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Historical Investigation Report for North Ancho Canyon Aggregate Area



Prepared by the Environmental Programs Directorate

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September 2007

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EXECUTIVE SUMMARY

This historical investigation report summarizes previous investigations and activities conducted at sites in the North Ancho Canyon Aggregate Area. It provides the background information and supporting data that form the basis for the proposed sampling design necessary to complete the site investigations as presented in the North Ancho Canyon Aggregate Area investigation work plan.

The North Ancho Canyon Aggregate Area is located in the southeast portion of Los Alamos National Laboratory within Technical Area (TA) 39 and the Ancho Canyon watershed. The aggregate area extends from the southern boundary of TA-49 to the northern boundaries of TA-33 and -70 and includes a total of 15 solid waste management units and 11 areas of concern.

Sites at TA-39 include five firing sites, a firing range (gas-gun site), a former incinerator, active and inactive waste storage areas, an inactive seepage pit, one active and one inactive septic system, two inactive landfill areas, an inactive drainline and outfall, and an excavated soil dump. Of these 26 sites, 25 have been previously investigated and/or remediated, 1 site has not yet been investigated, and 7 sites have been approved for no further action (NFA). Only brief descriptions of the sites approved for NFA are provided, along with documentation leading to the NFA. For the remaining sites, details of site descriptions, previous investigation(s), and analytical results are provided, where available.

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Appendixes

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Appendix B Analytical Suites and Results (on CD included with this document)
Appendix C Historical Location Survey Data (on CD included with this document)

1.0 INTRODUCTION

Los Alamos National Laboratory (LANL or the Laboratory) is a multidisciplinary research facility owned by the U.S. Department of Energy (DOE) and managed by Los Alamos National Security, LLC. The Laboratory is located in north-central New Mexico, approximately 60 mi northeast of Albuquerque and 20 mi northwest of Santa Fe. The Laboratory covers 40 mi^2 of the Pajarito Plateau, which consists of a series of fingerlike mesas separated by deep canyons containing ephemeral, perennial, and intermittent streams running from west to east. Mesa tops range in elevation between 6200 and 7800 ft above mean sea level.

The Laboratory's Environmental Programs (EP) Directorate, formerly the Environmental Restoration Project, is participating in a national effort by DOE to clean up sites and facilities formerly involved in weapons research and development. The goal of the EP Directorate is to ensure that past operations do not threaten human or environmental health and safety in and around Los Alamos County, New Mexico. To achieve this goal, EP Directorate 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).

The sites addressed in this historical investigation report (HIR) may contain hazardous and/or radioactive constituents. The New Mexico Environment Department (NMED) has authority under the New Mexico Hazardous Waste Act over cleanup of sites with hazardous waste or certain hazardous constituents, including the hazardous waste portion of mixed waste (i.e., waste contaminated with both radioactive and hazardous constituents). DOE has authority over cleanup of sites with radioactive contamination. Radionuclides are regulated under DOE Order 5400.5, "Radiation Protection of the Public and the Environment," and DOE Order 435.1, "Radioactive Waste Management." Information on radioactive materials and radionuclides, including the results of sampling and analyses of radioactive constituents, is voluntarily provided to 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), issued pursuant to the New Mexico Hazardous Waste Act, New Mexico Statutes Annotated 1978, § 74-4-10 and 74-9-36(D), and the New Mexico Solid Waste Act.

This HIR provides operational histories and summaries of the field investigations and associated environmental data collected to date for the sites presented in the North Ancho Canyon Aggregate Area investigation work plan (LANL 2007, 098280). The purpose of this HIR is to provide supporting information for the activities necessary to complete the investigation, as presented in the work plan.

SWMUs and AOCs addressed in this HIR are divided into three subaggregate areas described in section 1.1. Details of historical investigations for each SWMU and AOC in each of the three subaggregate areas are presented in sections 2.0 to 4.0, respectively. Administratively complete sites are presented in section 5.0. Appendix A contains acronyms, glossary, metric conversion, and data qualifier tables. Appendix B presents analytical data from past investigations and corresponding sampling location coordinates (on compact disc [CD]). The historical location survey coordinates are provided in Appendix C (on CD).

1.1 General Site Information

The North Ancho Canyon Aggregate Area is located in the southeast portion of the Laboratory within Technical Area (TA) 39 and the Ancho Canyon Watershed (Figures 1.1-1 and 1.1-2). The aggregate area extends from the southern boundary of TA-49 to the northern boundaries of TA-33 and -70 and includes

the alluvial floodplain and hillsides of North Ancho Creek, an intermittent stream (Figure 1.1-2). The North Ancho Canyon Aggregate Area consists of 26 SWMUs and AOCs (also referred to as sites) within TA-39 (LANL 1993, 015316, p. 1-12).

Seven of these sites have been approved for no further action (NFA) by the U.S. Environmental Protection Agency (EPA) (NMED 1998, 063042; EPA 2005, 088464). The regulatory status of the SWMUs and AOCs in this aggregate area is presented is Table 1.1-1.

TA-39 was established in 1953 as a remote area for open-air testing of high explosives (HE) for experiments related to equation-of-state research, shock-wave phenomena, development of implosion systems, development and application of explosively produced pulses of electrical power, and production of high magnetic fields. TA-39 was originally constructed with three active firing sites [SWMUs 39-004(a), 39-004(b), and 39-004(c)]. In 1958, a fourth firing site [SWMU 39-004(d)] was constructed approximately 75 ft from SWMU 39-004(a). In 1978, construction of the fifth firing site [SWMU 39-004(e)], located approximately 300 ft from SWMU 39-004(b), was completed. Of the five firing sites constructed for open-air testing of explosives, one firing site, SWMU 39-004(b), is on standby status because of the hazard of falling rocks from the nearby canyon wall, and the other four firing sites remain operational.

The experiments conducted at the firing sites are designed to expend all HE contained in the device. If a shot fails so that not all the HE is spent, an effort is made to pick up and destroy the unexploded HE. A typical shot carries 10 to 100 lb of explosives, but on occasion up to 1000 lb may be used. Signs of impact from any one of these firing sites are generally noticeable around a 200-ft radius from the firing point (ICF Kaiser Engineers 1997, 097812, p. 1).

Other sites at TA-39 include an active firing range (gas-gun site), a former incinerator, active and inactive waste storage areas, an inactive seepage pit, one active and one inactive septic system, two inactive landfill areas, an inactive drainline and outfall, and an excavated soil dump. All the SWMUs and AOCs at TA-39 are located in the bottom of the north fork of Ancho Canyon. Most of the waste historically generated at TA-39 was disposed of on-site and included office waste, construction debris, and firing site refuse, which may have contained inorganic chemicals, organic chemicals, and radionuclides. Detailed historical information about each site in the North Ancho Canyon Aggregate Area is provided in the approved Resource Conservation and Recovery Act (RCRA) facility investigation (RFI) work plan for Operable Unit (OU) 1132 (LANL 1993, 015316).

The SWMUs and AOCs comprising this aggregate area are divided into the following three subaggregate areas, based upon location and operational history (Figure 1.1-1).

- Subaggregate Area 1, northern section of TA-39 (five SWMUs and two AOCs): Three active firing sites, one inactive firing site, two storage areas (removed) located on two of the active firing pads, and the excavated soil dump are located in the northern portion of TA-39 (Figure 1.1-3).
- Subaggregate Area 2, central section of TA-39 (four SWMUs and four AOCs): One firing site (active), a firing range (active), five storage areas, and Material Disposal Area (MDA) Y are located in the central portion of TA-39 (Figure 1.1-4).
- Subaggregate Area 3, southern section of TA-39 (six SWMUs and five AOCs): Five storage areas, an inactive seepage pit, two septic systems, a drainline and outfall, a former incinerator, and an inactive landfill are located in the southern portion of TA-39 (Figure 1.1-5).

1.2 Data Review

Samples from previous investigations were analyzed for inorganic chemicals, organic chemicals, and/or radionuclides either on-site by the Chemical Sciences and Technology (CST) Division at the Laboratory, or off-site by fixed laboratories, or both. Data obtained from on-site CST Division laboratories are screening-level-quality data that are used to define nature and extent; these data are not discussed and are not reported. The data from mobile laboratories—the Laboratory's CST Division Mobile Chemical Analytical Laboratory or the CST Mobile Radiological Analysis Laboratory—are also screening-level data that are not used to define nature and extent; these data are also not discussed or reported in this HIR. Some samples were shipped directly from the field to the analytical laboratory without first being submitted through the Sample Management Office (SMO) and do not have data packages available on-site to perform the appropriate data validation; these sample results are screening-level data that are not used to define nature and extent and are not discussed or reported in this HIR. In some cases, individual analytical results are qualified as rejected because of various data-quality issues. Rejected analytical results are provided in Appendix B on CD. From late 1995 to the present, all samples have been shipped through the SMO to off-site contract laboratories. The off-site data validated and qualified by examining the original data packages are decision-level data that can be used to define nature and extent; these data are presented as decision-level data and are discussed further.

Inorganic chemicals are compared with background values (BVs) and the ranges of background concentrations (LANL 1998, 059730, p. 13). The concentrations of any detected organic chemicals are presented. The activities of detected radionuclides are compared with a BV or fallout values (FVs) and, where applicable, the ranges of the background/fallout activities for radionuclides (LANL 1998, 059730, p. 30). These data are presented in their entirety in this report. The environmental media sampled in previous investigations at TA-39 included soil, fill, and sediment. The investigation samples associated with the decision-level data were collected in 1995, 1996, 1997, and 2001. A summary of historical samples collected in North Ancho Canyon representing decision-level data are provided in Tables 2.0-1, 3.0-1, and 4.0-1.

2.0 SUBAGGREGATE AREA 1: NORTHERN SECTION OF NORTH ANCHO CANYON AGGREGATE AREA

2.1 SWMUs 39-004(a) and 39-004(d), Firing Sites

2.1.1 Background and Operational History

SWMUs 39-004(a) (structure 39-7) and 39-004(d) (structure 39-57) are active firing sites located along the northern tributary of the upper reach of Ancho Canyon at TA-39 (Figure 2.1-1). SWMU 39-004(a) is an active unit deferred per Table IV-2 of the Consent Order. SWMU 39-004(d) is a firing site and an active RCRA operating unit that is subject to RCRA closure requirements and not Consent Order requirements.

Both of these firing pads are located in the canyon bottom between a diverted ephemeral stream and the canyon wall. SWMU 39-004(a) was constructed in 1953 as a remote test firing facility to test materials (LANL 1993, 015316). SWMU 39-004(d) is the located approximately 75 ft southeast from

SWMU 39-004(a) (Figure 2.1-2). The firing sites are within the fall zone of a high cliff that erodes when explosives experiments are conducted at the site. Directly west of the firing pad at SWMU 39-004(a) is a talus pile or debris mound at the base of the canyon wall.

2.1.2 Previous Investigations

Planned historical investigations at these sites attempted to differentiate between the two firing sites, but because of the nature of activities in this area, SWMUs 39-004(a) and 39-004 (d) were sampled as one site. In 1995, Phase I RFI activities were completed at SWMUs 39-004(a) and 39-004(d) (ICF Kaiser Engineers 1997, 097812, pp. 4-5). Investigations were planned and conducted in two parts.

Initial sampling involved collecting samples from within the physical boundary of the firing pads (approximately within a 100-ft-diameter circle from a central point between the two firing pads). Radiation surveys and x-ray fluorescence (XRF) screening were conducted at both firing pads to guide the selection of sampling locations. Where possible, sampling locations were selected from the location of the two highest radiation and XRF surveys. Twelve surface samples were collected from 12 locations (locations 39-01237 through 39-01258) at SWMUs 39-004(a) and 39-004(d) within the firing pad area, including two samples collected from the talus pile, west of the pad at SWMU 39-004(a).

Eighteen samples were also collected from the adjacent stream channel in nine locations (39-01263, 39-01264, 39-01265, 39-01266, 39-01267, 39-01268, 39-01269, 39-01270, and 39-01271). Typically, each location was sampled in two depth intervals. The first sample was collected from the surface (0 to 0.5 ft) and the second from the 0.5- to 0.83-ft interval.

The firing site also was sampled along three lines radiating outward from the pad. In previous historical documents, these lines are referred to as transects. To characterize the extent of contamination dispersion beyond the firing pads, three transects were sampled, using a central point between the two firing pads as the hub. The transects radiated outward from the 100-ft-diameter circle encompassing the firing pads to a distance of approximately 600 ft. Sixteen samples were collected from nine locations (locations 39-01294 through 39-01302) from the transects at SWMUs 39-004(a) and 39-004(d). The transect sampling, conducted at all firing sites in the northern subaggregate area, is shown in Figure 2.1-3.

Sampling data showed HE, inorganic chemicals, organic chemicals, and radionuclides as potential contaminants. The nature and extent at SWMUs 39-004(a) and 39-004(d) have not been defined.

2.1.3 Data for SWMUs 39-004(a) and 39-004(d)

Forty-six soil samples were collected from 30 locations at SWMU 39-004(a) during the 1995 RFI (ICF Kaiser Engineers 1997, 097812, pp. 4-33). Samples were collected from two depth intervals (0 to 0.5 ft and 0.5 to 0.83 ft below ground surface [bgs]) at 16 locations and from only the surface interval (0 to 0.5 ft) at 14 other sampling locations. The analytical suites for each sample are provided in Table 2.0-1.

All 46 samples were analyzed for inorganic chemicals, and 24 samples were analyzed for total uranium. Analytical results indicated that antimony, barium, beryllium, cadmium, calcium, cobalt, copper, total cyanide, lead, mercury, nickel, silver, thallium, total uranium, and zinc were above BVs in at least one sample (Figure 2.1-4 and Table 2.1-1).

- Antimony was detected in one surface sample (location 39-01300) above the BV and above the maximum soil background concentration. Antimony detection limits were above the BV and above the maximum soil background concentration in numerous samples.
- Barium was detected above its BV and above the maximum soil background concentration in one sample from location 39-01256.

- Beryllium was detected above the BV in two locations (39-01256 and 39-01302) but below the maximum soil background concentration in the sample from location 39-01302. The other beryllium result is above the maximum soil background concentration.
- Cadmium was detected above the soil BV in four locations (39-01239, 39-01254, 39-01256, and 39-01295) but below the maximum soil background concentration at locations 39-01239, 39-01256, and 39-01295. Cadmium had detection limits above the BV but below the maximum soil background concentrations at 25 locations.
- Calcium was detected in one sample (location 39-01302) above the BV and within the range of soil background concentrations.
- Cobalt was detected in one sample (location 39-01254) above the BV and above the maximum soil background concentration.
- Copper was detected at concentrations above the BV and above the maximum soil background concentration at six locations (39-01239, 39-01240, 39-01254, 39-01256, 39-01298, and 39-01302).
- Total cyanide was not detected above the BV, but the detection limits were greater than the BV at 29 locations.
- Lead was detected at concentrations above the BV and above the maximum soil background concentration at six locations (39-01239, 39-01240, 39-01254, 39-01255, 39-01256, and 39-01302).
- Mercury was detected above the BV at 11 locations. Detection limits were above the BV at 15 locations.
- Nickel was detected above the BV at location 39-01254.
- Silver was detected above the BV in two locations (39-01295 and 39-01297). Silver was not detected at 25 sampling locations, but its detection limits were above the BV.
- Thallium was not detected above the soil BV; however, detection limits were above the maximum soil background concentration at 15 sampling locations.
- Total uranium was detected at concentrations above the BV at 31 locations. Total uranium was detected above the BV but below the maximum soil background concentration at location 39-01264.
- Zinc was detected above the soil BV at three sampling locations. Two of the reported detections were below the maximum soil background concentration.

All 46 samples from SWMUs 39-004(a) and 39-004(d) were analyzed for semivolatile organic compounds (SVOCs), and 38 samples were analyzed for HE. Two SVOCs (anthracene and chrysene) were detected at low concentrations at two locations. HMX (high-melting explosive or octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine) and RDX (research department explosive or cyclotrimethylenetrinitramine) were detected at two locations (Figure 2.1-5 and Table 2.1-2).

All 46 samples from SWMUs 39-004(a) and 39-004(d) were analyzed for isotopic thorium, and 30 samples were analyzed by gamma spectroscopy. Analytical results indicated that europium-152, sodium-22, uranium-235, and several isotopes of thorium were detected or detected above BV in at least one sample (Figure 2.1-6 and Table 2.1-3).

- Europium-152 and sodium-22 were detected but have no FVs.

- Uranium-235 was detected above the BV at seven locations (39-01239, 39-01240, 39-01255, 39-01256, 39-01269, 39-01297, and 39-01302).
- Thorium-228, -230, and -232 were detected at concentrations slightly above BV in six locations (39-01254, 39-01256, 39-01257, 39-01258, 39-01298, and 39-01302).

2.2 AOC 39-002(d), Storage Area

2.2.1 Background and Operational History

AOC 39-002(d) is a former satellite accumulation area (SAA) located on a gravel pad on the outside, southwest corner of a blockhouse (structure 39-57) for a firing site [SWMU 39-004(d)] (Figure 2.2-1). The SAA consisted of a 5-ft × 5-ft × 4-ft electrical closet placed on an unpaved gravel pad. From the late 1980s through the 1990s, this SAA was used to store photographic wastes and cloth and paper contaminated with various substances (acetone, ethanol, transformer oil, trichloroethane, vacuum grease, and copper sulfate) (LANL 1993, 015316, p. 5-18). This SAA was removed from service, and the area is no longer used for storage.

2.2.2 Previous Investigations

Previous investigations at AOC included the collection of two surface samples from within the footprint of the storage area in 1993 (LANL 1995, 046190, p. 4-20). Sampling was performed to determine possible impacts from adjacent firing sites. Samples were collected but are only screening-level data. Therefore, these data are not discussed or reported.

