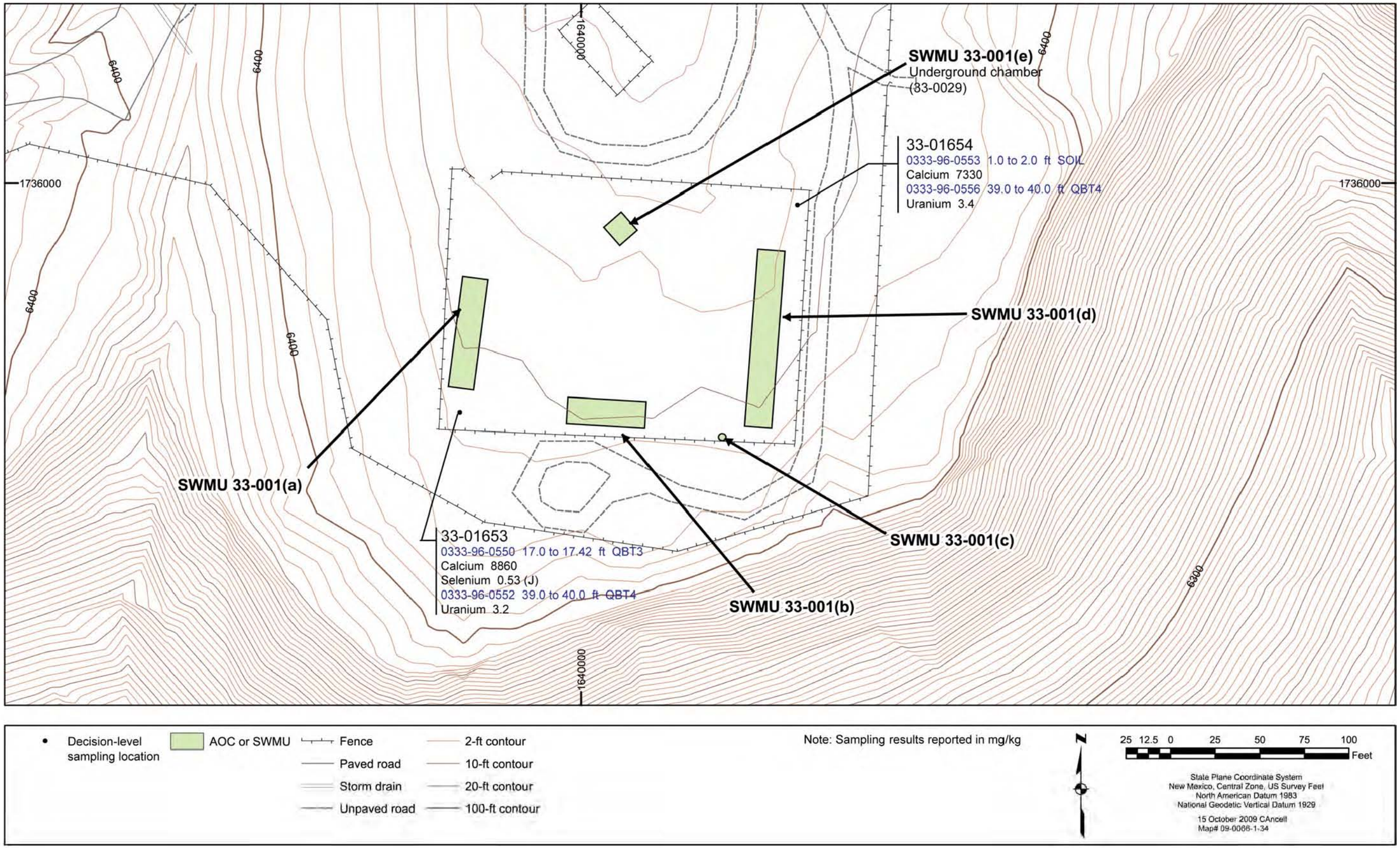


Figure 4.1-2 Inorganic chemicals detected above BVs at Consolidated Unit 33-001(a)-99

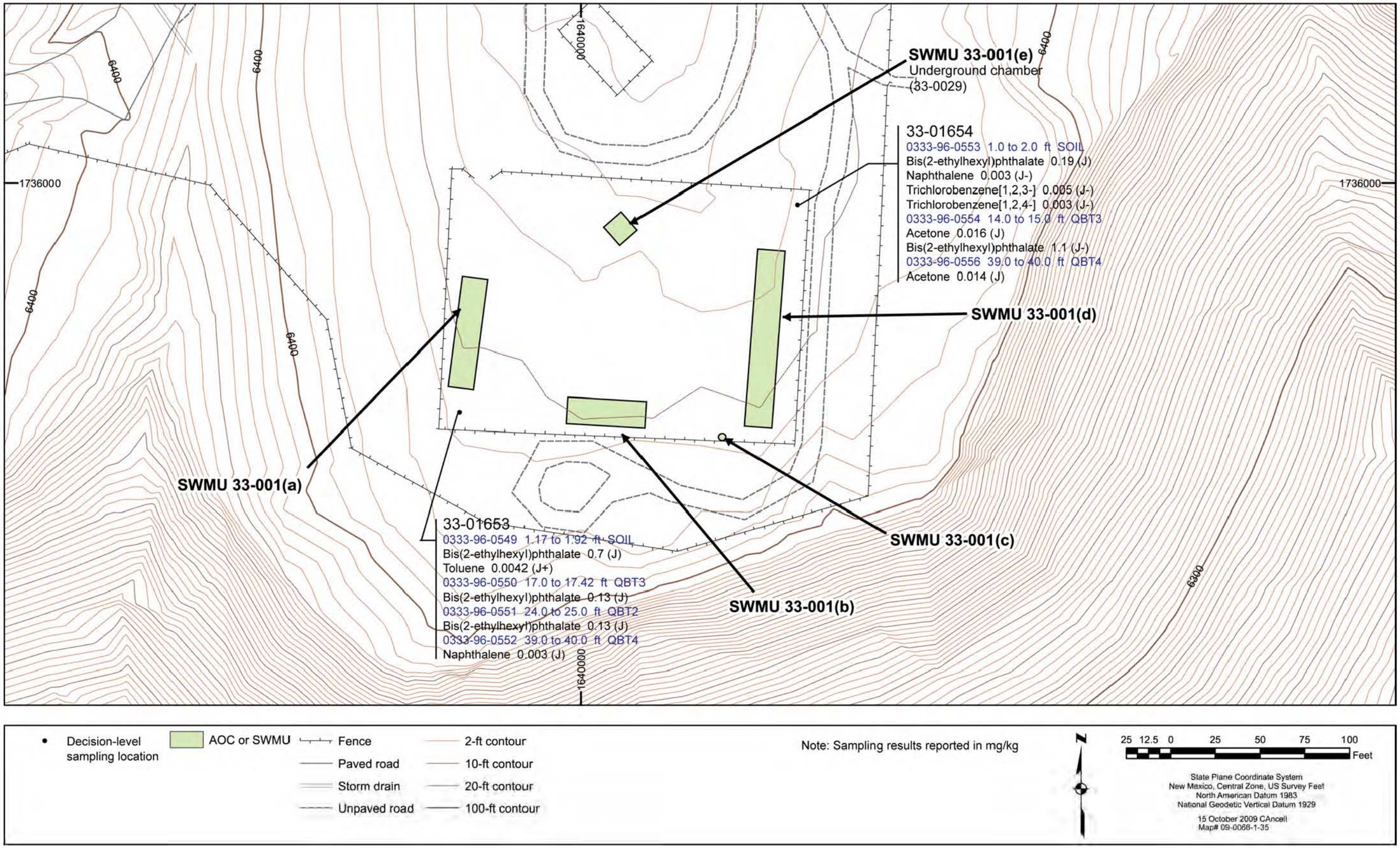


Figure 4.1-3 Organic chemicals detected at Consolidated Unit 33-001(a)-99

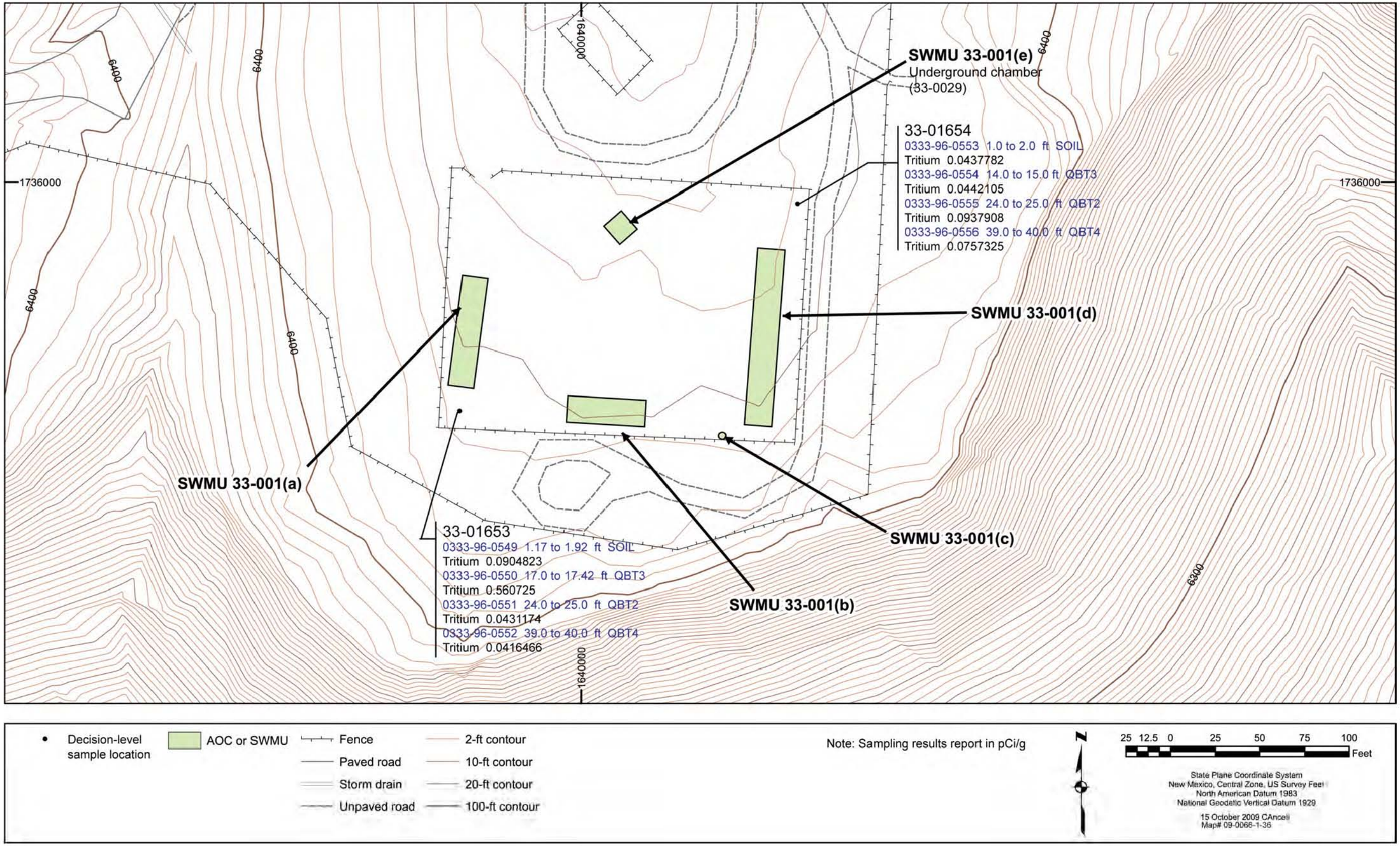


Figure 4.1-4 Radionuclides detected or detected above BVs/FVs at Consolidated Unit 33-001(a)-99

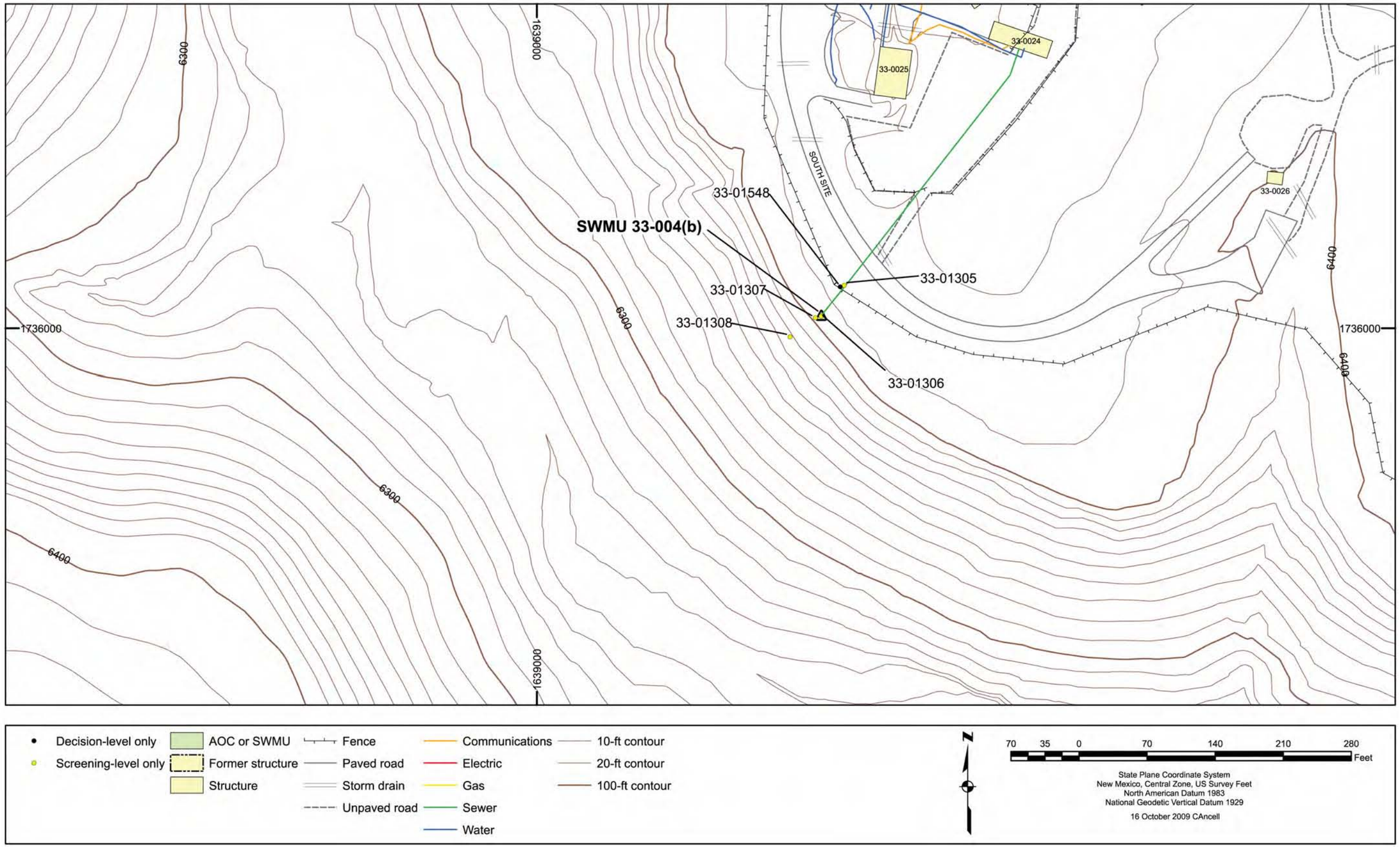


Figure 4.2-1 Site features and historical sampling locations for SWMU 33-004(b)

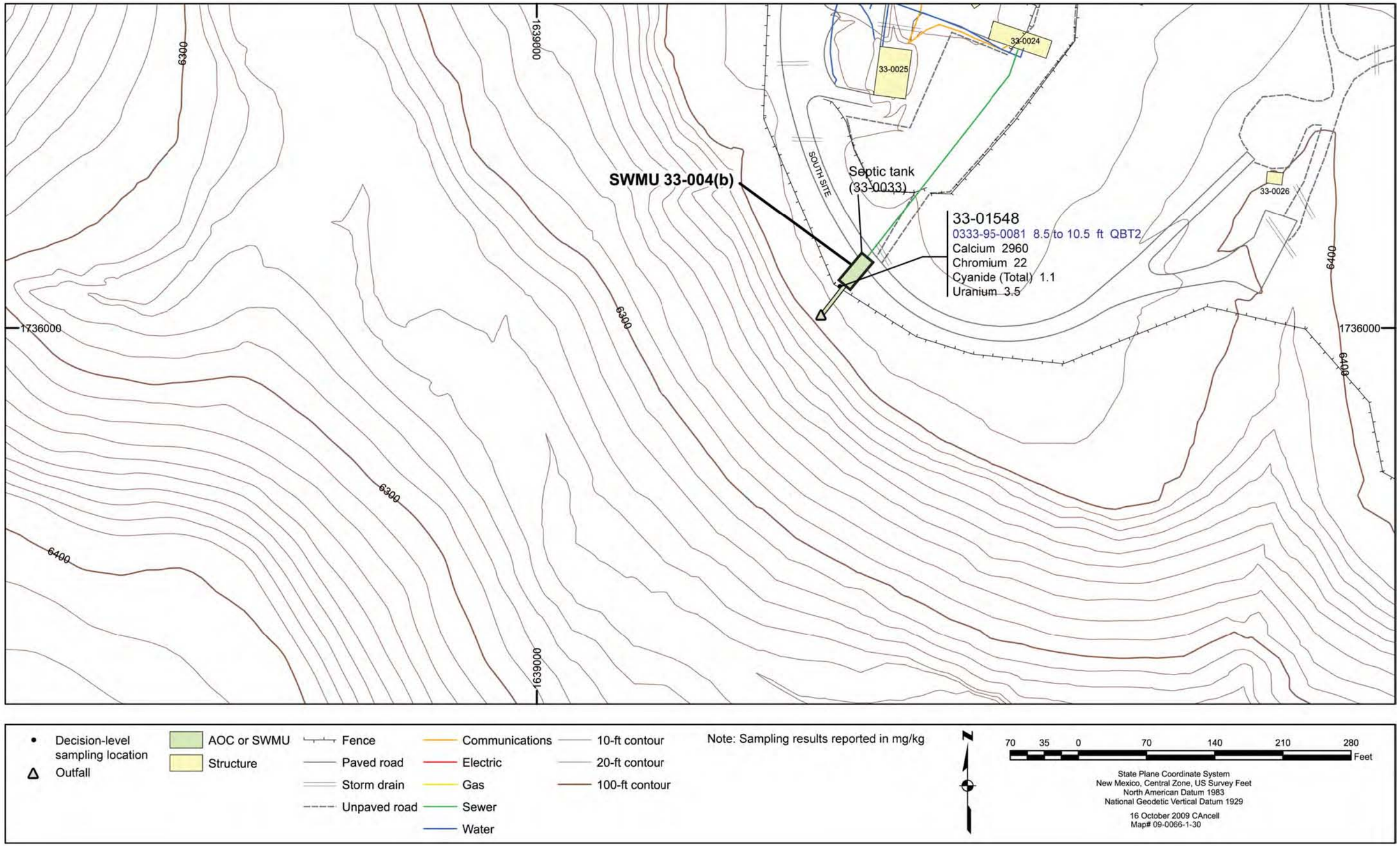


Figure 4.2-2 Inorganic chemicals detected above BVs at SWMU 33-004(b)

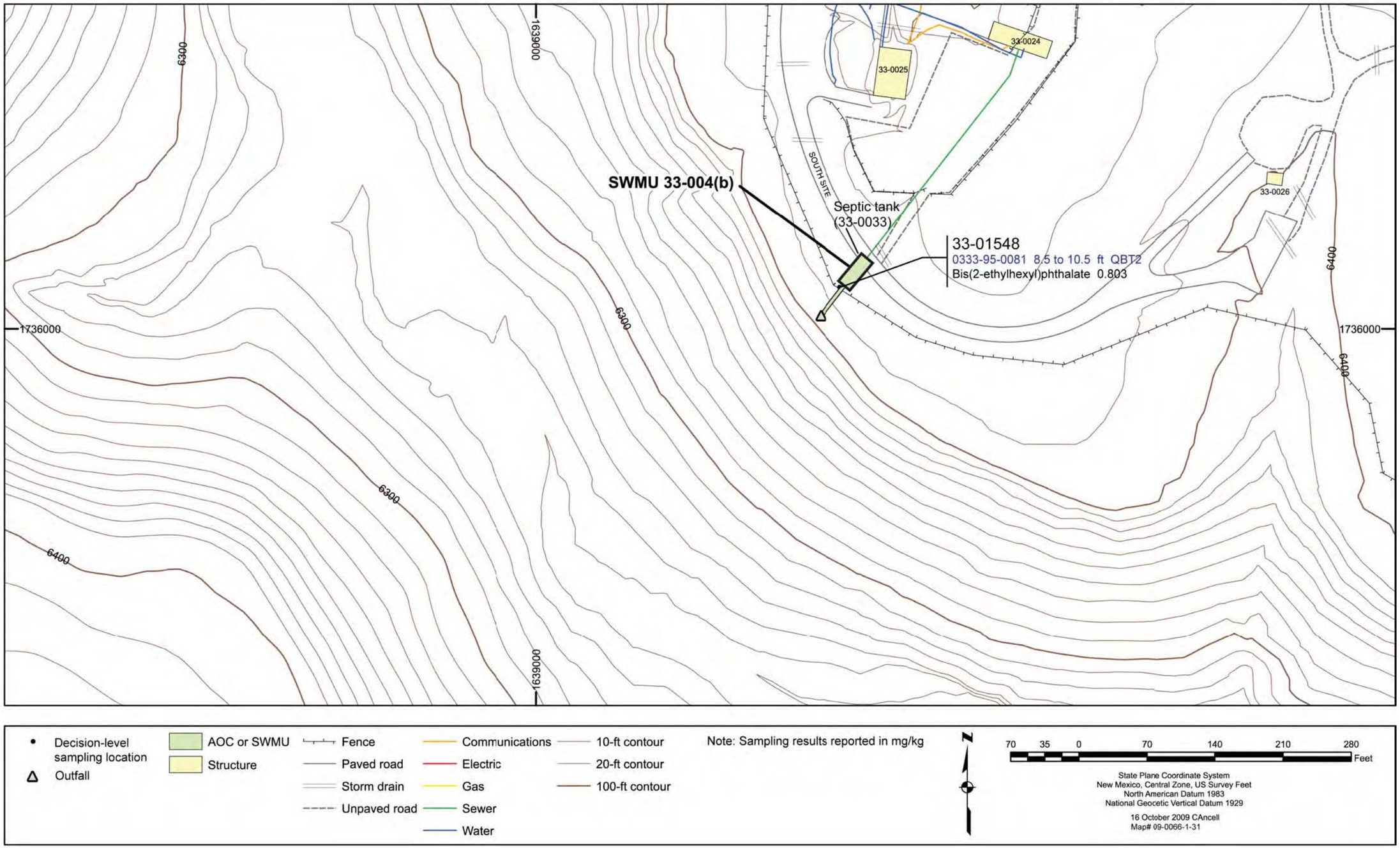


Figure 4.2-3 Organic chemicals detected at SWMU 33-004(b)

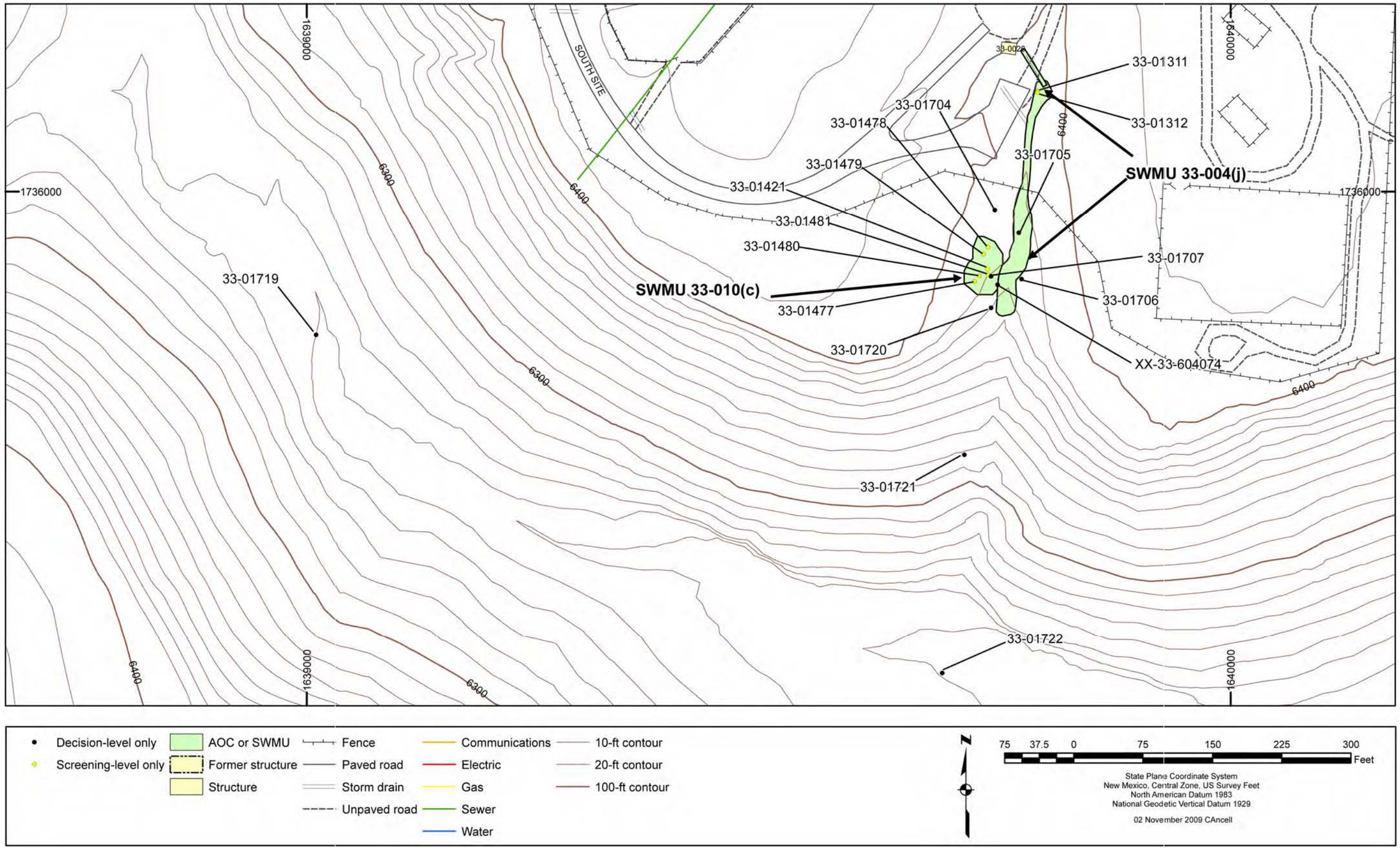


Figure 4.3-1 Site features and historical sampling locations for SWMUs 33-004(j) and 33-010(c)

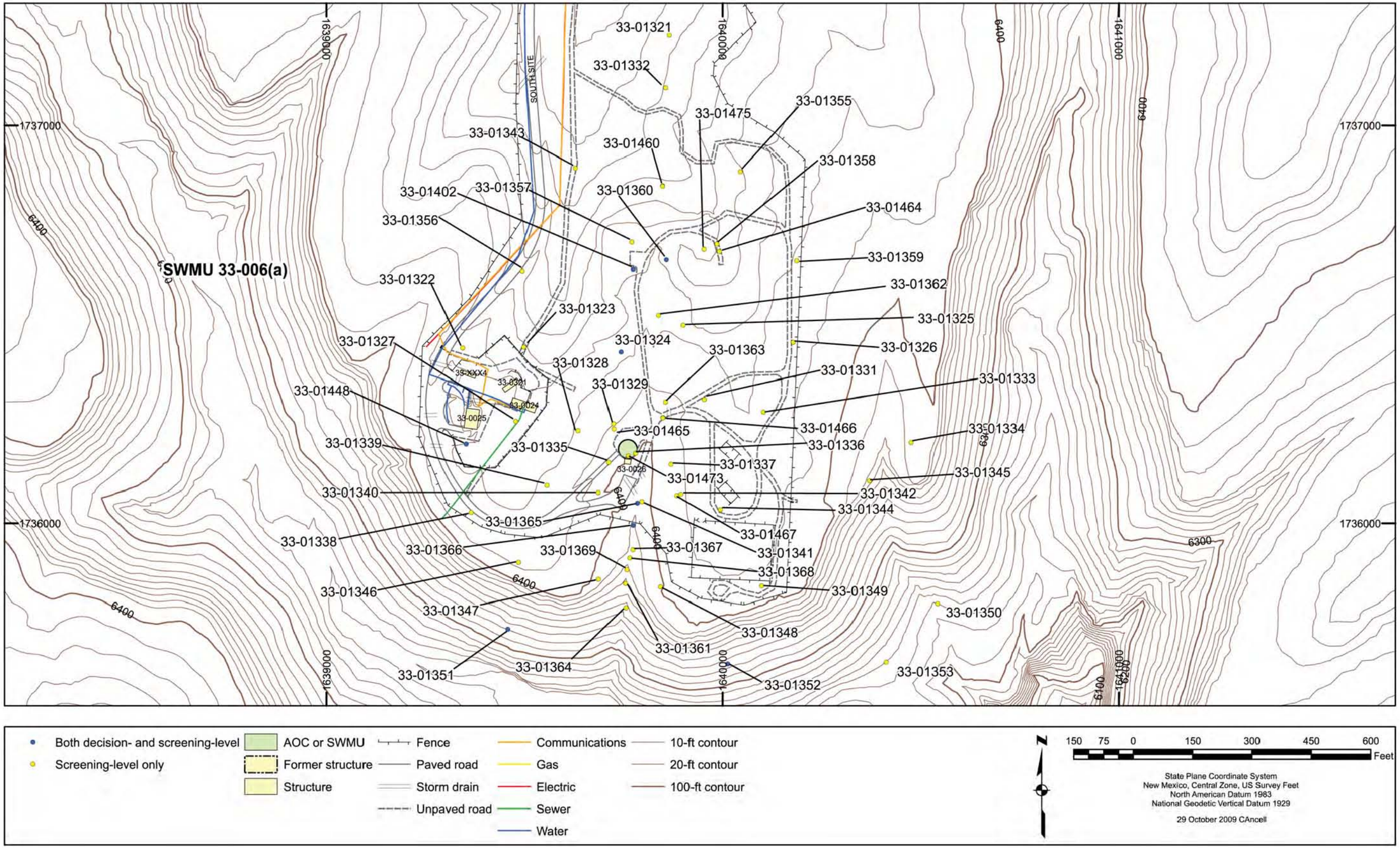


Figure 4.3-2 Site features and historical sampling locations for SWMU 33-006(a)

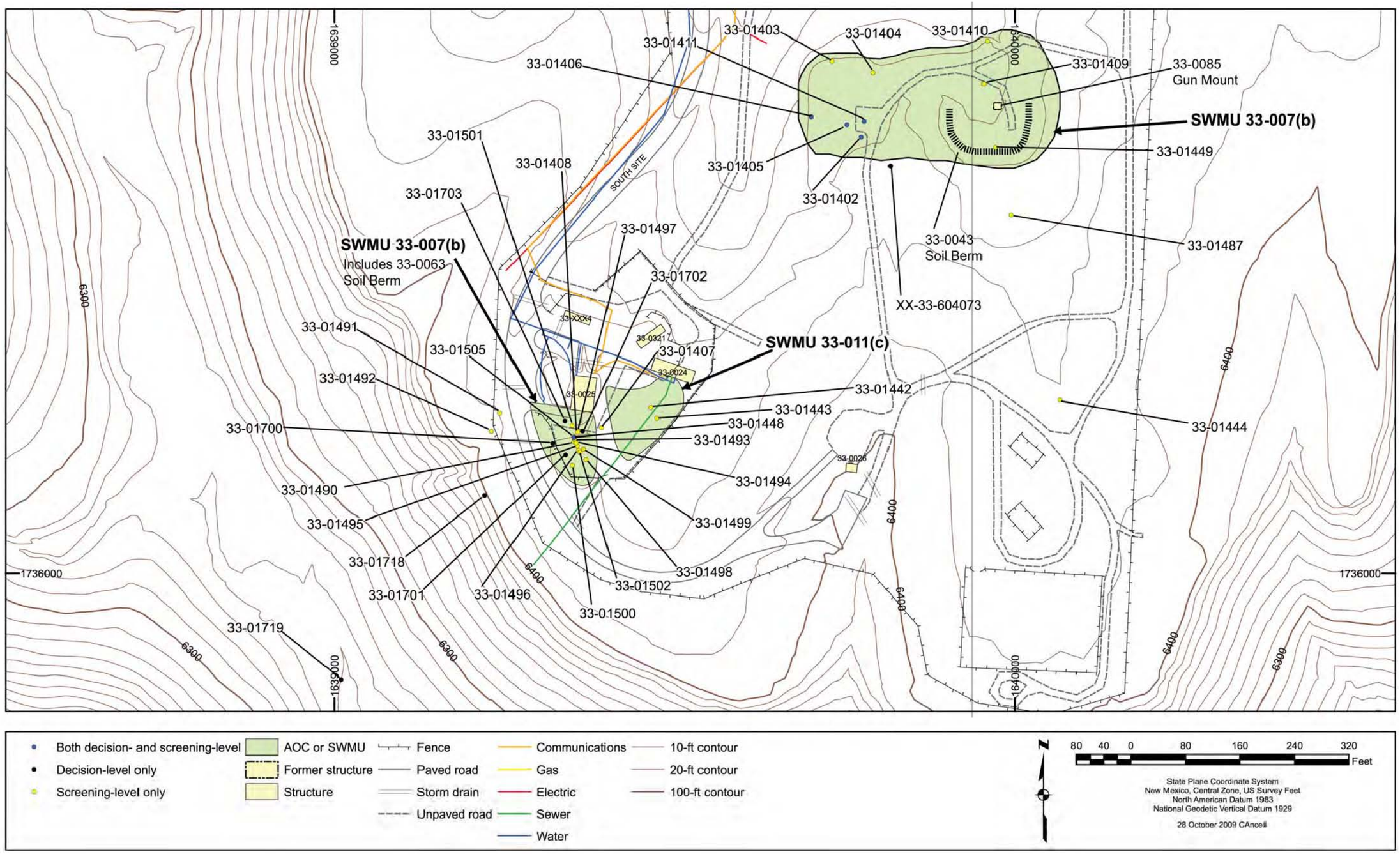


Figure 4.3-3 Site features and historical sampling locations for SWMUs 33-007(b) and 33-011(c)

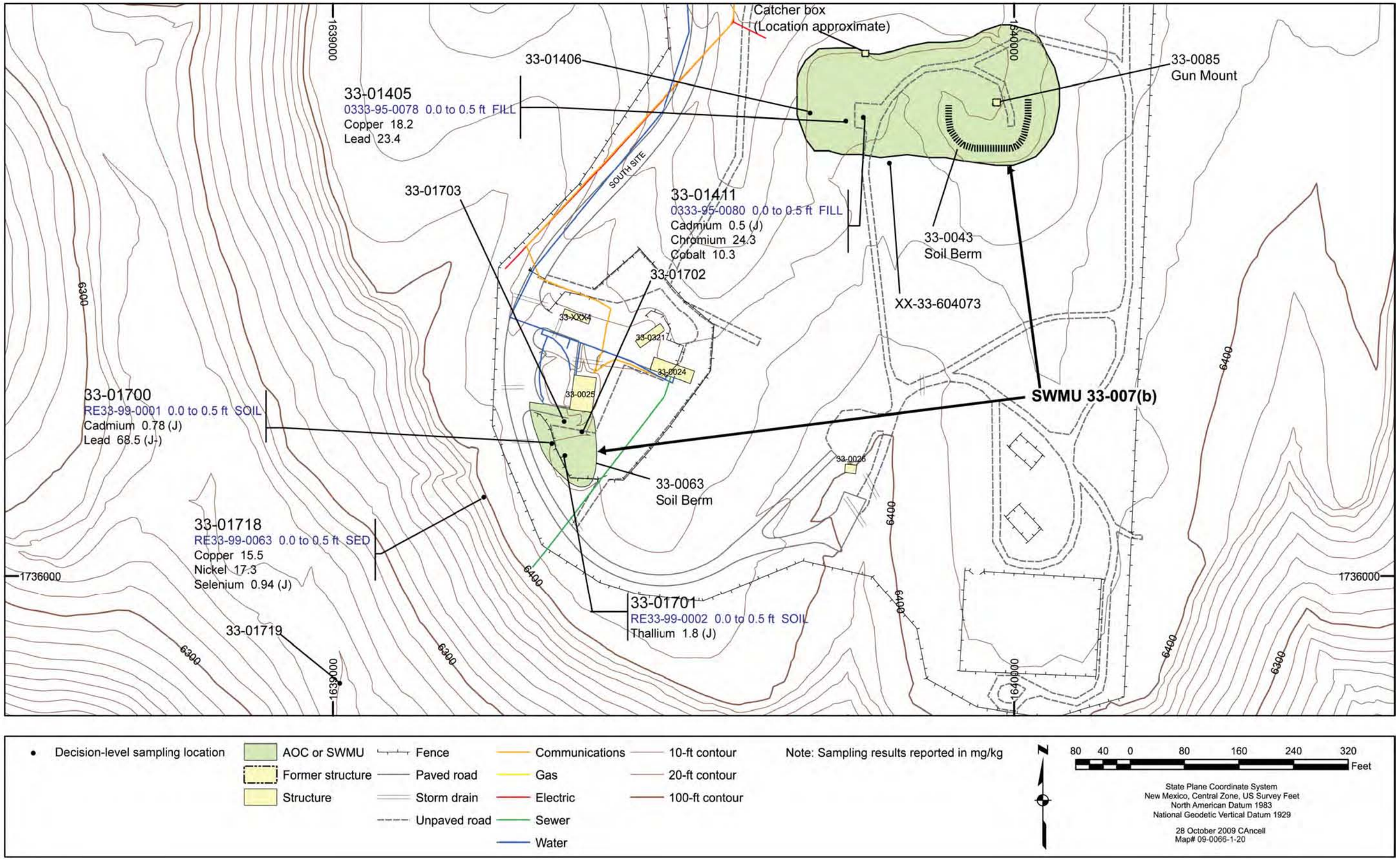


Figure 4.3-4 Inorganic chemicals detected above BVs at SWMU 33-007(b)