2.3 SWMU 39-004(b), Firing Site

2.3.1 Background and Operational History

SWMU 39-004(b) is a firing site on standby status (structure 39-08) located in the western tributary of the upper reach of North Ancho Canyon (Figure 2.3-1). SWMU 39-004(b) is deferred for investigation per Table IV-2 of the Consent Order. The firing pad is located in the canyon bottom between an ephemeral stream and the northern canyon wall. As with SWMU 39-004(a), a talus pile or debris mound lies directly north of the site. Activities at this site were discontinued in 1980 because of the constant hazard of falling debris from the nearby cliff (LANL 1993, 015316, p. 5-23). This SWMU is influenced by firing-site activities at SWMUs 39-004(a), 39-004(d), and 39-004(e).

2.3.2 Previous Investigations

The Phase I RFI at SWMU 39-004(b) was concluded in 1995 (ICF Kaiser Engineers 1997, 097812, p. 35). To determine potential contaminant dispersion and migration from an explosives site, the investigation was conducted in two segments: (1) the firing pad areas and (2) transects from the firing pads along the adjacent hillsides and mesa top. Preliminary sampling involved collecting samples from within the physical boundary of the firing pad (within an approximate 100-ft-diameter circle). Then, a grid was established over the firing pad on 20-ft centers. Radiation surveys and XRF screening were conducted at each grid point. Where possible, sampling locations were selected from the location of the two highest radiation and XRF surveys. Six surface soil samples were collected from locations around the firing pad at SWMU 39-004(b), including two samples collected from the talus mound, at the base of the canyon slope north of the pad.

Fourteen samples were collected from seven locations along the adjacent stream channel. Typically, each location was sampled in two depth intervals. The first sample was collected from the surface (0 to 0.5 ft) and the second from the 0.5- to 0.83-ft interval.

To characterize the extent of contamination dispersion beyond the firing pad, three transects were established, with the firing pad as the hub. The transects radiated outward from the 100-ft-diameter circle encompassing the firing pad to a distance of 600 ft from the pad. In total, 11 samples were collected from eight locations along the transects at this site. Sampling data showed SVOCs, inorganic chemicals, and radionuclides as potential contaminants. The nature and extent at SWMU 39-004(b) have not been defined.

2.3.3 Data for SWMU 39-004(b)

Seventeen soil samples and 14 sediment samples were collected from 21 locations at SWMU 39-004(b) during the 1995 RFI (ICF Kaiser Engineers 1997, 097812, pp. 35–39). Samples were collected from two depth intervals (0 to 0.5 ft and 0.5 to 0.83 ft bgs) at 10 locations and from only the surface interval (0 to 0.5 ft) at the other 11 sampling locations. The requested analytical suites for each sample are provided in Table 2.0-1.

All 31 samples were analyzed for inorganic chemicals, and 19 samples were analyzed for total uranium. Analytical results indicated that antimony, barium, beryllium, cadmium, calcium, cobalt, copper, total cyanide, lead, mercury, nickel, selenium, silver, thallium, total uranium, and zinc were above BVs in at least one sample (Figure 2.3-2 and Table 2.3-1).

- Antimony was not detected above the range of background concentrations, but the detection limits were above maximum soil background concentration at eight locations.
- Barium was detected above the sediment BV and the maximum sediment background concentration in two samples from location 39-01280.
- Beryllium was detected above the BV but below the maximum soil background concentration in the sample from location 39-01305.
- Cadmium was not detected above the BV. Detection limits for cadmium were below the maximum soil background concentration at eight locations (39-01303 through 39-01305 and 39-01307 through 39-01311).
- Calcium was detected in one sample (location 39-01305) above the BV but below the maximum soil background concentration.
- Cobalt was detected in three samples from three locations (39-01279, 39-01282, and 39-01283) above the BV and the maximum soil background concentration. .
- Copper was detected at concentrations above BVs and the maximum soil or sediment background concentration at 11 locations (39-01243–39-01246, 39-01280–39-01283, 39-01303, 39-01308, and 39-01309).
- Total cyanide was not detected above the BV, but the detection limits were above the BV at 14 locations.
- Lead was detected at concentrations above soil or sediment BVs and above the maximum soil or sediment background concentrations at five locations (39-01243, 39-01244, 39-01245, 39-01246, and 39-01280). One lead concentration was less than the maximum background concentration.

- Mercury was detected above the soil or sediment BV at 13 locations (39-01243, 39 01244, 39-01245, 39-01246, 39-01280, 39-01281, 39-01282, 39-01303, 39-01304, 39-01305, 39-01307, 39-01308, and 39-01309). Detection limits were above the BV for samples collected from locations 39-01247, 39-01248, 39-01279, and 39-01283.
- Nickel was detected in one sample from location 39-01280 above the sediment BV and the maximum sediment background concentration.
- Selenium was not detected above the sediment BV; however, detection limits were above the sediment BV at seven sediment sampling locations (39-01277, 39-01278, 39-01279, 39-01280, 39-01281, 39-01282, and 39-01283).
- Silver was not detected above the soil BV; however, detection limits were above the BV at eight sampling locations (39-01303, 39-01304, 39-01305, 39-01307, 39-01308, 39-01309, 39-01310, and 39-01311).
- Thallium was detected above the BV and the maximum sediment background concentration in one sample from location 39-01277. Detection limits were above the maximum soil or sediment background concentrations at 13 locations (39-01243, 39-01244, 39-01245, 39-01246, 39-01247, 39-01248, and 39-01277, 39-01278, 39-01279, 39-01280, 39-01281, 39 01282, and 39-01283).
- Total uranium was detected at concentrations above the BV s and the maximum of soil or sediment background concentrations at all but five sampling locations.
- Zinc was detected above the BVs and the maximum soil or sediment background concentrations in samples from locations 39-01243, 39-01244, and 39-01280.

All 31 samples from SWMU 39-004(b) were analyzed for SVOCs, and 23 samples were analyzed for HE. Only two SVOCs [bis(2-ethylhexyl)phthalate and di-n-butylphthalate] were detected at low concentrations at three locations (Figure 2.3-3 and Table 2.3-2).

All 31 samples from SWMU 39-004(b) were analyzed for isotopic thorium, and 20 samples were analyzed by gamma spectroscopy. Analytical results indicated that cesium-137, ruthenium-106, sodium-22, uranium-235, and several isotopes of thorium were detected or detected above BVs/FVs in at least one sample (Figure 2.3-4 and Table 2.3-3).

- Cesium-134, ruthenium-106, and sodium-22 were detected but have no FVs.
- Uranium-235 was detected above the BV at four locations (39-01303, 39-01308, 39-01309, and 39-01310).
- Thorium-228, -230, and -232 were detected in concentrations above BVs in both samples from location 39-01303.

2.4 AOC 39-002(f), Storage Area

2.4.1 Background and Operational History

AOC 39-002(f) is a former SAA that was located on the asphalt driveway outside the northeast corner of a support structure (structure 39-88) for an active firing site [SWMU 39-004(e)] (Figure 2.4-1). Before this area became an SAA, it was used to store small quantities of waste solvents (ethanol, acetone, and trichloroethane), copper sulfate, transformer oil, vacuum grease, and photographic wastes (LANL 1993, 015316, p. 5-18).

2.4.2 Previous Investigations

Previous investigations at AOC 39-002(f) included collecting two surface samples from within the footprint of the storage area in 1993 (LANL 1995, 046190, p. 4-29). Sampling was performed to determine possible impacts from adjacent firing sites. Samples were collected but are only screening-level data. Therefore, these data are not discussed or reported.

2.5 SWMU 39-004(e), Firing Site

2.5.1 Background and Operational History

SWMU 39-004(e) is an active firing site at TA-39 (structure 39-88) that is deferred for investigation per Table IV-2 of the Consent Order. This site has been in use since its construction in 1978 as a remote test firing facility to test materials (Figure 2.5-1). SWMU 39-004(e) is located in the western tributary of the upper reach of Ancho Canyon on the same tributary as SWMU 39 004(b). This SWMU is within the deposition area of SWMUs 39-004(a), 39-004(b), and 39 004(d).

2.5.2 Previous Investigations

The Phase I RFI at SWMU 39-004(e) was implemented in 1995 (ICF Kaiser Engineers 1997, 097812, p. 54). To determine potential contaminant dispersion and migration from an explosives site, the investigation was conducted in two segments: (1) the firing pad areas and (2) transects from the firing pads along the adjacent hillsides and mesa top.

Preliminary sampling involved collecting samples from within the physical boundary of the firing pad (within an approximate 100-ft-diameter circle). To accomplish this objective, a grid was established over the firing pad on 20-ft centers. Radiation surveys and XRF screening were conducted at each grid point. Sampling locations were then selected, where possible, from the location of the two highest radiation and XRF surveys. Five surface soil samples were collected from four locations at the firing pad at SWMU 39-004(e).

Ten samples were collected from five locations along the adjacent stream channel. Typically, each location was sampled in two depth intervals. The first sample was collected from the surface (0 to 0.5 ft) and the second from the 0.5- to 0.83-ft interval.

To characterize the extent of contamination dispersion beyond the firing pad, three transects were established at the site, using the firing pad as the hub. The transects radiated outward from the 100-ft-diameter circle encompassing the firing pad to a distance of 600 ft from the pad. In total, 25 samples were collected from 14 locations along transects established at this site. Sampling data showed inorganic chemicals, organic chemicals, and radionuclides as potential contaminants. The nature and extent at SWMU 39-004(e) have not been defined.

2.5.3 Data for SWMU 39-004(e)

Forty soil or sediment samples were collected from 23 locations at SWMU 39-004(e) during the 1995 RFI. Samples were collected from two depth intervals (0 to 0.5 ft and 0.5 to 0.83 ft bgs) at most locations and from only the surface interval (0 to 0.5 ft) at six sampling locations. The requested analytical suites for each sample are provided in Table 2.0-1.

All samples were analyzed for inorganic chemicals, and 30 samples were analyzed for total uranium. Analytical results indicated that antimony, cadmium, chromium, copper, total cyanide, lead, mercury,

nickel, selenium, silver, sodium, thallium, uranium, and zinc were above BVs in at least one sample (Figure 2.5-2 and Table 2.5-1).

- Antimony was detected above the BVs and the maximum background concentrations for soil or sediment at four locations (39-01260, 39-01261, 39-01321, and 39-01312). Antimony was not detected, but the detection limits were above the BV and the maximum soil background concentration at 21 locations.
- Cadmium was detected at a concentration above the BV but below the maximum soil background concentration in samples from locations 39-01261 and 39-01276. Detection limits for cadmium were above BV but within the range of soil background concentrations at 12 locations.
- Chromium was detected in three samples (locations 39-01260, 39-01261, and 39-01262) above the BV but below the maximum soil background concentration. Chromium was detected above the range of soil background concentrations at location 39-01260.
- Copper was detected at concentrations above the soil BV and above the maximum soil background concentration at 12 locations (39-01259–39-01262, 39-01272, 39-01273, 39-01276, 39-01312, 39-01313, 39-01316, 39-01317, and 39-01321).
- Cyanide was not detected above the BV, but the detection limits were above the soil BV at all 25 sampling locations.
- Lead was detected at concentrations above the soil BV at three locations and above the maximum soil background concentration at two locations (39-01259 and 39-01261).
- Mercury was detected above the soil BV at six locations (39-01276, 39-01313, 39-01317, 39-01320, 39-01321, and 39-01322). Detection limits were above the soil BV for samples collected from locations 39-01316, 39-01317, 39-01319, 39-01382, and 39-01383.
- Nickel was detected above the BV but below the maximum soil background concentration at locations 39-01260 and 39-01261.
- Selenium was not detected above the BV; however, detection limits were above the maximum sediment background concentration at location 39-01312.
- Silver was detected above the soil or sediment BV at five locations (39-01259, 39-01261, 39-01262, 39-01312, and 39-01316). Detection limits were above the soil BV at eight sampling locations (39-01315, 39-01316, 39-01317, 39-01318, 39-01319, 39 01323, 39-01382, and 39-01383).
- Sodium was detected above the BV but below the maximum soil background concentration at location 39-01260.
- Thallium was not detected above the soil BV at four locations (39-01259, 39-01260, 39-01261, and 39-01262; however, its detection limits were above the maximum soil background concentration at these locations.
- Uranium was detected at concentrations above BVs and the maximum soil or sediment background concentrations at all 25 sampling locations.
- Zinc was detected above the BVs and the maximum soil or sediment background concentration in samples from locations 39-01261, 39-01276, and 39-01312.

All 40 samples from SWMU 39-004(e) were analyzed for SVOCs, and 37 samples were analyzed for HE. Only three SVOCs [benzoic acid, bis(2-ethylhexyl)phthalate, and di-n-butylphthalate] were detected at low concentrations at one to four locations (Figure 2.5-3 and Table 2.5-2).

All 40 samples from SWMU 39-004(e) were analyzed for isotopic thorium, and 37 samples were analyzed by gamma spectroscopy. Analytical results indicated that europium-152, cesium-137, and several isotopes of thorium were detected or detected above the BVs/FVs in at least one sample (Figure 2.5-4 and Table 2.5-3).

- Europium-152 was detected but has no FV.
- Cesium-137 was detected in the deeper sample interval at locations 39-01276, 39-01321, and 39-01322.
- Thorium-228, -230, and -232 were detected at concentrations above BVs in both surface samples from locations 39-01313 and 39-01314. Thorium-228, -230, and -232 were also detected in the deeper intervals at these same locations.

2.6 SWMU 39-010, Excavated Soil Dump

2.6.1 Background and Operational History

SWMU 39-010 is an area that was used for staging soil excavated during the 1978 construction of SWMU 39-004(e), located at the south end of Subaggregate Area 1 (Figures 1.1-3 and 2.6-1). During the construction of the most recent firing site at TA-39 [SWMU 39-004(e)], large quantities of earth were removed and deposited in the canyon east of the firing site SWMU 39-004(e), forming SWMU 39-010 (LANL 1993, 015316). This soil dump, which covers about 76,200 ft^2, was not identified in the 1990 SWMU report (LANL 1990, 007513). However, it was both noted in the RFI work plan (LANL 1993, 015316, p. 5-24) and described in a new SWMU notification letter to NMED (LANL 2001, 071215). No data are available concerning the nature and extent of possible contamination of the excavated-soil dump, but potential contaminants at this site are expected to be similar to the potential contaminants at SWMU 39-004(e) (radionuclides, organic chemicals, and inorganic chemicals).

2.6.2 Previous Investigations

No previous investigations were conducted at SWMU 39-010.

3.0 SUBAGGREGATE AREA 2: CENTRAL SECTION OF NORTH ANCHO CANYON AGGREGATE AREA

3.1 SWMU 39-001(b), Disposal Trenches

3.1.1 Background and Operational History

SWMU 39-001(b) was reported to have consisted of three pits that were used to dispose of office waste and debris from a firing range (SWMU 39-008) (Figure 3.1-1). Pit 1, which was originally known as MDA Y, was excavated in the late 1960s. Pit 2, which was excavated parallel and adjacent to Pit 1, was in use from 1976 to 1981. Pit 3, directly south of the other two, was in use from 1981 to 1989 (Figure 3.1-1). All pits were closed and covered by May 1989. Debris from firing sites, empty chemical containers, and office waste were reportedly disposed at this site (LANL 1993, 015316, p. 5-6).

3.1.2 Previous Investigations

A series of geophysical and radiation surveys were conducted over the disposal pit locations SWMU 39-001(b) in 1993 (LANL 1997, 055633, p. 1-6). The most probable location of the disposal pits

was estimated using data compiled from historical documents, surface radiation surveys, and the geophysical surveys. Results of the geophysical survey indicated the disposal area was more amorphous than the three distinct disposal trenches that had been previously reported (LANL 1997, 055633, p. 5-30).

During the 1994 RFI, two field efforts were initiated to determine if contaminants had migrated from the disposal area. The first of these activities consisted of sampling the adjacent stream channel and surrounding area to determine if contaminants were migrating from the SWMU. The second activity involved installing vertical monitoring wells upstream and downstream of the landfill (LANL 1997, 055633, p. 5-31).

Field activities in 1996 consisted of establishing a grid over the suspected landfill area and sampling down through the contents of the landfill. Thirteen test pits were excavated within the two amorphous waste disposal areas to depths from 12 to 16 ft bgs; after the samples were collected, the pits were backfilled. No evidence of waste was observed in test pit locations 39-01391 and 39-01394 (LANL 1997, 055633, p. 5-33).

Sampling data showed inorganic chemicals, organic chemicals, and radionuclides as potential contaminants. The nature and extent of contamination at SWMU 39-001(b) have not been defined.

3.1.3 Data for SWMU 39-001(b)

Thirty-three soil samples were collected from 13 locations at SWMU 39-001(b). Samples were collected from locations 39-01391 and 39-01394 from depth intervals of 11 to 12 ft bgs and 14 to 15 ft bgs, respectively. Samples were collected from two depth intervals that varied by borehole at locations 39-01395 and 39-01398. Samples were collected from three depth intervals that varied by borehole at locations 39-01392, 39-01393, 39-01396, 39-01397, 39-01399, 39-01400, 39-01401, 39-01402, and 39-01403. The requested analytical suites for each sample are provided in Table 3.0-1.

All 33 samples were analyzed for total cyanide. All but 6 samples were analyzed for inorganic chemicals, and 20 samples were analyzed for total uranium. Analytical results indicated that antimony, cadmium, calcium, chromium, copper, cobalt, total cyanide, iron, lead, mercury, nickel, silver, thallium, total uranium, vanadium, and zinc were above BVs in at least one sample (Figure 3.1-2 and Table 3.1-1).

- Antimony was detected above the BV and maximum soil background concentration in one sample from location 39-01396. Antimony was not detected above the BV in other samples, but the detection limits were greater than or equal to the maximum soil background concentration at six locations.
- Cadmium was detected above the soil BV but below the maximum soil background concentration in two samples from location 39-01399. Detection limits for cadmium were above the soil BV but less than the maximum soil background concentration at five locations.
- Calcium was detected in one sample (location 39-01400) above the BV but below the maximum soil background concentration.
- Chromium was detected above the BV and the maximum soil background concentration in the deepest sample from location 39-01400.
- Cobalt was detected in one sample (location 39-01400) above the soil BV but below the maximum soil background concentration.
- Copper was detected at concentrations above the BV and the maximum soil background concentration at five locations (39-01396, 39-01399, 39-01400, 39-01402, and 39-10403).