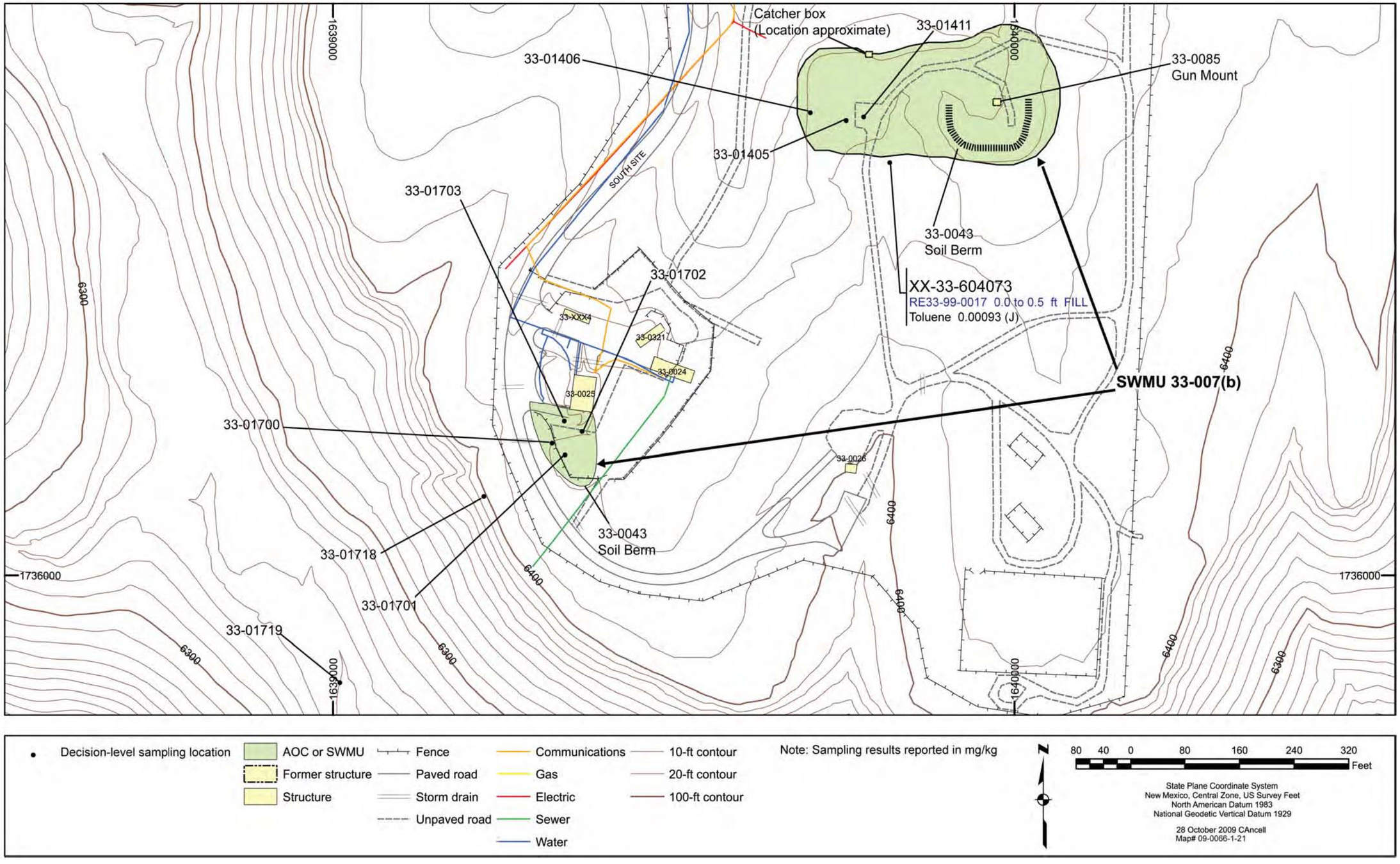


Figure 4.3-5 Organic chemicals detected at SWMU 33-007(b)

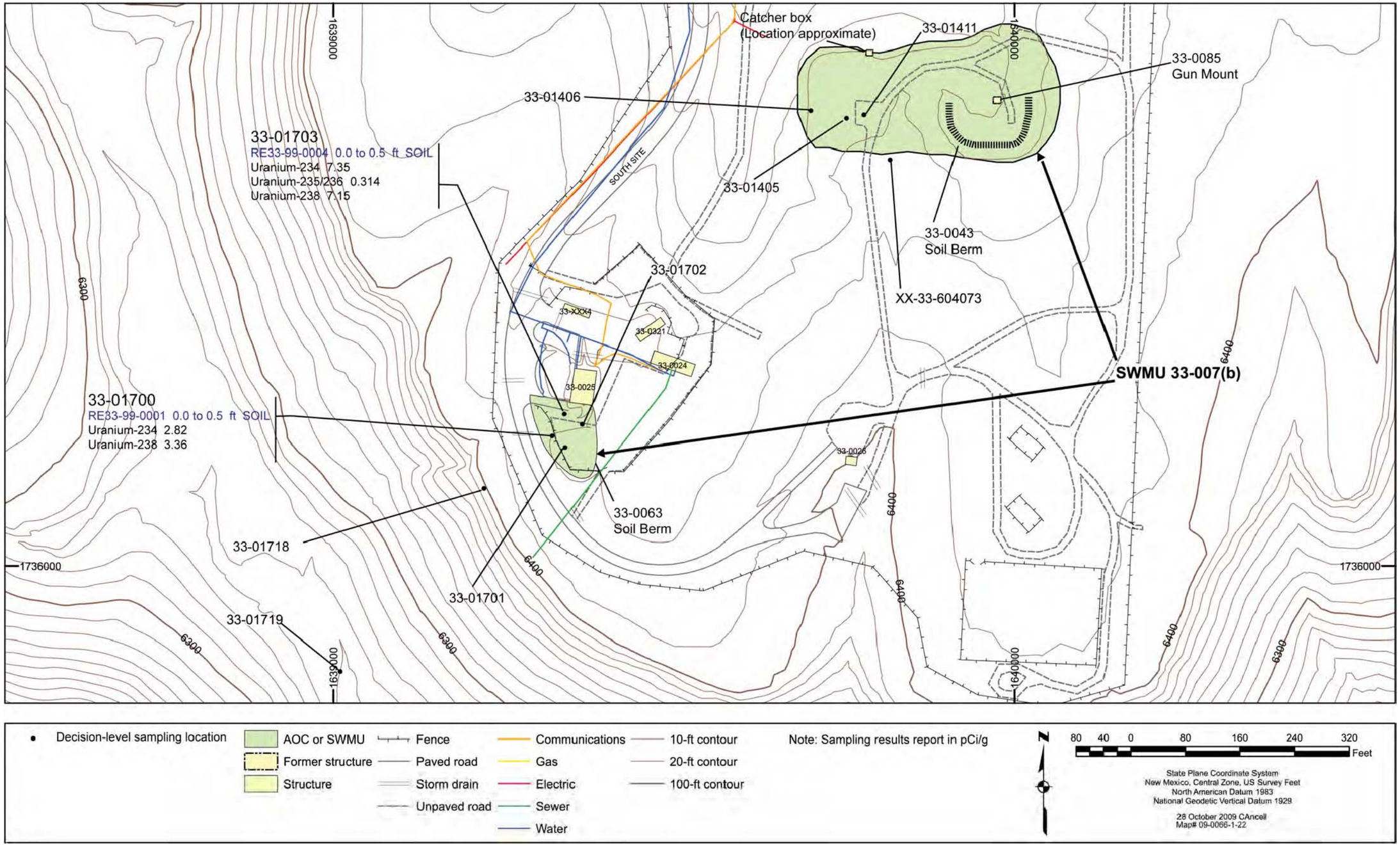


Figure 4.3-6 Radionuclides detected or detected above BVs/FVs at SWMU 33-007(b)

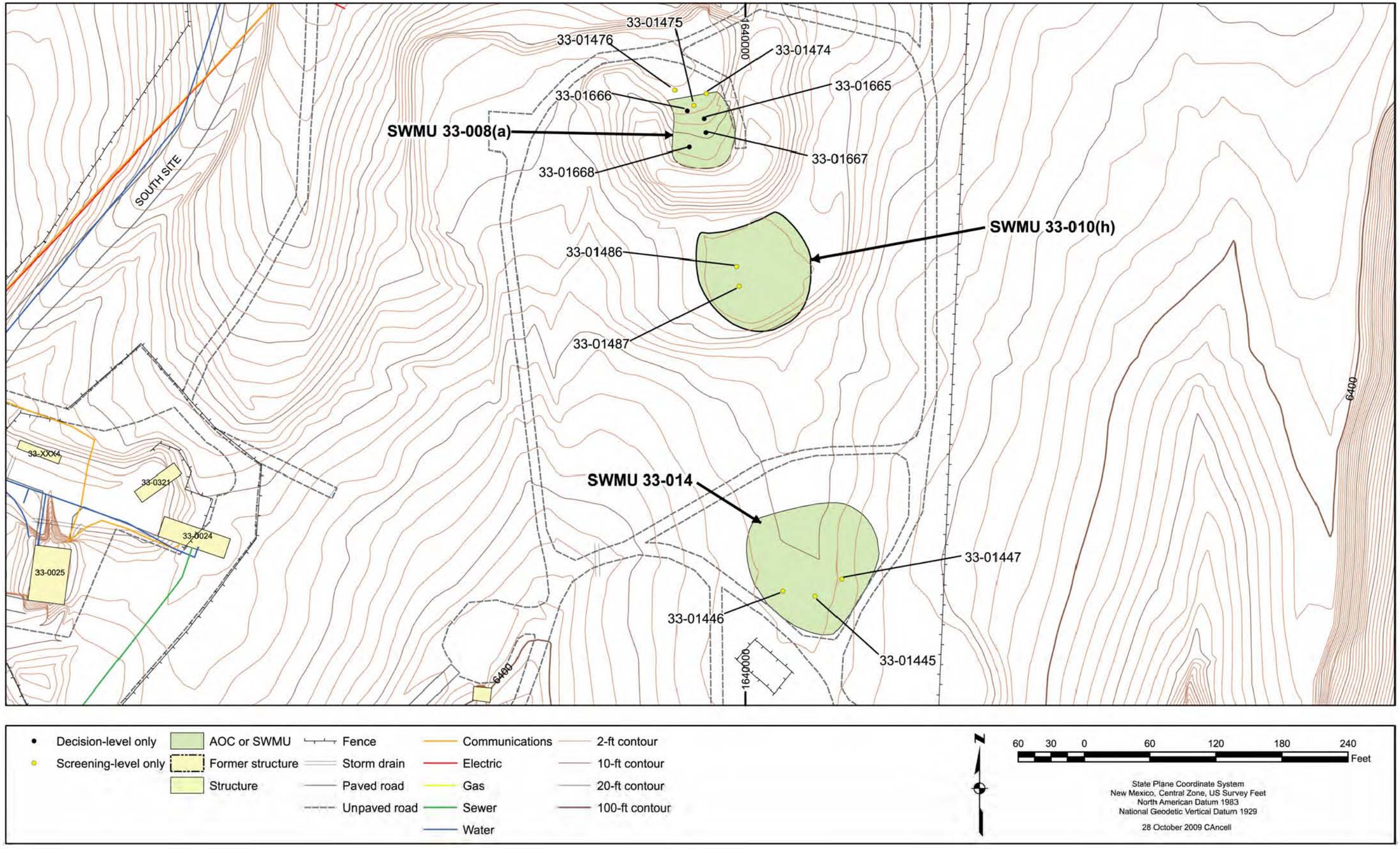


Figure 4.3-7 Site features and historical sampling locations for SWMUs 33-008(a), 33-010(h), and 33-014

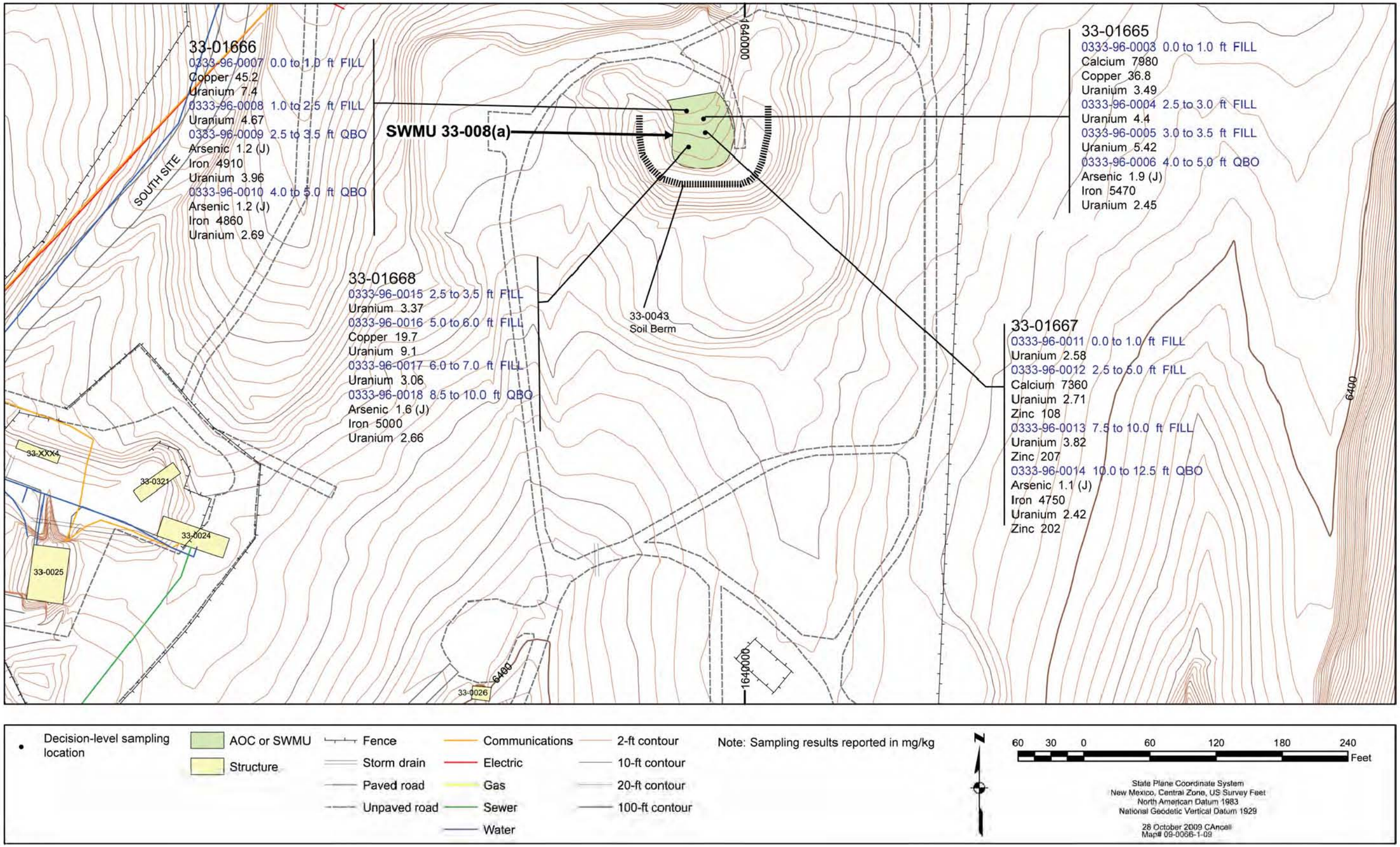


Figure 4.3-8 Inorganic chemicals detected above BVs at SWMU 33-008(a)

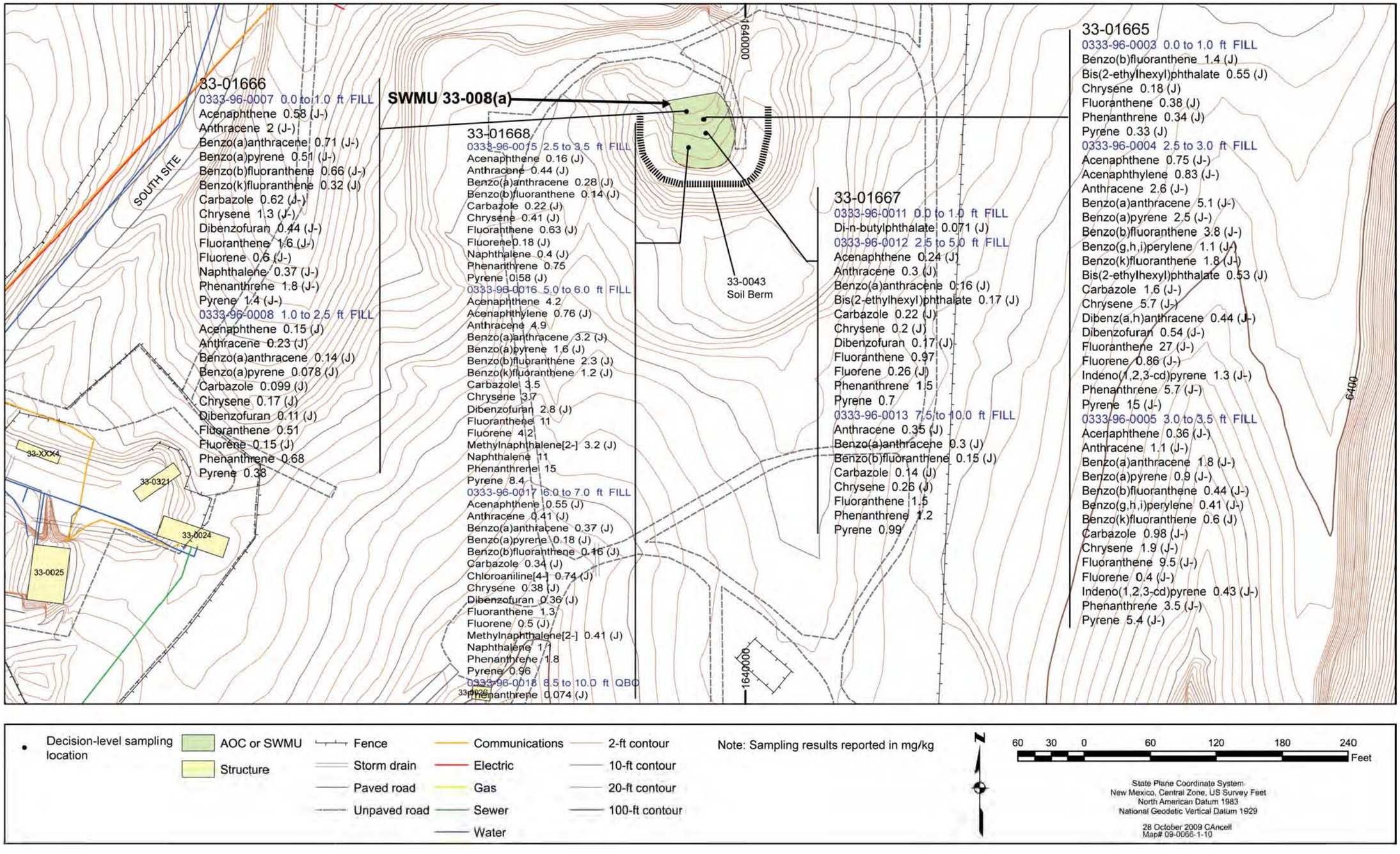


Figure 4.3-9 Organic chemicals detected at SWMU 33-008(a)

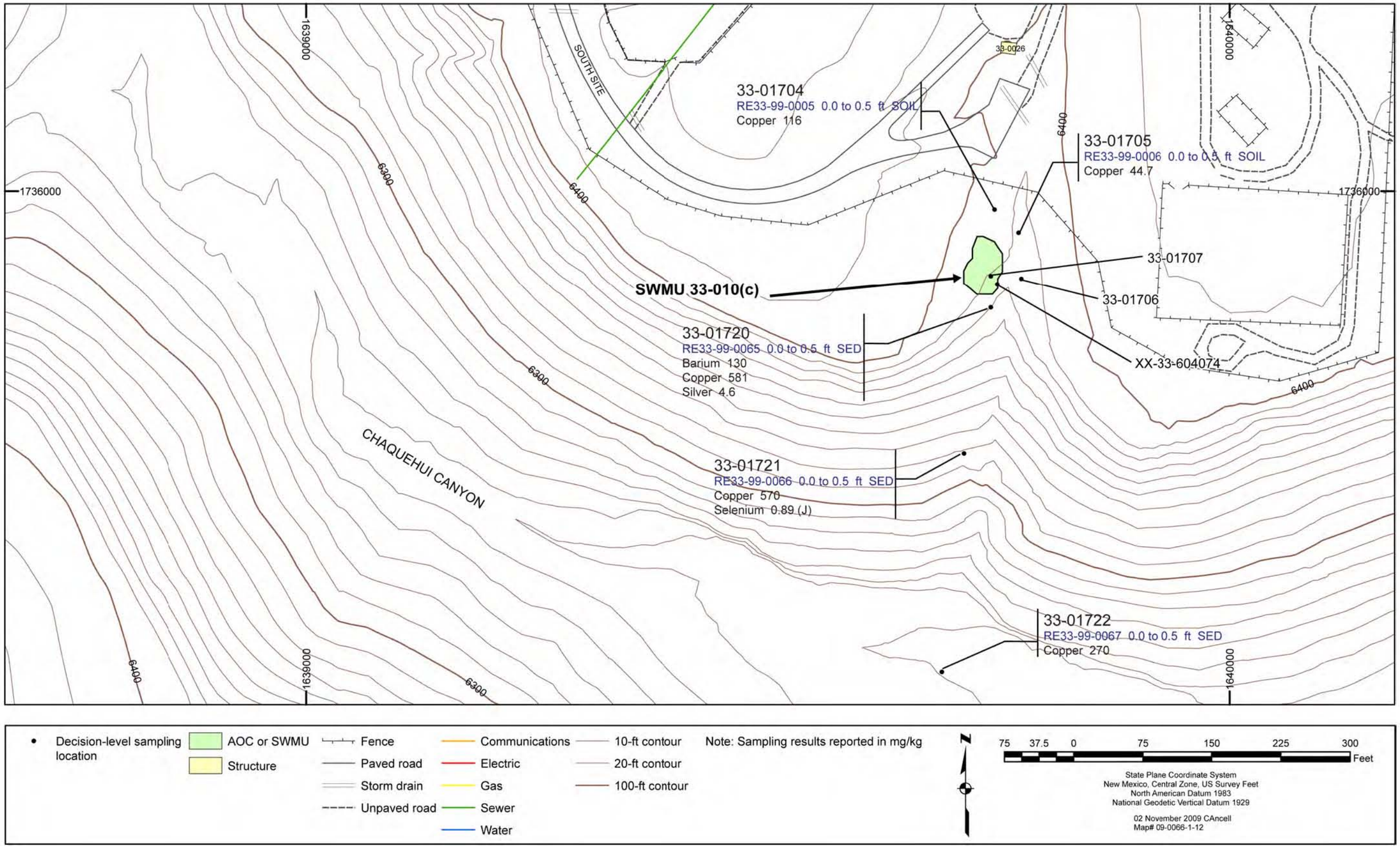


Figure 4.3-10 Inorganic chemicals detected above BVs at SWMU 33-010(c)

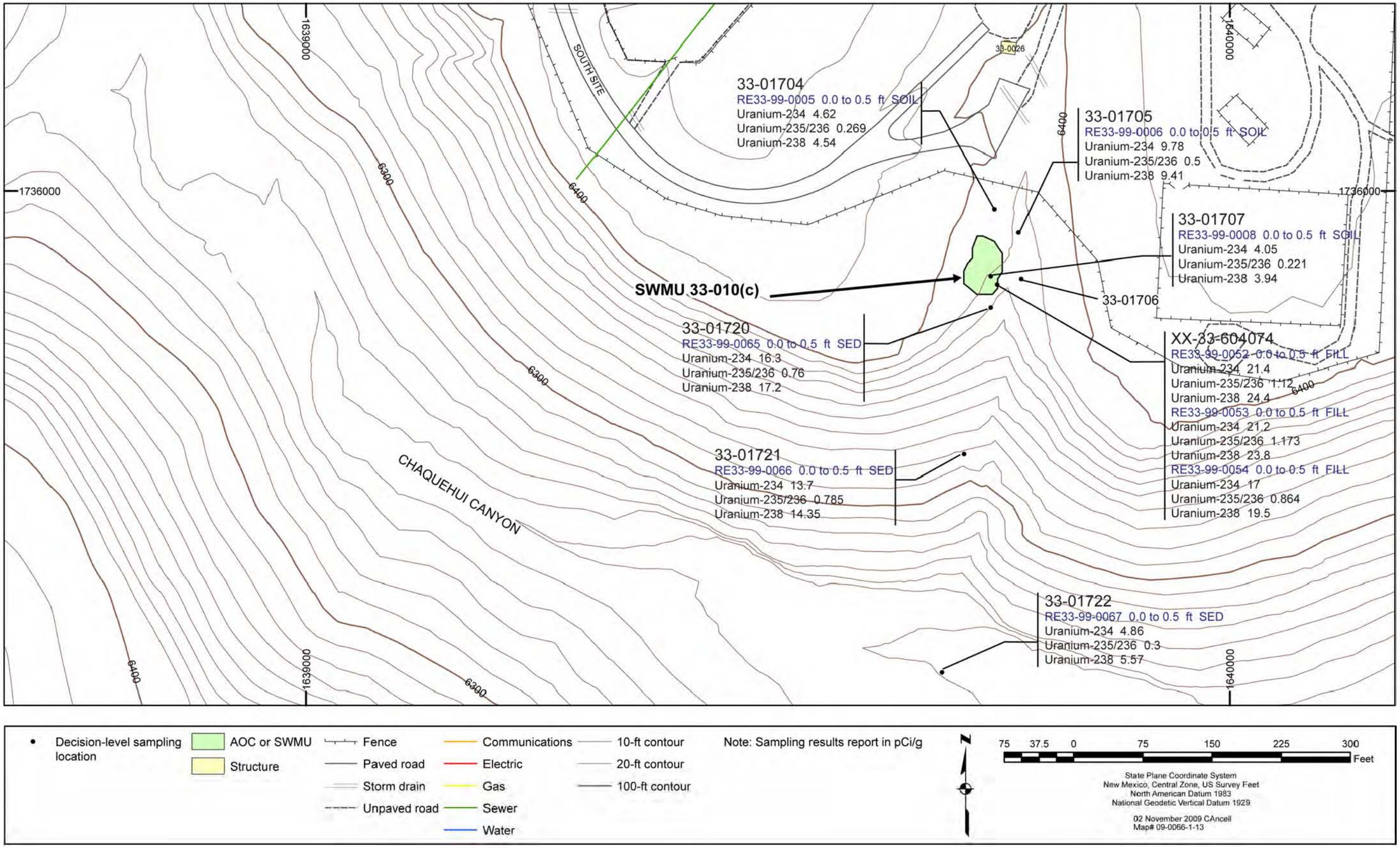


Figure 4.3-11 Radionuclides detected or detected above BVs/FVs at SWMU 33-010(c)

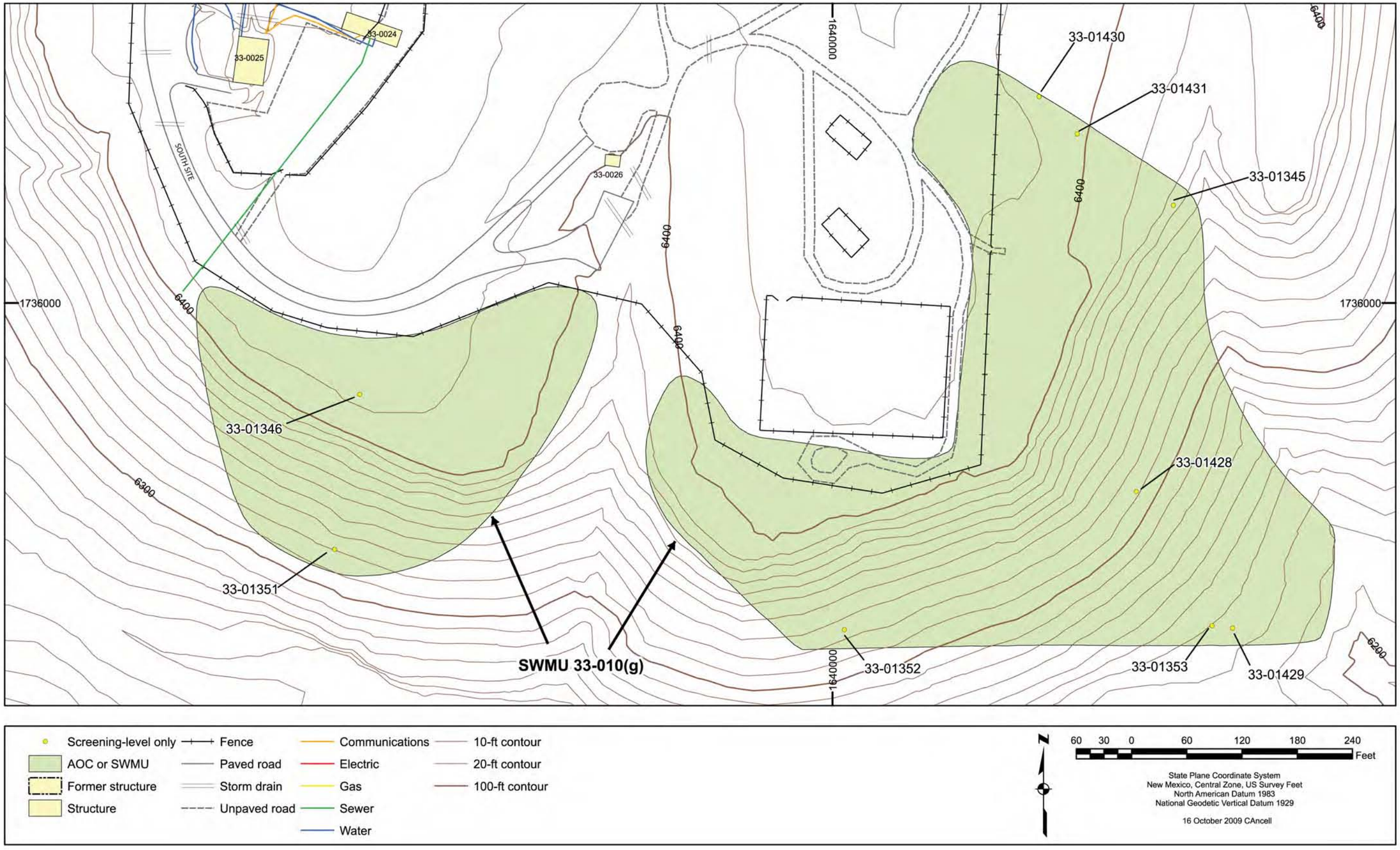


Figure 4.4-1 Site features and historical sampling locations for SWMU 33-010(g)

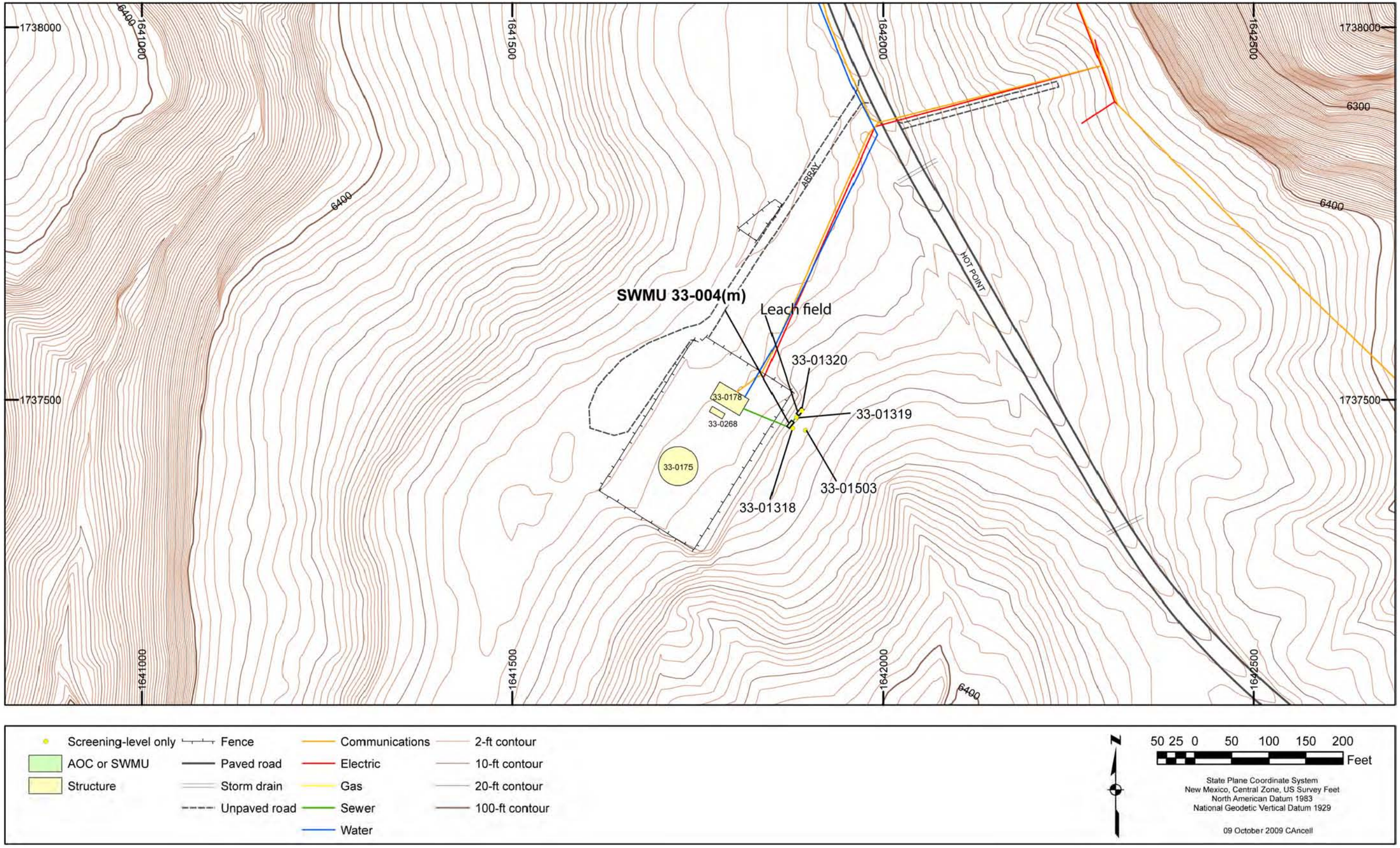


Figure 5.1-1 Site features and historical sampling locations for SWMU 33-004(m)

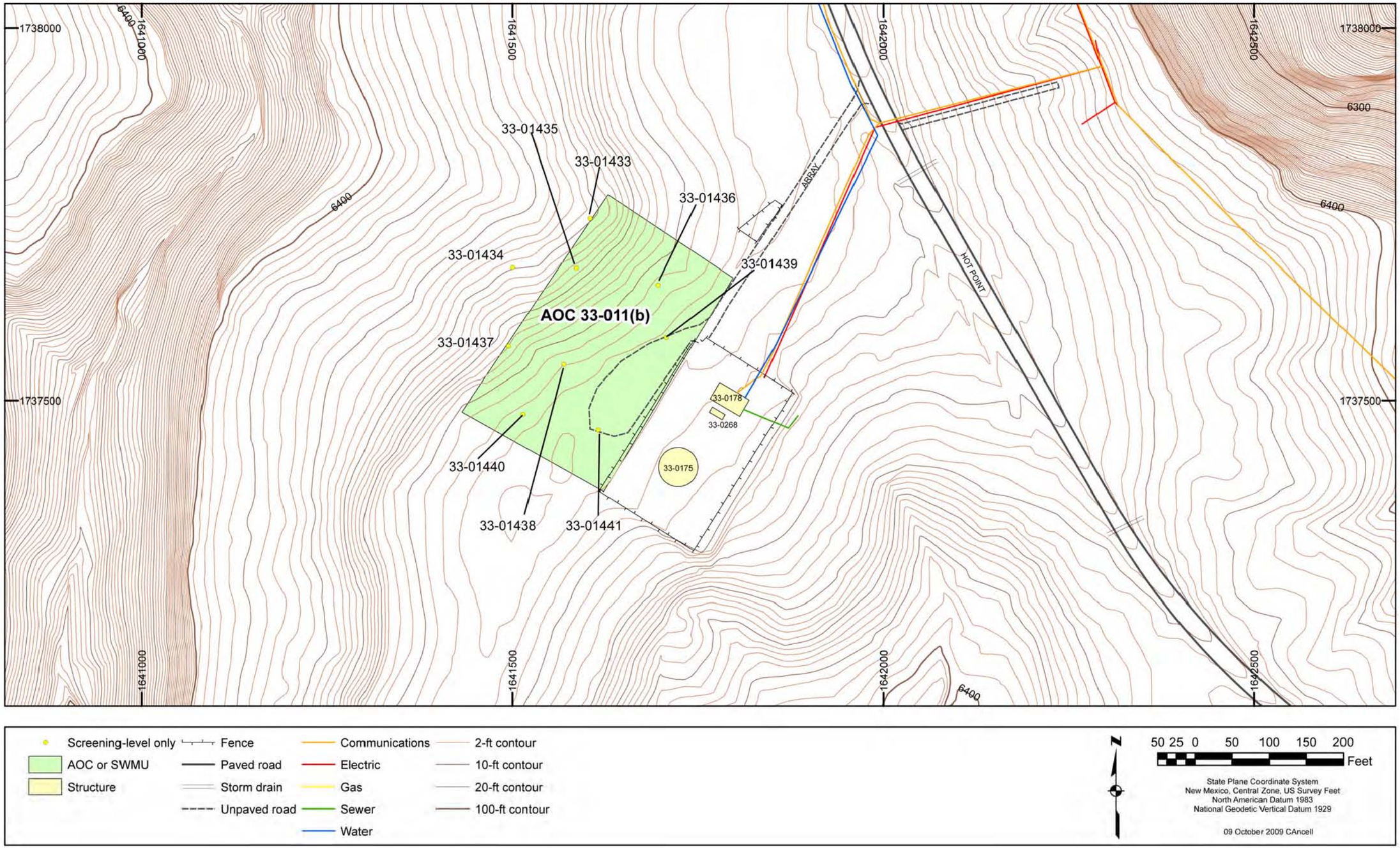


Figure 5.2-1 Site features and historical sampling locations for AOC 33-011(b)

Table 1.0-1
Status of SWMUs and AOCs in Chaquehui Canyon Aggregate Area

Consolidated Unit	Site ID	Brief Description	Site Status	Reference*
33-001(a)-99	SWMU 33-001(a)	Disposal Pit 1 (MDA E)	Under Investigation	Section 4.3.1
	SWMU 33-001(b)	Disposal Pit 2 (MDA E)	Under Investigation	Section 4.3.1
	SWMU 33-001(c)	Disposal Pit 3 (MDA E)	Under Investigation	Section 4.3.1
	SWMU 33-001(d)	Disposal Pit 4 (MDA E)	Under Investigation	Section 4.3.1
	SWMU 33-001(e)	Shot Chamber (MDA E)	Under Investigation	Section 4.3.1
33-002(a)-99	SWMU 33-002(a)	Septic System (MDA K)	Under Investigation	Section 4.1.1
	SWMU 33-002(b)	Seepage Pit (MDA K)	Under Investigation	Section 4.1.1
	SWMU 33-002(c)	Seepage Pit (MDA K)	Under Investigation	Section 4.1.1
	SWMU 33-002(d)	Outfall (MDA K)	Under Investigation	Section 4.1.1
	SWMU 33-002(e)	Outfall (MDA K)	Under Investigation	Section 4.1.1
	SWMU 33-010(f)	Surface Disposal Area (MDA K)	Under Investigation	Section 4.1.1
33-004(a)-00	SWMU 33-004(a)	Septic System	Under Investigation	Section 4.1.2
	SWMU 33-004(h)	Outfall	Under Investigation	Section 4.1.2
	SWMU 33-004(i)	Outfalls	Under Investigation	Section 4.1.2
	SWMU 33-011(d)	Former Storage Area	Under Investigation	Section 4.1.2
	SWMU 33-015	Incinerator	Under Investigation	Section 4.1.2
	SWMU 33-017	Potential Soil Contamination	Under Investigation	Section 4.1.2
	SWMU 33-004(b)	Septic System	Under Investigation	Section 4.2.2
	SWMU 33-004(d)	Septic System	Under Investigation	Section 4.2.1
	SWMU 33-004(e)	Seepage Pit	Removed from the Module VIII of the Laboratory's Hazardous Waste Facility Permit 12/23/98	NMED 1998, 063042
	SWMU 33-004(f)	Septic System	Removed from the Module VIII of the Laboratory's Hazardous Waste Facility Permit 12/23/98	NMED 1998, 063042
33-004(g)-00	SWMU 33-004(g)	Drainline and Outfall	Under Investigation	Section 4.2.2
	SWMU 33-007(c)	Firing Sites	Under Investigation	Section 4.2.2
	SWMU 33-004(j)	Drainline and Outfall	Under Investigation	Section 4.3.3
	SWMU 33-006(a)	Firing Site	Under Investigation	Section 4.3.3
	SWMU 33-007(b)	Firing Sites	Under Investigation	Section 4.3.3
	SWMU 33-008(a)	Landfill	Under Investigation	Section 4.3.3
	SWMU 33-010(c)	Surface Disposal Area	Under Investigation	Section 4.3.3
	SWMU 33-010(h)	Surface Disposal Area	Under Investigation	Section 4.3.3
	SWMU 33-011(c)	Storage Area	Under Investigation	Section 4.3.3

Table 1.0-1 (continued)

Consolidated Unit	Site ID	Brief Description	Site Status	Reference*
	SWMU 33-014	Open Burn Area	Under Investigation	Section 4.3.3
	SWMU 33-004(m)	Septic System	Under Investigation	Section 4.4.1
	AOC 33-004(n)	Septic System	NFA Approved 1/21/05	EPA 2005, 088464
33-005(a)-00	SWMU 33-005(a)	Former Septic System	Under Investigation	Section 4.1.3
	SWMU 33-005(b)	Former Drainline	Under Investigation	Section 4.1.3
	SWMU 33-005(c)	Former Drainline	Under Investigation	Section 4.1.3
	SWMU 33-011(a)	Former Storage Area	Under Investigation	Section 4.1.3
	AOC 33-008(c)	Surface Disposal Area	Under Investigation	Section 4.1.4
	SWMU 33-009	Surface Disposal Area	Under Investigation	Section 4.2.3
	AOC 33-010(e)	Surface Disposal Site	NFA Approved 01/21/05	EPA 2005, 088464
	SWMU 33-010(g)	Surface Disposal Area	Under Investigation	Section 4.3.4
	AOC 33-011(b)	Former Storage Area	Under Investigation	Section 4.4.2
	SWMU 33-011(e)	Former Storage Area	Under Investigation	Section 4.1.5
	SWMU 33-012(a)	Former Storage Area	Under Investigation	Section 4.1.6
	AOC 33-012(b)	Satellite Accumulation Area	NFA Approved 01/21/05	EPA 2005, 088464
	AOC 33-012(c)	Satellite Accumulation Area	NFA Approved 01/21/05	EPA 2005, 088464
	AOC 33-012(d)	Satellite Accumulation Area	NFA Approved 01/21/05	EPA 2005, 088464
	SWMU 33-013	Drum Storage Area	NFA Approved 08/30/06	NMED 2006, 093526
	SWMU 33-016	Sump, Drainline, and Outfall	Under Investigation	Section 4.1.7
	AOC C-33-001	Former Transformer	Under Investigation	Section 4.1.8
	AOC C-33-003	Potential Soil Contamination	Under Investigation	Section 4.1.9

Note: Shading denotes approved for NFA or complete with controls.
*References are to sections in the Chaquehui Canyon Aggregate Area investigation work plan, unless otherwise noted.

Table 2.0-1
Summary of Samples Collected and Analyses Requested for Previous Investigations at TA-33 Main Site

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cyanide	Gamma Spectroscopy	High Explosives	Isotopic Plutonium	Isotopic Uranium	Metals	Nitrate	PCBs	Perchlorate	Pesticides/PCBs	Strontium-90	SVOCs	Total Petroleum Hydrocarbons/Diesel Range Organics	Tritium	Uranium	VOCs
SWMU 33-002(a)																				
0333-96-0525	33-01652	1.0–1.5	Soil	—[a]	—	—	—	2293[b]	—	2292, 2293	—	—	—	—	—	2291	—	2293	—	2291
0333-96-0526	33-01652	3.08–4.08	Soil	—	—	—	—	2293	—	2292, 2293	—	—	—	—	—	2291	—	2293	—	2291
0333-96-0546	33-01652	6.0–7.0	Qbt4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2340	—	—
0333-96-0527	33-01652	12.5–12.9	Soil	—	—	—	—	2293	—	2292, 2293	—	—	—	—	—	2291	—	2293	—	2291
0333-96-0528	33-01652	15.08–16.08	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2293	—	—
0333-96-0529	33-01652	23.42–24.0	Qbt2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2293	—	—
0333-96-0531	33-01652	30.08–31.08	Qbt2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2340	—	—
0333-96-0537	33-01652	61.0–61.83	Qbt2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2340	—	—
0333-96-0534	33-01652	73.42–74.58	Qbt2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2340	—	—
0333-96-0540	33-01652	76.92–77.5	Qbt2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2340	—	—
0333-96-0543	33-01652	92.5–93.5	Qbt4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2340	—	—
0333-96-0547	33-01652	113.0–113.67	Qbt4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2340	—	—
0333-96-0548	33-01652	117.5–118.33	Qbt4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2340	—	—
0333-96-0043	33-01696	2.33–3.0	Soil	—	—	—	—	2167	—	2166, 2167	—	—	—	—	—	2165	—	2167	—	2165
0333-96-0044	33-01696	8.25–8.75	Soil	—	—	—	—	2167	—	2166, 2167	—	—	—	—	—	2165	—	2167	—	2165
0333-96-0045	33-01696	12.58–13.17	Qbt3	—	—	—	—	2167	—	2166, 2167	—	—	—	—	—	2165	—	2167	—	2165
0333-96-0046	33-01696	19.0–19.58	Qbt3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2167	—	—
0333-96-0047	33-01696	24.0–25.0	Qbt2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2167	—	—
0333-96-0048	33-01696	26.0–26.5	Qbt2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2167	—	—
RE33-05-60743	33-24716	0.0–0.5	Qbt3	3419S	3421S	3419S	3420S	3419S	3419S	3421S	3421S	3420S	3421S	—	3419S	3420S	—	3419S	—	3420S
RE33-05-60747	33-24716	2.0–2.5	Qbt3	3419S	3421S	3419S	3420S	3419S	3419S	3421S	3421S	3420S	3421S	—	3419S	3420S	—	3419S	—	3420S
RE33-05-60745	33-24717	0.0–0.5	Qbt3	3419S	3421S	3419S	3420S	3419S	3419S	3421S	3421S	3420S	3421S	—	3419S	3420S	—	3419S	—	3420S
RE33-05-60749	33-24717	2.0–2.5	Qbt3	3419S	3421S	3419S	3420S	3419S	3419S	3421S	3421S	3420S	3421S	—	3419S	3420S	—	3419S	—	3420S
RE33-05-60744	33-24718	0.0–0.5	Qbt3	3419S	3421S	3419S	3420S	3419S	3419S	3421S	3421S	3420S	3421S	—	3419S	3420S	—	3419S	—	3420S
RE33-05-60748	33-24718	2.0–2.5	Qbt3	3419S	3421S	3419S	3420S	3419S	3419S	3421S	3421S	3420S	3421S	—	3419S	3420S	—	3419S	—	3420S
RE33-05-60746	33-24719	0.0–0.5	Qbt3	3419S	3421S	3419S	3420S	3419S	3419S	3421S	3421S	3420S	3421S	—	3419S	3420S	—	3419S	—	3420S
RE33-05-60750	33-24719	2.0–2.5	Qbt3	3419S	3421S	3419S	3420S	3419S	3419S	3421S	3421S	3420S	3421S	—	3419S	3420S	—	3419S	—	3420S
RE33-05-60751	33-24720	0.0–0.5	Qbt3	3419S	3421S	3419S	3420S	3419S	3419S	3421S	3421S	3420S	3421S	—	3419S	3420S	—	3419S	—	3420S
RE33-05-60752	33-24720	2.0–2.5	Qbt3	3419S	3421S	3419S	3420S	3419S	3419S	3421S	3421S	3420S	3421S	—	3419S	3420S	—	3419S	—	3420S
RE33-05-60753	33-24721	0.0–0.5	Qbt3	3419S	3421S	3419S	3420S	3419S	3419S	3421S	3421S	3420S	3421S	—	3419S	3420S	—	3419S	—	3420S
RE33-05-60754	33-24721	2.0–2.5	Qbt3	3419S	3421S	3419S	3420S	3419S	3419S	3421S	3421S	3420S	3421S	—	3419S	3420S	—	3419S	—	3420S
RE33-05-60755	33-24722	0.0–0.5	Qbt3	3419S	3421S	3419S	3420S	3419S	3419S	3421S	3421S	3420S	3421S	—	3419S	3420S	—	3419S	—	3420S

Table 2.0-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cyanide	Gamma Spectroscopy	High Explosives	Isotopic Plutonium	Isotopic Uranium	Metals	Nitrate	PCBs	Perchlorate	Pesticides/PCBs	Strontium-90	SVOCs	Total Petroleum Hydrocarbons/Diesel Range Organics	Tritium	Uranium	VOCs
RE33-05-60756	33-24722	2.0–2.5	Qbt3	3419S	3421S	3419S	3420S	3419S	3419S	3421S	3421S	3420S	3421S	—	3419S	3420S	—	3419S	—	3420S
RE33-05-60757	33-24723	0.0–0.5	Qbt3	3419S	3421S	3419S	3420S	3419S	3419S	3421S	3421S	3420S	3421S	—	3419S	3420S	—	3419S	—	3420S
RE33-05-60758	33-24723	2.0–2.5	Qbt3	3419S	3421S	3419S	3420S	3419S	3419S	3421S	3421S	3420S	3421S	—	3419S	3420S	—	3419S	—	3420S
RE33-05-60759	33-24724	0.0–0.5	Fill	3455S	3455S	3455S	3454S	3455S	3455S	3455S	3455S	3454S	3455S	—	3455S	3454S	—	3455S	—	3454S
RE33-05-60760	33-24724	2.0–2.5	Qbt3	3455S	3455S	3455S	3454S	3455S	3455S	3455S	3455S	3454S	3455S	—	3455S	3454S	—	3455S	—	3454S
RE33-05-60761	33-24725	0.0–0.5	Fill	3455S	3455S	3455S	3454S	3455S	3455S	3455S	3455S	3454S	3455S	—	3455S	3454S	—	3455S	—	3454S
RE33-05-60762	33-24725	2.0–2.5	Qbt3	3455S	3455S	3455S	3454S	3455S	3455S	3455S	3455S	3454S	3455S	—	3455S	3454S	—	3455S	—	3454S
RE33-05-60763	33-24726	0.0–0.5	Fill	3455S	3455S	3455S	3454S	3455S	3455S	3455S	3455S	3454S	3455S	—	3455S	3454S	—	3455S	—	3454S
RE33-05-60764	33-24726	2.0–2.5	Qbt3	3455S	3455S	3455S	3454S	3455S	3455S	3455S	3455S	3454S	3455S	—	3455S	3454S	—	3455S	—	3454S
RE33-05-61274	33-24807	5.0–7.0	Fill	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3456S
RE33-05-63010	33-25097	0.0–0.5	Fill	3714S	3713S	3714S	—	3714S	3714S	3713S	3713S	3712S	3713S	—	3714S	3712S	3712S	3714S	—	3712S
RE33-05-63011	33-25097	2.0–2.5	Fill	3769S	3768S	3769S	—	3769S	3769S	3768S	3768S	3767S	3768S	—	3769S	3767S	3767S	3769S	—	3767S
RE33-05-63012	33-25098	0.0–0.5	Fill	3714S	3713S	3714S	—	3714S	3714S	3713S	3713S	3712S	3713S	—	3714S	3712S	3712S	3714S	—	3712S
RE33-05-63013	33-25098	2.0–2.5	Fill	3769S	3768S	3769S	—	3769S	3769S	3768S	3768S	3767S	3768S	—	3769S	3767S	3767S	3769S	—	3767S
RE33-05-63195	33-25107	0.0–0.5	Fill	3714S	3713S	3714S	—	3714S	3714S	3713S	3713S	3712S	3713S	—	3714S	3712S	3712S	3714S	—	3712S
RE33-05-63196	33-25107	2.0–2.5	Fill	3769S	3768S	3769S	—	3769S	3769S	3768S	3768S	3767S	3768S	—	3769S	3767S	3767S	3769S	—	3767S
RE33-05-63197	33-25108	0.0–0.5	Fill	3714S	3713S	3714S	—	3714S	3714S	3713S	3713S	3712S	3713S	—	3714S	3712S	3712S	3714S	—	3712S
RE33-05-63198	33-25108	2.0–2.5	Fill	3769S	3768S	3769S	—	3769S	3769S	3768S	3768S	3767S	3768S	—	3769S	3767S	3767S	3769S	—	3767S
RE33-05-63199	33-25109	0.0–0.5	Fill	3714S	3713S	3714S	—	3714S	3714S	3713S	3713S	3712S	3713S	—	3714S	3712S	3712S	3714S	—	3712S
RE33-05-63200	33-25109	2.0–2.5	Fill	3769S	3768S	3769S	—	3769S	3769S	3768S	3768S	3767S	3768S	—	3769S	3767S	3767S	3769S	—	3767S
RE33-05-63201	33-25110	0.0–0.5	Fill	3769S	3768S	3769S	—	3769S	3769S	3768S	3768S	3767S	3768S	—	3769S	3767S	3767S	3769S	—	3767S
RE33-05-63202	33-25110	2.0–2.5	Fill	3769S	3768S	3769S	—	3769S	3769S	3768S	3768S	3767S	3768S	—	3769S	3767S	3767S	3769S	—	3767S
RE33-05-63203	33-25111	0.0–0.5	Fill	3769S	3768S	3769S	—	3769S	3769S	3768S	3768S	3767S	3768S	—	3769S	3767S	3767S	3769S	—	3767S
RE33-05-63204	33-25111	2.0–2.5	Fill	3769S	3768S	3769S	—	3769S	3769S	3768S	3768S	3767S	3768S	—	3769S	3767S	3767S	3769S	—	3767S
RE33-05-63205	33-25112	0.0–0.5	Fill	3769S	3768S	3769S	—	3769S	3769S	3768S	3768S	3767S	3768S	—	3769S	3767S	3767S	3769S	—	3767S
RE33-05-63206	33-25112	2.0–2.5	Fill	3769S	3768S	3769S	—	3769S	3769S	3768S	3768S	3767S	3768S	—	3769S	3767S	3767S	3769S	—	3767S
RE33-05-63207	33-25113	0.0–0.5	Fill	3769S	3768S	3769S	—	3769S	3769S	3768S	3768S	3767S	3768S	—	3769S	3767S	3767S	3769S	—	3767S
RE33-05-63208	33-25113	2.0–2.5	Fill	3769S	3768S	3769S	—	3769S	3769S	3768S	3768S	3767S	3768S	—	3769S	3767S	3767S	3769S	—	3767S
RE33-05-63209	33-25114	0.0–0.5	Fill	3769S	3768S	3769S	—	3769S	3769S	3768S	3768S	3767S	3768S	—	3769S	3767S	3767S	3769S	—	3767S
RE33-05-63210	33-25114	2.0–2.5	Fill	3769S	3768S	3769S	—	3769S	3769S	3768S	3768S	3767S	3768S	—	3769S	3767S	3767S	3769S	—	3767S
RE33-05-63211	33-25115	0.0–0.5	Fill	3769S	3768S	3769S	—	3769S	3769S	3768S	3768S	3767S	3768S	—	3769S	3767S	3767S	3769S	—	3767S
RE33-05-63212	33-25115	2.0–2.5	Fill	3769S	3768S	3769S	—	3769S	3769S	3768S	3768S	3767S	3768S	—	3769S	3767S	3767S	3769S	—	3767S
RE33-05-63213	33-25116	0.0–0.5	Fill	3769S	3768S	3769S	—	3769S	3769S	3768S	3768S	3767S	3768S	—	3769S	3767S	3767S	3769S	—	3767S
RE33-05-63214	33-25116	2.0–2.5	Fill	3769S	3768S	3769S	—	3769S	3769S	3768S	3768S	3767S	3768S	—	3769S	3767S	3767S	3769S	—	3767S

Table 2.0-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cyanide	Gamma Spectroscopy	High Explosives	Isotopic Plutonium	Isotopic Uranium	Metals	Nitrate	PCBs	Perchlorate	Pesticides/PCBs	Strontium-90	SVOCs	Total Petroleum Hydrocarbons/Diesel Range Organics	Tritium	Uranium	VOCs
RE33-05-63215	33-25117	0.0–0.5	Fill	3769S	3768S	3769S	—	3769S	3769S	3768S	3768S	3767S	3768S	—	3769S	3767S	3767S	3769S	—	3767S
RE33-05-63216	33-25117	2.0–2.5	Fill	3769S	3768S	3769S	—	3769S	3769S	3768S	3768S	3767S	3768S	—	3769S	3767S	3767S	3769S	—	3767S
SWMU 33-002(b)																				
0333-96-0070	33-01328	10.0–15.0	Qbt3	—	—	—	—	2178	—	2177 ,2178	—	—	—	—	—	2176	—	2178	—	2176
0333-96-0071	33-01328	16.0–16.33	Qbt3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2178	—	—
0333-96-0072	33-01328	21.5–22.5	Qbt3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2178	—	—
0333-96-0073	33-01328	26.25–27.25	Qbt2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2178	—	—
0333-96-0500	33-01328	30.0–31.25	Qbt2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2232	—	—
0333-96-0501	33-01328	36.0–36.75	Qbt2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2232	—	—
0333-96-0502	33-01328	40.0–41.0	Qbt2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2232	—	—
0333-96-0503	33-01328	43.0–45.0	Qbt2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2232	—	—
0333-96-0506	33-01328	59.5–60.0	Qbt2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2232	—	—
0333-96-0509	33-01328	71.75–72.0	Qbt2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2232	—	—
0333-96-0512	33-01328	87.5–88.5	Qbt4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2232	—	—
0333-96-0515	33-01328	102.5–103.5	Qbt4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2232	—	—
0333-96-0516	33-01328	109.0–110.0	Qbt4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2232	—	—
0333-96-0517	33-01328	114.0–115.0	Qbt4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2232	—	—
0333-96-0518	33-01328	116.5–117.5	Qbt4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2232	—	—
RE33-05-61273	33-24806	5.0–7.0	Fill	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3456S
RE33-05-62977	33-25082	0.0–0.5	Qbt3	3634S	3634S	3634S	3633S	3634S	3634S	3634S	3634S	3634S	3634S	—	3634S	3634S	—	3634S	—	3634S
RE33-05-62978	33-25082	2.0–2.5	Qbt3	3634S	3634S	3634S	3633S	3634S	3634S	3634S	3634S	3634S	3634S	—	3634S	3634S	—	3634S	—	3634S
RE33-05-62979	33-25083	0.0–0.5	Qbt3	3634S	3634S	3634S	3633S	3634S	3634S	3634S	3634S	3634S	3634S	—	3634S	3634S	—	3634S	—	3634S
RE33-05-62980	33-25083	2.0–2.5	Qbt3	3634S	3634S	3634S	3633S	3634S	3634S	3634S	3634S	3634S	3634S	—	3634S	3634S	—	3634S	—	3634S
RE33-05-62981	33-25084	0.0–0.5	Qbt3	3634S	3634S	3634S	3633S	3634S	3634S	3634S	3634S	3634S	3634S	—	3634S	3634S	—	3634S	—	3634S
RE33-05-62982	33-25084	2.0–2.5	Qbt3	3634S	3634S	3634S	3633S	3634S	3634S	3634S	3634S	3634S	3634S	—	3634S	3634S	—	3634S	—	3634S
RE33-05-62987	33-25087	10.0–10.5	Qbt3	3972S	3971S	3972S	3970S	3972S	3972S	3971S	3971S	3970S	3971S	—	3972S	3970S	—	3971S	—	3970S
RE33-05-62988	33-25087	12.0–12.5	Qbt3	3972S	3971S	3972S	3970S	3972S	3972S	3971S	3971S	3970S	3971S	—	3972S	3970S	—	3971S	—	3970S
RE33-05-62989	33-25088	10.0–10.5	Qbt3	3972S	3971S	3972S	3970S	3972S	3972S	3971S	3971S	3970S	3971S	—	3972S	3970S	—	3971S	—	3970S
RE33-05-62990	33-25088	12.0–12.5	Qbt3	3972S	3971S	3972S	3970S	3972S	3972S	3971S	3971S	3970S	3971S	—	3972S	3970S	—	—	—	3970S
RE33-05-63000	33-25092	0.0–0.5	Fill	3701S	3700S	3701S	—	3701S	3701S	3700S	3700S	3699S	3700S	—	3701S	3699S	3699S	3701S	—	3699S
RE33-05-63001	33-25092	2.0–2.5	Qbt3	3714S	3713S	3714S	—	3714S	3714S	3713S	3713S	3712S	3713S	—	3714S	3712S	3712S	3714S	—	3712S
RE33-05-63002	33-25093	0.0–0.5	Qbt3	3701S	3700S	3701S	—	3701S	3701S	3700S	3700S	3699S	3700S	—	3701S	3699S	3699S	3701S	—	3699S
RE33-05-63003	33-25093	2.0–2.5	Qbt3	3714S	3713S	3714S	—	3714S	3714S	3713S	3713S	3712S	3713S	—	3714S	3712S	3712S	3714S	—	3712S
RE33-05-63004	33-25094	0.0–0.5	Qbt3	3701S	3700S	3701S	—	3701S	3701S	3700S	3700S	3699S	3700S	—	3701S	3699S	3699S	3701S	—	3699S

Table 2.0-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cyanide	Gamma Spectroscopy	High Explosives	Isotopic Plutonium	Isotopic Uranium	Metals	Nitrate	PCBs	Perchlorate	Pesticides/PCBs	Strontium-90	SVOCs	Total Petroleum Hydrocarbons/Diesel Range Organics	Tritium	Uranium	VOCs
RE33-05-63005	33-25094	2.0–2.5	Qbt3	3714S	3713S	3714S	—	3714S	3714S	3713S	3713S	3712S	3713S	—	3714S	3712S	3712S	3714S	—	3712S
RE33-05-63006	33-25095	0.0–0.5	Fill	3701S	3700S	3701S	—	3701S	3701S	3700S	3700S	3699S	3700S	—	3701S	3699S	3699S	3701S	—	3699S
RE33-05-63007	33-25095	2.0–2.5	Qbt3	3714S	3713S	3714S	—	3714S	3714S	3713S	3713S	3712S	3713S	—	3714S	3712S	3712S	3714S	—	3712S
RE33-05-63008	33-25096	0.0–0.5	Fill	3701S	3700S	3701S	—	3701S	3701S	3700S	3700S	3699S	3700S	—	3701S	3699S	3699S	3701S	—	3699S
RE33-05-63009	33-25096	2.0–2.5	Qbt3	3714S	3713S	3714S	—	3714S	3714S	3713S	3713S	3712S	3713S	—	3714S	3712S	3712S	3714S	—	3712S
RE33-05-63227	33-25123	0.0–0.5	Qbt3	3895S	3895S	3895S	—	3895S	3895S	3895S	3895S	3895S	3895S	—	3895S	3895S	3895S	3895S	—	3895S
RE33-05-63228	33-25123	2.0–2.5	Qbt3	3877S	3877S	3877S	—	3877S	3877S	3877S	3877S	3877S	3877S	—	3877S	3877S	3877S	3877S	—	3877S
RE33-05-63229	33-25124	0.0–0.5	Qbt3	3895S	3895S	3895S	—	3895S	3895S	3895S	3895S	3895S	3895S	—	3895S	3895S	3895S	3895S	—	3895S
RE33-05-63230	33-25124	2.0–2.5	Qbt3	3877S	3877S	3877S	—	3877S	3877S	3877S	3877S	3877S	3877S	—	3877S	3877S	3877S	3877S	—	3877S
RE33-05-63231	33-25125	0.0–0.5	Qbt3	3895S	3895S	3895S	—	3895S	3895S	3895S	3895S	3895S	3895S	—	3895S	3895S	3895S	3895S	—	3895S
RE33-05-63232	33-25125	2.0–2.5	Qbt3	3877S	3877S	3877S	—	3877S	3877S	3877S	3877S	3877S	3877S	—	3877S	3877S	3877S	3877S	—	3877S
SWMU 33-002(c)																				
0333-96-0076	33-01697	10.0–12.5	Qbt3	—	—	—	—	2190	—	2189, 2190	—	—	—	—	—	2188	—	2190	—	2188
0333-96-0049	33-01697	19.17–19.5	Qbt3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2195	—	—
0333-96-0050	33-01697	23.75–24.17	Qbt2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2195	—	—
0333-96-0051	33-01697	28.0–29.0	Qbt2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2195	—	—
0333-96-0052	33-01697	31.42–31.83	Qbt2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2195	—	—
0333-96-0053	33-01697	36.0–36.42	Qbt2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2195	—	—
0333-96-0054	33-01697	40.0–40.58	Qbt2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2195	—	—
0333-96-0055	33-01697	47.5–48.5	Qbt2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2195	—	—
0333-96-0056	33-01697	51.83–52.0	Qbt2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2195	—	—
0333-96-0057	33-01697	57.5–58.5	Qbt2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2195	—	—
0333-96-0058	33-01697	61.42–62.17	Qbt2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2195	—	—
RE33-05-60765	33-24727	0.0–0.5	Qbt3	3422S	3424S	3422S	3423S	3422S	3422S	3424S	3424S	3423S	3424S	—	3422S	3423S	—	3422S	—	3423S
RE33-05-60766	33-24727	2.0–2.5	Qbt3	3422S	3424S	3422S	3423S	3422S	3422S	3424S	3424S	3423S	3424S	—	3422S	3423S	—	3422S	—	3423S
RE33-05-60767	33-24728	0.0–0.5	Qbt3	3422S	3424S	3422S	3423S	3422S	3422S	3424S	3424S	3423S	3424S	—	3422S	3423S	—	3422S	—	3423S
RE33-05-60768	33-24728	2.0–2.5	Qbt3	3422S	3424S	3422S	3423S	3422S	3422S	3424S	3424S	3423S	3424S	—	3422S	3423S	—	3422S	—	3423S
RE33-05-60769	33-24729	0.0–0.5	Qbt3	3422S	3424S	3422S	3423S	3422S	3422S	3424S	3424S	3423S	3424S	—	3422S	3423S	—	3422S	—	3423S
RE33-05-60770	33-24729	2.0–2.5	Qbt3	3422S	3424S	3422S	3423S	3422S	3422S	3424S	3424S	3423S	3424S	—	3422S	3423S	—	3422S	—	3423S
RE33-05-61272	33-24805	5.0–7.0	Fill	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3456S
RE33-05-62983	33-25085	10.0–10.5	Qbt3	3972S	3971S	3972S	3970S	3972S	3972S	3971S	3971S	3970S	3971S	—	3972S	3970S	—	—	—	3970S
RE33-05-62984	33-25085	12.0–12.5	Qbt3	3972S	3971S	3972S	3970S	3972S	3972S	3971S	3971S	3970S	3971S	—	3972S	3970S	—	3971S	—	3970S
RE33-05-62985	33-25086	10.0–10.5	Qbt3	3972S	3971S	3972S	3970S	3972S	3972S	3971S	3971S	3970S	3971S	—	3972S	3970S	—	—	—	3970S
RE33-05-62986	33-25086	12.0–12.5	Qbt3	3972S	3971S	3972S	3970S	3972S	3972S	3971S	3971S	3970S	3971S	—	3972S	3970S	—	3971S	—	3970S

Table 2.0-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cyanide	Gamma Spectroscopy	High Explosives	Isotopic Plutonium	Isotopic Uranium	Metals	Nitrate	PCBs	Perchlorate	Pesticides/PCBs	Strontium-90	SVOCs	Total Petroleum Hydrocarbons/Diesel Range Organics	Tritium	Uranium	VOCs
RE33-05-63217	33-25118	0.0–0.5	Qbt3	3818S	3817S	3818S	—	3818S	3818S	3817S	3817S	3816S	3817S	—	3818S	3816S	3816S	3818S	—	3816S
RE33-05-63218	33-25118	2.0–2.5	Qbt3	3818S	3817S	3818S	—	3818S	3818S	3817S	3817S	3816S	3817S	—	3818S	3816S	3816S	3818S	—	3816S
RE33-05-63219	33-25119	0.0–0.5	Qbt3	3818S	3817S	3818S	—	3818S	3818S	3817S	3817S	3816S	3817S	—	3818S	3816S	3816S	3818S	—	3816S
RE33-05-63220	33-25119	2.0–2.5	Qbt3	3818S	3817S	3818S	—	3818S	3818S	3817S	3817S	3816S	3817S	—	3818S	3816S	3816S	3818S	—	3816S
RE33-05-63221	33-25120	0.0–0.5	Qbt3	3818S	3817S	3818S	—	3818S	3818S	3817S	3817S	3816S	3817S	—	3818S	3816S	3816S	3818S	—	3816S
RE33-05-63222	33-25120	2.0–2.5	Qbt3	3818S	3817S	3818S	—	3818S	3818S	3817S	3817S	3816S	3817S	—	3818S	3816S	3816S	3818S	—	3816S
RE33-05-63223	33-25121	0.0–0.5	Qbt3	3818S	3817S	3818S	—	3818S	3818S	3817S	3817S	3816S	3817S	—	3818S	3816S	3816S	3818S	—	3816S
RE33-05-63224	33-25121	2.0–2.5	Qbt3	3818S	3817S	3818S	—	3818S	3818S	3817S	3817S	3816S	3817S	—	3818S	3816S	3816S	3818S	—	3816S
RE33-05-63225	33-25122	0.0–0.5	Qbt3	3818S	3817S	3818S	—	3818S	3818S	3817S	3817S	3816S	3817S	—	3818S	3816S	3816S	3818S	—	3816S
RE33-05-63226	33-25122	2.0–2.5	Qbt3	3818S	3817S	3818S	—	3818S	3818S	3817S	3817S	3816S	3817S	—	3818S	3816S	3816S	3818S	—	3816S
SWMU 33-004(a)																				
0333-97-0004	XX-33-604072	0.0–0.0	Soil	—	—	—	—	—	—	3751R	—	—	—	—	—	—	—	—	—	3750R
0333-97-0010	XX-33-604072	0.0–0.0	Soil	—	—	—	—	—	—	3796R	—	—	—	—	—	—	—	—	—	3795R
AOC 33-008(c)																				
0333-96-0652	33-01670	0.0–0.5	Soil	—	2656	—	—	—	—	2656	—	—	—	—	—	2655	—	—	2657	—
0333-96-0653	33-01671	0.0–0.5	Sed	—	2656	—	—	—	—	2656	—	—	—	—	—	2655	—	—	2657	—
0333-96-0654	33-01671	0.5–0.8	Sed	—	2656	—	—	—	—	2656	—	—	—	—	—	2655	—	—	2657	2655
0333-96-0655	33-01672	0.0–0.5	Sed	—	2656	—	—	—	—	2656	—	—	—	—	—	2655	—	—	2657	—
0333-96-0656	33-01672	1.0–1.5	Sed	—	2656	—	—	—	—	2656	—	—	—	—	—	2655	—	—	2657	2655
0333-96-0657	33-01673	0.0–0.5	Sed	—	2656	—	—	—	—	2656	—	—	—	—	—	2655	—	—	2657	—
0333-96-0658	33-01674	0.0–0.5	Sed	—	2656	—	—	—	—	2656	—	—	—	—	—	2655	—	—	2657	—
0333-96-0659	33-01675	0.0–0.5	Soil	—	2656	—	—	—	—	2656	—	—	—	—	—	2655	—	—	2657	—
0333-96-0673	33-01679	0.0–2.0	Soil	—	2675	—	—	—	—	2675	—	—	—	—	—	2674	—	—	2676	—
0333-96-0674	33-01679	3.0–5.0	Soil	—	2675	—	—	—	—	2675	—	—	—	—	—	2674	—	—	2676	2674
0333-96-0675	33-01679	5.0–7.0	Qbo	—	2675	—	—	—	—	2675	—	—	—	—	—	2674	—	—	2676	2674
0333-96-0677	33-01680	0.0–0.5	Sed	—	2656	—	—	—	—	2656	—	—	—	—	—	2655	—	—	2657	—
0333-96-0678	33-01680	0.0–2.0	Sed	—	2669	—	—	—	—	2669	—	—	—	—	—	2668	—	—	2670	2668
0333-96-0679	33-01680	2.0–4.0	Qbo	—	2669	—	—	—	—	2669	—	—	—	—	—	2668	—	—	2670	2668
0333-96-0681	33-01681	0.5–1.25	Sed	—	2675	—	—	—	—	2675	—	—	—	—	—	2674	—	—	2676	2674
0333-96-0682	33-01681	5.0–6.0	Soil	—	2675	—	—	—	—	2675	—	—	—	—	—	2674	—	—	2676	2674
0333-96-0684	33-01682	0.0–1.0	Sed	—	2681	—	—	—	—	2681	—	—	—	—	—	2680	—	—	2682	2680
0333-96-0685	33-01682	1.0–2.0	Qbo	—	2681	—	—	—	—	2681	—	—	—	—	—	2680	—	—	2682	2680
0333-96-0669	33-01683	0.0–0.5	Sed	—	2675	—	—	—	—	2675	—	—	—	—	—	2674	—	—	2676	—
0333-96-0670	33-01684	0.0–0.5	Fill	—	2675	—	—	—	—	2675	—	—	—	—	—	2674	—	—	2676	—