- Cyanide was detected above the BV at three locations (39-01396, 39-01399, and 39-01400).
- Iron was detected above the BV but below the maximum soil background concentration at location 39-01400.
- Lead was detected at concentrations above the BV and the maximum soil background concentration at location 39-01400. Lead was also detected above the BV but below the maximum soil background concentration at locations 39-01402 and 39-01403.
- Mercury was detected at concentrations above the BV in six samples from six locations (39-01396, 39-01397, 39-01399, 39-01400, 39-01401, and 39-01403).
- Nickel was detected above the BV but below the maximum soil background concentration in two samples from locations 39-01397 and 39-01400.
- Silver was detected at concentrations above the BV at locations 39-01396 and 39-01400.
- Thallium was detected above the BV and the maximum soil background concentration in one sample from location 39-01394. The detection limits were above the BV and the maximum background concentrations at six locations.
- Uranium was detected at concentrations above BV and the maximum soil background concentration at six locations (39-01396, 39-01397, 39-01399, 39-01400, 39-01402, and 39-01403).
- Vanadium was detected above the BV and the maximum soil background concentration in one sample from location 39-01400.
- Zinc was detected above the BV and the maximum soil background concentration at two locations (39-01392 and 39-01396). Zinc was also detected above the BV but below the maximum soil background concentration at location 39-01399.

Twenty-two samples were analyzed for SVOCs, 25 samples were analyzed for volatile organic compounds (VOCs) and HE, and 15 samples were analyzed for pesticides/polychlorinated biphenyls (PCBs). Analytical results indicated that 17 polyaromatic hydrocarbons (PAHs) were detected in shallow samples at locations 39-01397 and 39-01400. The pesticides aldrin; DDT[4,4'-] (dichlorodiphenyltrichloroethane); and dieldrin were detected at locations 30-01402 and 39-01403. Butanone[2-]; HMX; and trinitrotoluene[2,4,6-] were each detected in one sample from a single location (39-01400 and 39-01403). One sample from location 39-01399 detected bis(2-ethylhexyl)phthalate in one depth interval. Methylene chloride was detected in one sample collected from location 39-01394. Aroclor-1254 was detected in one sample from location 39-01402 and one sample from location 39-01403 (Figure 3.1-3 and Table 3.1-2).

Twenty-eight samples were analyzed by gamma spectroscopy, 20 samples were analyzed for isotopic plutonium, 6 were analyzed for isotopic thorium, and 11 samples were analyzed for isotopic uranium. The analytical results indicated that plutonium-238 was detected in three samples from location 39-01392, two samples from location 39-01400, and one sample from location 39-01401. Uranium-234 was detected above the BV in the deepest sample from location 39-01391, and uranium-238 was above the BV in one sample from location 39-01399 (Figure 3.1-4 and Table 3.1-3).

3.2 SWMU 39-008, Gas-gun Site

3.2.1 Background and Operational History

SWMU 39-008 is an area of potential soil contamination from a gas-gun firing site near a Morgan shed (building 39-137) (Figure 3.2-1), that houses a single-stage gas gun with a 6-in.-diameter barrel. The gas

gun is used for outdoor experiments; gas is used as a propellant to fire depleted uranium projectiles at targets on the cliff face (LANL 1993, 015316, p. 5-26). Most of the debris from these firings is scattered over the area just west of the building, but occasionally projectiles and target fragments hit the cliff face, some 200 ft west of another building associated with this experimental gun (building 39-56). Photographic evidence shows that the area between the buildings and the cliff was leveled, and the removed surface materials were pushed into a mound on the south side of the test area. Testing at this site was conducted from 1960 to 1975, was suspended for 13 yr, and then resumed in 1988 (LANL 1993, 015316, p. 5-26). The gas gun is currently used for experimental purposes and housed in building 39-137.

3.2.2 Previous Investigations

During the 1993 Phase I RFI, a grid was established over the entire site, and a radiation survey was conducted (ICF Kaiser Engineers 1997, 097812, p. 94). In 1995, the results from the radiation survey were used to guide sample collection at SWMU 39-008. The objective of the investigation was to determine if contaminants were present in the soil between the gas-gun building (building 39-137), the leveled area, the cliff backstop, and the debris mound.

Surface (0 to 6 in.) and near-surface (6 to 10 in.) soil samples were collected from six locations between the gas-gun building and the cliff face (leveled area). Sampling locations based upon elevated radiation readings included locations 39-01349 and 39-01352. The remaining sampling locations (39-01347, 39-01348, 39-01350, and 39-01351) were evenly spaced between the gas-gun building and the cliff face. Four sampling locations (39-01355, 39-01356, 39-01357, and 39-01358) were established on the debris mound (ICF Kaiser Engineers 1997, 097812, p. 95) and also were sampled in two depth intervals. One surface sample was collected from a local drainage at the northern end of the site.

Samples were analyzed at an off-site contract laboratory for SVOCs, inorganic chemicals, cyanide, total uranium, isotopic thorium, isotopic plutonium, and by gamma spectroscopy. Only samples from locations 39-01349 and 39-01352 were analyzed for HE because HE was not expected to be present at the site (ICF Kaiser Engineers 1997, 097812, p. 96). Sampling data showed inorganic chemicals, organic chemicals, and radionuclides as potential contaminants. The nature and extent of contamination at SWMU 39-008 have not been defined.

3.2.3 Data for SWMU 39-008

Twenty-one soil samples were collected from 11 locations during the 1995 Phase I RFI of SWMU 39-008 (ICF Kaiser Engineers 1997, 097812, pp. 96-97). The requested analytical suites for each sample are provided in Table 3.0-1.

All 21 samples were analyzed for inorganic chemicals, including total cyanide, and 9 samples were analyzed for total uranium. Analytical results indicated that antimony, beryllium, cadmium, chromium, cobalt, total cyanide, lead, mercury, selenium, silver, thallium, and uranium were above BVs in at least one sample (Figure 3.2-2 and Table 3.2-1).

- Antimony was not detected above the BV, but the detection limit was above the maximum soil background concentration at location 39-01349.
- Beryllium was detected at a concentration above the BV but below the maximum soil background concentration at location 39-01349.

- Cadmium was detected at a concentration above the BV but below the maximum soil background concentration at location 39-01349.
- Chromium was detected at a concentration above the BV and the maximum soil background concentration at location 39-01349.
- Cobalt was detected at a concentration above the BV but below the maximum soil background concentration at location 39-01349. Cobalt was not detected above the BV in the deeper sample from this location.
- Cyanide was detected above the BV at location 39-01356. Detection limits for cyanide were above BV at six locations (39-01352, 39-01355, 39-01356, 39-01357, 39-01358, and 39-01359).
- Lead was detected at concentrations above the BV and the maximum background concentration at three locations (39-01349, 39-01351, and 39-01352). Lead was also detected above the BV but within the range of soil background concentration at three locations (39-01347, 39-0150, and 39-01351).
- Mercury was not detected above the BV; however, detection limits for mercury were above the BV at six locations (39-01352, 39-01355, 39-01356, 39-01357, 39-01358, and 39-01359).
- Selenium was detected at a concentration above the BV and the maximum soil background concentration at location 39-01349.
- Silver was detected above the BV at three locations (39-01349, 39-01350, and 39-01352). The detection limit for silver was above the BV at location 39-01349.
- Thallium was not detected above the BV; however, detection limits for thallium were above the maximum soil background concentration at eight locations (39-01349, 39-01350, 39-01352, 39-01355, 39-01356, 39-01357, 39-01358, and 39-01359).
- Total uranium was detected above the BV and the maximum soil background concentration in all 21 samples.

All 21 samples from SWMU 39-008 were analyzed for SVOCs, and 4 samples were analyzed for HE. Only two SVOCs [bis(2-ethylhexyl)phthalate and di-n-butylphthalate] were detected at low concentrations at seven locations (Figure 3.2-3 and Table 3.2-2).

All 21 samples were analyzed by gamma spectroscopy and for isotopic plutonium and isotopic thorium. Analytical results indicated that uranium-235, cesium-137, plutonium-239/240, and several isotopes of thorium were detected or detected above BVs/FVs in at least one sample (Figure 3.2-4 and Table 3.2-3).

- Cesium-137 was detected at depth at three locations (39-01348, 39-01350, and 39-01351).
- Uranium-235 was detected above the BV at six locations (39-01349, 39-01352, 39-01355, 39-01357, 39-01358, and 39-01359).
- Isotopes of thorium (thorium-228, -230, and -232) were detected at concentrations above BVs at three locations (39-01351, 39-01357, and 39-01358).
- Plutonium-239/-240 was detected at three locations (39-01348, 39-01349, and 39-01358) at depths greater than 0.5 ft.

3.3 AOC 39-002(c), Storage Area

3.3.1 Background and Operational History

AOC 39-002(c) is a former outdoor SAA that was located on an asphalt paved area adjacent to the southwest corner of the gas-gun support structure (structure 39-56) (Figure 3.3-1). This SAA was used only as needed to store waste paper and rags contaminated with solvents (ethanol, acetone, and trichloroethane), and vacuum grease. The SAA was located adjacent to a gas-gun firing site from which depleted uranium projectiles are fired into the cliff face to the west (SWMU 39-008).

3.3.2 Previous Investigations

During the Phase I RFI conducted in 1993, two surface samples were collected from two locations at AOC 39-002(c) (LANL 1995, 046190, p. 4-15). One sample was collected near the southeastern corner of structure 39-56 from surface soil immediately adjacent to the storage area and the other sample was collected 15 ft north, from soil closest to the asphalt pad. Based on the Phase I RFI data, which showed PCBs, lead, and uranium above screening levels, the site was recommended for a voluntary corrective action (VCA) (LANL 1995, 046190, p. 4-20).

The VCA was conducted at this site in 1995. Before the start of the VCA, two additional areas of potential contamination associated with structure 39-56 were identified. The first was located on the southwest corner of the building and consisted of oil-stained soil beneath an air compressor. The second area was located on the west side of the building and consisted of a small area contaminated with depleted uranium. Because the areas were small and distinct, they were addressed as part of the VCA conducted at AOC 39-002(c). The VCA consisted of soil removal and confirmation sampling in four localized areas, the two RFI sampling locations and the two additional areas identified during the walkover of the site before the commencement of the remedial activities (LANL 1996, 054401, p. 1). Following soil removal, two confirmation samples were collected from each of the four excavated areas and the excavations were backfilled with clean fill. The nature and extent at SWMU 39-002(c) have not been defined.

3.3.3 Data for AOC 39-002(c)

Eight surface soil samples (0 to 0.5 ft) were collected from eight locations during the 1995 VCA at AOC 39-002(c). Two samples were analyzed for inorganic chemicals, one sample was analyzed for SVOCs, four samples were analyzed for total uranium, and six samples were analyzed for PCBs/pesticides. None of the samples collected from AOC 39-002(c) were analyzed for specific radionuclides. The requested analytical suites for each sample are provided in Table 3.0-1.

Only one sample was analyzed for inorganic chemicals, and four samples were analyzed for total uranium. Analytical results indicated that antimony, cadmium, silver, and thallium were not detected above BV. The detection limits for antimony, silver, and thallium were above the maximum soil background concentrations at locations 39-01452 and 39-01460 for each metal. Cadmium detection limits were less than the maximum soil background concentration at these two locations. Total uranium was detected above the maximum soil background concentration at two locations (Figure 3.3-2 and Table 3.3-1).

Two SVOCs [dimethylphthalate and di-n-butylphthalate] were detected in the sample from location 39-01462 (Figure 3.3-3 and Table 3.3-2).

3.4 SWMU 39-004(c), Firing Site

3.4.1 Background and Operational History

SWMU 39-004(c) is an active firing site and active operating RCRA open detonation site (structure 39-06) subject to RCRA closure requirements and not Consent Order requirements. This site is located in the southernmost western tributary of Ancho Canyon in the canyon bottom between an ephemeral stream, a steep hill slope to the north, and a steep hill slope to the south (Figure 3.4-1). This site is used for both experimental purposes and for treating hazardous waste by open detonation; this site began to be used when TA-39 was established in 1953 as a remote test firing facility. The experiments conducted at this firing site are designed to expend all HE in the device.

3.4.2 Previous Investigations

The Phase I RFI at SWMU 39-004(c) was implemented in 1995 (ICF Kaiser Engineers 1997, 097812, p. 74). To determine potential contaminant dispersion and migration from an explosives site, the investigation was conducted in two segments: (1) the firing pad areas and (2) transects from the firing pads along the adjacent hillsides and mesa top.

Preliminary sampling involved the collection of samples from within the physical boundary of the firing pad (within an approximate 100-ft-diameter circle). Radiation surveys and XRF screening were conducted at the firing pad to guide selection of sampling locations. Sampling locations were then selected, where possible, from the location of the two highest radiation and XRF surveys. A total of four surface sampling locations were selected from locations around the firing pad at SWMU 39-004(c).

Twenty samples were collected from 10 locations along the adjacent stream channel, north and east of the site. Typically, each location was sampled in two depth intervals. The first sample was collected from the surface (0 to 0.5 ft) and the second from the 0.5 to 0.83-ft interval.

To characterize the extent of contamination dispersion beyond the firing pad, three transects were established at the site. With the firing pad as the hub, the three transects were sampled outward to a distance of approximately 600 ft from the pad. In total, 17 samples were collected from 10 locations along transects at this site (Figure 3.4-2).

Sampling data indicated inorganic chemicals, organic chemicals, and radionuclides as potential contaminants. The nature and extent of contamination at SWMU 39-004(c) have not been defined.

3.4.3 Data for SWMU 39-004(c)

Forty-one soil samples were collected from 24 locations at SWMU 39-004(c) during the 1995 RFI (ICF Kaiser Engineers 1997, 097812, p. 79). Samples were collected from two depth intervals (0 to 0.5 ft and 0.5 to 0.83 ft bgs) at 11 locations and from only the surface interval (0 to 0.5 ft) at the other 30 sampling locations. The requested analytical suites for each sample are provided in Table 3.0-1.

All 41 samples were analyzed for inorganic chemicals, and 12 samples were analyzed for total uranium. Analytical results indicated that antimony, barium, beryllium, cadmium, calcium, chromium, cobalt, copper, total cyanide, lead, mercury, nickel, silver, thallium, total uranium, and zinc were above BVs in at least one sample (Figure 3.4-3 and Table 3.4-1).

- Antimony was not detected above the BV, but the detection limits were above the maximum soil background concentration at 10 locations (39-01324, 39-01327, 39-01329, 39-01329, 39-01331, 39-01332, 39-01333, 39-01334, and 39-01335).

- Barium was detected above the BV but below the maximum soil background concentration in one sample from location 39-01251.
- Beryllium was detected above the BV but below the maximum soil background concentration in the sample from location 39-01250.
- Cadmium was detected above the BV but below the maximum soil background concentration at locations 39-01249 and 39-01251. Detection limits for cadmium were above the BV but below the maximum soil background concentration at all but four locations (39-01349, 39-01350, 39-01351, and 39-01252).
- Calcium was detected in one sample (location 39-01333) above the BV but below the maximum soil background concentration.
- Chromium was detected above the BV and the maximum soil background concentration in the sample from location 39-01250.
- Cobalt was detected above the BV and the maximum soil background concentration in the sample from location 39-01250.
- Copper was detected at concentrations above the BV and the maximum soil background concentration at 11 locations (39-01249, 39-01250, 39-01251, 39-01252, 39-01288, 39-01289, 39-01290, 39-01293, 39-01329, 39-01332, and 39-01334). Copper was detected above the BV but below the maximum soil background concentration at locations 39-01288, 39-01289, 39-01290, and 39-01329.
- Cyanide was detected above the BV at location 39-01331. The detection limits were above the BV at all but three locations (39-01324, 39-01327, and 39-01332).
- Lead was detected at concentrations above the BV and the maximum soil background concentration at five locations (39-01249, 39-01250, 39-01251, 39-01252, and 39-01332). Lead was detected above the BV but below the maximum soil background concentration at three locations (39-01287, 39-01289, and 39-01333).
- Mercury was detected above the BV in the sample from location 39-01249. Detection limits were above the BV for samples collected from 14 locations.
- Nickel was detected above the BV but below the maximum soil background concentration in one sample from location 39-01250.
- Silver was detected above the BV at locations 39-01250 and 39-01251. The detection limits for silver were above the BV at all but seven locations.
- Thallium was detected above the BV and the maximum soil background concentration in one sample from location 39-01252. Detection limits were above the maximum soil background concentration at 14 locations.
- Uranium was detected at concentrations above the BV and the maximum soil background concentration at 32 locations. Uranium was detected above the BV but below the maximum soil background concentration at locations 39-01285, 39-01286, 39-01287, and 39 01328.
- Zinc was detected above the BV and the maximum soil background concentration at locations 39-01249, 39-01251, and 39-01252. Zinc was detected above the BV but below the maximum soil background concentration at locations 39-01250, 39-01293, 39-01332, and 39-01333.

All 41 samples from SWMU 39-004(c) were analyzed for SVOCs, and 23 samples were analyzed for HE. The SVOCs [benzoic acid, bis(2-chloroethyl)phthalate, bis(2-ethylhexyl)phthalate, butylbenzylphthalate,

di-n-butylphthalate, and naphthalene] were each detected at low concentrations at between one and three locations (Figure 3.4-4 and Table 3.4-2).

All 41 samples from SWMU 39-004(c) were analyzed for isotopic thorium, and 20 samples were analyzed by gamma spectroscopy. Analytical results indicated that cesium-137 and sodium-22 were detected and several isotopes of thorium were detected above BV in at least one sample (Figure 3.4-5 and Table 3.4-3).

- Cesium-137 was detected in the samples collected from eight locations in the 0.5 to 0.83 ft interval.
- Sodium-22 was detected at location 39-01284.
- Thorium-228, -230, and -232 were detected at concentrations slightly above BVs at locations 39-01324 and 39-01333.