Table 2.0-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cyanide	Gamma Spectroscopy	High Explosives	Isotopic Plutonium	Isotopic Uranium	Metals	Nitrate	PCBs	Perchlorate	Pesticides/PCBs	Strontium-90	SVOCs	Total Petroleum Hydrocarbons/Diesel Range Organics	Tritium	Uranium	VOCs
0333-96-0671	33-01685	0.0–0.5	Soil	—	2675	—	—	—	—	2675	—	—	—	—	—	2674	—	—	2676	—
SWMU 33-011(d)																				
0333-96-0111	33-01566	0.0–0.5	Fill	—	—	—	—	—	—	2365, 2366	—	—	—	—	—	—	—	—	—	—
0333-96-0120	33-01566	0.67–1.0	Fill	—	—	—	—	—	—	2376, 2377	—	—	—	—	—	—	—	—	—	—
0333-96-0112	33-01567	0.0–0.5	Fill	—	—	—	—	—	—	2365, 2366	—	—	—	—	—	—	—	—	—	—
0333-96-0121	33-01567	0.67–1.0	Fill	—	—	—	—	—	—	2376, 2377	—	—	—	—	—	—	—	—	—	—
0333-96-0113	33-01568	0.0–0.5	Fill	—	—	—	—	—	—	2365, 2366	—	—	—	—	—	—	—	—	—	—
0333-96-0122	33-01568	0.67–1.0	Fill	—	—	—	—	—	—	2376, 2377	—	—	—	—	—	—	—	—	—	—
0333-96-0114	33-01569	0.0–0.5	Fill	—	—	—	—	—	—	2365,2366	—	—	—	—	—	—	—	—	—	—
0333-96-0123	33-01569	0.42–0.67	Fill	—	—	—	—	—	—	2376,2377	—	—	—	—	—	—	—	—	—	—
0333-96-0110	33-01570	0.0–0.5	Sed	—	—	—	—	—	2366	—	—	—	—	—	—	—	—	—	—	—
0333-96-0117	33-01570	0.17–0.58	Fill	—	—	—	—	—	2377	—	—	—	—	—	—	—	—	—	—	—
0333-96-0115	33-01571	0.0–0.5	Soil	—	—	—	—	—	—	2365,2366	—	—	—	—	—	—	—	—	—	—
0333-96-0124	33-01571	0.5–0.75	Qbo	—	—	—	—	—	—	2376,2377	—	—	—	—	—	—	—	—	—	—
0333-96-0116	33-01572	0.0–0.5	Fill	—	—	—	—	—	—	2365,2366	—	—	—	—	—	—	—	—	—	—
0333-96-0125	33-01572	0.5–0.67	Fill	—	—	—	—	—	—	2376,2377	—	—	—	—	—	—	—	—	—	—
SWMU 33-017																				
0333-96-0130	33-01585	0.0–0.5	Fill	—	—	—	—	—	—	—	—	—	—	—	—	2339	—	—	—	—
0333-96-0131	33-01586	0.0–0.5	Fill	—	—	—	—	—	—	—	—	—	—	—	—	2339	—	—	—	—
0333-96-0132	33-01587	0.0–0.5	Fill	—	—	—	—	—	—	—	—	—	—	—	—	2339	—	—	—	—
0333-96-0133	33-01588	0.0–0.5	Fill	—	—	—	—	—	—	—	—	—	—	—	—	2339	—	—	—	—
0333-96-0134	33-01589	0.0–0.5	Fill	—	—	—	—	—	—	—	—	—	—	—	—	2339	—	—	—	—
0333-96-0135	33-01590	0.0–0.5	Fill	—	—	—	—	—	—	—	—	—	—	—	—	2339	—	—	—	—
0333-96-0136	33-01591	0.0–0.5	Fill	—	—	—	—	—	—	—	—	—	—	—	—	2339	—	—	—	—
0333-96-0137	33-01592	0.0–0.5	Fill	—	—	—	—	—	—	—	—	—	—	—	—	2339	—	—	—	—
0333-96-0138	33-01593	0.0–0.5	Sed	—	—	—	—	—	—	—	—	—	—	—	—	2339	—	—	—	—
0333-96-0139	33-01594	0.0–0.5	Sed	—	—	—	—	—	—	—	—	—	—	—	—	2339	—	—	—	—
0333-96-0140	33-01595	0.0–0.5	Fill	—	—	—	—	—	—	—	—	—	—	—	—	2339	—	—	—	—
0333-96-0141	33-01596	0.0–0.5	Fill	—	—	—	—	—	—	—	—	—	—	—	—	2339	—	—	—	—
0333-96-0142	33-01597	0.0–0.5	Fill	—	—	—	—	—	—	—	—	—	—	—	—	2339	—	—	—	—
0333-96-0143	33-01598	0.0–0.5	Fill	—	—	—	—	—	—	—	—	—	—	—	—	2339	—	—	—	—
0333-96-0145	33-01600	0.0–0.5	Fill	—	—	—	—	—	—	—	—	—	—	—	—	2339	—	—	—	—
0333-96-0146	33-01601	0.0–0.5	Fill	—	—	—	—	—	—	—	—	—	—	—	—	2339	—	—	—	—
0333-96-0144	33-01601	1.0–1.5	Fill	—	—	—	—	—	—	—	—	—	—	—	—	2339	—	—	—	—

Table 2.0-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cyanide	Gamma Spectroscopy	High Explosives	Isotopic Plutonium	Isotopic Uranium	Metals	Nitrate	PCBs	Perchlorate	Pesticides/PCBs	Strontium-90	SVOCs	Total Petroleum Hydrocarbons/Diesel Range Organics	Tritium	Uranium	VOCs
0333-96-0147	33-01602	0.0–0.5	Fill	—	—	—	—	—	—	—	—	—	—	—	—	2339	—	—	—	—
0333-96-0149	33-01604	0.0–0.5	Fill	—	—	—	—	—	—	—	—	—	—	2364	—	—	—	—	—	—
0333-96-0151	33-01606	0.0–0.5	Fill	—	—	—	—	—	—	—	—	—	—	2364	—	—	—	—	—	—
0333-96-0152	33-01607	0.0–0.5	Fill	—	—	—	—	—	—	—	—	—	—	2364	—	—	—	—	—	—
0333-96-0157	33-01612	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	2364	—	—	—	—	—	—
0333-96-0159	33-01614	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	2367	—	—	—	—	—	—
0333-96-0160	33-01615	0.0–0.5	Fill	—	—	—	—	—	—	—	—	—	—	2367	—	—	—	—	—	—
0333-96-0161	33-01616	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	2367	—	—	—	—	—	—
AOC C-33-001																				
0333-96-2042	33-01748	0.0–0.5	Fill	—	—	—	—	—	—	—	—	—	—	2393	—	—	—	—	—	—
0333-96-2043	33-01749	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	2393	—	—	—	—	—	—
0333-96-2045	33-01751	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	2393	—	—	—	—	—	—
0333-96-2046	33-01752	0.0–0.5	Fill	—	—	—	—	—	—	—	—	—	—	2393	—	—	—	—	—	—
AOC C-33-003																				
RE33-99-0009	33-01708	2.0–2.5	Qbt3	—	—	—	—	—	5653R	5652R	—	—	—	—	—	5651R	—	—	—	5651R
RE33-99-0010	33-01709	0.0–0.5	Fill	—	—	—	—	—	5579R	5578R	—	—	—	—	—	5577R	—	—	—	5570R
RE33-99-0032	33-01709	2.0–2.5	Qbt3	—	—	—	—	—	5653R	5652R	—	—	—	—	—	5651R	—	—	—	5651R
RE33-99-0011	33-01710	0.0–0.5	Fill	—	—	—	—	—	5579R	5578R	—	—	—	—	—	5577R	—	—	—	5570R
RE33-99-0033	33-01710	2.0–2.5	Qbt3	—	—	—	—	—	5653R	5652R	—	—	—	—	—	5651R	—	—	—	5651R
RE33-99-0012	33-01711	0.0–0.33	Fill	—	—	—	—	—	5579R	5578R	—	—	—	—	—	5577R	—	—	—	5570R
RE33-99-0034	33-01711	2.0–2.5	Qbt3	—	—	—	—	—	5653R	5652R	—	—	—	—	—	5651R	—	—	—	5651R
RE33-99-0013	33-01712	0.0–0.5	Fill	—	—	—	—	—	5579R	5578R	—	—	—	—	—	5577R	—	—	—	5570R
RE33-99-0035	33-01712	2.0–2.5	Qbt3	—	—	—	—	—	5653R	5652R	—	—	—	—	—	5651R	—	—	—	5651R
RE33-99-0014	33-01713	0.0–0.5	Fill	—	—	—	—	—	5579R	5578R	—	—	—	—	—	5577R	—	—	—	5570R
RE33-99-0036	33-01713	2.0–2.5	Qbt3	—	—	—	—	—	5653R	5652R	—	—	—	—	—	5651R	—	—	—	5651R
RE33-99-0015	33-01714	0.0–0.5	Fill	—	—	—	—	—	5579R	5578R	—	—	—	—	—	5577R	—	—	—	5570R
RE33-99-0037	33-01714	2.0–2.5	Qbt3	—	—	—	—	—	5653R	5652R	—	—	—	—	—	5651R	—	—	—	5651R
RE33-99-0016	33-01715	0.0–0.5	Fill	—	—	—	—	—	5579R	5578R	—	—	—	—	—	5577R	—	—	—	5570R
RE33-99-0038	33-01715	2.0–2.5	Qbt3	—	—	—	—	—	5653R	5652R	—	—	—	—	—	5651R	—	—	—	5651R
RE33-99-0061	33-01716	0.0–0.5	Sed	—	—	—	—	—	5683R	5682R	—	—	—	—	—	—	—	—	—	—
RE33-99-0062	33-01717	0.0–0.5	Sed	—	—	—	—	—	5683R	5682R	—	—	—	—	—	—	—	—	—	—

[a] — = Analysis not requested.

[b] Analytical request number.

Table 2.0-2
Inorganic Chemicals Detected above BVs in Previous Investigations at TA-33 Main Site

Sample ID	Location ID	Depth (ft bgs)	Media	Aluminum	Antimony	Arsenic	Barium	Cadmium	Calcium	Chromium	Cobalt	Copper	Cyanide (Total)	Iron	Lead
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**0.4**	**6120**	**19.3**	**8.64**	**14.7**	**0.5**	**21500**	**22.3**
Qbo BV[a]				**3560**	**0.5**	**0.56**	**25.7**	**0.4**	**1900**	**2.6**	**8.89**	**3.96**	**0.5**	**3700**	**13.5**
Qbt 3 BV[a]				**7340**	**0.5**	**2.79**	**46**	**1.63**	**2200**	**7.14**	**3.14**	**4.66**	**0.5**	**14500**	**11.2**
Sediment BV[a]				**15400**	**0.83**	**3.98**	**127**	**0.4**	**4420**	**10.5**	**4.73**	**11.2**	**0.82**	**13800**	**19.7**
SWMU 33-002(a)															
0333-96-0525	33-01652	1.0–1.5	Soil	—[b]	7.2 (U)	—	—	0.5 (U)	—	—	—	—	NA[c]	—	—
0333-96-0526	33-01652	3.08–4.08	Soil	—	7.5 (U)	—	—	0.52 (U)	—	—	—	—	NA	—	—
0333-96-0527	33-01652	12.5–12.9	Soil	—	7.5 (U)	—	—	0.52 (U)	—	—	—	—	NA	—	—
0333-96-0043	33-01696	2.3–3.0	Soil	—	5.3 (U)	—	—	—	—	—	—	—	NA	—	—
0333-96-0044	33-01696	8.25–8.75	Soil	—	5 (U)	—	—	—	—	—	—	—	NA	—	—
0333-96-0045	33-01696	12.6–13.2	Qbt 3	—	5 (U)	—	—	—	—	—	—	—	NA	—	—
RE33-05-60743	33-24716	0.0–0.5	Qbt 3	—	—	3.29	—	—	13300 (J)	—	—	5.33	—	—	44.5 (J-)
RE33-05-60747	33-24716	2.0–2.5	Qbt 3	—	—	—	—	—	3940 (J)	—	—	—	—	—	—
RE33-05-60745	33-24717	0.0–0.5	Qbt 3	—	—	2.95	—	—	13000 (J)	—	—	—	—	—	—
RE33-05-60749	33-24717	2.0–2.5	Qbt 3	—	—	2.91	—	—	12600 (J)	—	—	—	—	—	—
RE33-05-60744	33-24718	0.0–0.5	Qbt 3	—	—	—	—	—	4280 (J)	—	—	5.04	—	—	—
RE33-05-60748	33-24718	2.0–2.5	Qbt 3	—	—	3.06	—	—	12500 (J)	—	—	5.31	—	—	—
RE33-05-60746	33-24719	0.0–0.5	Qbt 3	—	—	—	79.7 (J-)	—	22200 (J)	—	—	6.83	—	—	—
RE33-05-60750	33-24719	2.0–2.5	Qbt 3	—	—	—	—	—	—	—	—	—	—	—	—
RE33-05-60751	33-24720	0.0–0.5	Qbt 3	—	—	—	46.8 (J-)	—	7670 (J)	—	—	5.22	—	—	—
RE33-05-60752	33-24720	2.0–2.5	Qbt 3	—	—	—	54.4 (J-)	—	8230 (J)	—	—	—	—	—	—
RE33-05-60753	33-24721	0.0–0.5	Qbt 3	12900	—	3.75	147 (J-)	—	17100 (J)	—	—	9.24	—	—	81.1 (J-)
RE33-05-60754	33-24721	2.0–2.5	Qbt 3	13800	—	3.74	156 (J-)	—	14900 (J)	—	—	5.56	—	—	88.8 (J-)
RE33-05-60755	33-24722	0.0–0.5	Qbt 3	13000	—	3.49	101 (J-)	—	8740 (J)	8.05	—	8.44	—	—	—
RE33-05-60756	33-24722	2.0–2.5	Qbt 3	13200	—	3.46	102 (J-)	—	7630 (J)	7.3	—	6.97	—	—	12.6 (J-)
RE33-05-60757	33-24723	0.0–0.5	Qbt 3	14300	—	3.77	112 (J-)	—	6720 (J)	8.22	—	37.3	—	—	—
RE33-05-60758	33-24723	2.0–2.5	Qbt 3	17000	—	4.13	131 (J-)	—	6500 (J)	10.5	—	20.9	—	—	—
RE33-05-60759	33-24724	0.0–0.5	Fill	—	—	—	339 (J)	0.569 (U)	10400 (J)	—	—	—	—	—	—
RE33-05-60760	33-24724	2.0–2.5	Qbt 3	9970 (J+)	—	—	75.4 (J)	—	4590 (J)	—	—	—	—	—	—
RE33-05-60761	33-24725	0.0–0.5	Fill	—	—	—	—	—	10900 (J)	—	—	35.4	—	—	—
RE33-05-60762	33-24725	2.0–2.5	Qbt 3	8630 (J+)	—	—	58.6 (J)	—	2880 (J)	—	—	5.85	—	—	—
RE33-05-60763	33-24726	0.0–0.5	Fill	—	—	—	—	—	8120 (J)	—	—	88	—	—	57.7
RE33-05-60764	33-24726	2.0–2.5	Qbt 3	10900 (J+)	—	3.19	81.9 (J)	—	17100 (J)	10.9	—	37.8	—	—	19.2
RE33-05-63010	33-25097	0.0–0.5	Fill	—	—	—	—	—	—	—	—	—	0.55 (U)	—	—
RE33-05-63011	33-25097	2.0–2.5	Fill	—	—	—	—	—	—	—	—	—	0.52 (U)	—	—
RE33-05-63012	33-25098	0.0–0.5	Fill	—	—	—	—	—	—	—	—	—	0.54 (U)	—	—

Table 2.0-2 (continued)

Sample ID	Location ID	Depth (ft bgs)	Media	Aluminum	Antimony	Arsenic	Barium	Cadmium	Calcium	Chromium	Cobalt	Copper	Cyanide (Total)	Iron	Lead
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**0.4**	**6120**	**19.3**	**8.64**	**14.7**	**0.5**	**21500**	**22.3**
Qbo BV[a]				**3560**	**0.5**	**0.56**	**25.7**	**0.4**	**1900**	**2.6**	**8.89**	**3.96**	**0.5**	**3700**	**13.5**
Qbt 3 BV[a]				**7340**	**0.5**	**2.79**	**46**	**1.63**	**2200**	**7.14**	**3.14**	**4.66**	**0.5**	**14500**	**11.2**
Sediment BV[a]				**15400**	**0.83**	**3.98**	**127**	**0.4**	**4420**	**10.5**	**4.73**	**11.2**	**0.82**	**13800**	**19.7**
RE33-05-63013	33-25098	2.0–2.5	Fill	—	—	—	—	—	—	—	—	21.7	0.54 (U)	—	—
RE33-05-63195	33-25107	0.0–0.5	Fill	—	—	—	—	—	—	30.6	—	66.6 (J-)	0.53 (U)	—	—
RE33-05-63196	33-25107	2.0–2.5	Fill	—	—	—	—	—	—	—	—	—	0.51 (U)	—	—
RE33-05-63197	33-25108	0.0–0.5	Fill	—	—	—	—	—	—	—	—	—	0.53 (U)	—	—
RE33-05-63198	33-25108	2.0–2.5	Fill	—	—	—	—	—	—	—	—	—	0.53 (U)	—	—
RE33-05-63199	33-25109	0.0–0.5	Fill	—	—	—	—	—	—	—	—	—	0.54 (U)	—	—
RE33-05-63200	33-25109	2.0–2.5	Fill	—	—	—	—	—	—	—	—	—	0.53 (U)	—	—
RE33-05-63201	33-25110	0.0–0.5	Fill	—	—	—	—	—	—	—	—	25.4	0.54 (U)	—	—
RE33-05-63202	33-25110	2.0–2.5	Fill	—	—	—	—	—	—	—	—	—	0.53 (U)	—	—
RE33-05-63203	33-25111	0.0–0.5	Fill	—	—	—	—	—	—	—	—	—	0.55 (U)	—	—
RE33-05-63204	33-25111	2.0–2.5	Fill	—	—	—	—	—	—	—	—	—	0.54 (U)	—	—
RE33-05-63205	33-25112	0.0–0.5	Fill	—	—	—	—	—	—	—	—	—	0.55 (U)	—	—
RE33-05-63206	33-25112	2.0–2.5	Fill	—	—	—	—	—	—	—	—	—	0.52 (U)	—	—
RE33-05-63207	33-25113	0.0–0.5	Fill	—	—	—	—	—	—	—	—	22.3	0.57 (U)	—	—
RE33-05-63208	33-25113	2.0–2.5	Fill	—	—	—	—	—	—	—	—	—	0.54 (U)	—	—
RE33-05-63209	33-25114	0.0–0.5	Fill	—	—	—	—	—	—	—	—	—	0.55 (U)	—	—
RE33-05-63210	33-25114	2.0–2.5	Fill	—	—	—	—	—	—	—	—	—	0.53 (UJ)	—	—
RE33-05-63211	33-25115	0.0–0.5	Fill	—	—	—	—	—	—	—	—	—	0.54 (UJ)	—	—
RE33-05-63212	33-25115	2.0–2.5	Fill	—	—	—	—	—	—	—	—	—	0.52 (UJ)	—	—
RE33-05-63213	33-25116	0.0–0.5	Fill	—	—	—	—	—	—	—	—	19.6	0.55 (UJ)	—	—
RE33-05-63214	33-25116	2.0–2.5	Fill	—	—	—	—	—	—	—	—	—	0.55 (UJ)	—	—
RE33-05-63215	33-25117	0.0–0.5	Fill	—	—	—	—	—	—	—	—	—	0.59 (UJ)	—	—
RE33-05-63216	33-25117	2.0–2.5	Fill	—	—	—	—	—	—	—	—	—	0.54 (UJ)	—	—
SWMU 33-002(b)															
0333-96-0070	33-01328	10.0–15.0	Qbt 3	—	4.9 (U)	4.1	66.5	—	27500	—	—	9.2	NA	—	18.6
RE33-05-62977	33-25082	0.0–0.5	Qbt 3	14300	—	2.87	153	—	8090	10.4	3.48	6.42	—	—	—
RE33-05-62978	33-25082	2.0–2.5	Qbt 3	—	—	—	—	—	—	—	—	—	—	—	—
RE33-05-62979	33-25083	0.0–0.5	Qbt 3	13800	—	3.19	118	—	5500	9.36	—	5.51	—	—	—
RE33-05-62980	33-25083	2.0–2.5	Qbt 3	—	—	—	—	—	—	—	—	—	—	—	—
RE33-05-62981	33-25084	0.0–0.5	Qbt 3	14600	—	3.09	119	—	6890	10.5	3.45	6.93	—	—	—
RE33-05-62982	33-25084	2.0–2.5	Qbt 3	7680	—	—	82.7	—	15500	—	—	—	—	—	—
RE33-05-62987	33-25087	10.0–10.5	Qbt 3	—	—	—	51	—	3250 (J+)	—	—	16.8	0.52 (U)	—	—
RE33-05-62988	33-25087	12.0–12.5	Qbt 3	—	—	—	—	—	3990 (J+)	—	—	—	—	—	—

Table 2.0-2 (continued)

Sample ID	Location ID	Depth (ft bgs)	Media	Aluminum	Antimony	Arsenic	Barium	Cadmium	Calcium	Chromium	Cobalt	Copper	Cyanide (Total)	Iron	Lead
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**0.4**	**6120**	**19.3**	**8.64**	**14.7**	**0.5**	**21500**	**22.3**
Qbo BV[a]				**3560**	**0.5**	**0.56**	**25.7**	**0.4**	**1900**	**2.6**	**8.89**	**3.96**	**0.5**	**3700**	**13.5**
Qbt 3 BV[a]				**7340**	**0.5**	**2.79**	**46**	**1.63**	**2200**	**7.14**	**3.14**	**4.66**	**0.5**	**14500**	**11.2**
Sediment BV[a]				**15400**	**0.83**	**3.98**	**127**	**0.4**	**4420**	**10.5**	**4.73**	**11.2**	**0.82**	**13800**	**19.7**
RE33-05-62989	33-25088	10.0–10.5	Qbt 3	—	—	—	48.8	—	7860 (J+)	—	—	5.1	0.52 (U)	—	—
RE33-05-62990	33-25088	12.0–12.5	Qbt 3	—	—	—	67	—	3480 (J+)	—	—	4.8	0.52 (U)	—	—
RE33-05-63000	33-25092	0.0–0.5	Fill	—	—	—	—	—	—	—	—	25.5 (J-)	0.63 (U)	—	—
RE33-05-63001	33-25092	2.0–2.5	Qbt 3	—	—	—	—	—	—	—	—	6.6 (J-)	0.51 (U)	—	—
RE33-05-63002	33-25093	0.0–0.5	Qbt 3	—	—	—	—	—	—	—	—	8.3 (J-)	0.57 (U)	—	—
RE33-05-63003	33-25093	2.0–2.5	Qbt 3	—	—	—	—	—	—	—	—	—	0.51 (U)	—	—
RE33-05-63004	33-25094	0.0–0.5	Qbt 3	—	—	—	48.5	—	—	—	—	33.8 (J-)	0.61 (U)	—	—
RE33-05-63005	33-25094	2.0–2.5	Qbt 3	—	—	—	—	—	2340	—	—	—	0.53 (U)	—	—
RE33-05-63006	33-25095	0.0–0.5	Fill	—	—	—	—	—	—	—	—	—	0.58 (U)	—	—
RE33-05-63007	33-25095	2.0–2.5	Qbt 3	—	—	—	—	—	4520	—	—	5.6 (J-)	0.52 (U)	—	—
RE33-05-63008	33-25096	0.0–0.5	Fill	—	—	—	—	—	—	—	—	—	0.58 (U)	—	—
RE33-05-63009	33-25096	2.0–2.5	Qbt 3	—	—	—	—	—	—	—	—	—	0.52 (U)	—	—
RE33-05-63227	33-25123	0.0–0.5	Qbt 3	—	—	—	—	—	3830 (J-)	—	—	6.3	0.57 (UJ)	—	—
RE33-05-63228	33-25123	2.0–2.5	Qbt 3	—	—	—	—	—	2840	—	—	—	0.53 (U)	—	—
RE33-05-63229	33-25124	0.0–0.5	Qbt 3	—	—	—	—	—	—	—	—	5.2	0.54 (UJ)	—	—
RE33-05-63230	33-25124	2.0–2.5	Qbt 3	—	—	—	—	—	—	—	—	—	0.52 (U)	—	—
RE33-05-63231	33-25125	0.0–0.5	Qbt 3	—	—	—	—	—	—	—	—	—	0.54 (UJ)	—	—
RE33-05-63232	33-25125	2.0–2.5	Qbt 3	—	—	—	—	—	—	—	—	—	0.55 (U)	—	—
SWMU 33-002(c)															
0333-96-0076	33-01697	10.0–12.5	Qbt 3	—	4.9 (U)	—	—	—	—	18	—	—	NA	—	—
RE33-05-60765	33-24727	0.0–0.5	Qbt 3	8860 (J+)	—	—	76.9	—	—	—	—	—	—	—	—
RE33-05-60766	33-24727	2.0–2.5	Qbt 3	8100 (J+)	—	—	63.1	—	—	35.9	—	10.6	—	—	27.6
RE33-05-60767	33-24728	0.0–0.5	Qbt 3	12200 (J+)	—	2.85	96.9	—	3610 (J+)	8.05	—	6.14	—	—	16.4
RE33-05-60768	33-24728	2.0–2.5	Qbt 3	—	—	—	—	—	2900 (J+)	—	—	—	—	—	—
RE33-05-60769	33-24729	0.0–0.5	Qbt 3	12300 (J+)	—	3.03	90	—	4310 (J+)	7.25	—	5.18	—	—	—
RE33-05-60770	33-24729	2.0–2.5	Qbt 3	—	—	—	—	—	2230 (J+)	—	—	—	—	—	—
RE33-05-62983	33-25085	10.0–10.5	Qbt 3	—	—	—	47.5	—	3210 (J+)	—	—	—	0.52 (U)	—	—
RE33-05-62984	33-25085	12.0–12.5	Qbt 3	—	—	—	47.2	—	3490 (J+)	—	—	—	0.52 (U)	—	—
RE33-05-62985	33-25086	10.0–10.5	Qbt 3	—	—	—	53.8	—	4600 (J+)	—	—	—	0.52 (U)	—	—
RE33-05-62986	33-25086	12.0–12.5	Qbt 3	—	—	—	—	—	2840 (J+)	—	—	—	0.52 (U)	—	—
RE33-05-63217	33-25118	0.0–0.5	Qbt 3	—	—	—	57.9	13.1	2690	23.1 (J-)	—	114	0.56 (U)	—	57.5
RE33-05-63218	33-25118	2.0–2.5	Qbt 3	—	—	—	—	—	—	—	—	6.1	0.52 (U)	—	—
RE33-05-63219	33-25119	0.0–0.5	Qbt 3	—	—	—	49.6	—	3170	—	—	—	0.56 (U)	—	—

Table 2.0-2 (continued)

Sample ID	Location ID	Depth (ft bgs)	Media	Aluminum	Antimony	Arsenic	Barium	Cadmium	Calcium	Chromium	Cobalt	Copper	Cyanide (Total)	Iron	Lead
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**0.4**	**6120**	**19.3**	**8.64**	**14.7**	**0.5**	**21500**	**22.3**
Qbo BV[a]				**3560**	**0.5**	**0.56**	**25.7**	**0.4**	**1900**	**2.6**	**8.89**	**3.96**	**0.5**	**3700**	**13.5**
Qbt 3 BV[a]				**7340**	**0.5**	**2.79**	**46**	**1.63**	**2200**	**7.14**	**3.14**	**4.66**	**0.5**	**14500**	**11.2**
Sediment BV[a]				**15400**	**0.83**	**3.98**	**127**	**0.4**	**4420**	**10.5**	**4.73**	**11.2**	**0.82**	**13800**	**19.7**
RE33-05-63220	33-25119	2.0–2.5	Qbt 3	—	—	—	—	—	3300	—	—	—	—	—	—
RE33-05-63221	33-25120	0.0–0.5	Qbt 3	—	—	—	69	—	3840	—	—	—	0.55 (U)	—	—
RE33-05-63222	33-25120	2.0–2.5	Qbt 3	—	—	—	50.2	—	2870	—	—	—	0.51 (U)	—	—
RE33-05-63223	33-25121	0.0–0.5	Qbt 3	—	—	—	60.2	—	5090	—	—	—	0.54 (U)	—	—
RE33-05-63224	33-25121	2.0–2.5	Qbt 3	—	—	—	59.1	—	7400	—	—	—	0.51 (U)	—	—
RE33-05-63225	33-25122	0.0–0.5	Qbt 3	—	—	—	47.2	—	3570	—	—	—	0.82	—	—
RE33-05-63226	33-25122	2.0–2.5	Qbt 3	—	—	—	50.6	—	3320	24.9 (J-)	—	—	—	—	—
SWMU 33-004(a)															
0333-97-0004	XX-33-604072	0.0–0.0	Soil	—	1 (U)	—	—	—	—	—	—	—	NA	—	—
0333-97-0010	XX-33-604072	0.0–0.0	Soil	—	—	—	—	—	—	—	—	—	NA	—	29.1
AOC 33-008(c)															
0333-96-0652	33-01670	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	—	—
0333-96-0653	33-01671	0.0–0.5	Sed	—	2.7 (J-)	4.6 (U)	—	1.9	—	11.9	—	3100	—	—	322
0333-96-0654	33-01671	0.5–0.83	Sed	—	28.2 (J-)	4.7 (U)	—	1.4	—	—	—	1630	—	—	6960
0333-96-0655	33-01672	0.0–0.5	Sed	—	—	4.4 (U)	163	4.2	—	13.7	—	498	—	—	176
0333-96-0656	33-01672	1.0–1.5	Sed	—	4.4 (J-)	6	189	8	—	52.1	8.8 (J)	1320	—	75600	238
0333-96-0657	33-01673	0.0–0.5	Sed	—	2.4 (J-)	—	—	2.7	—	27.5	5.9 (J)	1670	—	54000	205
0333-96-0658	33-01674	0.0–0.5	Sed	—	—	4 (U)	—	2.1	—	—	—	744	—	—	81.7
0333-96-0659	33-01675	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	—	—
0333-96-0673	33-01679	0.0–2.0	Soil	—	5.6 (U)	—	—	0.71 (U)	—	—	—	24.6	—	—	—
0333-96-0674	33-01679	3.0–5.0	Soil	—	5.9 (U)	—	—	0.74 (U)	—	—	—	—	—	—	—
0333-96-0675	33-01679	5.0–7.0	Qbo	6200	5.9 (U)	1.1 (J)	42 (J)	0.75 (U)	—	7.8	—	5 (J)	—	9820	—
0333-96-0677	33-01680	0.0–0.5	Sed	—	17 (J-)	8.5	719	41.6	9120	118	19.2	25200	—	52300	2040
0333-96-0678	33-01680	0.0–2.0	Sed	—	—	4.8	210	20.9 (J-)	—	63.7 (J+)	9 (J)	2920	—	29000	484
0333-96-0679	33-01680	2.0–4.0	Qbo	—	—	1.2 (J)	—	0.75 (J-)	—	27.5 (J+)	—	994	—	—	56.5
0333-96-0681	33-01681	0.5–1.25	Sed	19400	7.9 (J)	14	615	139	6830	297	38.2	10500	—	125000	2350
0333-96-0682	33-01681	5.0–6.0	Soil	—	6.6 (U)	—	—	2.5	—	—	12.2	172	—	24000	75.3
0333-96-0684	33-01682	0.0–1.0	Sed	—	—	—	—	2.4	—	—	—	470	—	—	145
0333-96-0685	33-01682	1.0–2.0	Qbo	—	1.1 (J-)	2.9 (U)	—	1.7	—	79.3	—	1090	—	7390	2860
0333-96-0669	33-01683	0.0–0.5	Sed	—	6.4 (U)	—	—	0.81 (U)	—	11.5	—	38	—	—	54
0333-96-0670	33-01684	0.0–0.5	Fill	—	5.7 (J)	—	—	8.6	—	43.7	11.3	762	—	61300	217
0333-96-0671	33-01685	0.0–0.5	Soil	—	8.1 (J)	—	—	17.6	—	35.6	10.5	6070	—	44900	690

Table 2.0-2 (continued)