3.5 AOC 39-002(b), Storage Area

3.5.1 Background and Operational History

AOC 39-002(b) was previously used as a storage area and is currently an active satellite waste accumulation area on a 5-ft × 5-ft concrete pad adjacent to a firing-site support building (structure 39-06) and an active firing site [SWMU 39-004(c)] (Figure 3.5-1). This site lies within the testing hazard zones of SWMU 39-004(c). Presently, nothing is stored here, but the area remains available for use as needed (LANL 1993, 015316, p. 5-16).

3.5.2 Previous Investigations

During the 1993 RFI, two surface samples were collected from two locations at AOC 39-002(b). One sample was collected from the closest point to the storage area (adjacent to the concrete pad), and the second sample was collected 10 ft northeast of the concrete pad in a localized drainage. PCBs and inorganic chemicals were detected in the samples collected (LANL 1995, 046190, p. 4-10). The nature and extent of contamination at SWMU 39-002(b) have not been defined.

3.5.3 Data for AOC 39-002(b)

Because the CST off-site data packages are not available to revalidate the 1993 RFI data for AOC 39-002(b), no historical data are presented in this HIR.

3.6 SWMU 39-007(a), Storage Area

3.6.1 Background and Operational History

SWMU 39-007(a) is a former storage area located on a concrete pad under a covered porch outside the northeast corner of an equipment shelter (structure 39-63) (Figure 3.6-1). The dates of operation of the storage area are unknown. Used oil, containing lead and solvents, was stored at this SWMU.

3.6.2 Previous Investigations

During the 1993 Phase I RFI, three surface samples (0 to 0.5 ft) were collected from three locations within a few feet of the concrete pad (LANL 1995, 046190, p. 4-32). One sample was collected at the southeast

corner of the building, and two samples were collected from the area most likely to receive runoff from the pad. PCBs (Aroclor-1248, Aroclor-1254, and Aroclor-1260) were detected at the site, and a VCA was recommended in the 1995 RFI report (LANL 1995, 046190, p. 4-36).

A VCA was conducted at this site in 1995 to remediate PCB contamination detected during the 1993 Phase I RFI (LANL 1996, 053786, p. 1). A portion of the site was excavated, and confirmation samples were collected within and adjacent to the excavated area. Confirmation sampling results showed that PCB contamination was still present above preliminary remediation goals; additional excavation was conducted in the localized area. Confirmation samples were collected following the second excavation at the site, and these sampling results show that the VCA was successful, resulting in PCB concentrations less than 1.0 mg/kg at the site (LANL 1996, 053786, p. 2). Following the VCA, the site was backfilled and seeded with native grasses.

In 2001, five surface soil samples were collected from five locations. PCBs were detected in the sampling data. Documentation is not available for this investigation; however, these samples were collected at this SWMU, and the analytical results are presented in the data tables. The nature and extent of contamination has not been determined at SWMU 39-007(a).

3.6.3 Data for SWMU 39-007(a)

Five surface soil/fill samples were collected from five locations at SWMU 39-007(a). The requested analytical suites for each sample are provided in Table 3.0-1.

All five samples were analyzed for inorganic chemicals. Analytical results indicated that antimony, cadmium, calcium copper, mercury, and zinc were above the BVs in at least one sample (Figure 3.6-2 and Table 3.6-1).

- Antimony was detected at concentrations above the BV and the maximum soil background concentration in two samples from two locations, 39-01455 and 39-01470.
- Cadmium and copper were detected above the BVs but below the maximum soil background concentrations in one sample from location 39-01455.
- Calcium was detected in one sample (location 39-01470) above the BV but below the maximum soil background concentration.
- Mercury was detected above the BV in one sample from location 39-01455.
- Zinc was detected above the BV and the maximum soil background concentration at location 39-01458. Zinc was also detected above the BV but below the maximum soil background concentration at locations 39-01455, 39-10018, and 39-10019.

The four surface samples collected in 2001 were analyzed for PCBs. Aroclor-1254 was detected at 3.0 mg/kg in one sample from location 39-10019. Aroclor-1260 was detected at less than 1.0 mg/kg at locations 39-10018, 39-10020, and 39-10022 (Figure 3.6-3 and Table 3.6-2).

None of the samples collected from SWMU 39-007(a) were analyzed for radionuclides.

3.7 AOC 39-007(d), Storage Area

3.7.1 Background and Operational History

AOC 39-007(d) is a storage area (structure 39-142) consisting of a bermed asphalt pad covered with a metal roof and is located at the south end of Subaggregate Area 2 (Figures 1.1-4 and 3.7-1). A valved drainpipe discharges stormwater from the bermed area across the access road toward the Ancho Road drainage. The storage area was initially used for storing metal and an occasional drum of silicon transformer oil. Later, it became a SAA where chemical, including dielectric fluid, ethylene glycol, solvents, and kerosene, were stored. The SAA was removed in the 1990s (the exact date is not known). But the area continues to be used for storing nonhazardous materials, such as cable and wire. A valved drainpipe discharges storm water from the bermed area across the access road toward the Ancho Road drainage (LANL 1993, 015316, p. 5-20).

3.7.2 Previous Investigations

In 1993, five surface soil samples were collected and submitted to an off-site analytical laboratory for analysis of organic chemicals, inorganic chemicals, and radionuclides (LANL 1995, 046190, p. 4-37). No inorganic chemicals were detected above BVs. One organic chemical was detected, and one radionuclide was detected above FV. The nature and extent of contamination at AOC 39-007(d) have not been defined.

3.7.3 Data for AOC 39-007(d)

Because the CST off-site data packages are not available to revalidate the 1993 RFI data for AOC 39-007(d), no historical data are presented in this HIR.

4.0 SUBAGGREGATE AREA 3: SOUTHERN SECTION OF NORTH ANCHO CANYON AGGREGATE AREA

4.1 SWMU 39-005, HE Seepage Pit

4.1.1 Background and Operational History

SWMU 39-005 is the site of a former HE seepage pit used for the disposal of HE-contaminated decant from operations at an explosives operations building (building 39-04) (Figure 4.1-1). The seepage pit measured about 5 ft × 5 ft × 7 ft. The bottom was not lined or otherwise contained. The gravel and HE-contaminated soil that comprised the pit were removed in 1986 (LANL 1993, 015316, p. 5-42).

4.1.2 Previous Investigations

An RFI was conducted at SWMU 39-005 in 1993 (LANL 1995, 046190, p. 4-66). Although the seepage pit had been removed, the area was sampled to ensure no residual HE materials were present. Because the precise location of the former pit was not known, samples were collected from the location thought to have been the most likely site of the pit and from a location downgradient of the presumed location. Two locations were sampled at 3-ft intervals down to a depth of 12 ft, for a total of 10 samples. These samples were analyzed for HE, and no HE was detected in any of the samples collected at this site (LANL 1995, 046190, p. 4-66).

4.1.3 Data for SWMU 39-005

The CST off-site data packages are not available to revalidate the 1993 RFI data for SWMU 39-005; consequently, no historical data are presented in this HIR.

4.2 SWMU 39-001(a), Landfill

4.2.1 Background and Operational History

SWMU 39-001(a) is an inactive landfill consisting of two disposal pits located east and north of the light gas-gun facility (building 39-69) (Figure 4.2-1). The exact boundaries of the pits are unknown, but it is believed that each pit measures approximately 80 ft × 20 ft × 10 ft deep. Interviews of site workers indicate that from 1953 to 1979 the landfill was used for disposal (LANL 1993, 015316, p. 5-2). Portions of the pits may be covered by building 39-69 and a concrete pad east of the building. Materials disposed of in the pits include firing site debris, empty chemical containers, and office waste.

4.2.2 Previous Investigations

In 1993, a series of geophysical and radiation surveys was conducted over the disposal pit locations SWMU 39-001(a) (LANL 1997, 055633, p. 5-2). The most probable location of the disposal pits was estimated using data compiled from historical documents, surface radiation surveys, and the geophysical surveys. Survey results indicated that this site may be an amorphous disposal area and not two specific disposal pits. During the 1994 RFI, two separate field activities were initiated to determine if contaminants had migrated from the disposal area. The first of these activities consisted of sampling in the adjacent stream channel and surrounding area. The second activity involved the installation of vertical monitoring wells upstream and downstream of the landfill. The data collected during the 1993 field activities guided subsequent RFI activities conducted in 1994, which consisted of surface and subsurface sampling from angle and vertical boreholes, trenching and sampling within the landfill area, and the installation of three monitoring wells in and around SWMU 39-001(a). In 1996, seven test pits were excavated in the area north and northeast of building 39-69 to depths between 12 and 15 ft bgs, samples were collected, and the pits were backfilled. No evidence of waste was observed in three of the test pits (LANL 1997, 055633, p. 5-2).

Sampling data indicated inorganic chemicals, organic chemicals, and radionuclides as potential contaminants. The nature and extent of contamination for SWMU 39-001(a) have not been defined.

4.2.3 Data for SWMU 39-001(a)

Fourteen fill samples were collected from seven locations at SWMU 39-001(a). Only one sample was collected from the 11 to 12-ft-depth interval at locations 39-01388, 39-01389, and 39-01390. Two samples were collected from 2 to 3 ft bgs and 14 to 15 ft bgs from sampling location 39-01284 north of SWMU 39-001(a). Samples from location 39-01385 were collected from depth intervals of 2 to 3 ft, 5 to 6 ft, and 11 to 12 ft. Samples from location 39-01386 were collected from depth intervals of 3 to 4 ft, 5 to 6 ft, and 12 to 13 ft bgs. Samples from location 39-01387 were collected from depth intervals of 4 to 5 ft, 6 to 7 ft, and 12 to 13 ft bgs. The requested analytical suites for each sample are provided in Table 4.0-1.

All 14 samples were analyzed for cyanide and inorganic chemicals. Analytical results indicated that antimony, cadmium, copper, total cyanide, mercury, silver, total uranium, and zinc were above the BVs in at least one sample (Figure 4.2-2 and Table 4.2-1).

- Antimony was not detected, but the detection limits were above the BV and the maximum soil background concentration at seven locations (39-01384, 39-01385, 39-01386, 39 01387, 39-01388, 39-01389, and 39-01390).
- Cadmium was detected above the BV but below the maximum soil background concentration in one sample (location 39-01384). Detection limits for cadmium were above the BV but below the maximum soil background concentration at seven locations (39-01384, 39-01385, 39-01386, 39-01387, 39-01388, 39-01389, and 39-01390).
- Copper was detected above the BV and the maximum soil background concentration at location 39-01385.
- Total cyanide was not detected, but the detection limits were above the BV at seven locations (39-01384, 39-01385, 39-01386, 39-01387, 39-01388, 39-01389, and 39-01390).
- Mercury was detected above the BV in two samples from location 39-01387.
- Silver was not detected, but the detection limits were above the BV at locations 39-01388, 39-01389, and 39-01390.
- Uranium was detected above the BV at locations 39-01384, 39-01385, 39 01386, and 39-01387. At locations 39-01385 and 39-01387, uranium was detected at concentrations below the maximum soil background concentration.
- Zinc was detected above the BV and the maximum soil background concentration at location 39-01385.

All 14 samples were analyzed for HE, VOCs, SVOCs, and pesticides/PCBs. Analytical results indicated that DDE[4,4'-] (dichlorophenyltrichloroethylene); DDT[4,4'-]; methoxychlor[4,4'-]; trimethylbenzene[1,2,4-]; and trimethylbenzene [1,3,5-] were each detected in one sample. Di-n-butylphthalate was detected at locations 39-01384 and 39-01385. Aroclor-1254 was detected in the shallow sample at location 39-01385 (5 to 6 ft bgs) and in the two deeper samples at location 39-01387 (Figure 4.2-3 and Table 4.2-2).

All 14 fill samples were analyzed by gamma spectroscopy and for isotopic thorium. In addition, the deepest sample collected from location 39-01384 (14 to 15 ft bgs) was analyzed for isotopic plutonium; the deepest samples collected from locations 39-01385 (11 to 12 ft bgs) and 39-01390 (11 to 12 ft bgs) were analyzed for isotopic uranium; and the sample collected from 6 to 7 ft bgs from location 39-01387 was analyzed for isotopic uranium. The analytical results indicated that europium-152 (soil BV/FV not available) was detected in the deepest sample from location 39-01384. Uranium-238 was detected above the BV in the shallow sample at location 39-01387 (Figure 4.2-4 and Table 4.2-3).

4.3 AOC 39-002(e), Storage Area

4.3.1 Background and Operational History

AOC 39-002(e) is a former SAA located at the south end of the gas-gun facility (building 39-69) on a concrete pad under a breezeway that connects building 39-69 to building 39-89, a gas-gun support building (Figure 4.3-1). Waste materials from gas-gun experiments, including aluminum, lead, carbon dust, ethanol, brass, paraffin, stainless steel, quartz, nylon, WD-40, Gunk, Polaroid film, and Fantastik

cleaner, were stored in this location (LANL 1993, 015316, p. 5-18). This SAA was removed and this area ceased being used for storage.

4.4 SWMU 39-002(a), Storage Area

4.4.1 Background and Operational History

SWMU 39-002(a) consists of three areas of interest.

Area 1 was an outdoor storage area located adjacent to the northwest corner of building 39-02 (Figure 4.4-1). The storage area measured approximately 25 ft × 30 ft and was unpaved and not protected by any type of roof or walls; the storage area was bounded by various structures on the north, south, and east, and an asphalt ramp was located in the east-central portion of the storage area (LANL 1993, 015316, p. 5-16). This site was used for approximately 10 yr. At one time, this site contained a 30-gal. drum that held small quantities of solvents and adhesives along with rags and paper wipes contaminated with solvents or adhesives. Solvents accumulated at this site included acetone and ethanol. The area was also used to store lead-containing materials and damaged capacitors and transformers that may have contained PCBs. The area has not been used for waste accumulation since 1993.

Area 2 was an indoor SAA (inside room 18-A of building 39-02) that has been removed. It was used for approximately 10 yr, and waste chemicals from photographic processing were stored there. No known or documented releases are associated with this SAA. Because the site was located inside a building, no potential exists for a release to the environment.

Area 3 was an outdoor SAA and holding/receiving area located on the asphalt driveway at the north end of the loading dock on the southeast side of building 39-02. This area is no longer used for waste storage.

4.4.2 Previous Investigations

During the 1993 Phase I RFI, five samples were collected from two locations in Area 1 (LANL 1995, 046190, p. 4-2). Area 2 was not sampled because it was located inside an office/laboratory building, (building 39-02). Area 3, located on asphalt pavement, was not sampled because it was being used for product storage. The results for the samples collected from Area 1 showed inorganic chemicals, SVOCs, HE, and radionuclides. This site was recommended for corrective action in the 1995 RFI report (LANL 1995, 046190, p. 4-10).

As part of preliminary fieldwork for the VCA, the site was resampled in 1995 for inorganic chemicals and total uranium (LANL 1997, 056758, p. 3). Twenty-five locations were sampled at multiple depths, and the samples were field screened using XRF. In addition, two surface soil samples were collected and submitted to a fixed analytical laboratory. The results from these samples did not reproduce the inorganic chemical and total uranium results from the 1993 Phase I RFI (LANL 1997, 056758, p. 3). As a result, the proposed VCA activities included further site characterization to more clearly define the nature and extent of potential contamination at the site (LANL 1997, 056758, p. 4).

In 1997, as part of the VCA activities, a sampling grid was established over the site. Soil samples were collected from the center of each grid at a depth of 0 to 0.5 ft bgs for a total of nine samples from nine locations. Three additional locations were sampled at a depth of 1 to 1.5 ft bgs (LANL 1997, 056758, p. 17). The nature and extent of contamination at SWMU 39-002(a) have not been defined.

4.4.3 Data for SWMU 39-002(a)

Fifteen soil samples were collected from 12 locations at Area 1 for SWMU 39-002(a). Three samples were collected from the 0- to 0.5-ft-depth interval at locations 39-01388, 39-01389, and 39-01390. Three samples were collected from the 1- to 1.5-ft-depth interval at locations 39-01491, 39-01496, and 39-01498. The requested analytical suites for each sample are provided in Table 4.0-1.

All 15 samples were analyzed for inorganic chemicals, and 1 sample from location 39-01464 was analyzed for uranium. Analytical results indicated that antimony, cadmium, copper, lead, mercury, nickel, silver, thallium, total uranium, and zinc were above BVs in at least one sample (Figure 4.4-2 and Table 4.4-1).

- Antimony was not detected, but the detection limits were above the BV and the maximum soil background concentration at 10 locations (locations 39-01464, 39-0141–39-01499).
- Cadmium was detected above the above the BV but below the maximum background concentration in five samples from five locations (39-01051, 39-01053, 39-01493, 39-01496, and 39-01499). Detection limits for cadmium were above the BV but below the maximum soil background concentration at eight locations.
- Copper was detected at concentrations above the BV and the maximum soil background concentration at 10 locations (39-01051, 39-01053, 39-01464, 39-01491, 39-01492, 39-01493, 39-01494, 39-01496, 39-01498, and 39-01499).
- Lead was detected at concentrations above the BV and the maximum soil background concentration at 10 locations (39-01051, 39-01053, 39-01464, 39-01491, 39-01492, 39-01493, 39-01494, 39-01496, 39-01498, and 39-01499) and above the BV but below the maximum soil background concentration at location 39-01495.
- Mercury was detected above the BV at nine locations (39-01051, 39-01053, 39-01464, 39-01491, 39-01494, 39-01495, 39-01496, 39-01498, and 39-01499).
- Nickel was detected at above the BV and the maximum soil background concentration in one sample from location 39-01053.
- Silver was detected above the BV in one sample from location 39-01496. The detection limits for silver were above the BV at locations 39-01463 and 39-01464.
- Thallium was detected at a concentration above the BV but below the maximum soil background concentration in one sample from location 39-01053. The detection limits for thallium were above the maximum soil background concentration at locations 39-01463 and 39-01464.
- Uranium was detected at a concentration above the BV but below the maximum soil background concentration in one sample from location 39-01464. Uranium was detected above the BV and the maximum soil background concentration at location 39 01463.
- Zinc was detected at concentrations above the BV but below the maximum soil background concentration at locations 39-01051, 39-01464, 39-01496, and 39-01498 and above the BV and the maximum soil background concentration at locations 39-01053, 39-01464, 39-01492, 39-01493, 39-01497, and 39-01499.