Sample ID	Location ID	Depth (ft bgs)	Media	Aluminum	Antimony	Arsenic	Barium	Cadmium	Calcium	Chromium	Cobalt	Copper	Cyanide (Total)	Iron	Lead
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**0.4**	**6120**	**19.3**	**8.64**	**14.7**	**0.5**	**21500**	**22.3**
Qbo BV[a]				**3560**	**0.5**	**0.56**	**25.7**	**0.4**	**1900**	**2.6**	**8.89**	**3.96**	**0.5**	**3700**	**13.5**
Qbt 3 BV[a]				**7340**	**0.5**	**2.79**	**46**	**1.63**	**2200**	**7.14**	**3.14**	**4.66**	**0.5**	**14500**	**11.2**
Sediment BV[a]				**15400**	**0.83**	**3.98**	**127**	**0.4**	**4420**	**10.5**	**4.73**	**11.2**	**0.82**	**13800**	**19.7**
SWMU 33-011(d)															
0333-96-0111	33-01566	0.0–0.5	Fill	—	11 (UJ)	—	—	0.53 (U)	—	—	—	—	NA	—	31
0333-96-0120	33-01566	0.67–1.0	Fill	—	8.3 (U)	—	—	0.73 (U)	—	—	—	—	NA	—	774
0333-96-0112	33-01567	0.0–0.5	Fill	—	11 (UJ)	—	—	0.54 (U)	—	—	—	—	NA	—	300
0333-96-0121	33-01567	0.67–1.0	Fill	—	8.4 (U)	—	—	0.74 (U)	—	—	—	—	NA	—	—
0333-96-0113	33-01568	0.0–0.5	Fill	—	11 (UJ)	—	—	0.54 (U)	—	—	—	—	NA	—	—
0333-96-0122	33-01568	0.67–1.0	Fill	—	8.4 (U)	—	—	0.74 (U)	—	—	—	—	NA	—	—
0333-96-0114	33-01569	0.0–0.5	Fill	—	11 (UJ)	—	—	0.53 (U)	—	—	—	—	NA	—	—
0333-96-0123	33-01569	0.42–0.67	Fill	—	8.5 (U)	—	—	0.75 (U)	7360	—	—	—	NA	—	—
0333-96-0115	33-01571	0.0–0.5	Soil	—	11 (UJ)	—	—	0.54 (U)	—	—	—	—	NA	—	—
0333-96-0124	33-01571	0.5–0.75	Qbo	—	8.5 (U)	—	—	0.75 (U)	—	—	—	—	NA	6360	—
0333-96-0116	33-01572	0.0–0.5	Fill	—	11 (UJ)	—	—	0.54 (U)	—	—	—	—	NA	—	—
0333-96-0125	33-01572	0.5–0.67	Fill	—	7.9 (U)	—	—	0.7 (U)	—	—	—	—	NA	—	—
AOC C-33-003															
RE33-99-0009	33-01708	2.0–2.5	Qbt 3	—	0.75 (U)	—	83.9	—	2310	—	3.2 (J)	18.9	NA	—	12.5
RE33-99-0010	33-01709	0.0–0.5	Fill	—	2 (J-)	—	—	—	—	—	9.5 (J)	18	NA	—	—
RE33-99-0032	33-01709	2.0–2.5	Qbt 3	—	0.74 (U)	—	—	—	—	—	—	5.7	NA	—	—
RE33-99-0011	33-01710	0.0–0.5	Fill	—	0.87 (J-)	—	—	—	—	—	—	—	NA	—	—
RE33-99-0033	33-01710	2.0–2.5	Qbt 3	—	0.74 (U)	—	—	—	—	—	—	5.9	NA	—	—
RE33-99-0012	33-01711	0.0–0.3300	Fill	—	0.93 (J-)	—	—	—	6680	—	9.5 (J)	18.9	NA	—	—
RE33-99-0034	33-01711	2.0–2.5	Qbt 3	—	0.75 (U)	—	58.8	—	—	—	—	8.8	NA	—	13.6
RE33-99-0013	33-01712	0.0–0.5	Fill	—	1.6 (J-)	—	—	—	9300	—	11.9	18.7	NA	—	—
RE33-99-0035	33-01712	2.0–2.5	Qbt 3	—	0.77 (U)	—	—	—	—	—	—	5.5	NA	—	—
RE33-99-0014	33-01713	0.0–0.5	Fill	—	1 (J-)	—	—	—	—	—	—	—	NA	—	—
RE33-99-0036	33-01713	2.0–2.5	Qbt 3	—	0.74 (U)	—	51	—	—	—	—	5.6	NA	—	—
RE33-99-0015	33-01714	0.0–0.5	Fill	—	1.1 (J-)	—	—	—	—	—	—	—	NA	—	—
RE33-99-0037	33-01714	2.0–2.5	Qbt 3	—	0.75 (U)	—	49.9	—	—	—	—	5.6	NA	—	—
RE33-99-0016	33-01715	0.0–0.5	Fill	—	1 (J-)	—	—	—	9230	—	9.4 (J)	15.5	NA	—	—
RE33-99-0038	33-01715	2.0–2.5	Qbt 3	—	0.78 (U)	—	48.1	—	2570	—	—	5 (J)	NA	—	—
RE33-99-0061	33-01716	0.0–0.5	Sed	—	—	—	—	—	—	—	6 (J)	14.9	NA	—	20.9
RE33-99-0062	33-01717	0.0–0.5	Sed	—	1 (J)	—	173	—	5860	—	7 (J)	27.6	NA	—	34.7

Table 2.0-2 (continued)

Sample ID	Location ID	Depth (ft bgs)	Media	Magnesium	Manganese	Mercury	Nickel	Nitrate	Perchlorate	Selenium	Silver	Thallium	Uranium	Vanadium	Zinc
Soil BV[a]				**4610**	**671**	**0.1**	**15.4**	**na[d]**	**na**	**1.52**	**1**	**0.73**	**1.82**	**39.6**	**48.8**
Qbo BV[a]				**739**	**189**	**0.1**	**2**	**na**	**na**	**0.3**	**1**	**1.22**	**0.72**	**4.59**	**40**
Qbt 3 BV[a]				**1690**	**482**	**0.1**	**6.58**	**na**	**na**	**0.3**	**1**	**1.1**	**2.4**	**17**	**63.5**
Sediment BV[a]				**2370**	**543**	**0.1**	**9.38**	**na**	**na**	**0.3**	**1**	**0.73**	**2.22**	**19.7**	**60.2**
SWMU 33-002(a)															
0333-96-0525	33-01652	1.0–1.5	Soil	—	—	—	—	NA	NA	—	1.2 (U)	—	3.6	—	—
0333-96-0526	33-01652	3.08–4.08	Soil	—	—	—	—	NA	NA	—	1.3 (U)	—	4.1	—	—
0333-96-0527	33-01652	12.5–12.9	Soil	—	—	—	—	NA	NA	—	1.3 (U)	—	3.7	—	—
0333-96-0043	33-01696	2.3–3.0	Soil	—	—	—	—	NA	NA	—	—	—	3.9	—	—
0333-96-0044	33-01696	8.25–8.75	Soil	—	—	—	—	NA	NA	—	—	—	3.8	—	—
0333-96-0045	33-01696	12.6–13.2	Qbt 3	—	—	—	—	NA	NA	0.33 (J)	—	—	3.6	—	—
RE33-05-60743	33-24716	0.0–0.5	Qbt 3	—	—	—	—	2.05	—	1.65 (U)	—	—	NA	—	—
RE33-05-60747	33-24716	2.0–2.5	Qbt 3	—	—	—	—	—	—	1.68 (U)	—	—	NA	—	—
RE33-05-60745	33-24717	0.0–0.5	Qbt 3	—	—	—	—	—	—	1.66 (U)	—	—	NA	—	—
RE33-05-60749	33-24717	2.0–2.5	Qbt 3	—	—	—	—	1.02 (J)	—	1.67 (U)	—	—	NA	—	—
RE33-05-60744	33-24718	0.0–0.5	Qbt 3	—	—	—	—	—	0.00083 (J)	1.65 (U)	—	—	NA	—	—
RE33-05-60748	33-24718	2.0–2.5	Qbt 3	—	—	—	—	—	—	1.68 (U)	1.51	—	NA	—	—
RE33-05-60746	33-24719	0.0–0.5	Qbt 3	—	—	—	—	—	—	1.56 (U)	—	—	NA	—	—
RE33-05-60750	33-24719	2.0–2.5	Qbt 3	—	—	—	—	—	—	1.69 (U)	—	—	NA	—	—
RE33-05-60751	33-24720	0.0–0.5	Qbt 3	—	—	—	—	—	—	1.61 (U)	—	—	NA	—	—
RE33-05-60752	33-24720	2.0–2.5	Qbt 3	—	—	—	—	—	—	1.64 (U)	—	—	NA	—	—
RE33-05-60753	33-24721	0.0–0.5	Qbt 3	2690 (J-)	—	—	—	5.18	—	1.76 (U)	—	—	NA	—	—
RE33-05-60754	33-24721	2.0–2.5	Qbt 3	2670 (J-)	—	—	—	4.75	—	1.76 (U)	—	—	NA	—	—
RE33-05-60755	33-24722	0.0–0.5	Qbt 3	2170 (J-)	—	0.47	6.91	2.12	—	1.7 (U)	—	—	NA	—	64.7
RE33-05-60756	33-24722	2.0–2.5	Qbt 3	2150 (J-)	—	0.187	8.83	1.51	—	1.66 (U)	—	—	NA	—	—
RE33-05-60757	33-24723	0.0–0.5	Qbt 3	2480 (J-)	—	0.235	—	1.12 (J)	—	1.77 (U)	—	—	NA	—	—
RE33-05-60758	33-24723	2.0–2.5	Qbt 3	2950 (J-)	—	0.182	—	1.9	—	1.73 (U)	5.49	—	NA	19.3 (J)	—
RE33-05-60759	33-24724	0.0–0.5	Fill	—	—	—	—	—	0.00177 (J)	1.71 (U)	—	—	NA	—	—
RE33-05-60760	33-24724	2.0–2.5	Qbt 3	1930	—	—	—	—	—	0.823 (J)	—	—	NA	—	—
RE33-05-60761	33-24725	0.0–0.5	Fill	—	—	0.161	—	—	—	—	—	—	NA	—	70.9
RE33-05-60762	33-24725	2.0–2.5	Qbt 3	—	—	—	—	—	—	1.61 (U)	—	—	NA	—	—
RE33-05-60763	33-24726	0.0–0.5	Fill	—	—	0.361	—	0.964 (J)	—	—	—	—	NA	—	176
RE33-05-60764	33-24726	2.0–2.5	Qbt 3	1920	—	0.193	7.27 (J-)	0.976 (J)	—	1.24 (J)	—	—	NA	18.2	99.2
RE33-05-63010	33-25097	0.0–0.5	Fill	—	—	—	—	1.1	0.00016 (J)	—	—	—	NA	—	—
RE33-05-63011	33-25097	2.0–2.5	Fill	—	—	—	—	0.62	0.0006 (J)	—	—	—	NA	—	—
RE33-05-63012	33-25098	0.0–0.5	Fill	—	—	—	—	2	—	—	—	—	NA	—	50.1

Table 2.0-2 (continued)

Sample ID	Location ID	Depth (ft bgs)	Media	Magnesium	Manganese	Mercury	Nickel	Nitrate	Perchlorate	Selenium	Silver	Thallium	Uranium	Vanadium	Zinc
Soil BV[a]				**4610**	**671**	**0.1**	**15.4**	**na[d]**	**na**	**1.52**	**1**	**0.73**	**1.82**	**39.6**	**48.8**
Qbo BV[a]				**739**	**189**	**0.1**	**2**	**na**	**na**	**0.3**	**1**	**1.22**	**0.72**	**4.59**	**40**
Qbt 3 BV[a]				**1690**	**482**	**0.1**	**6.58**	**na**	**na**	**0.3**	**1**	**1.1**	**2.4**	**17**	**63.5**
Sediment BV[a]				**2370**	**543**	**0.1**	**9.38**	**na**	**na**	**0.3**	**1**	**0.73**	**2.22**	**19.7**	**60.2**
RE33-05-63013	33-25098	2.0–2.5	Fill	—	—	0.21	—	0.79	0.00038 (J)	—	—	—	NA	—	—
RE33-05-63195	33-25107	0.0–0.5	Fill	—	—	0.65	—	5.5	—	—	—	—	NA	—	83
RE33-05-63196	33-25107	2.0–2.5	Fill	—	—	—	—	0.54	0.0003 (J)	—	—	—	NA	—	—
RE33-05-63197	33-25108	0.0–0.5	Fill	—	—	—	—	3.4	—	—	—	—	NA	—	—
RE33-05-63198	33-25108	2.0–2.5	Fill	—	—	—	—	0.56	0.0004 (J)	—	—	—	NA	—	—
RE33-05-63199	33-25109	0.0–0.5	Fill	—	—	—	—	1.7	—	—	—	—	NA	—	—
RE33-05-63200	33-25109	2.0–2.5	Fill	—	—	—	—	0.92	0.00065 (J)	—	—	—	NA	—	—
RE33-05-63201	33-25110	0.0–0.5	Fill	—	—	0.15	—	2.8	—	—	—	—	NA	—	67.8
RE33-05-63202	33-25110	2.0–2.5	Fill	—	—	—	—	1.9	0.00036 (J)	—	—	—	NA	—	—
RE33-05-63203	33-25111	0.0–0.5	Fill	—	—	—	—	0.74	—	—	—	—	NA	—	—
RE33-05-63204	33-25111	2.0–2.5	Fill	—	—	—	—	0.53	0.00027 (J)	—	—	—	NA	—	—
RE33-05-63205	33-25112	0.0–0.5	Fill	—	—	—	—	1.6	0.00036 (J)	—	—	—	NA	—	—
RE33-05-63206	33-25112	2.0–2.5	Fill	—	—	—	—	1.6	0.00025 (J)	—	—	—	NA	—	—
RE33-05-63207	33-25113	0.0–0.5	Fill	—	—	0.13	—	2.2	0.00017 (J)	—	—	—	NA	—	—
RE33-05-63208	33-25113	2.0–2.5	Fill	—	—	—	—	0.87	0.00037 (J)	—	—	—	NA	—	—
RE33-05-63209	33-25114	0.0–0.5	Fill	—	—	—	—	0.51	0.00027 (J)	—	—	—	NA	—	—
RE33-05-63210	33-25114	2.0–2.5	Fill	—	—	—	—	0.68	0.00016 (J)	—	—	—	NA	—	—
RE33-05-63211	33-25115	0.0–0.5	Fill	—	—	—	—	0.34	0.00029 (J)	—	—	—	NA	—	—
RE33-05-63212	33-25115	2.0–2.5	Fill	—	—	—	—	0.88	0.00034 (J)	—	—	—	NA	—	—
RE33-05-63213	33-25116	0.0–0.5	Fill	—	—	0.13	—	0.92	—	—	—	—	NA	—	—
RE33-05-63214	33-25116	2.0–2.5	Fill	—	—	—	—	0.42	0.00017 (J)	—	—	—	NA	—	—
RE33-05-63215	33-25117	0.0–0.5	Fill	—	—	—	—	0.12 (J+)	—	—	—	—	NA	—	—
RE33-05-63216	33-25117	2.0–2.5	Fill	—	—	—	—	1.2 (J+)	0.00022 (J)	—	—	—	NA	—	—
SWMU 33-002(b)															
0333-96-0070	33-01328	10.0–15.0	Qbt 3	—	—	NA	—	NA	NA	1.6	—	—	4.2	—	—
RE33-05-62977	33-25082	0.0–0.5	Qbt 3	3140	—	—	9.23	2.27	—	1.57 (U)	—	—	NA	18.6	—
RE33-05-62978	33-25082	2.0–2.5	Qbt 3	—	—	—	—	1.13	—	1.51 (U)	—	—	NA	—	—
RE33-05-62979	33-25083	0.0–0.5	Qbt 3	2590	—	—	7.57	1.36	0.00323	1.52 (U)	—	—	NA	—	—
RE33-05-62980	33-25083	2.0–2.5	Qbt 3	—	—	—	—	1.45	—	1.55 (U)	—	—	NA	—	—
RE33-05-62981	33-25084	0.0–0.5	Qbt 3	2590	—	0.837	7.87	1.78	0.00116 (J)	1.51 (U)	—	—	NA	17.1	—
RE33-05-62982	33-25084	2.0–2.5	Qbt 3	1880	—	—	—	0.776 (J)	0.000919 (J)	1.53 (U)	—	—	NA	—	—
RE33-05-62987	33-25087	10.0–10.5	Qbt 3	—	—	0.34	—	—	0.00059 (J)	—	—	—	NA	—	—

Table 2.0-2 (continued)

Sample ID	Location ID	Depth (ft bgs)	Media	Magnesium	Manganese	Mercury	Nickel	Nitrate	Perchlorate	Selenium	Silver	Thallium	Uranium	Vanadium	Zinc
Soil BV[a]				**4610**	**671**	**0.1**	**15.4**	**na[d]**	**na**	**1.52**	**1**	**0.73**	**1.82**	**39.6**	**48.8**
Qbo BV[a]				**739**	**189**	**0.1**	**2**	**na**	**na**	**0.3**	**1**	**1.22**	**0.72**	**4.59**	**40**
Qbt 3 BV[a]				**1690**	**482**	**0.1**	**6.58**	**na**	**na**	**0.3**	**1**	**1.1**	**2.4**	**17**	**63.5**
Sediment BV[a]				**2370**	**543**	**0.1**	**9.38**	**na**	**na**	**0.3**	**1**	**0.73**	**2.22**	**19.7**	**60.2**
RE33-05-62988	33-25087	12.0–12.5	Qbt 3	—	—	0.19	—	—	—	—	—	—	NA	—	—
RE33-05-62989	33-25088	10.0–10.5	Qbt 3	—	—	0.21	—	—	0.00056 (J)	—	—	—	NA	—	—
RE33-05-62990	33-25088	12.0–12.5	Qbt 3	—	—	0.28	—	—	0.00084 (J)	—	—	—	NA	—	—
RE33-05-63000	33-25092	0.0–0.5	Fill	—	—	—	—	8.4	0.00039 (J)	—	—	—	NA	—	—
RE33-05-63001	33-25092	2.0–2.5	Qbt 3	—	—	—	—	1.2	0.00051 (J)	0.66	—	—	NA	—	—
RE33-05-63002	33-25093	0.0–0.5	Qbt 3	—	—	—	—	2.6	0.00026 (J)	0.75	—	—	NA	—	—
RE33-05-63003	33-25093	2.0–2.5	Qbt 3	—	—	—	—	0.88	—	0.4 (U)	—	—	NA	—	—
RE33-05-63004	33-25094	0.0–0.5	Qbt 3	—	—	—	—	2.6	0.00064 (J)	0.6 (U)	—	—	NA	—	—
RE33-05-63005	33-25094	2.0–2.5	Qbt 3	—	—	—	—	1.7	0.0002 (J)	—	—	—	NA	—	—
RE33-05-63006	33-25095	0.0–0.5	Fill	—	—	0.11	—	1.6	0.00031 (J)	—	—	—	NA	—	—
RE33-05-63007	33-25095	2.0–2.5	Qbt 3	—	—	—	—	1.3	0.00028 (J)	—	—	—	NA	—	—
RE33-05-63008	33-25096	0.0–0.5	Fill	—	—	—	—	1	0.00021 (J)	—	—	—	NA	—	—
RE33-05-63009	33-25096	2.0–2.5	Qbt 3	—	—	—	—	0.66	—	—	—	—	NA	—	—
RE33-05-63227	33-25123	0.0–0.5	Qbt 3	—	—	0.24	—	0.26	—	—	—	—	NA	—	—
RE33-05-63228	33-25123	2.0–2.5	Qbt 3	—	—	—	—	1.9	0.00067 (J)	—	—	—	NA	—	—
RE33-05-63229	33-25124	0.0–0.5	Qbt 3	—	—	—	—	—	—	—	—	—	NA	—	—
RE33-05-63230	33-25124	2.0–2.5	Qbt 3	—	—	—	—	—	0.00046 (J)	—	—	—	NA	—	—
RE33-05-63231	33-25125	0.0–0.5	Qbt 3	—	—	—	—	—	—	—	—	—	NA	—	—
RE33-05-63232	33-25125	2.0–2.5	Qbt 3	—	—	—	—	—	0.00041 (J)	0.33	—	—	NA	—	—
SWMU 33-002(c)															
0333-96-0076	33-01697	10.0–12.5	Qbt 3	—	—	—	—	NA	NA	—	—	—	NA	—	—
RE33-05-60765	33-24727	0.0–0.5	Qbt 3	—	—	0.198 (J)	—	—	0.00498	1.02 (J)	—	—	NA	—	—
RE33-05-60766	33-24727	2.0–2.5	Qbt 3	—	—	0.776 (J)	—	—	0.00192 (J)	1.52 (U)	—	—	NA	—	—
RE33-05-60767	33-24728	0.0–0.5	Qbt 3	1950 (J+)	—	15.2 (J)	6.85	20.2	—	1.74 (U)	—	—	NA	—	287
RE33-05-60768	33-24728	2.0–2.5	Qbt 3	—	—	0.205 (J)	—	0.967 (J)	—	0.681 (J)	—	—	NA	—	—
RE33-05-60769	33-24729	0.0–0.5	Qbt 3	2260 (J+)	—	—	—	—	—	1.75 (U)	—	—	NA	—	—
RE33-05-60770	33-24729	2.0–2.5	Qbt 3	—	—	—	—	—	—	0.884 (J)	—	—	NA	—	—
RE33-05-62983	33-25085	10.0–10.5	Qbt 3	—	—	0.11	—	—	0.0012	—	—	—	NA	—	—
RE33-05-62984	33-25085	12.0–12.5	Qbt 3	—	—	—	—	—	0.0013	—	—	—	NA	—	—
RE33-05-62985	33-25086	10.0–10.5	Qbt 3	—	—	0.23	—	—	0.00091 (J)	—	—	—	NA	—	—
RE33-05-62986	33-25086	12.0–12.5	Qbt 3	—	—	0.17	—	—	0.00078 (J)	—	—	—	NA	—	—
RE33-05-63217	33-25118	0.0–0.5	Qbt 3	—	—	5.2	7.1	0.79	—	—	3.9	—	NA	—	199

Table 2.0-2 (continued)

Sample ID	Location ID	Depth (ft bgs)	Media	Magnesium	Manganese	Mercury	Nickel	Nitrate	Perchlorate	Selenium	Silver	Thallium	Uranium	Vanadium	Zinc
Soil BV[a]				**4610**	**671**	**0.1**	**15.4**	**na[d]**	**na**	**1.52**	**1**	**0.73**	**1.82**	**39.6**	**48.8**
Qbo BV[a]				**739**	**189**	**0.1**	**2**	**na**	**na**	**0.3**	**1**	**1.22**	**0.72**	**4.59**	**40**
Qbt 3 BV[a]				**1690**	**482**	**0.1**	**6.58**	**na**	**na**	**0.3**	**1**	**1.1**	**2.4**	**17**	**63.5**
Sediment BV[a]				**2370**	**543**	**0.1**	**9.38**	**na**	**na**	**0.3**	**1**	**0.73**	**2.22**	**19.7**	**60.2**
RE33-05-63218	33-25118	2.0–2.5	Qbt 3	—	—	0.57	—	0.34	—	0.49	—	—	NA	—	—
RE33-05-63219	33-25119	0.0–0.5	Qbt 3	—	—	0.11	—	—	0.0025 (J)	—	—	—	NA	—	—
RE33-05-63220	33-25119	2.0–2.5	Qbt 3	—	—	—	—	—	0.002 (J)	0.46	—	—	NA	—	—
RE33-05-63221	33-25120	0.0–0.5	Qbt 3	—	—	0.26	—	6.7	—	0.56	—	—	NA	—	—
RE33-05-63222	33-25120	2.0–2.5	Qbt 3	—	—	—	—	—	—	0.42	—	—	NA	—	—
RE33-05-63223	33-25121	0.0–0.5	Qbt 3	—	—	—	—	0.55	—	—	—	—	NA	—	—
RE33-05-63224	33-25121	2.0–2.5	Qbt 3	—	—	—	—	—	—	—	—	—	NA	—	—
RE33-05-63225	33-25122	0.0–0.5	Qbt 3	—	—	0.16	—	0.66	—	0.81	—	—	NA	—	—
RE33-05-63226	33-25122	2.0–2.5	Qbt 3	—	—	—	—	0.17 (J)	0.0022 (J)	0.63	—	—	NA	—	—
SWMU 33-004(a)															
0333-97-0004	XX-33-604072	0.0–0.0	Soil	—	—	—	—	NA	NA	—	—	—	20.7 (U)	—	55.3
0333-97-0010	XX-33-604072	0.0–0.0	Soil	—	—	—	—	NA	NA	—	—	—	12.8 (U)	—	84.7
AOC 33-008(c)															
0333-96-0652	33-01670	0.0–0.5	Soil	—	—	—	—	NA	NA	—	—	0.81 (U)	2.6	—	—
0333-96-0653	33-01671	0.0–0.5	Sed	—	—	0.59	20.9	NA	NA	0.9 (U)	11.2	0.86 (U)	6.2	—	351
0333-96-0654	33-01671	0.5–0.83	Sed	—	—	1.8	13.8	NA	NA	0.43 (U)	6.5	0.82 (U)	5.08	—	288
0333-96-0655	33-01672	0.0–0.5	Sed	—	—	3.2	24.2	NA	NA	1.1 (U)	15.8	0.89 (U)	9.2	—	721
0333-96-0656	33-01672	1.0–1.5	Sed	—	—	3.9	92	NA	NA	2.3 (U)	11.1	1.7 (U)	12.4	—	1310
0333-96-0657	33-01673	0.0–0.5	Sed	—	—	5.6	31	NA	NA	1.3 (U)	2.7	1.6 (U)	10.7	—	607
0333-96-0658	33-01674	0.0–0.5	Sed	—	855	1.9	—	NA	NA	0.69 (U)	2.1 (J)	2.2 (J)	4.53	—	1090
0333-96-0659	33-01675	0.0–0.5	Soil	—	—	—	—	NA	NA	—	—	0.76 (U)	2.79	—	—
0333-96-0673	33-01679	0.0–2.0	Soil	—	—	—	—	NA	NA	—	—	—	3.22	—	114
0333-96-0674	33-01679	3.0–5.0	Soil	—	—	—	—	NA	NA	—	—	—	2.3	—	—
0333-96-0675	33-01679	5.0–7.0	Qbo	1500	—	—	6.5 (U)	NA	NA	0.39 (U)	—	—	1.69	7.2 (J)	41
0333-96-0677	33-01680	0.0–0.5	Sed	—	888	15.3	232	NA	NA	3.6	42.1	1.8 (J)	134	—	9440
0333-96-0678	33-01680	0.0–2.0	Sed	—	837	272	78.9 (J+)	NA	NA	0.44 (U)	14.5 (J-)	—	19.5	—	2230
0333-96-0679	33-01680	2.0–4.0	Qbo	—	—	3.7	4 (J)	NA	NA	0.41 (U)	—	—	2.62	—	453
0333-96-0681	33-01681	0.5–1.25	Sed	—	8310	11.7	1820	NA	NA	0.4 (U)	31.9	—	117	29.9	12700
0333-96-0682	33-01681	5.0–6.0	Soil	—	1050	0.47	23.2	NA	NA	—	—	—	6.92	—	510
0333-96-0684	33-01682	0.0–1.0	Sed	—	—	1.7 (J+)	12.6	NA	NA	0.44 (U)	12.7	0.84 (U)	5.95	—	326
0333-96-0685	33-01682	1.0–2.0	Qbo	—	—	1.8 (J+)	48.6	NA	NA	0.43 (U)	1.4 (J)	—	2.76	8.6 (J)	329
0333-96-0669	33-01683	0.0–0.5	Sed	—	—	0.43	—	NA	NA	0.44 (U)	9.6	—	4.11	28	210

Table 2.0-2 (continued)

Sample ID	Location ID	Depth (ft bgs)	Media	Magnesium	Manganese	Mercury	Nickel	Nitrate	Perchlorate	Selenium	Silver	Thallium	Uranium	Vanadium	Zinc
Soil BV[a]				**4610**	**671**	**0.1**	**15.4**	**na[d]**	**na**	**1.52**	**1**	**0.73**	**1.82**	**39.6**	**48.8**
Qbo BV[a]				**739**	**189**	**0.1**	**2**	**na**	**na**	**0.3**	**1**	**1.22**	**0.72**	**4.59**	**40**
Qbt 3 BV[a]				**1690**	**482**	**0.1**	**6.58**	**na**	**na**	**0.3**	**1**	**1.1**	**2.4**	**17**	**63.5**
Sediment BV[a]				**2370**	**543**	**0.1**	**9.38**	**na**	**na**	**0.3**	**1**	**0.73**	**2.22**	**19.7**	**60.2**
0333-96-0670	33-01684	0.0–0.5	Fill	—	737	0.5	60.7	NA	NA	—	1.9 (J)	—	4.61	—	948
0333-96-0671	33-01685	0.0–0.5	Soil	—	842	22.9	62.8	NA	NA	—	12.7	—	44	—	1780
SWMU 33-011(d)															
0333-96-0111	33-01566	0.0–0.5	Fill	—	—	0.11 (U)	—	NA	NA	—	2.1 (U)	1.3 (U)	—	—	—
0333-96-0120	33-01566	0.67–1.0	Fill	—	—	—	—	NA	NA	—	1.5 (U)	—	—	—	94.2
0333-96-0112	33-01567	0.0–0.5	Fill	—	—	0.11 (U)	—	NA	NA	—	2.2 (U)	1.4 (U)	—	—	78 (J+)
0333-96-0121	33-01567	0.67–1.0	Fill	—	—	—	—	NA	NA	—	1.5 (U)	—	—	—	—
0333-96-0113	33-01568	0.0–0.5	Fill	—	—	0.11 (U)	—	NA	NA	—	2.2 (U)	1.3 (U)	—	—	—
0333-96-0122	33-01568	0.67–1.0	Fill	—	—	—	—	NA	NA	—	1.5 (U)	—	—	—	—
0333-96-0114	33-01569	0.0–0.5	Fill	—	—	0.11 (U)	—	NA	NA	—	2.1 (U)	1.3 (U)	—	—	—
0333-96-0123	33-01569	0.42–0.67	Fill	—	—	—	—	NA	NA	—	1.5 (U)	—	—	—	—
0333-96-0115	33-01571	0.0–0.5	Soil	—	—	0.11 (U)	—	NA	NA	—	2.2 (U)	1.4 (U)	—	—	—
0333-96-0124	33-01571	0.5–0.75	Qbo	—	—	2	2.8 (U)	NA	NA	—	1.5 (U)	—	0.77	5.1 (J)	—
0333-96-0116	33-01572	0.0–0.5	Fill	—	—	0.11 (U)	—	NA	NA	—	2.2 (U)	1.4 (U)	—	—	—
0333-96-0125	33-01572	0.5–0.67	Fill	—	—	0.77	—	NA	NA	—	1.4 (U)	—	—	—	—
AOC C-33-003															
RE33-99-0009	33-01708	2.0–2.5	Qbt 3	—	—	—	—	NA	NA	0.8 (J)	—	—	—	—	—
RE33-99-0010	33-01709	0.0–0.5	Fill	6860	—	—	36.8	NA	NA	—	—	—	—	—	—
RE33-99-0032	33-01709	2.0–2.5	Qbt 3	—	—	—	—	NA	NA	0.45 (U)	—	—	—	—	—
RE33-99-0011	33-01710	0.0–0.5	Fill	—	—	—	—	NA	NA	4.9	—	—	—	—	—
RE33-99-0033	33-01710	2.0–2.5	Qbt 3	—	—	—	—	NA	NA	0.46 (U)	—	—	—	—	—
RE33-99-0012	33-01711	0.0–0.3300	Fill	6850	—	—	44.5	NA	NA	—	—	—	—	—	—
RE33-99-0034	33-01711	2.0–2.5	Qbt 3	—	—	—	—	NA	NA	0.46 (U)	—	—	—	—	—
RE33-99-0013	33-01712	0.0–0.5	Fill	10500	—	—	43.6	NA	NA	—	—	—	—	—	—
RE33-99-0035	33-01712	2.0–2.5	Qbt 3	—	—	—	—	NA	NA	0.47 (U)	—	—	—	—	—
RE33-99-0014	33-01713	0.0–0.5	Fill	4760	—	—	24.8	NA	NA	—	—	—	—	—	—
RE33-99-0036	33-01713	2.0–2.5	Qbt 3	—	—	—	—	NA	NA	0.45 (U)	—	—	—	—	—
RE33-99-0015	33-01714	0.0–0.5	Fill	5030	—	—	21.9	NA	NA	—	—	—	—	—	—
RE33-99-0037	33-01714	2.0–2.5	Qbt 3	—	—	—	—	NA	NA	0.46 (U)	—	—	—	—	—
RE33-99-0016	33-01715	0.0–0.5	Fill	7810	—	—	32.1	NA	NA	—	—	—	—	—	—
RE33-99-0038	33-01715	2.0–2.5	Qbt 3	—	—	—	—	NA	NA	0.62 (J)	—	—	—	—	—
RE33-99-0061	33-01716	0.0–0.5	Sed	3470	—	—	18.9	NA	NA	1.1	—	—	—	—	—

Table 2.0-2 (continued)

Sample ID	Location ID	Depth (ft bgs)	Media	Magnesium	Manganese	Mercury	Nickel	Nitrate	Perchlorate	Selenium	Silver	Thallium	Uranium	Vanadium	Zinc
Soil BV[a]				**4610**	**671**	**0.1**	**15.4**	**na**[d]	**na**	**1.52**	**1**	**0.73**	**1.82**	**39.6**	**48.8**
Qbo BV[a]				**739**	**189**	**0.1**	**2**	**na**	**na**	**0.3**	**1**	**1.22**	**0.72**	**4.59**	**40**
Qbt 3 BV[a]				**1690**	**482**	**0.1**	**6.58**	**na**	**na**	**0.3**	**1**	**1.1**	**2.4**	**17**	**63.5**
Sediment BV[a]				**2370**	**543**	**0.1**	**9.38**	**na**	**na**	**0.3**	**1**	**0.73**	**2.22**	**19.7**	**60.2**
RE33-99-0062	33-01717	0.0–0.5	Sed	4160	—	—	28.9	NA	NA	1.8	—	—	—	—	—

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

[a] BVs from LANL 1998, 059730.

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

[c] NA = Not analyzed.

[d] na = Not available.

Table 2.0-3
Organic Chemicals Detected in Previous Investigations at TA-33 Main Site

Sample ID	Location ID	Depth (ft)	Media	Acenaphthene	Acenaphthylene	Acetone	Anthracene	Aroclor-1242	Aroclor-1254	Aroclor-1260	Azobenzene	Benzene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Benzoic Acid	Bis(2-ethylhexyl)phthalate
SWMU 33-002(a)																			
0333-96-0525	33-01652	1.0–1.5	Soil	—[a]	—	—	—	NA[b]	NA	NA	—	—	—	—	—	—	—	—	—
0333-96-0526	33-01652	3.08–4.08	Soil	—	—	—	—	NA	NA	NA	—	—	—	—	—	—	—	—	—
0333-96-0043	33-01696	2.33–3.0	Soil	—	—	—	—	NA	NA	NA	—	—	—	—	—	—	—	—	—
0333-96-0044	33-01696	8.25–8.75	Soil	—	—	0.019 (J)	—	NA	NA	NA	—	—	—	—	—	—	—	—	—
RE33-05-60743	33-24716	0.0–0.5	Qbt 3	0.0325 (J)	—	—	0.078	—	—	—	—	—	—	0.264	0.37	0.231	—	—	0.179 (J)
RE33-05-60747	33-24716	2.0–2.5	Qbt 3	0.0197 (J)	—	—	0.0355 (J)	0.0182 (J)	—	—	—	—	—	0.19	0.247	0.172	—	—	0.196 (J)
RE33-05-60745	33-24717	0.0–0.5	Qbt 3	0.0545 (J)	—	—	0.12 (J)	—	0.0045 (J-)	—	—	—	—	0.633	0.783	0.615	—	—	0.677 (J)
RE33-05-60749	33-24717	2.0–2.5	Qbt 3	0.0842	—	—	0.176	—	—	—	—	—	0.303	0.345	0.534	0.272	—	—	0.208 (J)
RE33-05-60744	33-24718	0.0–0.5	Qbt 3	0.104	0.0131 (J)	—	0.221	—	0.0177 (J)	—	—	—	0.48	0.525	0.807	0.347	—	—	0.194 (J)
RE33-05-60748	33-24718	2.0–2.5	Qbt 3	0.304 (J)	—	—	0.537	—	0.0768	—	—	—	1.35	2.21	3	1.96	—	—	1.52 (J)
RE33-05-60746	33-24719	0.0–0.5	Qbt 3	0.528	0.0371	—	1.09	0.0583 (J)	0.0404 (J)	—	—	—	1.59	1.38	2.35	0.69	—	—	0.184 (J)
RE33-05-60750	33-24719	2.0–2.5	Qbt 3	—	—	—	0.155 (J)	—	—	—	—	—	—	1.28	1.47	—	—	—	1.54 (J)
RE33-05-60751	33-24720	0.0–0.5	Qbt 3	0.42	—	—	0.854	—	—	—	—	—	—	1.68	2.3	1.32	—	—	0.677 (J)
RE33-05-60752	33-24720	2.0–2.5	Qbt 3	0.0892 (J)	—	—	0.201	—	—	—	—	—	—	0.72	0.952	0.645	—	—	0.677 (J)
RE33-05-60753	33-24721	0.0–0.5	Qbt 3	0.236	—	—	0.417	—	—	0.0589	—	—	0.715	0.976	1.37	0.851	—	—	0.678 (J)
RE33-05-60754	33-24721	2.0–2.5	Qbt 3	0.0842	—	—	0.198	—	—	—	—	—	0.348	0.386	0.566	0.286	—	—	0.44
RE33-05-60755	33-24722	0.0–0.5	Qbt 3	0.106 (J)	—	—	0.199	—	—	—	—	—	—	0.741	0.956	0.729	—	—	0.658 (J)
RE33-05-60756	33-24722	2.0–2.5	Qbt 3	0.159	—	—	0.317	0.0693	0.0324 (J)	0.0206 (J)	—	—	—	0.909	1.26	0.779	—	—	0.708 (J)
RE33-05-60757	33-24723	0.0–0.5	Qbt 3	0.0524 (J-)	—	—	0.112 (J-)	—	0.0078 (J-)	0.0037 (J)	—	—	0.183 (J-)	0.267 (J-)	0.352 (J-)	—	—	—	0.182 (J-)
RE33-05-60758	33-24723	2.0–2.5	Qbt 3	0.0342 (J)	—	—	0.089	—	0.0064	0.0035 (J)	—	—	0.162	0.228	0.314	0.199	—	—	0.173 (J)
RE33-05-60759	33-24724	0.0–0.5	Fill	0.0804	—	—	0.123	—	0.0987 (J)	0.0384 (J)	—	—	—	0.247	0.438	0.158	—	—	—
RE33-05-60760	33-24724	2.0–2.5	Qbt 3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE33-05-60761	33-24725	0.0–0.5	Fill	0.0395 (J)	—	0.04	0.0954	—	—	—	—	—	—	0.201	0.367	0.135	—	—	—
RE33-05-60762	33-24725	2.0–2.5	Qbt 3	—	—	0.0064	—	—	—	—	—	—	—	—	—	—	—	—	—
RE33-05-60763	33-24726	0.0–0.5	Fill	—	—	0.0519	—	—	0.124 (J)	—	—	—	—	—	—	—	—	—	0.728
RE33-05-60764	33-24726	2.0–2.5	Qbt 3	0.0437	—	0.016	—	—	—	—	—	—	—	—	—	—	—	—	0.11 (J)
RE33-05-63011	33-25097	2.0–2.5	Fill	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE33-05-63012	33-25098	0.0–0.5	Fill	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE33-05-63013	33-25098	2.0–2.5	Fill	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE33-05-63195	33-25107	0.0–0.5	Fill	—	—	—	—	—	0.17 (J+)	—	—	—	—	—	—	—	—	—	0.15 (J)
RE33-05-63196	33-25107	2.0–2.5	Fill	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Table 2.0-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Acenaphthene	Acenaphthylene	Acetone	Anthracene	Aroclor-1242	Aroclor-1254	Aroclor-1260	Azobenzene	Benzene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Benzoic Acid	Bis(2-ethylhexyl)phthalate
RE33-05-63201	33-25110	0.0–0.5	Fill	—	—	—	—	—	0.055	—	—	—	—	—	—	—	—	—	—
RE33-05-63205	33-25112	0.0–0.5	Fill	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE33-05-63207	33-25113	0.0–0.5	Fill	—	—	—	—	—	0.055	—	—	—	—	—	—	—	—	—	—
RE33-05-63211	33-25115	0.0–0.5	Fill	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.31 (J)
RE33-05-63213	33-25116	0.0–0.5	Fill	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
SWMU 33-002(b)																			
RE33-05-61273	33-24806	5.0–7.0	Fill	NA	NA	—	NA	NA	NA	NA	—	—	NA	NA	NA	NA	NA	NA	NA
RE33-05-62977	33-25082	0.0–0.5	Qbt 3	—	—	0.0102	—	—	—	—	—	—	—	0.00035 (J)	0.00039 (J)	—	—	0.0117 (J)	—
RE33-05-62978	33-25082	2.0–2.5	Qbt 3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.0115 (J)	—
RE33-05-62979	33-25083	0.0–0.5	Qbt 3	—	—	0.0111	—	—	—	—	—	—	—	—	—	—	—	—	—
RE33-05-62980	33-25083	2.0–2.5	Qbt 3	—	—	—	—	—	0.0022 (J)	—	—	—	—	—	—	—	—	—	—
RE33-05-62981	33-25084	0.0–0.5	Qbt 3	0.003	—	0.0081	0.004	—	—	—	—	—	0.0059	0.0057	0.0067	0.0042 (J)	0.0029	—	—
RE33-05-62982	33-25084	2.0–2.5	Qbt 3	—	—	—	0.0003 (J)	—	—	—	—	—	—	—	—	—	—	—	—
RE33-05-62987	33-25087	10.0–10.5	Qbt 3	—	—	—	—	—	0.085 (J-)	—	—	—	—	—	—	—	—	—	—
RE33-05-62989	33-25088	10.0–10.5	Qbt 3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE33-05-62990	33-25088	12.0–12.5	Qbt 3	—	—	—	—	—	0.065 (J-)	—	—	—	—	—	—	—	—	—	—
RE33-05-63000	33-25092	0.0–0.5	Fill	0.097 (J)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE33-05-63004	33-25094	0.0–0.5	Qbt 3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE33-05-63007	33-25095	2.0–2.5	Qbt 3	—	—	—	—	—	—	—	—	—	0.13 (J)	0.14 (J)	0.088 (J)	0.11 (J)	0.13 (J-)	—	—
RE33-05-63009	33-25096	2.0–2.5	Qbt 3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE33-05-63227	33-25123	0.0–0.5	Qbt 3	—	—	0.0037 (J-)	—	—	—	—	—	—	—	—	—	—	—	—	—
RE33-05-63228	33-25123	2.0–2.5	Qbt 3	—	—	0.0053 (J)	—	—	—	—	—	—	—	—	—	—	—	—	—
RE33-05-63229	33-25124	0.0–0.5	Qbt 3	—	—	0.0029 (J-)	—	—	—	—	—	—	—	—	—	—	—	—	—
RE33-05-63230	33-25124	2.0–2.5	Qbt 3	—	—	0.0027 (J)	—	—	—	—	—	—	—	—	—	—	—	—	—
RE33-05-63231	33-25125	0.0–0.5	Qbt 3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE33-05-63232	33-25125	2.0–2.5	Qbt 3	—	—	0.0066 (J)	—	—	—	—	—	—	—	—	—	—	—	—	—
SWMU 33-002(c)																			
0333-96-0076	33-01697	10.0–12.5	Qbt 3	—	—	—	—	—	NA	NA	—	—	—	—	—	—	—	—	—
RE33-05-60765	33-24727	0.0–0.5	Qbt 3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE33-05-60766	33-24727	2.0–2.5	Qbt 3	—	—	—	—	—	0.0013 (J)	0.0013 (J+)	—	—	—	0.0114 (J)	0.0144 (J)	0.0211 (J)	—	—	—
RE33-05-60767	33-24728	0.0–0.5	Qbt 3	—	—	—	0.0193 (J)	—	0.0048	0.0035 (J+)	—	—	—	0.079	0.128	0.0548	—	—	—
RE33-05-60769	33-24729	0.0–0.5	Qbt 3	0.029 (J)	—	—	0.0619	—	0.003 (J-)	0.002 (J-)	—	—	—	0.108	0.158	0.0715	—	—	—
RE33-05-60770	33-24729	2.0–2.5	Qbt 3	0.0275 (J)	—	—	0.0561	—	0.00088 (J)	—	—	—	—	0.101	0.157	0.0588	—	—	—

Table 2.0-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Acenaphthene	Acenaphthylene	Acetone	Anthracene	Aroclor-1242	Aroclor-1254	Aroclor-1260	Azobenzene	Benzene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Benzoic Acid	Bis(2-ethylhexyl)phthalate
RE33-05-61272	33-24805	5.0–7.0	Fill	NA	NA	—	NA	NA	NA	NA	—	—	NA	NA	NA	NA	NA	NA	NA
RE33-05-62985	33-25086	10.0–10.5	Qbt 3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE33-05-62986	33-25086	12.0–12.5	Qbt 3	—	—	—	—	—	—	—	—	—	0.082 (J)	0.081 (J)	—	—	0.072 (J)	—	—
RE33-05-63217	33-25118	0.0–0.5	Qbt 3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE33-05-63221	33-25120	0.0–0.5	Qbt 3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE33-05-63223	33-25121	0.0–0.5	Qbt 3	—	—	—	—	—	—	—	—	—	0.093 (J)	0.094 (J)	0.075 (J)	—	0.072 (J)	—	—
RE33-05-63225	33-25122	0.0–0.5	Qbt 3	—	—	—	—	—	—	—	—	—	0.12 (J)	0.12 (J)	0.093 (J)	—	0.11 (J)	—	—
RE33-05-63226	33-25122	2.0–2.5	Qbt 3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
SWMU 33-004(a)																			
0333-97-0010	XX-33-604072	0.0–0.0	Soil	NA	NA	—	NA	NA	NA	NA	NA	—	NA	NA	NA	NA	NA	NA	NA
AOC 33-008(c)																			
0333-96-0652	33-01670	0.0–0.5	Soil	—	—	NA	—	—	—	—	—	NA	—	—	—	—	1.6	—	—
0333-96-0653	33-01671	0.0–0.5	Sed	—	—	NA	—	—	—	—	0.43(J)	NA	—	—	—	—	—	—	—
0333-96-0654	33-01671	0.5–0.83	Sed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
0333-96-0655	33-01672	0.0–0.5	Sed	0.41 (J)	—	NA	0.65 (J)	—	—	—	—	NA	1.6 (J)	1.7	2.9	0.48 (J)	2.9	—	—
0333-96-0656	33-01672	1.0–1.5	Sed	—	—	—	0.38 (J)	—	—	—	—	—	1.2 (J)	1.5 (J)	2.8	1.1 (J)	2.8	—	—
0333-96-0658	33-01674	0.0–0.5	Sed	—	—	NA	—	—	—	—	—	NA	0.19 (J)	—	0.27 (J)	—	0.27 (J)	—	—
0333-96-0659	33-01675	0.0–0.5	Soil	—	—	NA	—	—	—	—	—	NA	—	—	—	—	—	—	—
0333-96-0673	33-01679	0.0–2.0	Soil	—	—	NA	—	—	—	—	—	NA	0.058 (J)	0.077 (J)	0.056 (J)	0.053 (J)	0.06 (J)	—	—
0333-96-0674	33-01679	3.0–5.0	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
0333-96-0677	33-01680	0.0–0.5	Sed	1.9 (J)	—	NA	2.9 (J)	—	—	—	—	NA	5.7 (J)	6.2 (J)	10	3.4 (J)	10	—	—
0333-96-0678	33-01680	0.0–2.0	Sed	—	—	0.014 (J)	—	—	—	—	—	—	—	—	—	—	—	—	—
0333-96-0679	33-01680	2.0–4.0	Qbo	—	—	—	—	—	—	—	—	—	0.6	0.76	0.77	0.74	0.37	—	—
0333-96-0681	33-01681	0.5–1.25	Sed	4.4	—	—	6.8	—	—	—	—	—	9	9.6	6	6.1	6.8	0.11 (J)	2.3
0333-96-0682	33-01681	5.0–6.0	Soil	0.14 (J)	—	—	0.27 (J)	—	—	—	—	—	0.45	0.46	0.31 (J)	0.31 (J)	0.35 (J)	—	—
0333-96-0684	33-01682	0.0–1.0	Sed	—	—	—	—	—	—	—	—	—	0.36 (J)	0.47 (J)	0.75 (J)	0.21 (J)	NA	—	—
0333-96-0685	33-01682	1.0–2.0	Qbo	0.16 (J)	—	0.012 (J)	0.32 (J)	—	—	—	—	—	0.41 (J)	0.37 (J)	0.65 (J)	0.17 (J)	NA	—	—
0333-96-0669	33-01683	0.0–0.5	Sed	0.13 (J)	—	NA	0.19 (J)	—	—	—	—	NA	0.55	0.69	0.57	0.47	0.61	—	0.045 (J)
0333-96-0670	33-01684	0.0–0.5	Fill	—	—	NA	—	—	—	—	—	NA	0.16 (J)	0.22 (J)	0.23 (J)	0.23 (J)	0.22 (J)	—	—
0333-96-0671	33-01685	0.0–0.5	Soil	—	—	NA	—	—	—	—	—	NA	0.052 (J)	0.077 (J)	0.064 (J)	0.055 (J)	0.063 (J)	—	—

Table 2.0-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Acenaphthene	Acenaphthylene	Acetone	Anthracene	Aroclor-1242	Aroclor-1254	Aroclor-1260	Azobenzene	Benzene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Benzoic Acid	Bis(2-ethylhexyl)phthalate
33-017																			
0333-96-0130	33-01585	0.0–0.5	Fill	0.14 (J)	—	—	0.34	—	NA	NA	—	NA	0.84	0.78	0.99	0.11 (J)	0.25 (J)	—	—
0333-96-0131	33-01586	0.0–0.5	Fill	—	—	—	—	—	NA	NA	—	—	0.54	0.25 (J)	0.43	—	—	—	—
0333-96-0132	33-01587	0.0–0.5	Fill	—	—	—	—	—	NA	NA	—	NA	0.41	—	—	—	—	—	—
0333-96-0133	33-01588	0.0–0.5	Fill	0.61 (J)	—	—	1 (J)	—	NA	NA	—	NA	1.5 (J)	1.8 (J)	2.6 (J)	0.67 (J)	1.1 (J)	0.22 (J)	—
0333-96-0134	33-01589	0.0–0.5	Fill	—	—	—	—	—	NA	NA	—	NA	0.63 (J)	0.38 (J)	0.78 (J)	—	—	0.21 (J)	—
0333-96-0135	33-01590	0.0–0.5	Fill	—	—	—	—	—	NA	NA	—	—	0.41	—	—	—	—	—	—
0333-96-0136	33-01591	0.0–0.5	Fill	—	—	—	—	—	NA	NA	—	NA	0.5 (J)	0.16 (J)	0.53 (J)	—	—	0.19 (J)	—
0333-96-0137	33-01592	0.0–0.5	Fill	—	—	—	—	—	NA	NA	—	—	0.37 (J)	—	0.054 (J)	—	—	—	—
0333-96-0138	33-01593	0.0–0.5	Sed	0.26 (J)	—	—	0.42	—	NA	NA	—	—	1.2	1.1	1.4	0.4	—	—	—
0333-96-0139	33-01594	0.0–0.5	Sed	—	—	—	—	—	NA	NA	—	—	0.084 (J)	0.074 (J)	0.17 (J)	0.096 (J)	—	—	—
0333-96-0140	33-01595	0.0–0.5	Fill	1.3	—	—	2	—	NA	NA	—	—	3.5	2.4	2.7	0.75	0.97	—	—
0333-96-0141	33-01596	0.0–0.5	Fill	0.058 (J)	—	—	0.18 (J)	—	NA	NA	—	—	0.6	0.55	0.66	0.23 (J)	0.084 (J)	—	—
0333-96-0142	33-01597	0.0–0.5	Fill	—	—	—	—	—	NA	NA	—	—	—	—	—	0.76 (J)	—	—	—
0333-96-0143	33-01598	0.0–0.5	Fill	0.045 (J)	—	—	0.18 (J)	—	NA	NA	—	NA	0.44	0.41	0.49	0.21 (J)	—	—	—
0333-96-0145	33-01600	0.0–0.5	Fill	—	—	—	—	—	NA	NA	—	NA	—	0.12 (J)	0.22 (J)	0.11 (J)	—	—	—
0333-96-0146	33-01601	0.0–0.5	Fill	—	—	—	—	—	NA	NA	—	—	0.12 (J)	0.1 (J)	—	—	—	—	—
0333-96-0147	33-01602	0.0–0.5	Fill	—	—	—	—	—	NA	NA	—	—	0.2 (J)	0.2 (J)	—	0.11 (J)	—	—	—
0333-96-0149	33-01604	0.0–0.5	Fill	NA	NA	NA	NA	—	0.12	0.13	—	NA	NA	NA	NA	NA	NA	NA	NA
0333-96-0151	33-01606	0.0–0.5	Fill	NA	NA	NA	NA	—	0.083	0.099	—	NA	NA	NA	NA	NA	NA	NA	NA
0333-96-0152	33-01607	0.0–0.5	Fill	NA	NA	NA	NA	—	0.18	0.29	—	NA	NA	NA	NA	NA	NA	NA	NA
0333-96-0157	33-01612	0.0–0.5	Soil	NA	NA	NA	NA	—	—	5.5	—	NA	NA	NA	NA	NA	NA	NA	NA
0333-96-0159	33-01614	0.0–0.5	Soil	NA	NA	NA	NA	—	1.4	0.87	—	NA	NA	NA	NA	NA	NA	NA	NA
0333-96-0160	33-01615	0.0–0.5	Fill	NA	NA	NA	NA	—	0.85	0.92	—	NA	NA	NA	NA	NA	NA	NA	NA
0333-96-0161	33-01616	0.0–0.5	Soil	NA	NA	NA	NA	—	—	3.7	—	NA	NA	NA	NA	NA	NA	NA	NA
AOC C-33-001																			
0333-96-2042	33-01748	0.0–0.5	Fill	NA	NA	NA	NA	—	—	0.15	NA	NA	NA	NA	NA	NA	NA	NA	NA
0333-96-2043	33-01749	0.0–0.5	Soil	NA	NA	NA	NA	—	—	11	NA	NA	NA	NA	NA	NA	NA	NA	NA
0333-96-2045	33-01751	0.0–0.5	Soil	NA	NA	NA	NA	—	—	3.9	NA	NA	NA	NA	NA	NA	NA	NA	NA
0333-96-2046	33-01752	0.0–0.5	Fill	NA	NA	NA	NA	—	—	6.2	NA	NA	NA	NA	NA	NA	NA	NA	NA
AOC C-33-003																			
RE33-99-0009	33-01708	2.0–2.5	Qbt 3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE33-99-0010	33-01709	0.0–0.5	Fill	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Table 2.0-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Acenaphthene	Acenaphthylene	Acetone	Anthracene	Aroclor-1242	Aroclor-1254	Aroclor-1260	Azobenzene	Benzene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Benzoic Acid	Bis(2-ethylhexyl)phthalate
RE33-99-0032	33-01709	2.0–2.5	Qbt 3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE33-99-0033	33-01710	2.0–2.5	Qbt 3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE33-99-0012	33-01711	0.0–0.33	Fill	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE33-99-0034	33-01711	2.0–2.5	Qbt 3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.06 (J)
RE33-99-0013	33-01712	0.0–0.5	Fill	—	—	—	—	—	—	—	—	0.00085 (J)	—	—	—	—	—	—	—
RE33-99-0035	33-01712	2.0–2.5	Qbt 3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE33-99-0014	33-01713	0.0–0.5	Fill	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE33-99-0036	33-01713	2.0–2.5	Qbt 3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE33-99-0015	33-01714	0.0–0.5	Fill	0.55 (J)	—	—	0.93 (J)	—	—	—	—	—	1.5 (J)	1.2 (J)	0.99 (J)	0.5 (J)	1.2 (J)	—	—
RE33-99-0016	33-01715	0.0–0.5	Fill	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Table 2.0-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Bromobenzene	Butanone[2-]	Butylbenzylphthalate	Carbazole	Chloroaniline[4-]	Chrysene	Di-n-butylphthalate	Dibenz(a,h)anthracene	Dibenzofuran	Dichlorobenzene[1,4-]	Dimethylphenol[2,4-]	Fluoranthene	Fluorene	Hexanone[2-]	Indeno(1,2,3-cd)pyrene	Isopropyltoluene[4-]
SWMU 33-002(a)																			
0333-96-0525	33-01652	1.0–1.5	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
0333-96-0526	33-01652	3.08–4.08	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
0333-96-0043	33-01696	2.33–3.0	Soil	—	—	—	—	—	—	0.037 (J)	—	—	—	—	—	—	—	—	—
0333-96-0044	33-01696	8.25–8.75	Soil	—	—	—	—	—	—	0.034 (J)	—	—	—	—	—	—	—	—	—
RE33-05-60743	33-24716	0.0–0.5	Qbt 3	—	—	—	—	—	0.18	—	—	—	—	—	0.365	0.0268 (J)	—	0.252	—
RE33-05-60747	33-24716	2.0–2.5	Qbt 3	—	—	—	—	—	0.0965	—	—	—	—	—	0.17	0.0158 (J)	—	0.199	—
RE33-05-60745	33-24717	0.0–0.5	Qbt 3	—	—	—	—	—	0.257	—	—	—	—	—	0.496	0.0472 (J)	—	—	—
RE33-05-60749	33-24717	2.0–2.5	Qbt 3	—	—	—	—	—	0.292	—	—	—	—	—	0.629	0.0716	—	0.285	—
RE33-05-60744	33-24718	0.0–0.5	Qbt 3	—	—	—	—	—	0.508	—	—	—	—	—	0.984	0.105	—	0.378	—
RE33-05-60748	33-24718	2.0–2.5	Qbt 3	—	—	—	—	—	1.41	—	—	—	—	—	2.39	0.242 (J)	—	2.2	—
RE33-05-60746	33-24719	0.0–0.5	Qbt 3	—	—	—	—	—	1.46	—	—	0.464	—	—	3.83	0.498	—	0.7	—
RE33-05-60750	33-24719	2.0–2.5	Qbt 3	—	—	—	—	—	0.288 (J)	—	—	—	—	—	0.51	—	—	1.68	—
RE33-05-60751	33-24720	0.0–0.5	Qbt 3	—	—	—	—	—	1.56	—	—	—	—	—	2.9	0.381	—	1.31	—
RE33-05-60752	33-24720	2.0–2.5	Qbt 3	—	—	—	—	—	0.368	—	—	—	—	—	0.762	0.0716 (J)	—	0.753	—
RE33-05-60753	33-24721	0.0–0.5	Qbt 3	—	—	—	—	—	0.719	—	—	—	—	—	1.44	0.21	—	0.907	—
RE33-05-60754	33-24721	2.0–2.5	Qbt 3	—	—	—	—	—	0.344	—	—	—	—	—	0.683	0.0737	—	0.306	—
RE33-05-60755	33-24722	0.0–0.5	Qbt 3	—	—	—	—	—	0.398	—	—	—	—	—	0.7	0.0816 (J)	—	0.832	—
RE33-05-60756	33-24722	2.0–2.5	Qbt 3	—	—	—	—	—	0.575	—	—	—	—	—	1.17	0.123 (J)	—	0.863	—
RE33-05-60757	33-24723	0.0–0.5	Qbt 3	—	—	—	—	—	0.19 (J-)	—	—	—	—	—	0.36 (J-)	0.0458 (J-)	—	0.245 (J-)	—
RE33-05-60758	33-24723	2.0–2.5	Qbt 3	—	—	—	—	—	0.157	—	—	—	—	—	0.328	0.0314 (J)	—	0.216	—
RE33-05-60759	33-24724	0.0–0.5	Fill	—	—	—	—	—	0.251	—	—	—	—	—	0.594	0.0613	—	0.169	—
RE33-05-60760	33-24724	2.0–2.5	Qbt 3	—	—	—	—	—	—	—	—	—	—	—	0.0169 (J)	—	—	—	—
RE33-05-60761	33-24725	0.0–0.5	Fill	—	0.0049 (J)	—	—	—	0.2	—	—	—	—	—	0.431	0.0387 (J)	—	—	—
RE33-05-60762	33-24725	2.0–2.5	Qbt 3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE33-05-60763	33-24726	0.0–0.5	Fill	—	—	—	—	0.174 (J)	—	—	—	—	—	—	—	—	—	—	—
RE33-05-60764	33-24726	2.0–2.5	Qbt 3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE33-05-63011	33-25097	2.0–2.5	Fill	—	0.0043 (J)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE33-05-63012	33-25098	0.0–0.5	Fill	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE33-05-63013	33-25098	2.0–2.5	Fill	—	—	—	—	—	—	0.094 (J)	—	—	—	—	—	—	—	—	—
RE33-05-63195	33-25107	0.0–0.5	Fill	—	—	—	—	—	—	0.25 (J)	—	—	—	—	—	—	—	—	—
RE33-05-63196	33-25107	2.0–2.5	Fill	—	—	—	—	—	—	0.12 (J)	—	—	—	—	—	—	—	—	—
RE33-05-63201	33-25110	0.0–0.5	Fill	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE33-05-63205	33-25112	0.0–0.5	Fill	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE33-05-63207	33-25113	0.0–0.5	Fill	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Table 2.0-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Bromobenzene	Butanone[2-]	Butylbenzylphthalate	Carbazole	Chloroaniline[4-]	Chrysene	Di-n-butylphthalate	Dibenz(a,h)anthracene	Dibenzofuran	Dichlorobenzene[1,4-]	Dimethylphenol[2,4-]	Fluoranthene	Fluorene	Hexanone[2-]	Indeno(1,2,3-cd)pyrene	Isopropyltoluene[4-]
RE33-05-63211	33-25115	0.0–0.5	Fill	—	—	—	—	—	—	0.079 (J)	—	—	—	—	—	—	—	—	—
RE33-05-63213	33-25116	0.0–0.5	Fill	0.00023 (J)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
SWMU 33-002(b)																			
RE33-05-61273	33-24806	5.0–7.0	Fill	—	—	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	—	NA	0.0018
RE33-05-62977	33-25082	0.0–0.5	Qbt 3	—	—	—	—	—	0.00036 (J)	—	—	—	—	—	0.00073 (J)	—	—	—	—
RE33-05-62978	33-25082	2.0–2.5	Qbt 3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE33-05-62979	33-25083	0.0–0.5	Qbt 3	—	—	—	—	—	—	—	—	—	—	—	0.00048 (J)	—	—	—	—
RE33-05-62980	33-25083	2.0–2.5	Qbt 3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE33-05-62981	33-25084	0.0–0.5	Qbt 3	—	—	—	—	—	0.0062	—	—	—	—	—	0.0147	0.0024	—	0.0042	—
RE33-05-62982	33-25084	2.0–2.5	Qbt 3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE33-05-62987	33-25087	10.0–10.5	Qbt 3	—	—	—	—	—	—	—	—	—	—	—	0.12 (J)	—	—	—	—
RE33-05-62989	33-25088	10.0–10.5	Qbt 3	—	—	—	—	—	—	—	—	—	—	—	0.069 (J)	—	—	—	—
RE33-05-62990	33-25088	12.0–12.5	Qbt 3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE33-05-63000	33-25092	0.0–0.5	Fill	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE33-05-63004	33-25094	0.0–0.5	Qbt 3	—	—	—	—	—	—	0.083 (J)	—	—	—	—	—	—	—	—	—
RE33-05-63007	33-25095	2.0–2.5	Qbt 3	—	—	—	—	—	0.14 (J)	—	—	—	—	—	0.26 (J)	—	—	0.1 (J)	—
RE33-05-63009	33-25096	2.0–2.5	Qbt 3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE33-05-63227	33-25123	0.0–0.5	Qbt 3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE33-05-63228	33-25123	2.0–2.5	Qbt 3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE33-05-63229	33-25124	0.0–0.5	Qbt 3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE33-05-63230	33-25124	2.0–2.5	Qbt 3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE33-05-63231	33-25125	0.0–0.5	Qbt 3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE33-05-63232	33-25125	2.0–2.5	Qbt 3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
SWMU 33-002(c)																			
0333-96-0076	33-01697	10.0–12.5	Qbt 3	—	—	—	—	—	—	0.07 (J)	—	—	—	—	—	—	—	—	—
RE33-05-60765	33-24727	0.0–0.5	Qbt 3	—	—	—	—	—	—	—	—	—	—	—	0.018 (J)	—	—	—	—
RE33-05-60766	33-24727	2.0–2.5	Qbt 3	—	—	—	—	—	—	—	—	—	—	—	0.0181 (J)	—	—	0.0178 (J)	—
RE33-05-60767	33-24728	0.0–0.5	Qbt 3	—	—	—	—	—	0.0825	—	—	—	—	—	0.16	—	—	0.0492	—
RE33-05-60769	33-24729	0.0–0.5	Qbt 3	—	—	—	—	—	0.114	—	—	—	—	—	0.254	0.0302 (J)	—	0.066	—
RE33-05-60770	33-24729	2.0–2.5	Qbt 3	—	—	—	—	—	0.109	—	—	—	—	—	0.242	0.0307 (J)	—	0.0517	—
RE33-05-61272	33-24805	5.0–7.0	Fill	—	—	NA	NA	NA	NA	NA	NA	NA	—	NA	NA	NA	—	NA	—
RE33-05-62985	33-25086	10.0–10.5	Qbt 3	—	—	—	—	—	—	—	—	—	—	—	0.13 (J)	—	—	—	—
RE33-05-62986	33-25086	12.0–12.5	Qbt 3	—	—	—	—	—	0.085 (J)	—	—	—	—	—	0.18 (J)	—	—	—	—
RE33-05-63217	33-25118	0.0–0.5	Qbt 3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE33-05-63221	33-25120	0.0–0.5	Qbt 3	—	—	—	—	—	—	—	—	—	—	—	0.089 (J)	—	—	—	—

Table 2.0-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Bromobenzene	Butanone[2-]	Butylbenzylphthalate	Carbazole	Chloroaniline[4-]	Chrysene	Di-n-butylphthalate	Dibenz(a,h)anthracene	Dibenzofuran	Dichlorobenzene[1,4-]	Dimethylphenol[2,4-]	Fluoranthene	Fluorene	Hexanone[2-]	Indeno(1,2,3-cd)pyrene	Isopropyltoluene[4-]
RE33-05-63223	33-25121	0.0–0.5	Qbt 3	—	—	—	—	—	0.098 (J)	—	—	—	—	—	0.23 (J)	—	—	—	—
RE33-05-63225	33-25122	0.0–0.5	Qbt 3	—	—	—	—	—	0.14 (J)	—	—	—	—	—	0.27 (J)	—	—	0.081 (J)	—
RE33-05-63226	33-25122	2.0–2.5	Qbt 3	—	—	—	—	—	—	—	—	—	—	—	0.099 (J)	—	—	—	—
SWMU 33-004(a)																			
0333-97-0010	XX-33-604072	0.0–0.0	Soil	—	—	NA	NA	NA	NA	NA	NA	NA	—	NA	NA	NA	—	NA	—
AOC 33-008(c)																			
0333-96-0652	33-01670	0.0–0.5	Soil	NA	NA	—	—	—	—	—	—	—	—	—	—	—	NA	—	—
0333-96-0653	33-01671	0.0–0.5	Sed	NA	NA	—	—	—	—	—	—	—	—	—	0.63 (J)	—	NA	—	—
0333-96-0654	33-01671	0.5–0.83	Sed	—	—	—	—	—	—	—	—	—	—	—	0.47 (J)	—	—	—	—
0333-96-0655	33-01672	0.0–0.5	Sed	NA	NA	—	0.83 (J)	—	1.5 (J)	—	—	—	—	—	2.8	—	NA	0.64 (J)	—
0333-96-0656	33-01672	1.0–1.5	Sed	—	—	—	0.45 (J)	—	1.3 (J)	—	—	—	—	—	1.9	—	—	1.2 (J)	—
0333-96-0658	33-01674	0.0–0.5	Sed	NA	NA	—	—	—	—	—	—	—	—	—	—	—	NA	—	—
0333-96-0659	33-01675	0.0–0.5	Soil	NA	NA	—	—	—	—	—	—	—	—	—	0.21 (J)	—	NA	—	—
0333-96-0673	33-01679	0.0–2.0	Soil	NA	NA	—	NA	—	0.072 (J)	—	—	—	—	—	0.11 (J)	—	NA	0.049 (J)	—
0333-96-0674	33-01679	3.0–5.0	Soil	—	—	—	NA	—	—	—	—	—	—	—	—	—	0.023	—	—
0333-96-0677	33-01680	0.0–0.5	Sed	NA	NA	—	3 (J)	—	5.1 (J)	—	—	—	—	—	10	—	NA	4.1 (J)	—
0333-96-0678	33-01680	0.0–2.0	Sed	—	0.007 (J)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
0333-96-0679	33-01680	2.0–4.0	Qbo	—	—	—	—	—	0.7	1.3	0.2 (J)	—	—	—	0.75	—	—	0.56	—
0333-96-0681	33-01681	0.5–1.25	Sed	—	—	—	NA	—	9.6	1.7	2.5	3.3	—	0.24 (J)	21	5.7	—	6.1	—
0333-96-0682	33-01681	5.0–6.0	Soil	—	—	—	NA	—	0.49	0.16 (J)	0.12 (J)	0.089 (J)	—	—	1	0.16 (J)	—	0.28 (J)	—
0333-96-0684	33-01682	0.0–1.0	Sed	—	—	—	0.19 (J)	—	0.41 (J)	—	—	—	—	—	0.68 (J)	—	—	0.23 (J)	—
0333-96-0685	33-01682	1.0–2.0	Qbo	—	—	—	0.39 (J)	—	0.38 (J)	—	—	—	—	—	1.1	—	—	0.2 (J)	—
0333-96-0669	33-01683	0.0–0.5	Sed	NA	NA	—	NA	—	0.71	0.049 (J)	0.17 (J)	0.059 (J)	0.18 (J)	—	1.2	0.11 (J)	NA	0.45	—
0333-96-0670	33-01684	0.0–0.5	Fill	NA	NA	—	NA	—	0.24 (J)	0.063 (J)	0.083 (J)	—	—	—	0.2 (J)	—	NA	0.17 (J)	—
0333-96-0671	33-01685	0.0–0.5	Soil	NA	NA	—	NA	—	0.064 (J)	4.8	—	—	—	—	0.098 (J)	—	NA	0.05 (J)	—
SWMU 33-017																			
0333-96-0130	33-01585	0.0–0.5	Fill	—	—	—	—	—	0.8	—	—	—	—	—	1.8	0.088 (J)	—	0.28 (J)	—
0333-96-0131	33-01586	0.0–0.5	Fill	—	—	—	—	—	0.48	—	—	—	—	—	0.59	—	—	0.1 (J)	—
0333-96-0132	33-01587	0.0–0.5	Fill	—	—	—	—	—	0.29 (J)	—	—	—	—	—	0.051 (J)	—	—	—	—
0333-96-0133	33-01588	0.0–0.5	Fill	—	—	—	—	—	1.4	0.085 (J)	—	0.14 (J)	—	—	3.5	0.43 (J)	—	0.81 (J)	—
0333-96-0134	33-01589	0.0–0.5	Fill	—	—	—	—	—	0.57 (J)	0.26 (J)	—	—	—	—	0.7 (J)	—	—	0.1 (J)	—
0333-96-0135	33-01590	0.0–0.5	Fill	—	—	—	—	—	0.3 (J)	—	—	—	—	—	0.072 (J)	—	—	—	—
0333-96-0136	33-01591	0.0–0.5	Fill	—	—	0.43 (J)	—	—	0.41 (J)	—	—	—	—	—	0.32 (J)	—	—	0.063 (J)	—
0333-96-0137	33-01592	0.0–0.5	Fill	—	—	—	—	—	0.26 (J)	—	—	—	—	—	—	—	—	—	—

Table 2.0-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Bromobenzene	Butanone[2-]	Butylbenzylphthalate	Carbazole	Chloroaniline[4-]	Chrysene	Di-n-butylphthalate	Dibenz(a,h)anthracene	Dibenzofuran	Dichlorobenzene[1,4-]	Dimethylphenol[2,4-]	Fluoranthene	Fluorene	Hexanone[2-]	Indeno(1,2,3-cd)pyrene	Isopropyltoluene[4-]
0333-96-0138	33-01593	0.0–0.5	Sed	—	—	—	—	—	1.2	—	0.18 (J)	0.046 (J)	—	—	2.6	0.24 (J)	—	0.6	—
0333-96-0139	33-01594	0.0–0.5	Sed	—	—	—	—	—	0.094 (J)	—	—	—	—	—	0.042 (J)	—	—	0.21 (J)	—
0333-96-0140	33-01595	0.0–0.5	Fill	—	—	—	—	—	2.5	—	0.33 (J)	0.43	—	—	6.4	0.94	—	1	—
0333-96-0141	33-01596	0.0–0.5	Fill	—	—	—	—	—	0.61	—	—	—	—	—	1.4	—	—	0.37	—
0333-96-0142	33-01597	0.0–0.5	Fill	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
0333-96-0143	33-01598	0.0–0.5	Fill	—	—	—	—	—	0.44	—	—	—	—	—	0.96	—	—	0.34	—
0333-96-0145	33-01600	0.0–0.5	Fill	—	—	—	—	—	0.14 (J)	0.079 (J)	—	—	—	—	0.17 (J)	—	—	0.22 (J)	—
0333-96-0146	33-01601	0.0–0.5	Fill	—	—	—	—	—	0.13 (J)	—	—	—	—	—	0.13 (J)	—	—	0.21 (J)	—
0333-96-0147	33-01602	0.0–0.5	Fill	—	—	—	—	—	0.23 (J)	0.034 (J)	—	—	—	—	0.4	—	—	0.23 (J)	—
0333-96-0149	33-01604	0.0–0.5	Fill	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0333-96-0151	33-01606	0.0–0.5	Fill	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0333-96-0152	33-01607	0.0–0.5	Fill	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0333-96-0157	33-01612	0.0–0.5	Soil	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0333-96-0159	33-01614	0.0–0.5	Soil	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0333-96-0160	33-01615	0.0–0.5	Fill	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0333-96-0161	33-01616	0.0–0.5	Soil	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AOC C-33-001																			
0333-96-2042	33-01748	0.0–0.5	Fill	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0333-96-2043	33-01749	0.0–0.5	Soil	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0333-96-2045	33-01751	0.0–0.5	Soil	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0333-96-2046	33-01752	0.0–0.5	Fill	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AOC C-33-003																			
RE33-99-0009	33-01708	2.0–2.5	Qbt 3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE33-99-0010	33-01709	0.0–0.5	Fill	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE33-99-0032	33-01709	2.0–2.5	Qbt 3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE33-99-0033	33-01710	2.0–2.5	Qbt 3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE33-99-0012	33-01711	0.0–0.33	Fill	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE33-99-0034	33-01711	2.0–2.5	Qbt 3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE33-99-0013	33-01712	0.0–0.5	Fill	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE33-99-0035	33-01712	2.0–2.5	Qbt 3	—	—	—	—	—	—	—	—	—	—	—	0.065 (J)	—	—	—	—
RE33-99-0014	33-01713	0.0–0.5	Fill	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE33-99-0036	33-01713	2.0–2.5	Qbt 3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE33-99-0015	33-01714	0.0–0.5	Fill	—	—	—	—	—	1.5 (J)	—	—	—	—	—	3.3 (J)	0.47 (J)	—	0.5 (J)	—
RE33-99-0016	33-01715	0.0–0.5	Fill	—	—	—	—	—	—	—	—	—	—	—	0.7	—	—	—	—