Fourteen samples were analyzed for SVOCs, VOCs, HE, and total petroleum hydrocarbons–diesel range organics (TPH-DRO), and two samples were analyzed for pesticides/PCBs. Analytical results indicated that 19 PAHs were detected in the majority of the surface samples collected at Area 1. No pesticides or VOCs were detected in the samples collected from Area 1. Amino-2,6-dinitrotoluene[4-],

bis(2 ethylhexyl)phthalate, tetryl, di-n-butylphthalate, and trinitrotoluene[2,4,6-] were each detected in one sample from location 39-01053. Di-n-butylphthalate was also detected at three other locations (39-01495, 39-01498, and 39-01499). Aroclor-1254 was detected at concentrations below 1 mg/kg in 11 samples from 11 locations. TPH-DRO was detected in all 14 samples at concentrations ranging from 9.1 to 170 mg/kg. (Figure 4.4-3 and Table 4.4-2).

Fourteen samples were analyzed for isotopic uranium. Uranium-238 was above the BV at locations 39-01053 and 39-01499 (Figure 4.4-4 and Table 4.4-3).

4.5 SWMU 39-006(a), Septic System

4.5.1 Background and Operational History

SWMU 39-006(a) consists of an outfall, an inactive septic system (structure 39-12), a chemical seepage pit, an active septic system (structure 39-104), and an active sand filter that replaced the inactive septic system (Figure 4.5-1). The inactive septic system was constructed in 1952 and was connected only to building 39-02, which housed offices, a laboratory, and a shop (LANL 1993, 015316, p. 5-40).

SWMU 39-006(a) is an 1800-gal. reinforced concrete septic tank (structure 39-12), associated drainlines, and an inactive subsurface sand filter constructed to dispose of photographic-processing chemicals. The tank was connected to the now-inactive sand filter by approximately 260 ft of vitrified clay pipe, which discharged to an outfall in Ancho Canyon. The sand filter is adjacent to the east side of the ephemeral stream channel, in an open area south of the new (active) septic tank (structure 39-104).

Photographic-processing chemicals were routinely disposed of into the system at a rate of about 65 gal./yr, which eventually caused it to malfunction. To correct the problem, a separate seepage pit for the photographic-processing chemicals was put into use in 1973. The chemical seepage pit was an open pit approximately 12 ft deep and filled with cobble. A corrugated pipe approximately 1 ft in diameter runs vertically through the center of the seepage pit. This seepage pit handled approximately 75 gal. of photographic wastes per year until 1992.

Septic tank 39-12 was enlarged at this time, and a new subsurface sand filter was installed on the south side of State Highway 4. Use of the old sand filter was discontinued at that time. By 1978, the new sand filter became clogged and was replaced. In 1985, use of septic tank 39-12 was discontinued. Waste was removed from the tank, and the tank was filled with sand. A new 2500-gal. precast concrete septic tank (structure 39-104) and drainline were installed, with the new drainline running through the original tank (structure 39-12). This new septic system serves several buildings at TA-39 in addition to building 39-02. At the same time, the sand filter south of State Highway 4 was redesigned and replaced, which was the second replacement of the sand filter in 12 yr. New piping was added (the 4-in. line under State Highway 4 was retained to avoid tearing up the road, and the new pipe was tied into the existing line). In approximately 1989, the outfall from the new sand filter was plugged, eliminating the discharge into the canyon (LANL 1995, 046190, pp. 4-41–4-45).

4.5.2 Previous Investigations

During the 1993 RFI, each of the components of this SWMU was sampled (LANL 1995, 046190, pp. 4-41–4-66). The active and inactive sand filters were sampled in three locations at three depths (0 to 0.5 ft, 4 ft, and 6 ft) along the center line of the sand filter, resulting in a total of nine samples collected from each sand filter. The active septic tank (structure 39-104) was sampled by drilling a borehole adjacent to and downgradient of the tank. Samples were collected from three depths: at the surface (0 to 1.5 ft.) and at 9 ft and 11 ft bgs.

The inactive septic tank (structure 39-12) is partially underneath building 39-100, and the active sewer line to septic tank 39-104 runs through the inactive tank, which prevented sampling the tank contents. Four surface samples were collected from four locations; one borehole was drilled, and two additional samples were collected from 9 ft and 11 ft.

The outfall was sampled at two locations in the drainage channel: 6 ft and 15 ft south of the discharge point. Outfall samples were collected from both the surface soil and from 4 ft bgs in the drainage channel.

The chemical seepage pit is filled with cobble; sampling was conducted using a combination of surface and borehole sampling. Surface samples were collected from three locations, approximately 10 ft south, east, and north of the discharge pipe in the center of the seepage pit. Boreholes were drilled at these three locations, and subsurface samples were collected from depths of 3 ft, 6 ft, 9 ft, and 12 ft bgs (LANL 1995, 046190, p. 4-67).

In October 1995, a borehole was advanced through the center of culvert pipe in the chemical seepage pit (ICF Kaiser Engineers 1995, 062968). Two samples were collected from two depth intervals (11.29 to 12.83 ft bgs and 12.83 to 15.33 ft bgs) beneath the concrete plug at the bottom of the seepage pit at location 39-01474. In response to an NMED notice of disapproval, a borehole was advanced adjacent to inactive septic tank 39-02, and samples were collected to determine if there had been a release from the septic tank (EPA 1995, 052268; LANL 1996, 054333). Nature and extent of contamination for SWMU 39-006(a) have not been defined.

4.5.3 Data for SWMU 39-006(a)

Because the CST off-site data packages are not available to revalidate the 1993 RFI data for SWMU 39-006(a), the only data presented in this HIR are for the two samples collected beneath the chemical seepage pit in 1995 and the data for the sample collected in 1996 adjacent to septic tank 39-02. The analytical suites for each sample are provided in Table 4.0-1.

The two samples collected beneath the chemical seepage pit were analyzed only for inorganic chemicals. Analytical results indicated that antimony, cadmium, mercury, silver, and thallium had detection limits or concentrations above BVs (Figure 4.5-2 and Table 4.5-1).

- Antimony had detection limits above the BV and the maximum soil background concentration at location 39-01474.
- Cadmium was detected at concentrations above BV but below the maximum soil background concentration at location 39-01474.
- Thallium was not detected above BV, and the detection limits were similar to the maximum soil background concentration.
- Silver was detected above the soil BV in both samples from location 39-01474.

The sample collected from a depth of 8 to 9 ft bgs adjacent to septic tank 39-02 in 1996 was analyzed for pesticides/PCBs, SVOCs, VOCs, and isotopic uranium and by gamma spectroscopy. Only benzene and phenol were detected in this sample at 0.0088 mg/kg and 0.49 mg/kg, respectively (Figure 4.5-3 and Table 4.5-2).

5.0 SITES FOR WHICH NFA HAS BEEN APPROVED

5.1 AOC 39-002(g), Storage Area

5.1.1 Site Description

AOC 39-002(g) is a former SAA formerly located inside of building 39-98, which is an active shop. This storage area has been removed.

- 1993: AOC 39-002(g) was proposed for NFA in the OU 1132 RFI work plan (LANL 1993, 015316, p. 6-3).
- 1994: EPA approved the OU 1132 RFI work plan and the NFA proposal (EPA 1994, 042818).
- 2005: EPA confirmed the NFA status in a letter to NMED (EPA 2005, 088464).

5.2 SWMU 39-003, Incinerator

5.2.1 Site Description

SWMU 39-003 is a former incinerator located between the south wall of building 39-02 and the south perimeter security fence. The incinerator was used to burn office waste only from 1955 to 1977. In 1977, the incinerator was removed and buried in one of the TA-39 landfill pits. SWMU 39-003 was never used to manage RCRA solid or hazardous wastes and/or constituents.

- 1995: SWMU 39-003 was proposed for removal from the permit in the March 1995 Request for Permit Modification (LANL 1995, 045365).
- 1998: NMED removed SWMU 39-003 from Module VIII of the Hazardous Waste Facility Permit on December 23, 1998 (NMED 1998, 063042).

5.3 SWMU 39-006(b), Septic System

5.3.1 Site Description

SWMU 39-006(b) is an active septic system that serves building 39-111 (the Pulsed Power Assembly Building) and was part of the original construction of the building in 1989. It is located northwest of building 39-111 and consists of a 1000-gal. reinforced-concrete septic tank (structure 39-132), a distribution box, and a leach field.

- 1995: SWMU 39-006(b) was proposed for removal from the permit in the March 1995 Request for Permit Modification (LANL 1995, 045365).
- 1998: NMED removed SWMU 39-006(b) from Module VIII of the Hazardous Waste Facility Permit on December 23, 1998 (NMED 1998, 063042).

5.4 AOC 39-007(b), Storage Area

5.4.1 Site Description

AOC 39-007(b) is a former temporary storage area.

- 1993: AOC 39-007(b) was proposed for NFA in the OU 1132 RFI work plan (LANL 1993, 015316, p. 6-3).

- 1994: EPA approved the OU 1132 RFI work plan and the NFA proposal (EPA 1994, 042818).
- 2005: EPA confirmed the NFA status in a letter to NMED (EPA 2005, 088464).

5.5 AOC 39-007(c), Storage Area

5.5.1 Site Description

AOC 39-007(c) is a former storage area for blueprint machine fluid that was located in the former building 39-103. Both the machine and the stored fluids have been removed from this area.

- 1993: AOC 39-007(c) was proposed for NFA in the OU 1132 RFI work plan (LANL 1993, 015316, p. 6-4).
- 1994: EPA approved the OU 1132 RFI work plan and the NFA proposal (EPA 1994, 042818).
- 2005: EPA confirmed the NFA status in a letter to NMED (EPA 2005, 088464).

5.6 AOC 39-007(e), Storage Area

5.6.1 Site Description

AOC 39-007(e) is a former storage area, consisting of an open-front metal shed measuring about 8 ft × 4 ft, located between Pits 2 and 3 of SWMU 39-001(b); it received hazardous waste inappropriate for disposal at the landfills. The entire structure was removed in the late 1980s.

- 1993: AOC 39-007(e) was proposed for NFA in the OU 1132 RFI work plan (LANL 1993, 015316, p. 6-4).
- 1994: EPA approved the OU 1132 RFI work plan and the NFA proposal (EPA 1994, 042818).
- 2005: EPA confirmed the NFA status in a letter to NMED (EPA 2005, 088464).

5.7 AOC 39-009, Outfall

5.7.1 Site Description

AOC 39-009 consists of an outfall from building 39-69 that drained water used for cooling three pieces of equipment (a LASER power supply, a Stokes vacuum pump, and a diffusion pump). The cooling water, which comes from a potable water supply, circulated through cooling coils that are in contact with the three pieces of equipment. It discharged via the drainline onto the asphalt parking lot east of the building.

- 1993: AOC 39-009 was proposed for NFA in the OU 1132 RFI work plan (LANL 1993, 015316, p. 6-4).
- 1994: EPA approved the OU 1132 RFI work plan and the NFA proposal (EPA 1994, 042818).
- 2005: EPA confirmed the NFA status in a letter to NMED (EPA 2005, 088464).

6.0 SUMMARY

Subaggregate Area 1 consists of five SWMUs and two AOCs, including three active firing sites, one firing site on standby status, two former storage areas on two of the active firing pads, and an excavated

soil dump are located in the northern portion of TA-39. A total of 164 surface and subsurface decision-level data samples were collected from 106 locations in 1995.

Subaggregate Area 2 consists of four SWMUs and four AOCs, including one firing site, a firing range, five storage areas, and disposal trenches located in the central portion of TA-39. A total of 117 surface and subsurface decision-level data samples were collected from 70 locations in 1994, 1995, and 1996. VCAs were conducted at one AOC and one SWMU in 1995 to remove contaminated soil.

Subaggregate Area 3 consists of six SWMUs and five AOCs, including five storage areas, an inactive seepage pit, two septic systems, a drainline and outfall, a former incinerator, and an inactive landfill located in the southern portion of TA-39. A total of 31 decision-level data samples were collected from 21 locations in 1994, 1995, 1996, and 1997.

7.0 REFERENCES AND MAP DATA SOURCES

7.1 References

The following list includes all documents cited in this report. Parenthetical information following each reference provides the author(s), publication date, and ER ID number. This information is also included in text citations. ER ID numbers 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; the U.S. Department of Energy–Los Alamos Site Office; the U.S. Environmental Protection Agency, Region 6; 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.

EPA (U.S. Environmental Protection Agency), September 22, 1994. "[RFI Work Plan for OU 1132, Approval with Modification, Los Alamos National Laboratory, NM0890010515]," U.S. Environmental Protection Agency letter to J.C. Vozella (DOE LAAO Chief) from A.M. Davis (EPA Region 6), Dallas, Texas. (EPA 1994, 042818)

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LANL (Los Alamos National Laboratory), September 2007. "Investigation Work Plan for North Ancho Canyon Aggregate Area," Los Alamos National Laboratory document LA-UR-07-5947, Los Alamos, New Mexico. (LANL 2007, 098280)

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7.2 Map Data Sources

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Debris Mounds; RFI Work Plan for Operable Unit 1132, Chapter 5, Evaluation of Potential Release Sites; Figure 5-11, Detailed maps showing firing sites and single-stage gas gun site; Los Alamos National Laboratory, Environmental Restoration Program; ERID-15316; June 1993.

Dirt Road Arcs; Los Alamos National Laboratory, KSL Site Support Services, Planning, Locating and Mapping Section; 06 January 2004; as published 10 July 2007.

Feature Boundary Changes for AOC 39-002(e) and SWMUs 39-006(a) and 39-008, TA-39, Ancho Canyon Site; Los Alamos National Laboratory, Environment and Remediation Support Services Division; Spatial Feature Change Control CC07015; Environmental Programs Document EP2007-0507; in progress.

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

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Primary Electric Grid; Los Alamos National Laboratory, KSL Site Support Services, Planning, Locating and Mapping Section; 06 January 2004; as published 27 April 2007.

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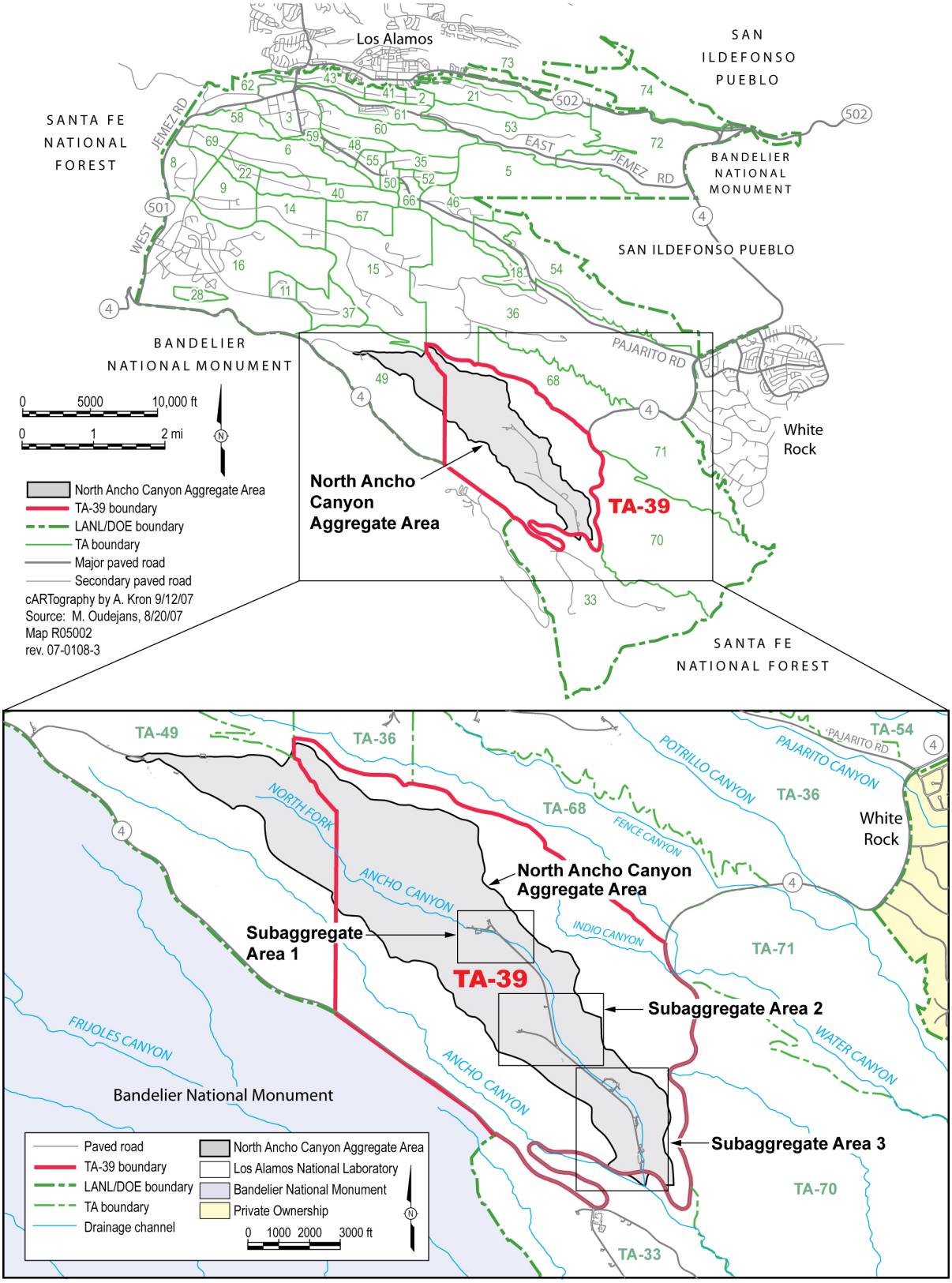


Figure 1.1-1 Location of North Ancho Aggregate Area with respect to Laboratory technical areas and surrounding land holdings

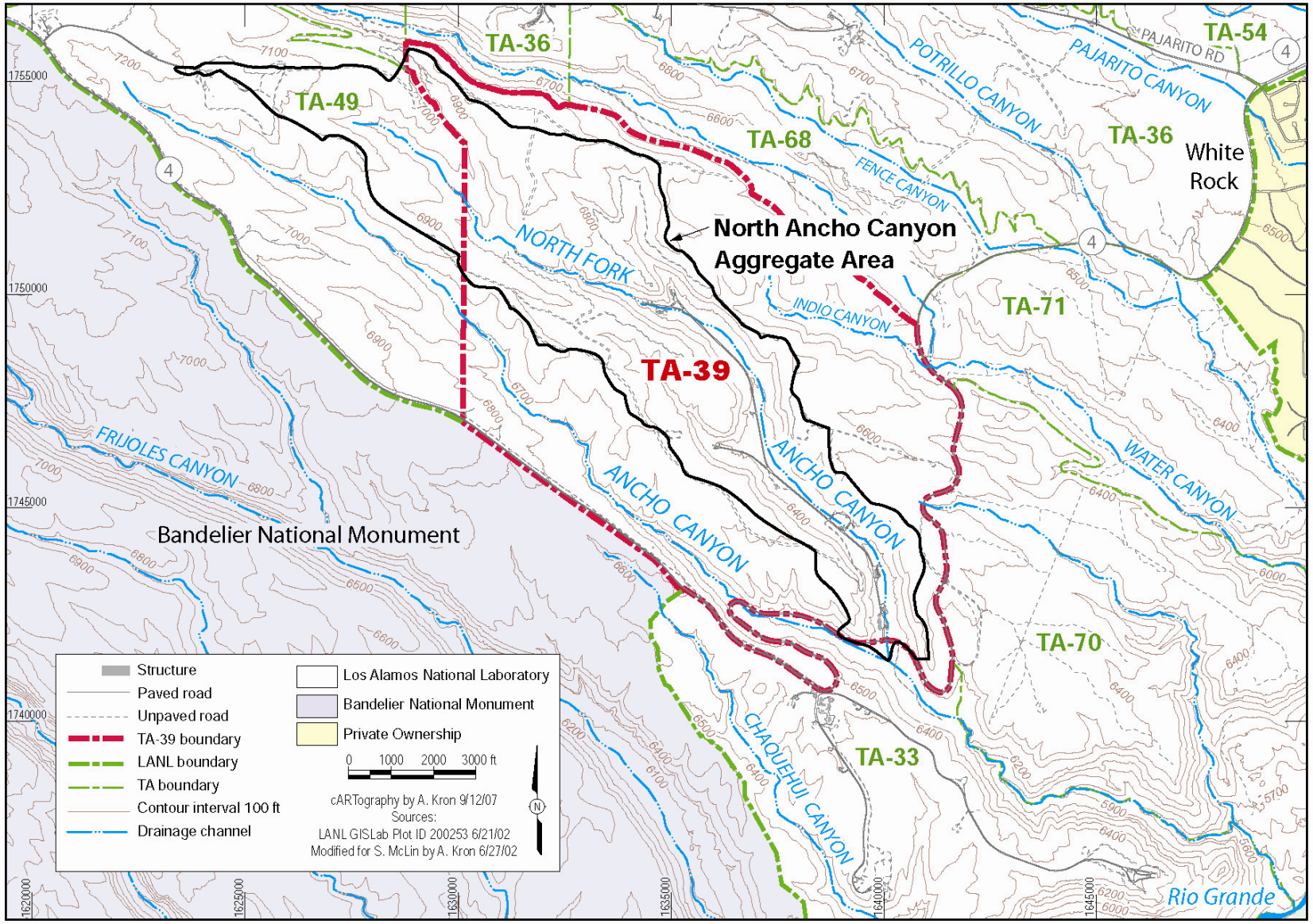


Figure 1.1-2 Topography of TA-39

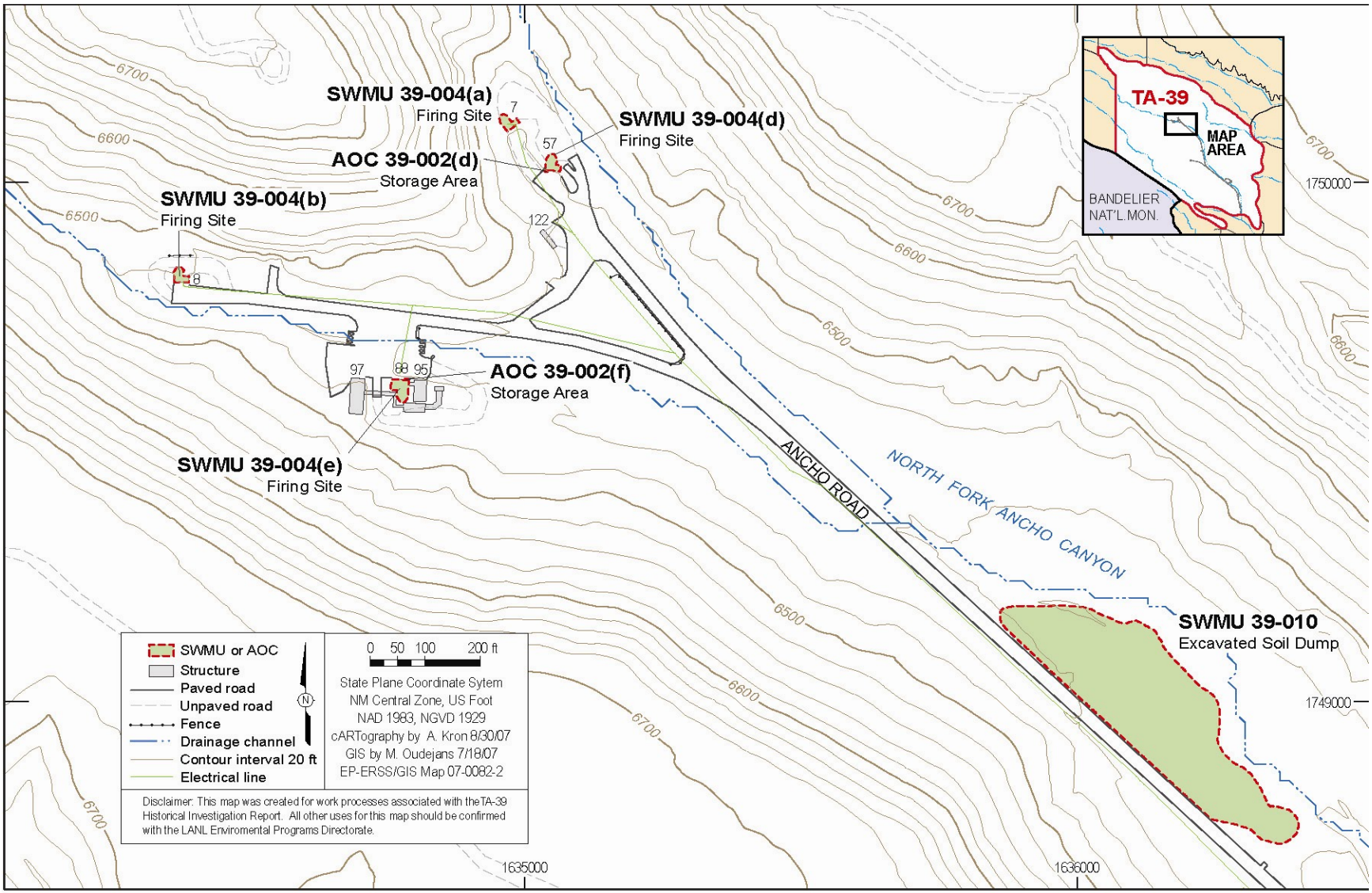


Figure 1.1-3 Locations of SWMUs and AOC in Subaggregate Area 1, northern area of TA-39

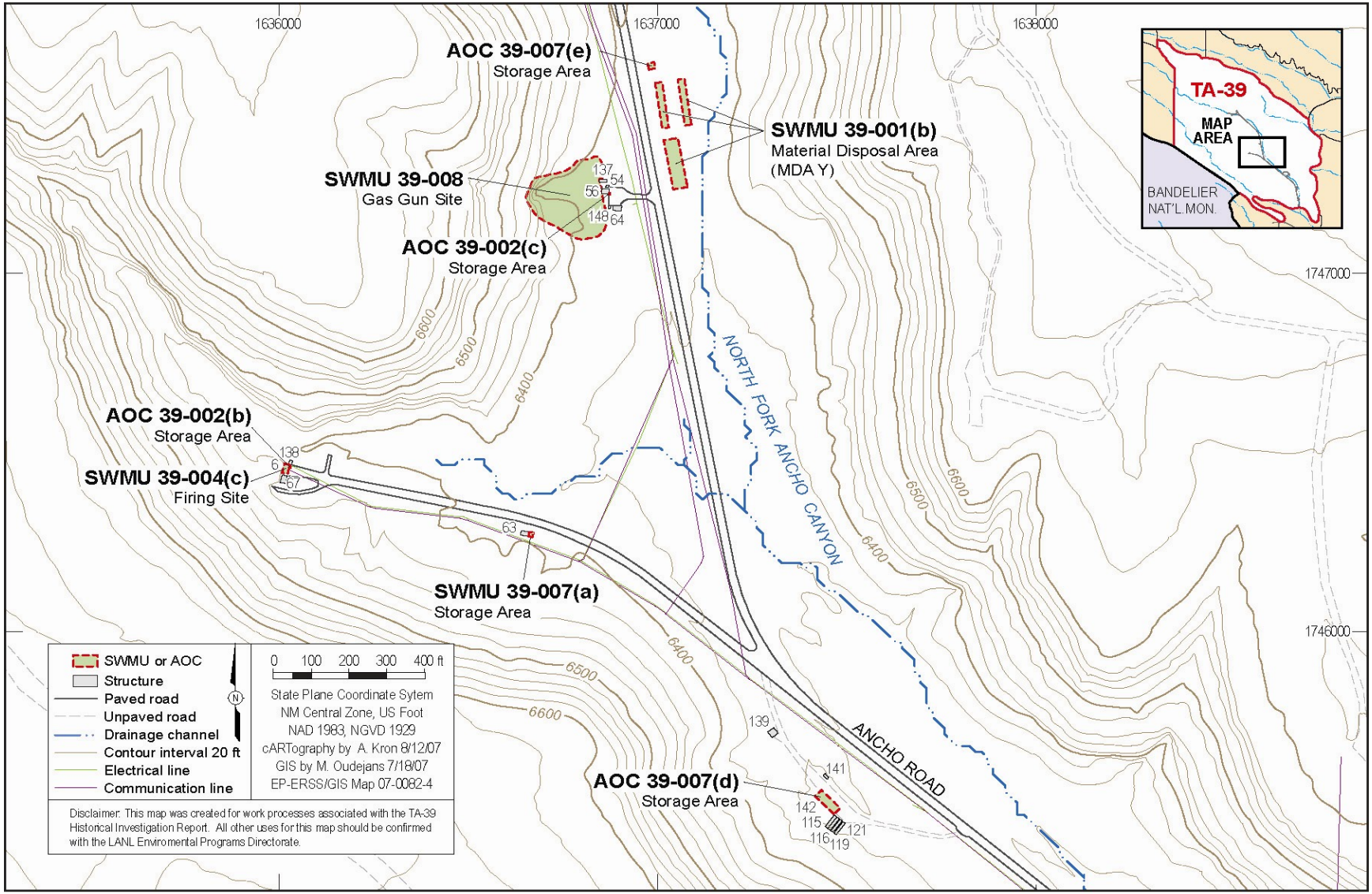


Figure 1.1-4 Locations of SWMUs and AOCs in Subaggregate Area 2, central area of TA-39

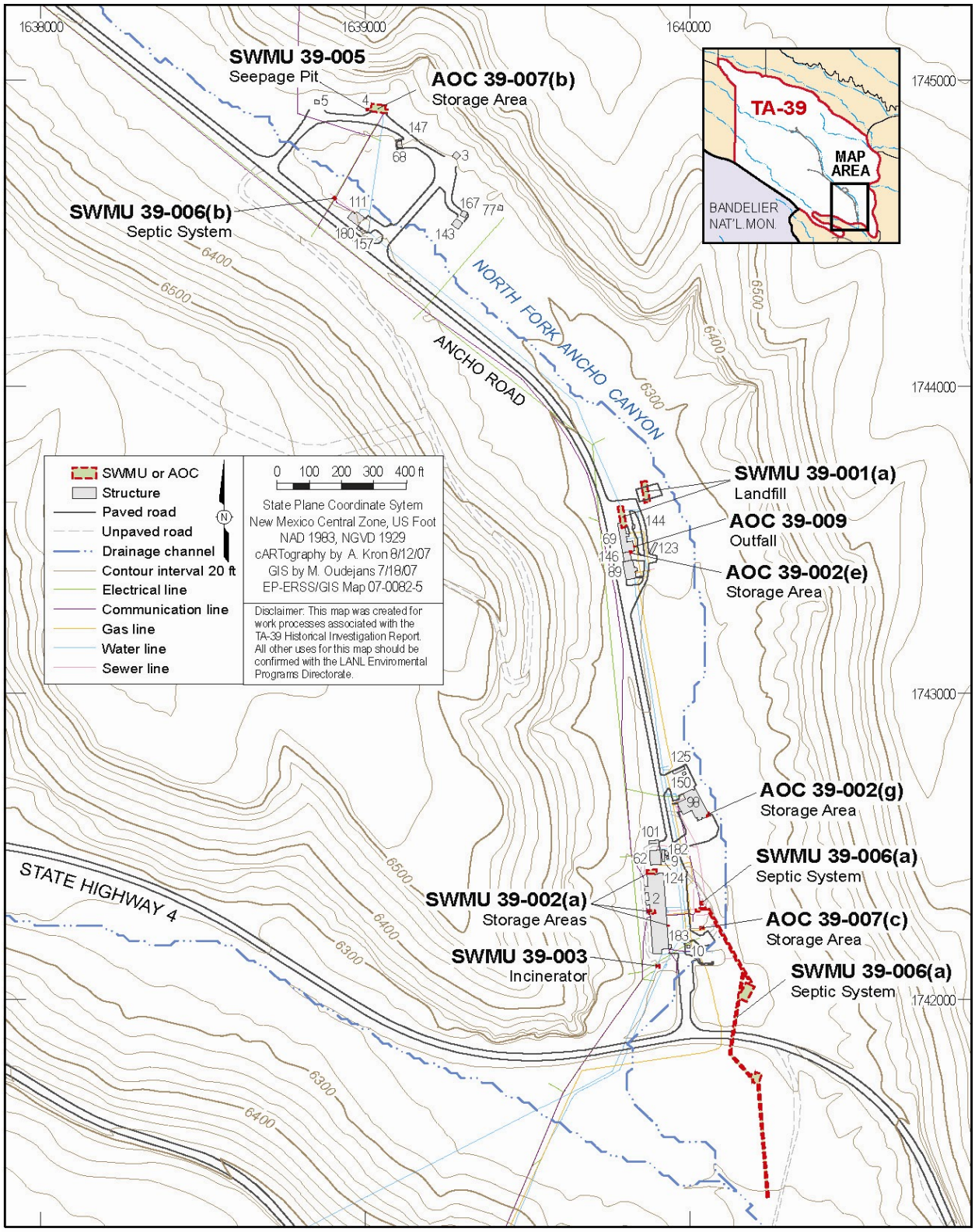


Figure 1.1-5 Locations of SWMUs and AOCs in Subaggregate Area 3, southern area of TA-39