Table 2.0-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Methylene Chloride	Methylnaphthalene[2-]	Methylphenol[2-]	Methylphenol[4-]	Naphthalene	Phenanthrene	Phenol	Pyrene	Pyridine	Tetrachloroethene	Toluene	Total Petroleum Hydrocarbons Diesel Range Organics	Trichloroethane[1,1,1-]	Trichloroethene	Trimethylbenzene[1,2,4-]	Xylene (Total)
SWMU 33-002(a)																			
0333-96-0525	33-01652	1.0–1.5	Soil	—	—	—	—	—	—	—	—	—	—	0.002 (J)	NA	—	—	—	—
0333-96-0526	33-01652	3.08–4.08	Soil	—	—	—	—	—	—	—	—	—	—	0.003 (J)	NA	—	—	—	—
0333-96-0043	33-01696	2.33–3.0	Soil	—	—	—	—	—	—	—	—	—	—	—	NA	—	—	—	—
0333-96-0044	33-01696	8.25–8.75	Soil	—	—	—	—	—	—	—	—	—	—	—	NA	—	—	—	—
RE33-05-60743	33-24716	0.0–0.5	Qbt 3	—	—	—	—	—	0.299	—	0.353	—	—	—	NA	—	—	—	—
RE33-05-60747	33-24716	2.0–2.5	Qbt 3	—	—	—	—	0.0116 (J)	0.141	—	0.156	—	—	—	NA	—	—	—	—
RE33-05-60745	33-24717	0.0–0.5	Qbt 3	—	—	—	—	—	0.43	—	0.494	—	—	—	NA	—	—	—	—
RE33-05-60749	33-24717	2.0–2.5	Qbt 3	—	0.0309 (J)	—	—	0.0455	0.0455	—	0.615	—	—	—	NA	—	—	—	—
RE33-05-60744	33-24718	0.0–0.5	Qbt 3	—	0.0276 (J)	—	—	0.0511	0.0511	—	0.916	—	—	—	NA	—	—	—	—
RE33-05-60748	33-24718	2.0–2.5	Qbt 3	—	—	—	—	0.178 (J)	2.24	—	2.9	—	—	—	NA	—	—	—	—
RE33-05-60746	33-24719	0.0–0.5	Qbt 3	—	0.288	—	—	0.58	3.84	—	3.51	—	—	—	NA	—	—	—	—
RE33-05-60750	33-24719	2.0–2.5	Qbt 3	—	—	—	—	—	0.544	—	0.564	—	—	—	NA	—	—	—	—
RE33-05-60751	33-24720	0.0–0.5	Qbt 3	—	—	—	—	0.251	3.25	—	3.3	—	—	—	NA	—	—	—	—
RE33-05-60752	33-24720	2.0–2.5	Qbt 3	—	—	—	—	0.0633 (J)	0.746	—	0.681	—	—	—	NA	—	—	—	—
RE33-05-60753	33-24721	0.0–0.5	Qbt 3	—	0.0967 (J)	—	—	0.251	1.58	—	1.6	—	—	—	NA	—	—	—	—
RE33-05-60754	33-24721	2.0–2.5	Qbt 3	—	0.023 (J)	—	—	0.0553	0.679	—	0.736	—	—	—	NA	—	—	—	—
RE33-05-60755	33-24722	0.0–0.5	Qbt 3	—	0.0405 (J)	—	—	0.102 (J)	0.773	—	0.832	—	—	—	NA	—	—	—	—
RE33-05-60756	33-24722	2.0–2.5	Qbt 3	—	0.0619 (J)	—	—	0.118 (J)	1.25	—	1.13	—	—	—	NA	—	—	—	—
RE33-05-60757	33-24723	0.0–0.5	Qbt 3	—	0.0136 (J-)	—	—	0.0339 (J-)	0.39 (J-)	—	0.417 (J-)	—	—	—	NA	—	—	—	—
RE33-05-60758	33-24723	2.0–2.5	Qbt 3	—	0.0093 (J)	—	—	0.0184 (J)	0.346	—	0.3	—	—	—	NA	—	—	—	—
RE33-05-60759	33-24724	0.0–0.5	Fill	—	0.016 (J)	—	—	0.0346 (J)	0.457	—	0.536	—	—	0.00038 (J)	NA	—	—	—	—
RE33-05-60760	33-24724	2.0–2.5	Qbt 3	—	—	—	—	—	—	—	0.013 (J)	—	—	0.00044 (J)	NA	—	—	—	—
RE33-05-60761	33-24725	0.0–0.5	Fill	—	—	—	—	—	0.324	—	0.427	—	—	0.001 (J)	NA	—	—	—	—
RE33-05-60762	33-24725	2.0–2.5	Qbt 3	—	—	—	—	—	—	—	—	—	—	0.00052 (J)	NA	—	—	—	—
RE33-05-60763	33-24726	0.0–0.5	Fill	—	—	—	—	—	—	—	—	—	—	0.0015	NA	—	—	—	—
RE33-05-60764	33-24726	2.0–2.5	Qbt 3	—	—	—	—	—	—	—	—	—	—	0.00058 (J)	NA	—	—	—	—
RE33-05-63011	33-25097	2.0–2.5	Fill	—	—	—	—	—	—	—	—	—	0.001 (J)	—	—	—	—	—	—
RE33-05-63012	33-25098	0.0–0.5	Fill	—	—	—	—	—	—	—	—	—	0.0015 (J)	—	—	—	—	—	—
RE33-05-63013	33-25098	2.0–2.5	Fill	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE33-05-63195	33-25107	0.0–0.5	Fill	—	—	—	—	—	—	—	—	—	0.0034 (J+)	—	27	—	—	—	—
RE33-05-63196	33-25107	2.0–2.5	Fill	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE33-05-63201	33-25110	0.0–0.5	Fill	—	—	—	—	—	—	—	—	—	0.004 (J)	—	30	—	—	—	—

Table 2.0-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Methylene Chloride	Methylnaphthalene[2-]	Methylphenol[2-]	Methylphenol[4-]	Naphthalene	Phenanthrene	Phenol	Pyrene	Pyridine	Tetrachloroethene	Toluene	Total Petroleum Hydrocarbons Diesel Range Organics	Trichloroethane[1,1,1-]	Trichloroethene	Trimethylbenzene[1,2,4-]	Xylene (Total)
RE33-05-63205	33-25112	0.0–0.5	Fill	—	—	—	—	—	—	—	—	—	0.0011 (J)	—	—	—	—	—	—
RE33-05-63207	33-25113	0.0–0.5	Fill	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE33-05-63211	33-25115	0.0–0.5	Fill	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE33-05-63213	33-25116	0.0–0.5	Fill	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
SWMU 33-002(b)																			
RE33-05-61273	33-24806	5.0–7.0	Fill	—	NA	NA	NA	NA	NA	NA	NA	NA	—	—	NA	—	—	—	—
RE33-05-62977	33-25082	0.0–0.5	Qbt 3	0.0029 (J)	—	—	—	—	0.00057 (J)	—	0.00057 (J)	—	—	—	NA	—	—	—	—
RE33-05-62978	33-25082	2.0–2.5	Qbt 3	—	—	—	—	—	—	—	—	—	—	—	NA	—	—	—	—
RE33-05-62979	33-25083	0.0–0.5	Qbt 3	0.0022 (J)	—	—	—	—	0.00041 (J)	—	0.00039 (J)	—	—	—	NA	—	—	—	—
RE33-05-62980	33-25083	2.0–2.5	Qbt 3	0.0027 (J)	—	—	—	—	—	—	—	—	—	—	NA	—	—	—	—
RE33-05-62981	33-25084	0.0–0.5	Qbt 3	0.0029 (J)	0.00072 (J)	—	—	0.002	0.0138	—	0.0125	—	—	—	NA	—	—	—	—
RE33-05-62982	33-25084	2.0–2.5	Qbt 3	0.0026 (J)	—	—	—	—	—	—	—	—	—	—	NA	—	—	—	—
RE33-05-62987	33-25087	10.0–10.5	Qbt 3	—	—	—	—	—	0.1 (J)	—	0.11 (J)	—	—	—	NA	—	—	—	—
RE33-05-62989	33-25088	10.0–10.5	Qbt 3	—	—	—	—	—	—	—	—	—	—	—	NA	—	—	—	—
RE33-05-62990	33-25088	12.0–12.5	Qbt 3	—	—	—	—	—	—	—	—	—	—	—	NA	—	—	—	—
RE33-05-63000	33-25092	0.0–0.5	Fill	—	—	—	—	—	—	—	—	—	—	—	37	—	—	—	—
RE33-05-63004	33-25094	0.0–0.5	Qbt 3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE33-05-63007	33-25095	2.0–2.5	Qbt 3	—	—	—	—	—	0.16 (J)	—	0.22 (J)	—	—	—	—	—	—	—	—
RE33-05-63009	33-25096	2.0–2.5	Qbt 3	—	—	—	—	—	—	—	—	—	0.00091 (J)	—	—	—	—	—	—
RE33-05-63227	33-25123	0.0–0.5	Qbt 3	—	—	—	—	—	—	—	—	—	0.022 (J-)	0.00081 (J-)	—	0.00075 (J-)	0.013 (J-)	—	—
RE33-05-63228	33-25123	2.0–2.5	Qbt 3	—	—	—	—	—	—	—	—	—	0.011	—	—	—	0.0079	—	—
RE33-05-63229	33-25124	0.0–0.5	Qbt 3	—	—	—	—	—	—	—	—	—	0.0087 (J-)	—	—	—	0.005 (J-)	—	—
RE33-05-63230	33-25124	2.0–2.5	Qbt 3	—	—	—	—	—	—	—	—	—	0.0091	0.00068 (J)	—	—	0.006	—	—
RE33-05-63231	33-25125	0.0–0.5	Qbt 3	—	—	—	—	—	—	—	—	—	0.001 (J-)	—	—	—	0.00058 (J-)	—	—
RE33-05-63232	33-25125	2.0–2.5	Qbt 3	—	—	—	—	—	—	—	—	—	0.01	0.0011 (J)	—	—	—	—	—
SWMU 33-002(c)																			
0333-96-0076	33-01697	10.0–12.5	Qbt 3	—	—	—	—	—	—	—	—	—	—	—	NA	—	—	—	—
RE33-05-60765	33-24727	0.0–0.5	Qbt 3	—	—	—	—	—	0.012 (J)	—	0.0183 (J)	—	—	—	NA	—	—	—	—
RE33-05-60766	33-24727	2.0–2.5	Qbt 3	—	—	—	—	—	0.0123 (J)	—	0.0176 (J)	—	—	—	NA	—	—	—	—
RE33-05-60767	33-24728	0.0–0.5	Qbt 3	—	—	—	—	—	0.0966	—	0.17	—	—	—	NA	—	—	—	—
RE33-05-60769	33-24729	0.0–0.5	Qbt 3	—	0.0114 (J)	—	—	0.0332 (J)	0.212	—	0.244	—	—	—	NA	—	—	—	—
RE33-05-60770	33-24729	2.0–2.5	Qbt 3	—	0.0116 (J)	—	—	0.0323 (J)	0.207	—	0.222	—	—	—	NA	—	—	—	—
RE33-05-61272	33-24805	5.0–7.0	Fill	—	NA	NA	NA	NA	NA	NA	NA	NA	0.00028 (J)	—	NA	—	0.003 (J+)	—	—

Table 2.0-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Methylene Chloride	Methylnaphthalene[2-]	Methylphenol[2-]	Methylphenol[4-]	Naphthalene	Phenanthrene	Phenol	Pyrene	Pyridine	Tetrachloroethene	Toluene	Total Petroleum Hydrocarbons Diesel Range Organics	Trichloroethane[1,1,1-]	Trichloroethene	Trimethylbenzene[1,2,4-]	Xylene (Total)
RE33-05-62985	33-25086	10.0–10.5	Qbt 3	—	—	—	—	—	0.089 (J)	—	0.12 (J)	—	—	—	NA	—	—	—	—
RE33-05-62986	33-25086	12.0–12.5	Qbt 3	—	—	—	—	—	0.14 (J)	—	0.16 (J)	—	—	—	NA	—	—	—	—
RE33-05-63217	33-25118	0.0–0.5	Qbt 3	—	—	—	—	—	—	—	—	—	—	—	75	—	—	—	—
RE33-05-63221	33-25120	0.0–0.5	Qbt 3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE33-05-63223	33-25121	0.0–0.5	Qbt 3	—	—	—	—	—	0.18 (J)	—	0.17 (J)	—	—	—	—	—	—	—	—
RE33-05-63225	33-25122	0.0–0.5	Qbt 3	—	—	—	—	—	0.18 (J)	—	0.21 (J)	—	—	—	—	—	—	—	—
RE33-05-63226	33-25122	2.0–2.5	Qbt 3	—	—	—	—	—	0.076 (J)	—	0.078 (J)	—	—	—	—	—	—	—	—
SWMU 33-004(a)																			
0333-97-0010	XX-33-604072	0.0–0.0	Soil	0.0055 (J)	NA	NA	NA	NA	NA	NA	NA	NA	—	—	NA	—	—	—	—
AOC 33-008(c)																			
0333-96-0652	33-01670	0.0–0.5	Soil	NA	—	—	—	—	—	—	—	1.6	NA	NA	—	NA	NA	NA	NA
0333-96-0653	33-01671	0.0–0.5	Sed	NA	—	—	—	—	0.54 (J)	—	0.66 (J)	—	NA	NA	—	NA	NA	NA	NA
0333-96-0654	33-01671	0.5–0.83	Sed	0.0082	—	—	—	—	0.45 (J)	—	0.54 (J)	—	—	—	—	—	—	—	—
0333-96-0655	33-01672	0.0–0.5	Sed	NA	—	—	—	0.75 (J)	2.8	—	3.4	—	NA	NA	—	NA	NA	NA	NA
0333-96-0656	33-01672	1.0–1.5	Sed	0.0029 (J)	—	—	—	—	1.5 (J)	—	2	—	—	—	—	—	—	—	—
0333-96-0658	33-01674	0.0–0.5	Sed	NA	—	—	—	—	—	—	0.23 (J)	—	NA	NA	—	NA	NA	NA	NA
0333-96-0659	33-01675	0.0–0.5	Soil	NA	—	—	—	—	—	—	0.24 (J)	—	NA	NA	—	NA	NA	NA	NA
0333-96-0673	33-01679	0.0–2.0	Soil	NA	—	—	—	—	0.1 (J)	—	0.1 (J)	NA	NA	NA	—	NA	NA	NA	NA
0333-96-0674	33-01679	3.0–5.0	Soil	—	—	—	—	—	—	—	—	NA	0.002 (J)	0.002 (J)	—	—	0.002 (J)	—	0.002 (J)
0333-96-0677	33-01680	0.0–0.5	Sed	NA	—	—	—	3.3 (J)	11	—	11	—	NA	NA	—	NA	NA	NA	NA
0333-96-0678	33-01680	0.0–2.0	Sed	—	—	—	—	—	—	—	—	NA	—	—	—	—	—	—	—
0333-96-0679	33-01680	2.0–4.0	Qbo	—	—	—	—	—	0.47	—	0.82	NA	—	—	—	—	—	—	—
0333-96-0681	33-01681	0.5–1.25	Sed	—	3	0.16 (J)	0.41	9.6	25	0.22 (J)	18	NA	—	0.004 (J)	—	—	0.003 (J)	0.002 (J)	0.002 (J)
0333-96-0682	33-01681	5.0–6.0	Soil	—	0.065 (J)	—	—	0.25 (J)	0.98	—	0.82	NA	0.002 (J)	0.002 (J)	—	—	0.002 (J)	0.002 (J)	0.003 (J)
0333-96-0684	33-01682	0.0–1.0	Sed	0.005 (J)	—	—	—	—	0.46 (J)	—	0.71 (J)	—	—	—	—	—	—	—	—
0333-96-0685	33-01682	1.0–2.0	Qbo	0.0029 (J)	—	—	—	—	1	—	0.92	—	—	—	—	—	—	—	—
0333-96-0669	33-01683	0.0–0.5	Sed	NA	—	—	—	0.06 (J)	0.91	—	1	NA	NA	NA	—	NA	NA	NA	NA
0333-96-0670	33-01684	0.0–0.5	Fill	NA	—	—	—	—	0.076 (J)	—	0.19 (J)	NA	NA	NA	—	NA	NA	NA	NA
0333-96-0671	33-01685	0.0–0.5	Soil	NA	—	—	—	—	0.064 (J)	—	0.11 (J)	NA	NA	NA	—	NA	NA	NA	NA
SWMU 33-017																			
0333-96-0130	33-01585	0.0–0.5	Fill	—	—	0.049 (J)	—	0.062 (J)	1.6	—	1.2	—	—	—	—	—	—	—	—
0333-96-0131	33-01586	0.0–0.5	Fill	—	—	—	—	—	0.46	—	0.72	—	—	—	—	—	—	—	—

Table 2.0-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Methylene Chloride	Methylnaphthalene[2-]	Methylphenol[2-]	Methylphenol[4-]	Naphthalene	Phenanthrene	Phenol	Pyrene	Pyridine	Tetrachloroethene	Toluene	Total Petroleum Hydrocarbons Diesel Range Organics	Trichloroethane[1,1,1-]	Trichloroethene	Trimethylbenzene[1,2,4-]	Xylene (Total)
0333-96-0132	33-01587	0.0–0.5	Fill	—	—	—	—	—	—	—	0.48	—	—	—	—	—	—	—	—
0333-96-0133	33-01588	0.0–0.5	Fill	—	0.11 (J)	—	—	0.22 (J)	3.7	—	3.3	—	—	—	—	—	—	—	—
0333-96-0134	33-01589	0.0–0.5	Fill	—	—	—	—	—	0.54 (J)	—	0.99 (J)	—	—	—	—	—	—	—	—
0333-96-0135	33-01590	0.0–0.5	Fill	—	—	—	—	—	—	—	0.48	—	—	—	—	—	—	—	—
0333-96-0136	33-01591	0.0–0.5	Fill	—	—	—	—	—	0.2 (J)	—	0.8 (J)	—	—	—	—	—	—	—	—
0333-96-0137	33-01592	0.0–0.5	Fill	—	—	—	—	—	—	—	0.42 (J)	—	—	—	—	—	—	—	—
0333-96-0138	33-01593	0.0–0.5	Sed	—	—	—	—	0.33 (J)	2.1	—	2.1	—	—	—	—	—	—	—	—
0333-96-0139	33-01594	0.0–0.5	Sed	—	—	—	—	—	—	—	0.15 (J)	—	—	—	—	—	—	—	—
0333-96-0140	33-01595	0.0–0.5	Fill	—	0.15 (J)	—	—	0.51	7.1	—	5.1	—	—	—	—	—	—	—	—
0333-96-0141	33-01596	0.0–0.5	Fill	—	—	—	—	—	1	—	1.1	—	—	—	—	—	—	—	—
0333-96-0142	33-01597	0.0–0.5	Fill	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
0333-96-0143	33-01598	0.0–0.5	Fill	—	—	—	—	—	0.79	—	0.81	—	—	—	—	—	—	—	—
0333-96-0145	33-01600	0.0–0.5	Fill	—	—	—	—	—	0.13 (J)	—	0.24 (J)	—	—	—	—	—	—	—	—
0333-96-0146	33-01601	0.0–0.5	Fill	—	—	—	—	—	—	—	0.2 (J)	—	—	—	—	—	—	—	—
0333-96-0147	33-01602	0.0–0.5	Fill	—	—	—	—	—	0.14 (J)	—	0.38	—	—	—	—	—	—	—	—
0333-96-0149	33-01604	0.0–0.5	Fill	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0333-96-0151	33-01606	0.0–0.5	Fill	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0333-96-0152	33-01607	0.0–0.5	Fill	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0333-96-0157	33-01612	0.0–0.5	Soil	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0333-96-0159	33-01614	0.0–0.5	Soil	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0333-96-0160	33-01615	0.0–0.5	Fill	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0333-96-0161	33-01616	0.0–0.5	Soil	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AOC C-33-001																			
0333-96-2042	33-01748	0.0–0.5	Fill	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0333-96-2043	33-01749	0.0–0.5	Soil	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0333-96-2045	33-01751	0.0–0.5	Soil	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0333-96-2046	33-01752	0.0–0.5	Fill	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AOC C-33-003																			
RE33-99-0009	33-01708	2.0–2.5	Qbt 3	—	—	—	—	—	—	—	—	—	—	0.00056 (J+)	—	—	—	—	—
RE33-99-0010	33-01709	0.0–0.5	Fill	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00045 (J)	—	—
RE33-99-0032	33-01709	2.0–2.5	Qbt 3	—	—	—	—	—	—	—	—	—	—	0.00045 (J+)	—	—	—	—	—
RE33-99-0033	33-01710	2.0–2.5	Qbt 3	—	—	—	—	—	—	—	—	—	—	0.0007 (J+)	—	—	—	—	—
RE33-99-0012	33-01711	0.0–0.33	Fill	—	—	—	—	0.002 (J)	—	—	—	—	—	—	—	—	0.00062 (J)	—	—

Table 2.0-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Methylene Chloride	Methylnaphthalene[2-]	Methylphenol[2-]	Methylphenol[4-]	Naphthalene	Phenanthrene	Phenol	Pyrene	Pyridine	Tetrachloroethene	Toluene	Total Petroleum Hydrocarbons Diesel Range Organics	Trichloroethane[1,1,1-]	Trichloroethene	Trimethylbenzene[1,2,4-]	Xylene (Total)
RE33-99-0034	33-01711	2.0–2.5	Qbt 3	—	—	—	—	—	—	—	—	—	—	0.00076 (J+)	—	—	0.00025 (J+)	—	—
RE33-99-0013	33-01712	0.0–0.5	Fill	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE33-99-0035	33-01712	2.0–2.5	Qbt 3	—	—	—	—	—	—	—	0.064 (J)	—	—	0.00085 (J+)	—	—	—	—	—
RE33-99-0014	33-01713	0.0–0.5	Fill	—	—	—	—	—	—	—	0.41 (J)	—	—	—	—	—	0.00067 (J)	—	—
RE33-99-0036	33-01713	2.0–2.5	Qbt 3	—	—	—	—	—	—	—	—	—	—	0.0004 (J+)	—	—	0.00076 (J+)	—	—
RE33-99-0015	33-01714	0.0–0.5	Fill	—	—	—	—	—	3 (J)	—	4 (J)	—	—	—	—	—	—	—	—
RE33-99-0016	33-01715	0.0–0.5	Fill	—	—	—	—	—	0.52	—	0.71	—	—	—	—	—	—	—	—

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

[a] — = Result was not detected.

[b] NA = Not analyzed.

Table 2.0-4
Radionuclides Detected or Detected above BVs/FVs in Previous Investigations at TA-33 Main Site

Sample ID	Location ID	Depth (ft bgs)	Media	Americium-241	Cesium-137	Plutonium-238	Plutonium-239/240	Strontium-90	Tritium	Uranium-234	Uranium-235/236	Uranium-238
Soil BV/FV[a]				**0.013**	**1.65**	**0.023**	**0.054**	**1.31**	**na[b]**	**2.59**	**0.2**	**2.29**
Qbt 2, 3, 4 BV/FV[a]				**na**	**na**	**na**	**na**	**na**	**na**	**1.98**	**0.09**	**1.93**
SWMU 33-002(a)												
0333-96-0525	33-01652	1.0–1.5	Soil	NA[c]	NA	—[d]	—	NA	1.98864	—	NA	NA
0333-96-0526	33-01652	3.08–4.08	Soil	NA	NA	—	—	NA	7.09863	—	NA	NA
0333-96-0546	33-01652	6.0–7.0	Qbt 4	NA	NA	NA	NA	NA	1.50206	—	NA	NA
0333-96-0527	33-01652	12.5–12.9	Soil	NA	NA	—	—	NA	5.28672	—	NA	NA
0333-96-0528	33-01652	15.08–16.08	Soil	NA	NA	NA	NA	NA	4.96459	—	NA	NA
0333-96-0529	33-01652	23.42–24.0	Qbt 2	NA	NA	NA	NA	NA	1.80899	—	NA	NA
0333-96-0531	33-01652	30.08–31.08	Qbt 2	NA	NA	NA	NA	NA	1.09728	—	NA	NA
0333-96-0537	33-01652	61.0–61.83	Qbt 2	NA	NA	NA	NA	NA	0.815294	—	NA	NA
0333-96-0534	33-01652	73.42–74.58	Qbt 2	NA	NA	NA	NA	NA	0.613415	—	NA	NA
0333-96-0540	33-01652	76.92–77.5	Qbt 2	NA	NA	NA	NA	NA	0.748673	—	NA	NA
0333-96-0543	33-01652	92.5–93.5	Qbt 4	NA	NA	NA	NA	NA	0.807143	—	NA	NA
0333-96-0547	33-01652	113.0–113.67	Qbt 4	NA	NA	NA	NA	NA	0.75451	—	NA	NA
0333-96-0548	33-01652	117.5–118.33	Qbt 4	NA	NA	NA	NA	NA	0.797231	—	NA	NA
0333-96-0043	33-01696	2.33–3.0	Soil	NA	NA	—	—	NA	5.51375	—	NA	NA
0333-96-0044	33-01696	8.25–8.75	Soil	NA	NA	—	—	NA	1.79177	—	NA	NA
0333-96-0045	33-01696	12.58–13.17	Qbt 3	NA	NA	—	—	NA	0.641785	—	NA	NA
0333-96-0046	33-01696	19.0–19.58	Qbt 3	NA	NA	NA	NA	NA	1.53038	—	NA	NA
0333-96-0047	33-01696	24.0–25.0	Qbt 2	NA	NA	NA	NA	NA	1.61283	—	NA	NA
0333-96-0048	33-01696	26.0–26.5	Qbt 2	NA	NA	NA	NA	NA	1.86087	—	NA	NA

Table 2.0-4 (continued)

Sample ID	Location ID	Depth (ft bgs)	Media	Americium-241	Cesium-137	Plutonium-238	Plutonium-239/240	Strontium-90	Tritium	Uranium-234	Uranium-235/236	Uranium-238
Soil BV/FV[a]				**0.013**	**1.65**	**0.023**	**0.054**	**1.31**	**na[b]**	**2.59**	**0.2**	**2.29**
Qbt 2, 3, 4 BV/FV[a]				**na**	**na**	**na**	**na**	**na**	**na**	**1.98**	**0.09**	**1.93**
RE33-05-60743	33-24716	0.0–0.5	Qbt 3	—	—	—	—	—	74.13	—	0.2453	—
RE33-05-60747	33-24716	2.0–2.5	Qbt 3	—	—	—	—	—	43.4	—	—	—
RE33-05-60745	33-24717	0.0–0.5	Qbt 3	—	—	—	—	—	42.97	—	—	—
RE33-05-60749	33-24717	2.0–2.5	Qbt 3	—	—	0.1484	—	—	84.68	—	—	—
RE33-05-60744	33-24718	0.0–0.5	Qbt 3	—	—	—	—	—	60.78	—	—	—
RE33-05-60748	33-24718	2.0–2.5	Qbt 3	—	—	—	—	—	236.2	—	—	—
RE33-05-60746	33-24719	0.0–0.5	Qbt 3	—	—	—	—	—	229.1	—	—	—
RE33-05-60750	33-24719	2.0–2.5	Qbt 3	—	—	—	—	—	57.54	—	—	—
RE33-05-60751	33-24720	0.0–0.5	Qbt 3	—	—	—	—	—	102.1	—	—	—
RE33-05-60752	33-24720	2.0–2.5	Qbt 3	—	—	—	—	—	49.2	—	—	—
RE33-05-60753	33-24721	0.0–0.5	Qbt 3	—	—	—	—	—	116.2	—	—	—
RE33-05-60755	33-24722	0.0–0.5	Qbt 3	—	—	—	—	—	4249	—	—	—
RE33-05-60756	33-24722	2.0–2.5	Qbt 3	—	—	—	—	—	765.2	—	—	1.96176 (J-)
RE33-05-60757	33-24723	0.0–0.5	Qbt 3	—	—	—	—	—	306	—	—	—
RE33-05-60758	33-24723	2.0–2.5	Qbt 3	—	—	—	—	—	217.4	—	—	—
RE33-05-60759	33-24724	0.0–0.5	Fill	—	—	—	—	—	12.6	—	—	—
RE33-05-60760	33-24724	2.0–2.5	Qbt 3	—	—	—	—	—	33	—	—	—
RE33-05-60761	33-24725	0.0–0.5	Fill	—	—	—	—	—	199	—	—	—
RE33-05-60762	33-24725	2.0–2.5	Qbt 3	—	—	—	—	—	42.5	—	—	—
RE33-05-60763	33-24726	0.0–0.5	Fill	—	—	—	—	—	204	—	—	—
RE33-05-60764	33-24726	2.0–2.5	Qbt 3	—	—	—	—	—	177	—	—	—

Table 2.0-4 (continued)

Sample ID	Location ID	Depth (ft bgs)	Media	Americium-241	Cesium-137	Plutonium-238	Plutonium-239/240	Strontium-90	Tritium	Uranium-234	Uranium-235/236	Uranium-238
Soil BV/FV[a]				**0.013**	**1.65**	**0.023**	**0.054**	**1.31**	**na[b]**	**2.59**	**0.2**	**2.29**
Qbt 2, 3, 4 BV/FV[a]				**na**	**na**	**na**	**na**	**na**	**na**	**1.98**	**0.09**	**1.93**
RE33-05-63010	33-25097	0.0–0.5	Fill	—	—	—	—	—	547.488	—	—	—
RE33-05-63011	33-25097	2.0–2.5	Fill	—	—	—	—	—	385.926	—	—	—
RE33-05-63012	33-25098	0.0–0.5	Fill	0.1967 (J-)	—	—	0.13849 (J+)	—	963.725	—	—	—
RE33-05-63013	33-25098	2.0–2.5	Fill	—	—	—	—	—	1010.44	—	—	—
RE33-05-63195	33-25107	0.0–0.5	Fill	—	—	—	—	—	1874.71	—	—	—
RE33-05-63196	33-25107	2.0–2.5	Fill	—	—	—	—	—	500.205	—	—	—
RE33-05-63197	33-25108	0.0–0.5	Fill	—	—	—	—	—	6120.08	—	—	—
RE33-05-63198	33-25108	2.0–2.5	Fill	—	—	—	—	—	278.045	—	—	—
RE33-05-63199	33-25109	0.0–0.5	Fill	—	—	—	—	—	1279.12	—	—	—
RE33-05-63200	33-25109	2.0–2.5	Fill	—	—	—	—	—	337.442	—	—	—
RE33-05-63201	33-25110	0.0–0.5	Fill	—	—	—	—	—	2207.25	—	—	—
RE33-05-63202	33-25110	2.0–2.5	Fill	—	—	—	—	—	1389.63	—	—	—
RE33-05-63203	33-25111	0.0–0.5	Fill	—	—	—	—	—	725.477	—	—	—
RE33-05-63204	33-25111	2.0–2.5	Fill	—	—	—	—	—	283.174	—	—	—
RE33-05-63205	33-25112	0.0–0.5	Fill	—	—	0.40388 (J+)	—	—	330.88	—	—	—
RE33-05-63206	33-25112	2.0–2.5	Fill	—	—	—	—	—	344.783	—	—	—
RE33-05-63207	33-25113	0.0–0.5	Fill	—	—	—	—	—	992.573	—	—	—
RE33-05-63208	33-25113	2.0–2.5	Fill	—	—	—	—	—	350.082	—	—	—
RE33-05-63209	33-25114	0.0–0.5	Fill	—	—	—	—	—	520.774	—	—	—
RE33-05-63210	33-25114	2.0–2.5	Fill	—	—	—	—	—	542.635	—	—	—
RE33-05-63211	33-25115	0.0–0.5	Fill	—	—	—	—	—	354.12	—	—	—

Table 2.0-4 (continued)

Sample ID	Location ID	Depth (ft bgs)	Media	Americium-241	Cesium-137	Plutonium-238	Plutonium-239/240	Strontium-90	Tritium	Uranium-234	Uranium-235/236	Uranium-238
Soil BV/FV[a]				**0.013**	**1.65**	**0.023**	**0.054**	**1.31**	**na[b]**	**2.59**	**0.2**	**2.29**
Qbt 2, 3, 4 BV/FV[a]				**na**	**na**	**na**	**na**	**na**	**na**	**1.98**	**0.09**	**1.93**
RE33-05-63212	33-25115	2.0–2.5	Fill	—	—	—	—	—	232.03	—	—	—
RE33-05-63213	33-25116	0.0–0.5	Fill	—	—	—	—	—	1605.49	—	—	—
RE33-05-63214	33-25116	2.0–2.5	Fill	—	—	—	—	—	363.769	—	—	—
RE33-05-63215	33-25117	0.0–0.5	Fill	—	—	—	—	—	392.076	—	—	—
RE33-05-63216	33-25117	2.0–2.5	Fill	—	—	—	—	—	814.007	—	—	—
SWMU 33-002(b)												
0333-96-0070	33-01328	10.0–15.0	Qbt 3	NA	NA	—	—	NA	73059.7	—	NA	NA
0333-96-0071	33-01328	16.0–16.33	Qbt 3	NA	NA	NA	NA	NA	5456.28	—	NA	NA
0333-96-0072	33-01328	21.5–22.5	Qbt 3	NA	NA	NA	NA	NA	773.418	—	NA	NA
0333-96-0073	33-01328	26.25–27.25	Qbt 2	NA	NA	NA	NA	NA	779.825	—	NA	NA
0333-96-0500	33-01328	30.0–31.25	Qbt 2	NA	NA	NA	NA	NA	832.595	—	NA	NA
0333-96-0501	33-01328	36.0–36.75	Qbt 2	NA	NA	NA	NA	NA	1000.22	—	NA	NA
0333-96-0502	33-01328	40.0–41.0	Qbt 2	NA	NA	NA	NA	NA	1474.45	—	NA	NA
0333-96-0503	33-01328	43.0–45.0	Qbt 2	NA	NA	NA	NA	NA	4133.53	—	NA	NA
0333-96-0506	33-01328	59.5–60.0	Qbt 2	NA	NA	NA	NA	NA	198.919	—	NA	NA
0333-96-0509	33-01328	71.75–72.0	Qbt 2	NA	NA	NA	NA	NA	142	—	NA	NA
0333-96-0512	33-01328	87.5–88.5	Qbt 4	NA	NA	NA	NA	NA	74.6193	—	NA	NA
0333-96-0515	33-01328	102.5–103.5	Qbt 4	NA	NA	NA	NA	NA	20.3685	—	NA	NA
0333-96-0516	33-01328	109.0–110.0	Qbt 4	NA	NA	NA	NA	NA	8.21441	—	NA	NA
0333-96-0517	33-01328	114.0–115.0	Qbt 4	NA	NA	NA	NA	NA	2.1388	—	NA	NA
0333-96-0518	33-01328	116.5–117.5	Qbt 4	NA	NA	NA	NA	NA	3.11641	—	NA	NA

Table 2.0-4 (continued)

Sample ID	Location ID	Depth (ft bgs)	Media	Americium-241	Cesium-137	Plutonium-238	Plutonium-239/240	Strontium-90	Tritium	Uranium-234	Uranium-235/236	Uranium-238
Soil BV/FV[a]				**0.013**	**1.65**	**0.023**	**0.054**	**1.31**	**na[b]**	**2.59**	**0.2**	**2.29**
Qbt 2, 3, 4 BV/FV[a]				**na**	**na**	**na**	**na**	**na**	**na**	**1.98**	**0.09**	**1.93**
RE33-05-62977	33-25082	0.0–0.5	Qbt 3	—	—	—	—	0.23	177	—	0.119	—
RE33-05-62978	33-25082	2.0–2.5	Qbt 3	—	—	—	—	—	262	—	—	—
RE33-05-62979	33-25083	0.0–0.5	Qbt 3	—	—	—	—	—	71.2	—	—	—
RE33-05-62980	33-25083	2.0–2.5	Qbt 3	—	—	—	—	—	314	—	—	—
RE33-05-62981	33-25084	0.0–0.5	Qbt 3	—	—	—	—	—	1060	—	—	—
RE33-05-62982	33-25084	2.0–2.5	Qbt 3	—	—	—	—	—	1170	—	—	—
RE33-05-62987	33-25087	10.0–10.5	Qbt 3	—	—	—	—	—	3000	—	—	—
RE33-05-62988	33-25087	12.0–12.5	Qbt 3	—	—	—	—	—	1560	—	—	—
RE33-05-62989	33-25088	10.0–10.5	Qbt 3	—	—	—	—	—	3030	—	—	—
RE33-05-63000	33-25092	0.0–0.5	Fill	—	—	—	—	—	657.61	—	—	—
RE33-05-63001	33-25092	2.0–2.5	Qbt 3	—	—	—	—	0.21	3298.81	—	—	—
RE33-05-63002	33-25093	0.0–0.5	Qbt 3	—	—	—	—	—	317.74	—	—	—
RE33-05-63003	33-25093	2.0–2.5	Qbt 3	—	—	—	—	0.33	2873.28	—	—	—
RE33-05-63004	33-25094	0.0–0.5	Qbt 3	0.2345 (J-)	—	—	—	—	393.62	—	—	—
RE33-05-63005	33-25094	2.0–2.5	Qbt 3	—	—	—	—	0.49	2894.5	—	—	—
RE33-05-63006	33-25095	0.0–0.5	Fill	—	—	—	—	—	712.28	—	—	—
RE33-05-63007	33-25095	2.0–2.5	Qbt 3	0.17945 (J-)	—	—	—	—	3550.7	—	—	—
RE33-05-63008	33-25096	0.0–0.5	Fill	—	—	—	—	—	488.996	—	—	—
RE33-05-63009	33-25096	2.0–2.5	Qbt 3	—	—	—	—	—	411.072	—	—	—
RE33-05-63227	33-25123	0.0–0.5	Qbt 3	—	—	—	—	—	3.93 (J-)	—	—	—
RE33-05-63228	33-25123	2.0–2.5	Qbt 3	—	—	—	—	—	1.29	—	—	—