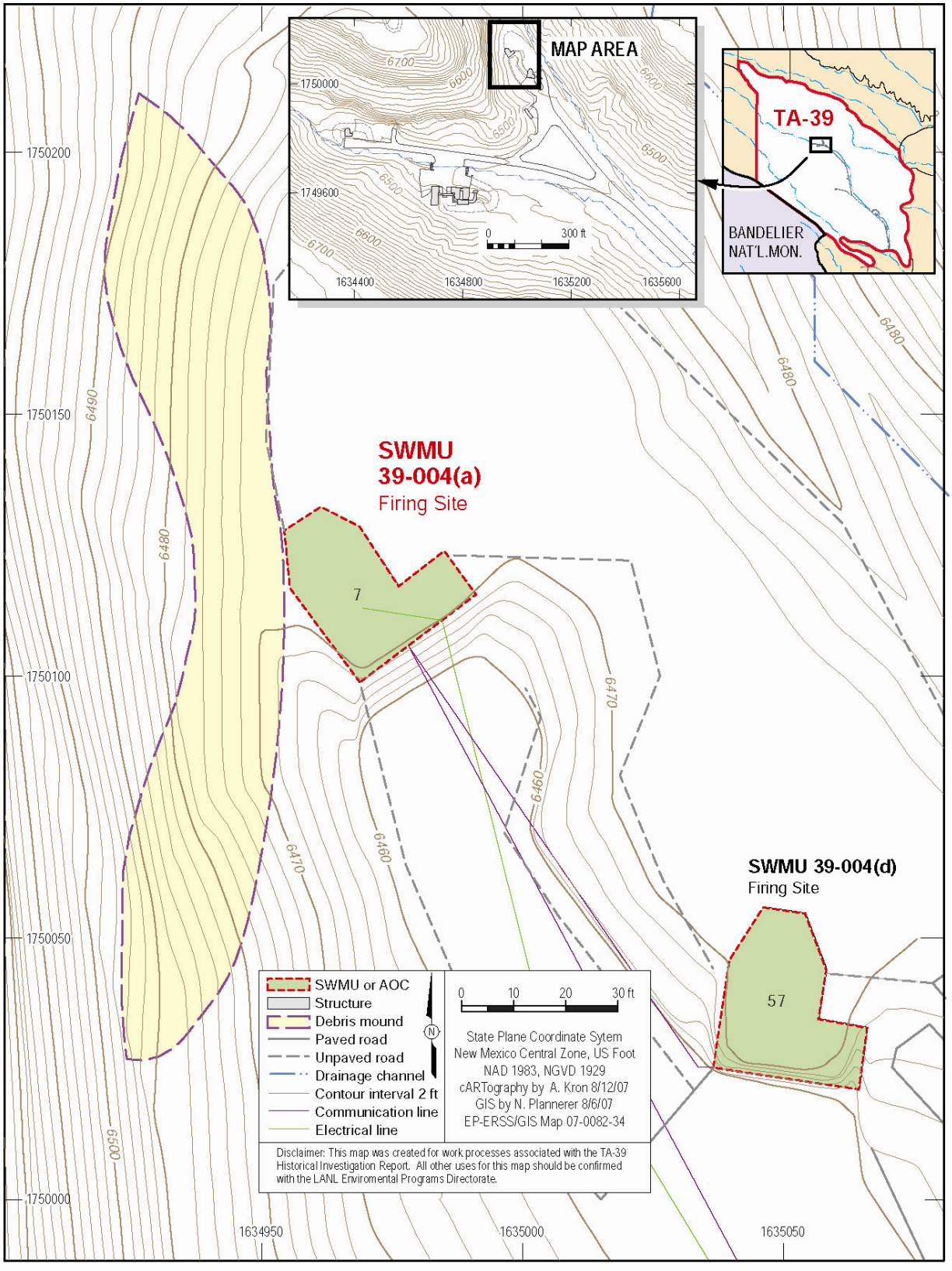


Figure 2.1-1 Location of SWMU 39-004(a), firing site

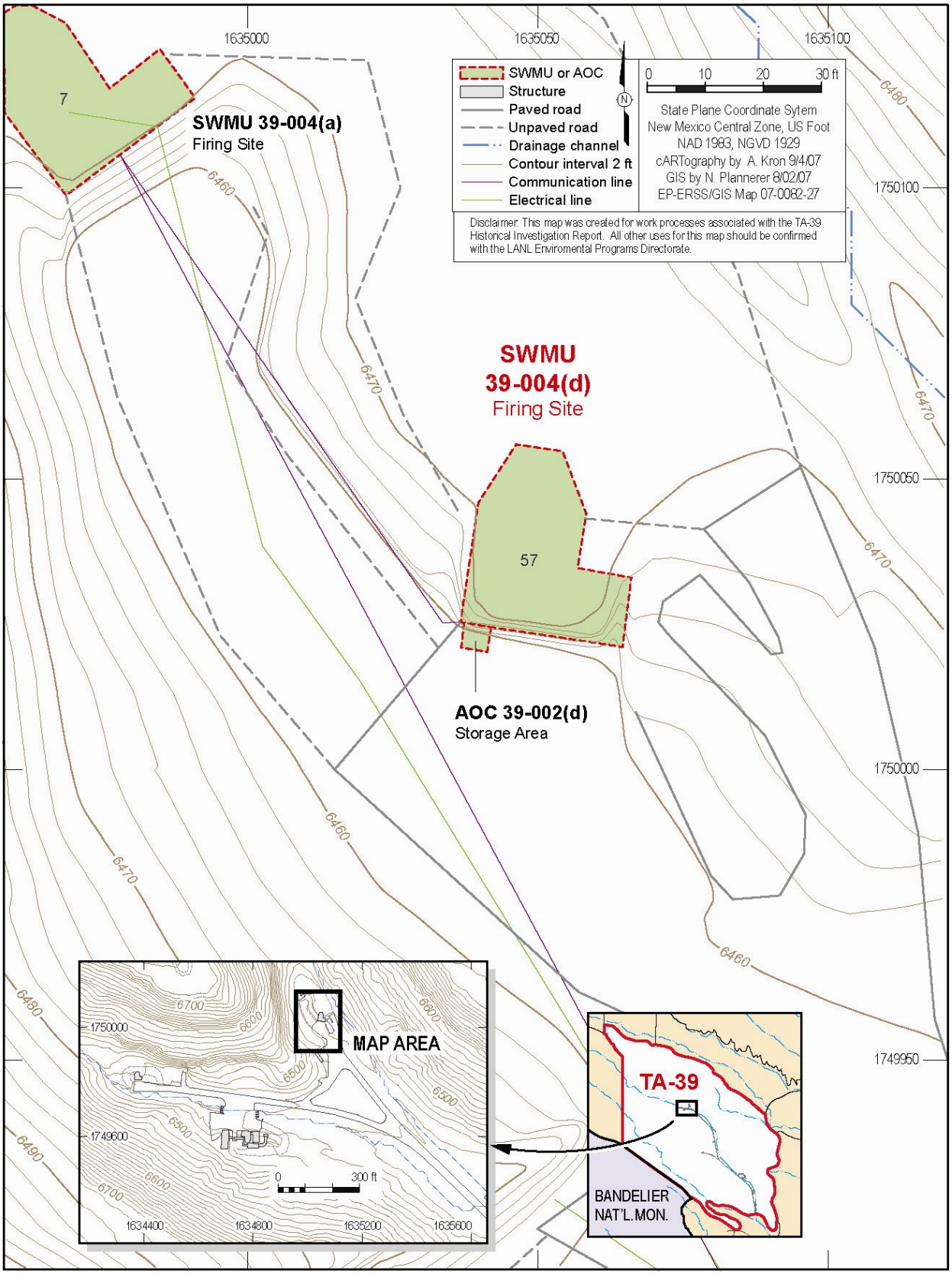


Figure 2.1-2 Location of SWMU 39-004(d), firing site

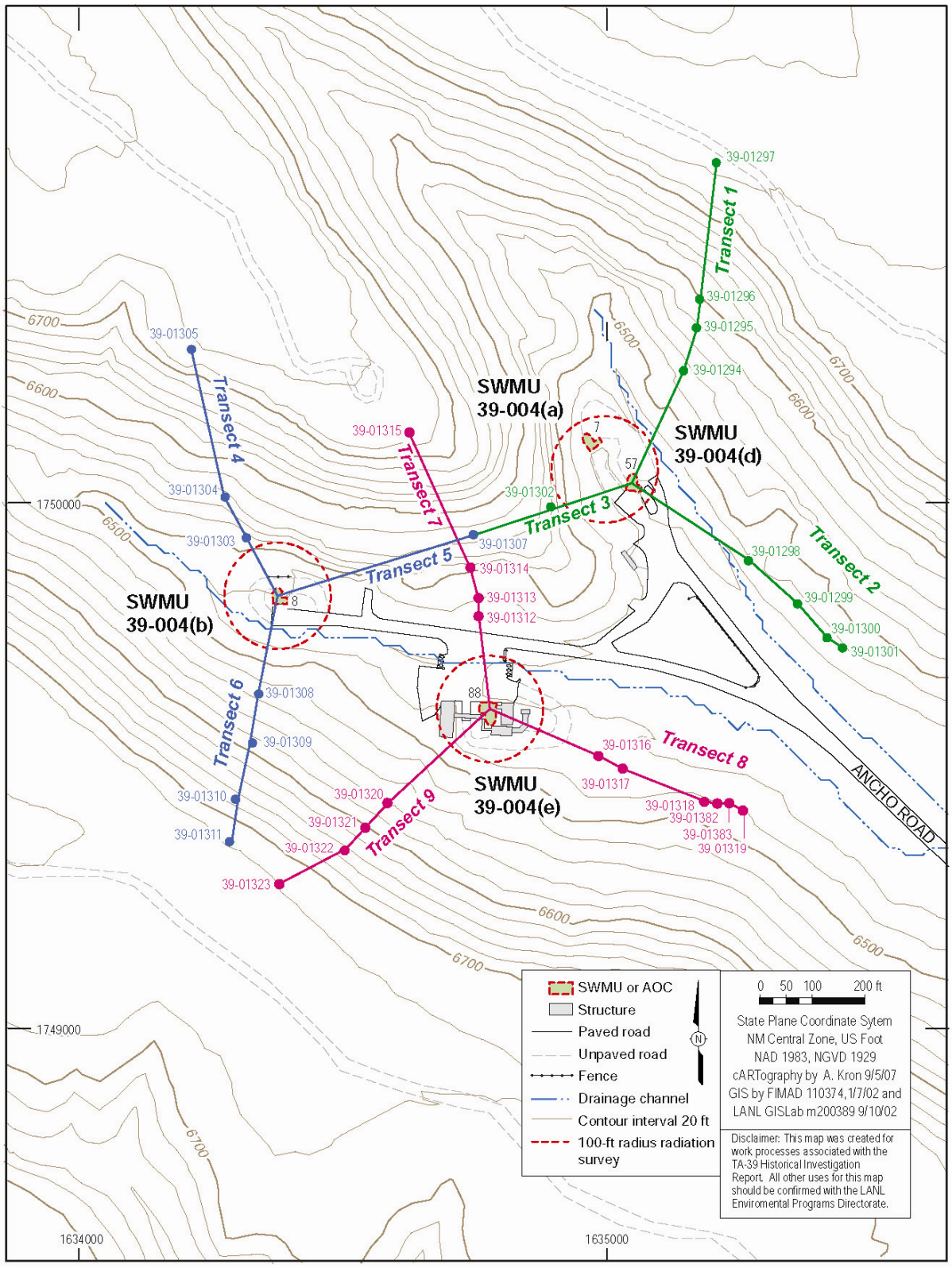


Figure 2.1-3 Transect sampling locations at firing sites in Subaggregate Area 1

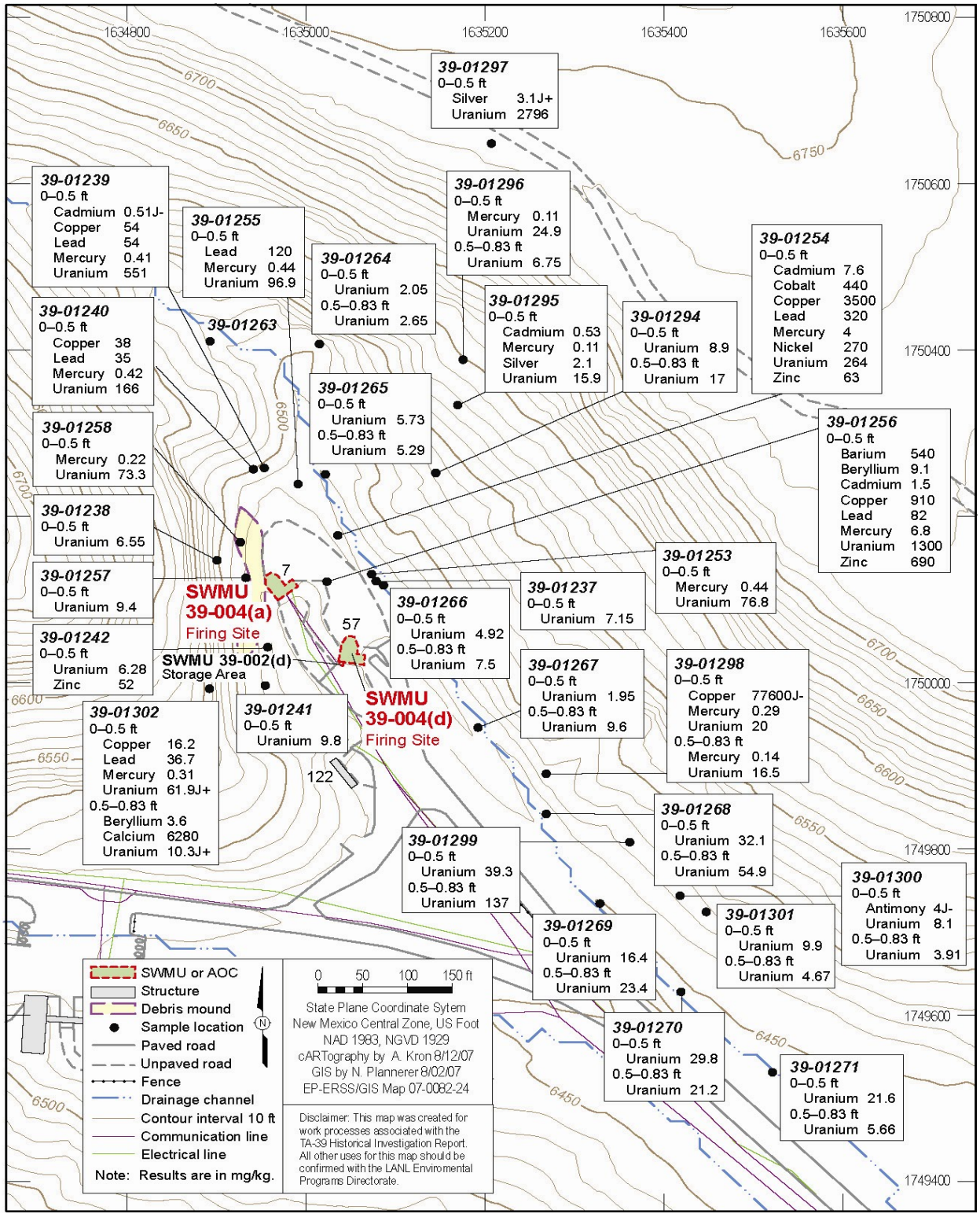


Figure 2.1-4 Inorganic chemicals detected above BVs at SWMUs 39-004(a) and 39-004(d)

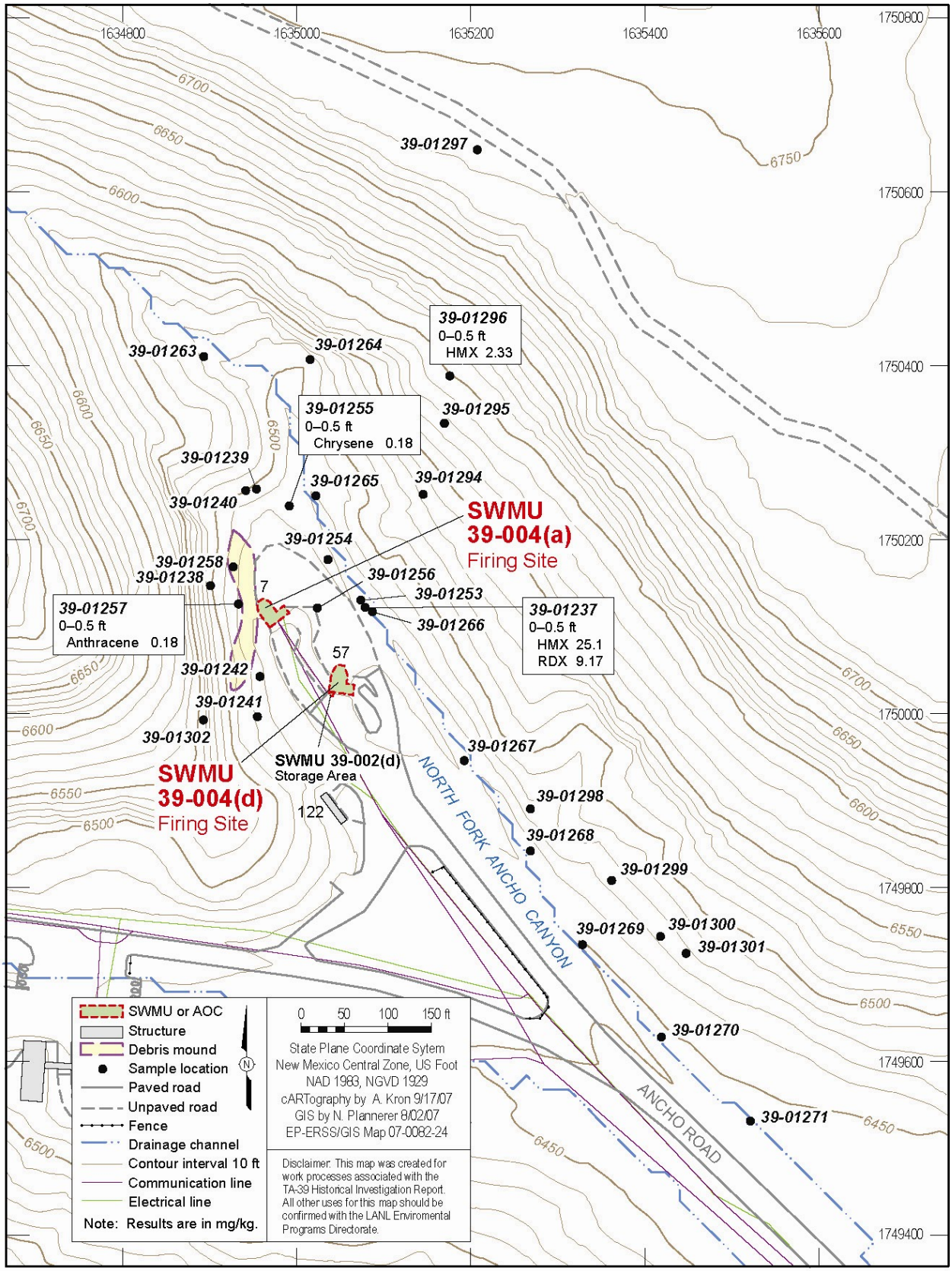


Figure 2.1-5 Organic chemicals detected at SWMUs 39-004(a) and 39-004(d)