Table 2.0-4 (continued)

Sample ID	Location ID	Depth (ft bgs)	Media	Americium-241	Cesium-137	Plutonium-238	Plutonium-239/240	Strontium-90	Tritium	Uranium-234	Uranium-235/236	Uranium-238
Soil BV/FV[a]				**0.013**	**1.65**	**0.023**	**0.054**	**1.31**	**na[b]**	**2.59**	**0.2**	**2.29**
Qbt 2, 3, 4 BV/FV[a]				**na**	**na**	**na**	**na**	**na**	**na**	**1.98**	**0.09**	**1.93**
RE33-05-63229	33-25124	0.0–0.5	Qbt 3	—	—	—	—	—	0.766 (J-)	—	—	—
RE33-05-63230	33-25124	2.0–2.5	Qbt 3	—	—	—	—	—	0.548	—	—	—
RE33-05-63231	33-25125	0.0–0.5	Qbt 3	—	—	—	—	—	1.49 (J-)	—	0.17	—
RE33-05-63232	33-25125	2.0–2.5	Qbt 3	—	—	—	—	—	0.739	—	—	—
SWMU 33-002(c)												
0333-96-0076	33-01697	10.0–12.5	Qbt 3	NA	NA	0.002	—	NA	113.143	NA	NA	NA
0333-96-0049	33-01697	19.17–19.5	Qbt 3	NA	NA	NA	NA	NA	144.411	NA	NA	NA
0333-96-0050	33-01697	23.75–24.17	Qbt 2	NA	NA	NA	NA	NA	131.889	NA	NA	NA
0333-96-0051	33-01697	28.0–29.0	Qbt 2	NA	NA	NA	NA	NA	141.676	NA	NA	NA
0333-96-0052	33-01697	31.42–31.83	Qbt 2	NA	NA	NA	NA	NA	81.7718	NA	NA	NA
0333-96-0053	33-01697	36.0–36.42	Qbt 2	NA	NA	NA	NA	NA	53.9011	NA	NA	NA
0333-96-0054	33-01697	40.0–40.58	Qbt 2	NA	NA	NA	NA	NA	31.6342	NA	NA	NA
0333-96-0055	33-01697	47.5–48.5	Qbt 2	NA	NA	NA	NA	NA	25.8137	NA	NA	NA
0333-96-0056	33-01697	51.83–52.0	Qbt 2	NA	NA	NA	NA	NA	17.6965	NA	NA	NA
0333-96-0057	33-01697	57.5–58.5	Qbt 2	NA	NA	NA	NA	NA	13.5823	NA	NA	NA
0333-96-0058	33-01697	61.42–62.17	Qbt 2	NA	NA	NA	NA	NA	10.3356	NA	NA	NA
RE33-05-60765	33-24727	0.0–0.5	Qbt 3	0.6379 (J-)	—	—	—	—	313.7	—	—	—
RE33-05-60766	33-24727	2.0–2.5	Qbt 3	—	—	—	—	1.28 (J-)	342.2	—	—	—
RE33-05-60767	33-24728	0.0–0.5	Qbt 3	—	—	—	—	0.82 (J-)	24960	—	—	—
RE33-05-60768	33-24728	2.0–2.5	Qbt 3	—	—	0.1864 (J-)	—	—	883.1	—	—	—
RE33-05-60769	33-24729	0.0–0.5	Qbt 3	—	—	—	—	—	1618	—	—	—

Table 2.0-4 (continued)

Sample ID	Location ID	Depth (ft bgs)	Media	Americium-241	Cesium-137	Plutonium-238	Plutonium-239/240	Strontium-90	Tritium	Uranium-234	Uranium-235/236	Uranium-238
Soil BV/FV[a]				**0.013**	**1.65**	**0.023**	**0.054**	**1.31**	**na[b]**	**2.59**	**0.2**	**2.29**
Qbt 2, 3, 4 BV/FV[a]				**na**	**na**	**na**	**na**	**na**	**na**	**1.98**	**0.09**	**1.93**
RE33-05-60770	33-24729	2.0–2.5	Qbt 3	—	—	—	—	—	85.08	—	—	—
RE33-05-62984	33-25085	12.0–12.5	Qbt 3	—	—	—	—	—	30.8	—	—	—
RE33-05-62985	33-25086	10.0–10.5	Qbt 3	—	0.048	—	—	—	NA	—	—	—
RE33-05-62986	33-25086	12.0–12.5	Qbt 3	—	—	0.1263	—	—	29.4	—	—	—
RE33-05-63217	33-25118	0.0–0.5	Qbt 3	—	—	—	—	0.38 (J+)	8468.51	—	—	—
RE33-05-63218	33-25118	2.0–2.5	Qbt 3	—	—	—	—	—	1588.43	—	—	—
RE33-05-63219	33-25119	0.0–0.5	Qbt 3	—	—	—	0.0972 (J+)	—	143.93	—	—	—
RE33-05-63220	33-25119	2.0–2.5	Qbt 3	—	—	0.082	—	—	201.492	—	—	—
RE33-05-63221	33-25120	0.0–0.5	Qbt 3	—	—	—	—	—	416.672	—	—	—
RE33-05-63222	33-25120	2.0–2.5	Qbt 3	—	—	—	—	—	79.6216	—	—	—
RE33-05-63223	33-25121	0.0–0.5	Qbt 3	—	—	—	—	—	132.639	—	—	—
RE33-05-63224	33-25121	2.0–2.5	Qbt 3	—	—	—	—	—	150.907	—	—	—
RE33-05-63225	33-25122	0.0–0.5	Qbt 3	—	—	—	—	—	1681.4	—	—	—
RE33-05-63226	33-25122	2.0–2.5	Qbt 3	—	—	—	—	—	184.57	—	—	—
AOC C-33-003												
RE33-99-0010	33-01709	0.0–0.5	Fill	—	—	—	—	—	—	4.67	—	4.86
RE33-99-0012	33-01711	0.0–0.33	Fill	—	—	—	—	—	—	3.83	—	3.83

Notes: Units are pCi/g. Data qualifiers are defined in Appendix A.

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

[b] na = Not available.

[c] NA = Not analyzed.

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

Table 3.0-1
Summary of Samples Collected and Analyses
Requested for Previous Investigations at TA-33 Area 6

Sample ID	Location ID	Depth (ft)	Media	Isotopic Uranium
SWMU 33-007(c)				
0333-96-0179	33-01622	1.0–8.0	Soil	2136*
0333-96-0180	33-01622	1.0–8.0	Soil	2136
0333-96-0181	33-01637	1.0–8.0	Soil	2136
0333-96-0182	33-01638	1.0–8.0	Fill	2136
0333-96-0183	33-01639	1.0–8.0	Fill	2136
0333-96-0184	33-01640	1.0–8.0	Fill	2136
0333-96-0185	33-01641	1.0–8.0	Fill	2136
0333-96-0186	33-01642	1.0–8.0	Fill	2136
0333-96-0187	33-01643	1.0–8.0	Fill	2136
0333-96-0188	33-01644	1.0–8.0	Fill	2136

*Analytical request number.

Table 4.0-1
Summary of Samples Collected and Analyses Requested for Previous Investigations at TA-33 South Site

Sample ID	Location ID	Depth (ft)	Media	Cyanide	Gamma Spectroscopy	High Explosives	Isotopic Plutonium	Isotopic Uranium	Metals	SVOC	Tritium	VOC
Consolidated Unit 33-001(a)-99												
0333-96-0549	33-01653	1.17–1.92	Soil	—[a]	2332[b]	2324	2332	—	2325, 2332	2324	2332	2324
0333-96-0550	33-01653	17.0–17.42	Qbt 3	—	2332	2324	2332	—	2325, 2332	2324	2332	2324
0333-96-0551	33-01653	24.0–25.0	Qbt 2	—	2332	2324	2332	—	2325, 2332	2324	2332	2324
0333-96-0552	33-01653	39.0–40.0	Qbt 4	—	2332	2324	2332	—	2325, 2332	2324	2332	2324
0333-96-0553	33-01654	1.0–2.0	Soil	—	2332	2324	2332	—	2325, 2332	2324	2332	2324
0333-96-0554	33-01654	14.0–15.0	Qbt 3	—	2332	2324	2332	—	2325, 2332	2324	2332	2324
0333-96-0555	33-01654	24.0–25.0	Qbt 2	—	2332	2324	2332	—	2325, 2332	2324	2332	2324
0333-96-0556	33-01654	39.0–40.0	Qbt 4	—	2332	2324	2332	—	2325, 2332	2324	2332	2324
SWMU 33-004(b)												
0333-95-0081	33-01548	8.5–10.5	Qbt 2	1658	—	—	—	—	1658, 1659	1657	—	1657
SWMU 33-007(b)												
0333-95-0078	33-01405	0.0–0.5	Fill	—	—	—	—	—	1504	—	—	—
0333-95-0079	33-01406	0.0–0.5	Fill	—	—	—	—	—	1504	—	—	—
0333-95-0080	33-01411	0.0–0.5	Fill	—	—	—	—	—	1504	—	—	—
RE33-99-0001	33-01700	0.0–0.5	Soil	—	—	—	—	5608R	5607R	—	—	—
RE33-99-0002	33-01701	0.0–0.5	Soil	—	—	—	—	5608R	5607R	—	—	—
RE33-99-0003	33-01702	0.0–0.5	Soil	—	—	—	—	5608R	5607R	—	—	—
RE33-99-0004	33-01703	0.0–0.5	Soil	—	—	—	—	5608R	5607R	—	—	—
RE33-99-0063	33-01718	0.0–0.5	Sed	—	—	—	—	5683R	5682R	—	—	—

Table 4.0-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Cyanide	Gamma Spectroscopy	High Explosives	Isotopic Plutonium	Isotopic Uranium	Metals	SVOC	Tritium	VOC
RE33-99-0064	33-01719	0.0–0.5	Sed	—	—	—	—	5683R	5682R	—	—	—
RE33-99-0018	XX-33-604073	0.0–0.5	Fill	—	—	—	—	5583R	—	—	—	—
RE33-99-0050	XX-33-604073	0.0–0.5	Fill	—	—	—	—	5583R	—	—	—	—
RE33-99-0051	XX-33-604073	0.0–0.5	Fill	—	—	—	—	5583R	—	—	—	—
SWMU 33-008(a)												
0333-96-0003	33-01665	0.0–1.0	Fill	—	—	2113	—	—	2111, 2112	2110	—	—
0333-96-0004	33-01665	2.5–3.0	Fill	—	—	2113	—	—	2111, 2112	2110	—	—
0333-96-0005	33-01665	3.0–3.5	Fill	—	—	2113	—	—	2111, 2112	2110	—	—
0333-96-0006	33-01665	4.0–5.0	Qbo	—	—	2113	—	—	2111, 2112	2110	—	—
0333-96-0007	33-01666	0.0–1.0	Fill	—	—	2113	—	—	2111, 2112	2110	—	—
0333-96-0008	33-01666	1.0–2.5	Fill	—	—	2113	—	—	2111, 2112	2110	—	—
0333-96-0009	33-01666	2.5–3.5	Qbo	—	—	2113	—	—	2111, 2112	2110	—	—
0333-96-0010	33-01666	4.0–5.0	Qbo	—	—	2113	—	—	2111, 2112	2110	—	—
0333-96-0011	33-01667	0.0–1.0	Fill	—	—	2113	—	—	2111, 2112	2110	—	—
0333-96-0012	33-01667	2.5–5.0	Fill	—	—	2113	—	—	2111, 2112	2110	—	—
0333-96-0013	33-01667	7.5–10.0	Fill	—	—	2113	—	—	2111, 2112	2110	—	—
0333-96-0014	33-01667	10.0–12.5	Qbo	—	—	2113	—	—	2111, 2112	2110	—	—
0333-96-0015	33-01668	2.5–3.5	Fill	—	—	2113	—	—	2111, 2112	2110	—	—
0333-96-0016	33-01668	5.0–6.0	Fill	—	—	2113	—	—	2111, 2112	2110	—	—
0333-96-0017	33-01668	6.0–7.0	Fill	—	—	2113	—	—	2111, 2112	2110	—	—
0333-96-0018	33-01668	8.5–10.0	Qbo	—	—	2113	—	—	2111, 2112	2110	—	—

Table 4.0-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Cyanide	Gamma Spectroscopy	High Explosives	Isotopic Plutonium	Isotopic Uranium	Metals	SVOC	Tritium	VOC
SWMU 33-010(c)												
RE33-99-0005	33-01704	0.0–0.5	Soil	—	—	—	—	5608R	5607R	—	—	—
RE33-99-0006	33-01705	0.0–0.5	Soil	—	—	—	—	5608R	5607R	—	—	—
RE33-99-0007	33-01706	0.0–0.5	Soil	—	—	—	—	5608R	5607R	—	—	—
RE33-99-0008	33-01707	0.0–0.5	Soil	—	—	—	—	5608R	5607R	—	—	—
RE33-99-0065	33-01720	0.0–0.5	Sed	—	—	—	—	5683R	5682R	—	—	—
RE33-99-0066	33-01721	0.0–0.5	Sed	—	—	—	—	5683R	5682R	—	—	—
RE33-99-0067	33-01722	0.0–0.5	Sed	—	—	—	—	5683R	5682R	—	—	—
RE33-99-0052	XX-33-604074	0.0–0.5	Fill	—	—	—	—	5583R	—	—	—	—
RE33-99-0053	XX-33-604074	0.0–0.5	Fill	—	—	—	—	5583R	—	—	—	—
RE33-99-0054	XX-33-604074	0.0–0.5	Fill	—	—	—	—	5583R	—	—	—	—

[a] — = Analysis not requested.

[b] Analytical request number.

Table 4.0-2
Inorganic Chemicals Detected above BVs in Previous Investigations at TA-33 South Site

Sample ID	Location ID	Depth (ft bgs)	Media	Antimony	Arsenic	Barium	Cadmium	Calcium	Chromium	Cobalt	Copper	Cyanide	Iron	Lead	Nickel	Selenium	Silver	Thallium	Uranium	Zinc
Soil BV[a]				**0.83**	**8.17**	**295**	**0.4**	**6120**	**19.3**	**8.64**	**14.7**	**0.5**	**21500**	**22.3**	**15.4**	**1.52**	**1**	**0.73**	**1.82**	**48.8**
Qbo BV[a]				**0.5**	**0.56**	**25.7**	**0.4**	**1900**	**2.6**	**8.89**	**3.96**	**0.5**	**3700**	**13.5**	**2**	**0.3**	**1**	**1.22**	**0.72**	**40**
Qbt 2, 3, 4 BV[a]				**0.5**	**2.79**	**46**	**1.63**	**2200**	**7.14**	**3.14**	**4.66**	**0.5**	**14500**	**11.2**	**6.58**	**0.3**	**1**	**1.1**	**2.4**	**63.5**
Sediment BV[a]				**0.83**	**3.98**	**127**	**0.4**	**4420**	**10.5**	**4.73**	**11.2**	**0.82**	**13800**	**19.7**	**9.38**	**0.3**	**1**	**0.73**	**2.22**	**60.2**
Consolidated Unit 33-001(a)-99																				
0333-96-0550	33-01653	17.00–17.42	Qbt 3	0.54 (UJ)	—[b]	—	8860	—	—	—	—	—	—	—	—	0.53 (J)	—	—	—	—
0333-96-0551	33-01653	24.0–25.0	Qbt 2	0.54 (UJ)	—	—	—	—	—	—	—	—	—	—	—	0.44 (U)	—	—	—	—
0333-96-0552	33-01653	39.0–40.0	Qbt 4	0.54 (UJ)	—	—	—	—	—	—	—	—	—	—	—	0.44 (U)	—	—	3.2	—
0333-96-0553	33-01654	1.0–2.0	Soil	—	—	—	7330	—	—	—	—	—	—	—	—	—	—	—	—	—
0333-96-0554	33-01654	14.0–15.0	Qbt 3	0.54 (UJ)	—	—	—	—	—	—	—	—	—	—	—	0.44 (U)	—	—	—	—
0333-96-0555	33-01654	24.0–25.0	Qbt 2	0.54 (UJ)	—	—	—	—	—	—	—	—	—	—	—	0.44 (U)	—	—	—	—
0333-96-0556	33-01654	39.0–40.0	Qbt 4	0.54 (UJ)	—	—	—	—	—	—	—	—	—	—	—	0.44 (U)	—	—	3.4	—
SWMU 33-004(b)																				
0333-95-0081	33-01548	8.5–10.5	Qbt 2	3.2 (UJ)	—	—	—	2960	22	—	—	1.1	—	—	—	0.32 (U)	—	—	3.5	—
SWMU 33-007(b)																				
0333-95-0078	33-01405	0.0–0.5	Fill	—	—	—	—	—	—	—	18.2	—	—	23.4	—	—	—	—	—	—
0333-95-0080	33-01411	0.0–0.5	Fill	—	—	—	0.5 (J)	—	24.3	10.3	—	—	—	—	—	—	—	—	—	—
RE33-99-0001	33-01700	0.0–0.5	Soil	—	—	—	0.78 (J)	—	—	—	—	—	—	68.5 (J-)	—	—	—	—	—	—
RE33-99-0002	33-01701	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.8 (J)	—	—
RE33-99-0063	33-01718	0.0–0.5	Sed	—	—	—	—	—	—	—	15.5	—	—	—	17.3	0.94 (J)	—	—	—	—
RE33-99-0064	33-01719	0.0–0.5	Sed	—	—	—	—	—	—	—	—	—	—	—	—	0.44 (U)	—	—	—	—
SWMU 33-008(a)																				
0333-96-0003	33-01665	0.0–1.0	Fill	—	—	—	—	7980	—	—	36.8	—	—	—	—	—	—	—	3.49	—
0333-96-0004	33-01665	2.5–3.0	Fill	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4.4	—
0333-96-0005	33-01665	3.0–3.5	Fill	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5.42	—
0333-96-0006	33-01665	4.0–5.0	Qbo	0.55 (UJ)	1.9 (J)	—	—	—	—	—	—	—	5470	—	—	0.45 (U)	—	—	2.45	—
0333-96-0007	33-01666	0.0–1.0	Fill	—	—	—	0.48 (U)	—	—	—	45.2	—	—	—	—	—	—	—	7.4	—
0333-96-0008	33-01666	1.0–2.5	Fill	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4.67	—
0333-96-0009	33-01666	2.5–3.5	Qbo	0.57 (UJ)	1.2 (J)	—	—	—	—	—	—	—	4910	—	—	0.47 (U)	—	—	3.96	—
0333-96-0010	33-01666	4.0–5.0	Qbo	0.58 (UJ)	1.2 (J)	—	—	—	—	—	—	—	4860	—	—	0.47 (U)	—	—	2.69	—
0333-96-0011	33-01667	0.0–1.0	Fill	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.58	—
0333-96-0012	33-01667	2.5–5.0	Fill	—	—	—	—	7360	—	—	—	—	—	—	—	—	—	—	2.71	108
0333-96-0013	33-01667	7.5–10.0	Fill	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.82	207
0333-96-0014	33-01667	10.0–12.5	Qbo	0.55 (UJ)	1.1 (J)	—	—	—	—	—	—	—	4750	—	—	0.45 (U)	—	—	2.42	202

Table 4.0-2 (continued)

Sample ID	Location ID	Depth (ft bgs)	Media	Antimony	Arsenic	Barium	Cadmium	Calcium	Chromium	Cobalt	Copper	Cyanide	Iron	Lead	Nickel	Selenium	Silver	Thallium	Uranium	Zinc
Soil BV[a]				**0.83**	**8.17**	**295**	**1.83**	**0.4**	**6120**	**19.3**	**8.64**	**0.5**	**0.5**	**21500**	**0.1**	**1.52**	**1**	**0.73**	**1.82**	**48.8**
Qbo BV[a]				**0.5**	**0.56**	**25.7**	**0.4**	**1900**	**2.6**	**8.89**	**3.96**	**0.5**	**3700**	**13.5**	**2**	**0.3**	**1**	**1.22**	**0.72**	**40**
Qbt 2, 3, 4 BV[a]				**0.5**	**2.79**	**46**	**1.63**	**2200**	**7.14**	**3.14**	**4.66**	**0.5**	**14500**	**11.2**	**6.58**	**0.3**	**1**	**1.1**	**2.4**	**63.5**
Sediment BV[a]				**0.83**	**3.98**	**127**	**0.4**	**4420**	**10.5**	**4.73**	**11.2**	**0.82**	**13800**	**19.7**	**9.38**	**0.3**	**1**	**0.73**	**2.22**	**60.2**
0333-96-0015	33-01668	2.5–3.5	Fill	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.37	—
0333-96-0016	33-01668	5.0–6.0	Fill	—	—	—	—	—	—	—	19.7	—	—	—	—	—	—	—	9.1	—
0333-96-0017	33-01668	6.0–7.0	Fill	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.06	—
0333-96-0018	33-01668	8.5–10.0	Qbo	0.55 (UJ)	1.6 (J)	—	—	—	—	—	—	—	5000	—	—	0.45 (U)	—	—	2.66	—
SWMU 33-010(c)																				
RE33-99-0005	33-01704	0.0–0.5	Soil	—	—	—	—	—	—	—	116	—	—	—	—	—	—	—	—	—
RE33-99-0006	33-01705	0.0–0.5	Soil	0.91 (U)	—	—	—	—	—	—	44.7	—	—	—	—	—	—	—	—	—
RE33-99-0007	33-01706	0.0–0.5	Soil	0.86 (U)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE33-99-0065	33-01720	0.0–0.5	Sed	—	—	130	—	—	—	—	581	—	—	—	—	0.46 (U)	4.6	—	—	—
RE33-99-0066	33-01721	0.0–0.5	Sed	—	—	—	—	—	—	—	570	—	—	—	—	0.89 (J)	—	—	—	—
RE33-99-0067	33-01722	0.0–0.5	Sed	—	—	—	—	—	—	—	270	—	—	—	—	0.44 (U)	—	—	—	—

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

[a] BVs from LANL 1998, 059730.

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

Table 4.0-3
Organic Chemicals Detected in Previous Investigations at TA-33 South Site

Sample ID	Location ID	Depth (ft)	Media	Acenaphthene	Acenaphthylene	Acetone	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Bis(2-ethylhexyl)phthalate	Carbazole	Chloroaniline[4-]	Chrysene	Di-n-butylphthalate	Dibenz(a,h)anthracene
Consolidated Unit 33-001(a)-99																		
0333-96-0549	33-01653	1.17–1.92	Soil	—[a]	—	—	—	—	—	—	—	—	0.7 (J)	—	—	—	—	—
0333-96-0550	33-01653	17.0–17.42	Qbt 3	—	—	—	—	—	—	—	—	—	0.13 (J)	—	—	—	—	—
0333-96-0551	33-01653	24.0–25.0	Qbt 2	—	—	—	—	—	—	—	—	—	0.13 (J)	—	—	—	—	—
0333-96-0552	33-01653	39.0–40.0	Qbt 4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
0333-96-0553	33-01654	1.0–2.0	Soil	—	—	—	—	—	—	—	—	—	0.19 (J)	—	—	—	—	—
0333-96-0554	33-01654	14.0–15.0	Qbt 3	—	—	0.016 (J)	—	—	—	—	—	—	1.1 (J-)	—	—	—	—	—
0333-96-0556	33-01654	39.0–40.0	Qbt 4	—	—	0.014 (J)	—	—	—	—	—	—	—	—	—	—	—	—
SWMU 33-004(b)																		
0333-95-0081	33-01548	8.5–10.5	Qbt 2	—	—	—	—	—	—	—	—	—	0.803	—	—	—	—	—
SWMU 33-007(b)																		
RE33-99-0017	XX-33-604073	0.0–0.5	Fill	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
SWMU 33-008(a)																		
0333-96-0003	33-01665	0.0–1.0	Fill	—	—	—	—	—	—	1.4 (J)	—	—	0.55 (J)	—	—	0.18 (J)	—	—
0333-96-0004	33-01665	2.5–3.0	Fill	0.75 (J-)	0.83 (J-)	—	2.6 (J-)	5.1 (J-)	2.5 (J-)	3.8 (J-)	1.1 (J-)	1.8 (J-)	0.53 (J)	1.6 (J-)	—	5.7 (J-)	—	0.44 (J-)
0333-96-0005	33-01665	3.0–3.5	Fill	0.36 (J-)	—	—	1.1 (J-)	1.8 (J-)	0.9 (J-)	0.44 (J-)	0.41 (J-)	0.6 (J)	—	0.98 (J-)	—	1.9 (J-)	—	—
0333-96-0007	33-01666	0.0–1.0	Fill	0.58 (J-)	—	—	2 (J-)	0.71 (J-)	0.51 (J-)	0.66 (J-)	—	0.32 (J)	—	0.62 (J-)	—	1.3 (J-)	—	—
0333-96-0008	33-01666	1.0–2.5	Fill	0.15 (J)	—	—	0.23 (J)	0.14 (J)	0.078 (J)	—	—	—	—	0.099 (J)	—	0.17 (J)	—	—
0333-96-0011	33-01667	0.0–1.0	Fill	—	—	—	—	—	—	—	—	—	—	—	—	—	0.071 (J)	—
0333-96-0012	33-01667	2.5–5.0	Fill	0.24 (J)	—	—	0.3 (J)	0.16 (J)	—	—	—	NA[b]	0.17 (J)	0.22 (J)	—	0.2 (J)	—	—
0333-96-0013	33-01667	7.5–10.0	Fill	NA	—	—	0.35 (J)	0.3 (J)	NA	0.15 (J)	NA	—	NA	0.14 (J)	NA	0.26 (J)	NA	NA
0333-96-0015	33-01668	2.5–3.5	Fill	0.16 (J)	—	—	0.44 (J)	0.28 (J)	—	0.14 (J)	—	NA	—	0.22 (J)	—	0.41 (J)	—	—
0333-96-0016	33-01668	5.0–6.0	Fill	4.2	0.76 (J)	—	4.9	3.2 (J)	1.6 (J)	2.3 (J)	—	1.2 (J)	—	3.5	—	3.7	—	—
0333-96-0017	33-01668	6.0–7.0	Fill	0.55 (J)	—	—	0.41 (J)	0.37 (J)	0.18 (J)	0.16 (J)	—	—	—	0.34 (J)	0.74 (J)	0.38 (J)	—	—
0333-96-0018	33-01668	8.5–10.0	Qbo	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Table 4.0-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Dibenzofuran	Dinitrobenzene[1,3-]	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Methylnaphthalene[2-]	Naphthalene	Phenanthrene	Pyrene	Toluene	Trichlorobenzene[1,2,3-]	Trichlorobenzene[1,2,4-]	Trinitrobenzene[1,3,5-]
Consolidated Unit 33-001(a)-99																
0333-96-0549	33-01653	1.17–1.92	Soil	—	—	—	—	—	—	—	—	—	0.0042 (J+)	—	—	—
0333-96-0550	33-01653	17.0–17.42	Qbt 3	—	—	—	—	—	—	—	—	—	—	—	—	—
0333-96-0551	33-01653	24.0–25.0	Qbt 2	—	—	—	—	—	—	—	—	—	—	—	—	—
0333-96-0552	33-01653	39.0–40.0	Qbt 4	—	—	—	—	—	—	0.003 (J)	—	—	—	—	—	—
0333-96-0553	33-01654	1.0–2.0	Soil	—	—	—	—	—	—	0.003 (J-)	—	—	—	0.005 (J-)	0.003 (J-)	—
0333-96-0554	33-01654	14.0–15.0	Qbt 3	—	—	—	—	—	—	—	—	—	—	—	—	—
0333-96-0556	33-01654	39.0–40.0	Qbt 4	—	—	—	—	—	—	—	—	—	—	—	—	—
SWMU 33-004(b)																
0333-95-0081	33-01548	8.5–10.5	Qbt 2	—	—	—	—	—	—	—	—	—	—	—	—	—
33-007(b)																
RE33-99-0017	XX-33-604073	0.0–0.5	Fill	—	—	—	—	—	—	—	—	—	0.00093 (J)	—	—	—
33-008(a)																
0333-96-0003	33-01665	0.0–1.0	Fill	—	—	0.38 (J)	—	—	—	—	0.34 (J)	0.33 (J)	—	—	—	—
0333-96-0004	33-01665	2.5–3.0	Fill	0.54 (J-)	—	27 (J-)	0.86 (J-)	1.3 (J-)	—	—	5.7 (J-)	15 (J-)	—	—	—	—
0333-96-0005	33-01665	3.0–3.5	Fill	—	—	9.5 (J-)	0.4 (J-)	0.43 (J-)	—	—	3.5 (J-)	5.4 (J-)	—	—	—	—
0333-96-0007	33-01666	0.0–1.0	Fill	0.44 (J-)	—	1.6 (J-)	0.6 (J-)	—	—	0.37 (J-)	1.8 (J-)	1.4 (J-)	—	—	—	—
0333-96-0008	33-01666	1.0–2.5	Fill	0.11 (J)	—	0.51	0.15 (J)	—	—	—	0.68	0.38	—	—	—	—
0333-96-0011	33-01667	0.0–1.0	Fill	—	—	—	—	—	—	—	—	—	—	—	—	—
0333-96-0012	33-01667	2.5–5.0	Fill	0.17 (J)	—	0.97	0.26 (J)	—	—	—	1.5	0.7	—	—	—	—
0333-96-0013	33-01667	7.5–10.0	Fill	NA	—	1.5	NA	NA	NA	NA	1.2	0.99	—	—	—	—
0333-96-0015	33-01668	2.5–3.5	Fill	—	—	0.63 (J)	0.18 (J)	—	—	0.4 (J)	0.75	0.58 (J)	—	—	—	—
0333-96-0016	33-01668	5.0–6.0	Fill	2.8 (J)	—	11	4.2	—	3.2 (J)	11	15	8.4	—	—	—	—
0333-96-0017	33-01668	6.0–7.0	Fill	0.36 (J)	—	1.3	0.5 (J)	—	0.41 (J)	1.1	1.8	0.96	—	—	—	—
0333-96-0018	33-01668	8.5–10.0	Qbo	—	—	—	—	—	—	—	0.074 (J)	—	—	—	—	—

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

[a] — = Result was not detected.

[b] NA = Not analyzed.

Table 4.0-4
Radionuclides Detected or Detected above BVs/FVs in Previous Investigations at TA-33 South Site

Sample ID	Location ID	Depth (ft bgs)	Media	Cesium-137	Plutonium-238	Plutonium-239/240	Tritium	Uranium-234	Uranium-235/236	Uranium-238
Soil BV/FV[a]				**1.65**	**0.023**	**0.054**	**na[b]**	**2.59**	**0.2**	**2.29**
Qbt 2, 3, 4 BV/FV[a]				**na**	**na**	**na**	**na**	**1.98**	**0.09**	**1.93**
Sediment BV/FV[a]				**0.9**	**0.006**	**0.068**	**0.093**	**2.59**	**0.2**	**2.29**
Consolidated Unit 33-001(a)-99										
0333-96-0549	33-01653	1.17–1.92	Soil	—[c]	—	—	0.0904823	NA[d]	NA	NA
0333-96-0550	33-01653	17.0–17.42	Qbt 3	—	—	—	0.560725	NA	NA	NA
0333-96-0551	33-01653	24.0–25.0	Qbt 2	—	—	—	0.0431174	NA	NA	NA
0333-96-0552	33-01653	39.0–40.0	Qbt 4	—	—	—	0.0416466	NA	NA	NA
0333-96-0553	33-01654	1.0–2.0	Soil	—	—	—	0.0437782	NA	NA	NA
0333-96-0554	33-01654	14.0–15.0	Qbt 3	—	—	—	0.0442105	NA	NA	NA
0333-96-0555	33-01654	24.0–25.0	Qbt 2	—	—	—	0.0937908	NA	NA	NA
0333-96-0556	33-01654	39.0–40.0	Qbt 4	—	—	—	0.0757325	NA	NA	NA
SWMU 33-007(b)										
RE33-99-0001	33-01700	0.0–0.5	Soil	NA	NA	NA	NA	2.82	—	3.36
RE33-99-0004	33-01703	0.0–0.5	Soil	NA	NA	NA	NA	7.35	0.314	7.15
SWMU 33-010(c)										
RE33-99-0005	33-01704	0.0–0.5	Soil	NA	NA	NA	NA	4.62	0.269	4.54
RE33-99-0006	33-01705	0.0–0.5	Soil	NA	NA	NA	NA	9.78	0.5	9.41
RE33-99-0008	33-01707	0.0–0.5	Soil	NA	NA	NA	NA	4.05	0.221	3.94
RE33-99-0065	33-01720	0.0–0.5	Sed	NA	NA	NA	NA	16.3	0.76	17.2

Table 4.0-4 (continued)

Sample ID	Location ID	Depth (ft bgs)	Media	Cesium-137	Plutonium-238	Plutonium-239/240	Tritium	Uranium-234	Uranium-235/236	Uranium-238
Soil/ BV/FV[a]				**1.65**	**0.023**	**0.054**	**na[b]**	**2.59**	**0.2**	**2.29**
Qbt 2, 3, 4 BV/FV[a]				**na**	**na**	**na**	**na**	**1.98**	**0.09**	**1.93**
Sediment BV/FV[a]				**0.9**	**0.006**	**0.068**	**0.093**	**2.59**	**0.2**	**2.29**
RE33-99-0066	33-01721	0.0–0.5	Sed	—	—	—	—	13.7	0.785	14.35
RE33-99-0067	33-01722	0.0–0.5	Sed	—	—	—	—	4.86	0.3	5.57
RE33-99-0052	33-604074	0.0–0.5	Fill	—	—	—	—	21.4	1.12	24.4
RE33-99-0053	33-604074	0.0–0.5	Fill	—	—	—	—	21.2	1.173	23.8
RE33-99-0054	33-604074	0.0–0.5	Fill	—	—	—	—	17	0.864	19.5

Notes: Units are pCi/g. Data qualifiers are defined in Appendix A.

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

[b] na = Not available.

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

[d] NA = Not analyzed.

Appendix A

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

A-1.0 ACRONYMS AND ABBREVIATIONS

ACA	accelerated corrective action
AOC	area of concern
BCH	benzene hexachloride
bgs	below ground surface
BMP	best management practice
BV	background value
CVL	containerized vat leach
DDD	dichlorodiphenyldichloroethane
DDE	dichlorophenyltrichloroethylene
DDT	dichlorophenyltrichloroethylene
DOE	Department of Energy (U.S.)
DRO	diesel range organics
DU	depleted uranium
EP	Environmental Programs Directorate
ER	Environmental Restoration Project
FV	fallout value
HE	high explosives
HIR	historical investigation report
HP	Hot Point
IA	interim action
LANL	Los Alamos National Laboratory
LLW	low-level waste
MDA	material disposal area
NMED	New Mexico Environment Department
NFA	no further action
NRAO	National Radio Astronomy Observatory
OU	operable unit
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl
ppm	part per million
QC	quality control
RCRA	Resource Conservation and Recovery Act

RDX hexahydro-1,3,5-trinitro-1,3,5 triazine
RFI RCRA facility investigation
RPF Records Processing Facility
SGS Segmented Gate System
SVOC semivolatile organic compound
SWMU solid waste management unit
TA technical area
TCA 1,1,1-trichloroethane
TCE trichlorethene
TPH total petroleum hydrocarbon
VCA voluntary corrective action
VCP vitrified clay pipe
VOC volatile organic compound
XRF x-ray fluorescence

A-2.0 METRIC CONVERSION TABLE

Multiply SI (Metric) Unit	by	To Obtain U.S. 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-3.0 DATA QUALIFIER DEFINITIONS

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

Appendix B

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