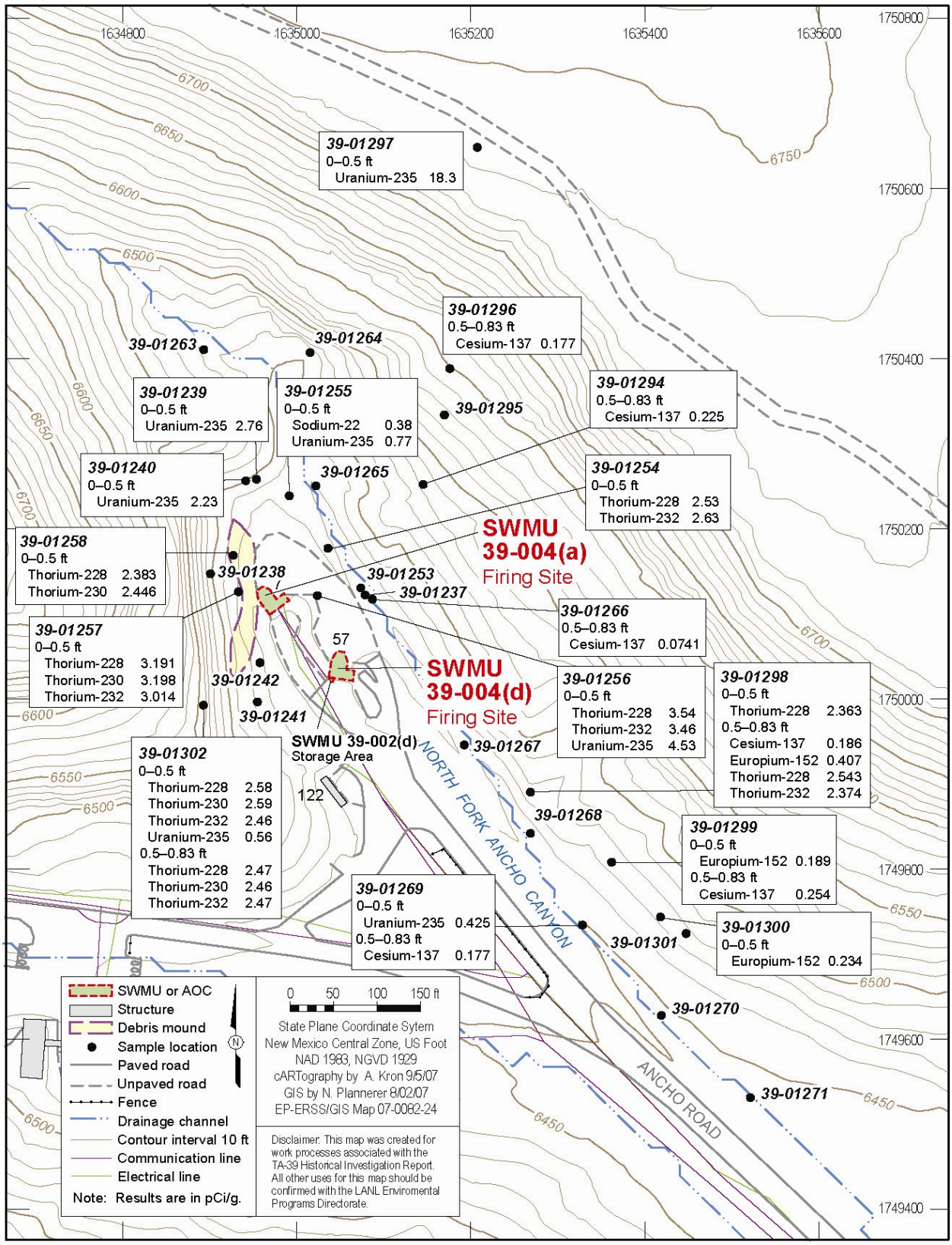


Figure 2.1-6 Radionuclides detected or detected above BVs/FVs at SWMUs 39-004(a) and 39-004(d)

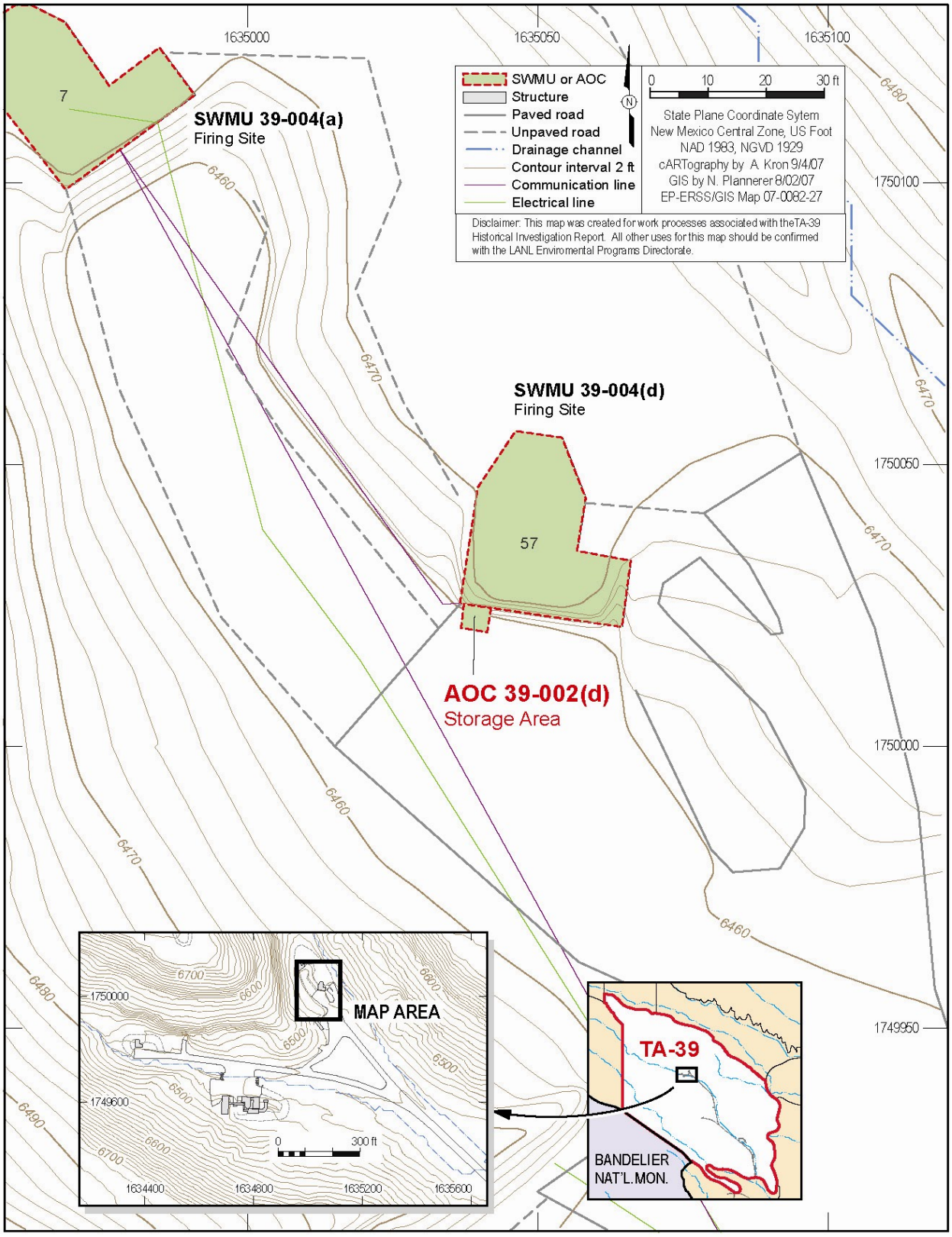


Figure 2.2-1 Location of AOC 39-002(d), storage area

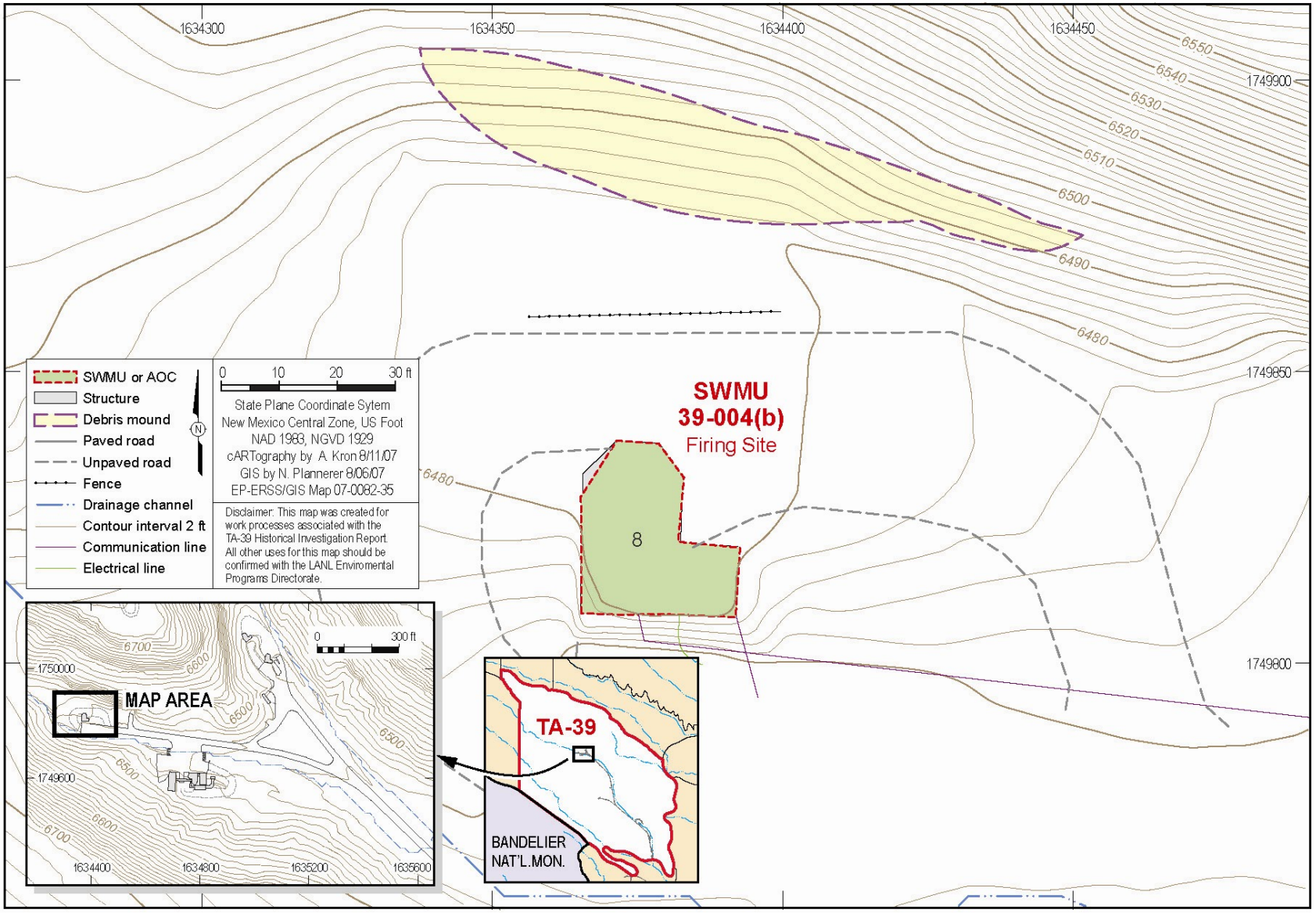


Figure 2.3-1 Location of SWMU 39-004(b), firing site

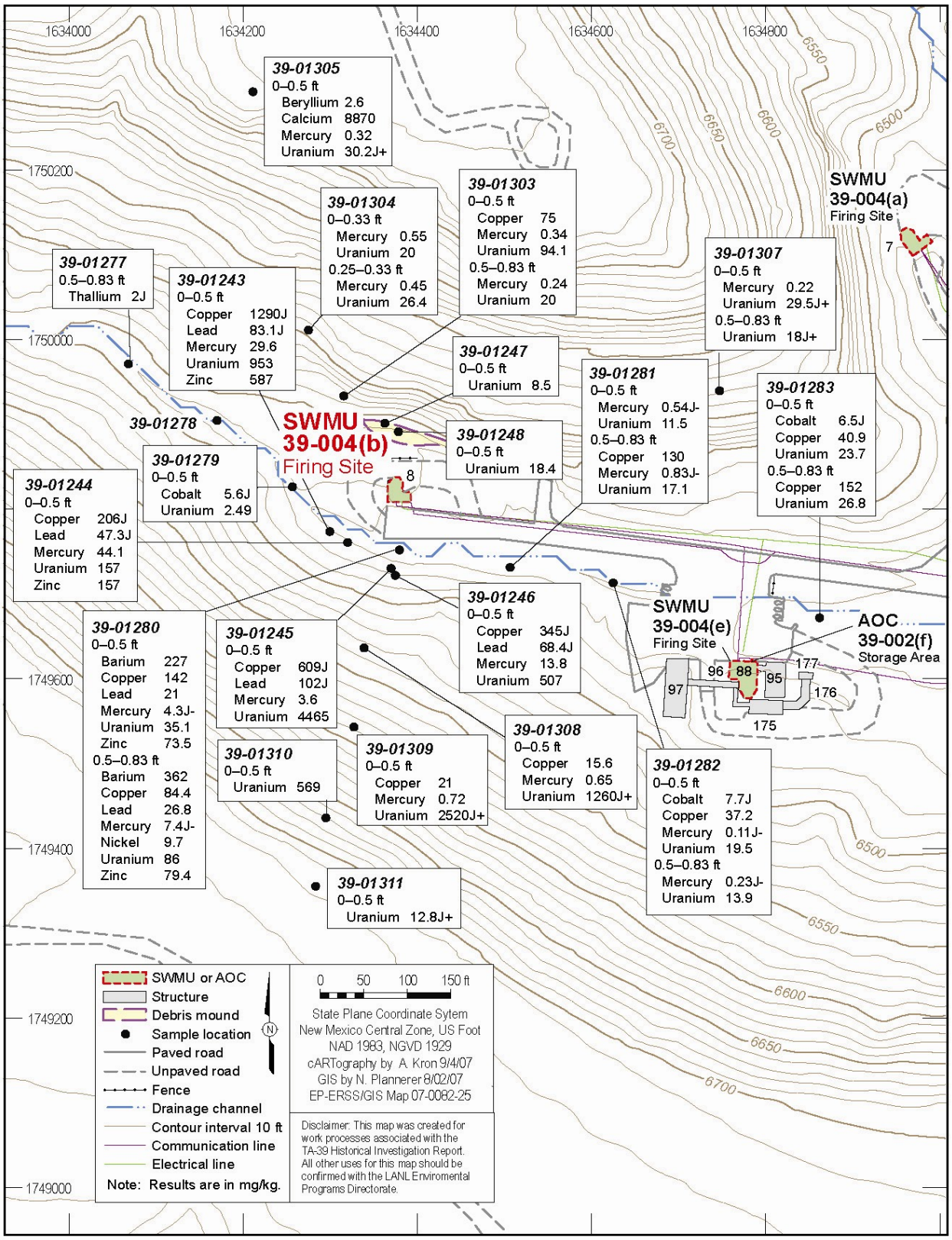


Figure 2.3-2 Inorganic chemicals detected above BVs at SWMU 39-004(b)

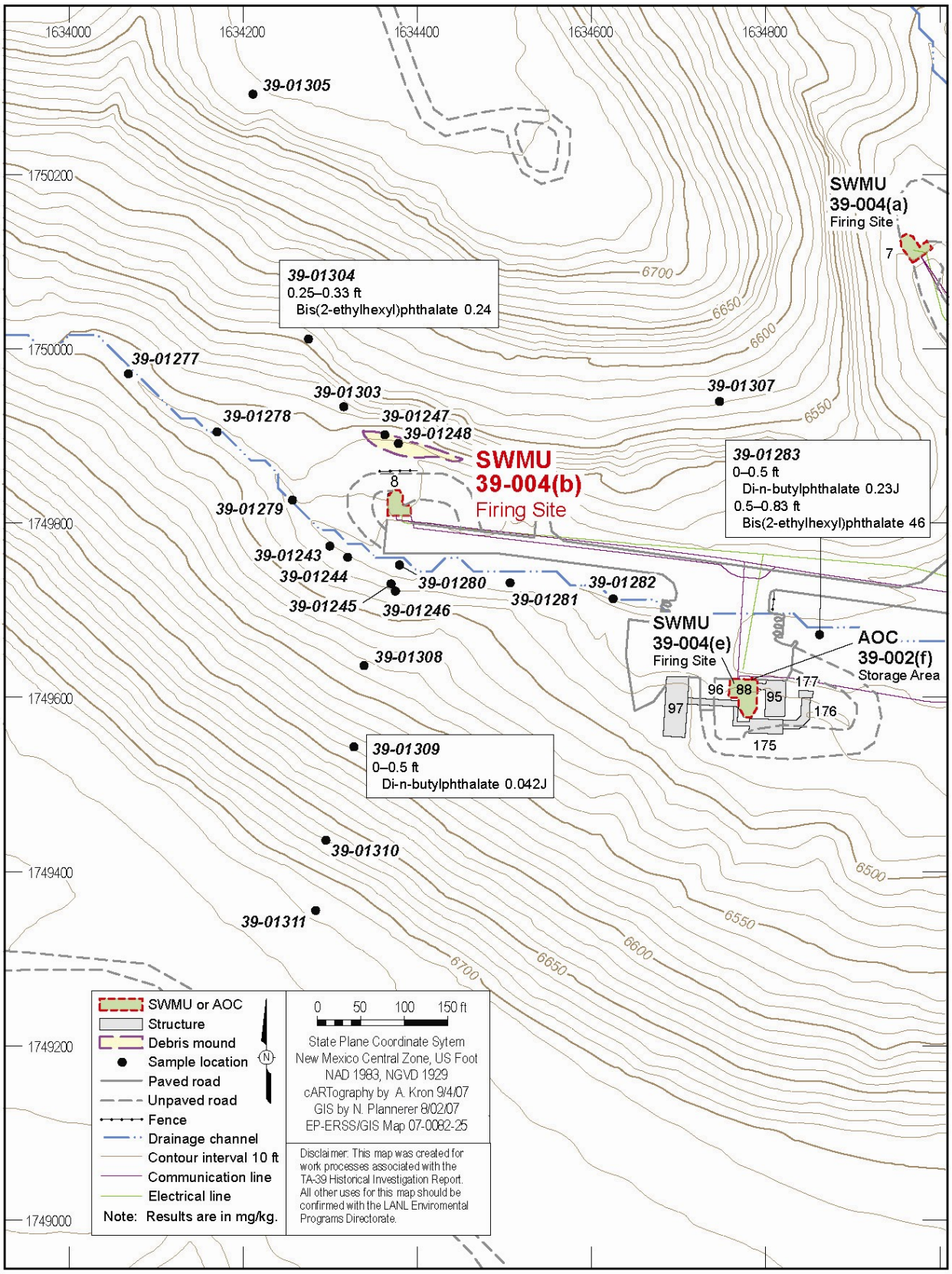


Figure 2.3-3 Organic chemicals detected at SWMU 39-004(b)

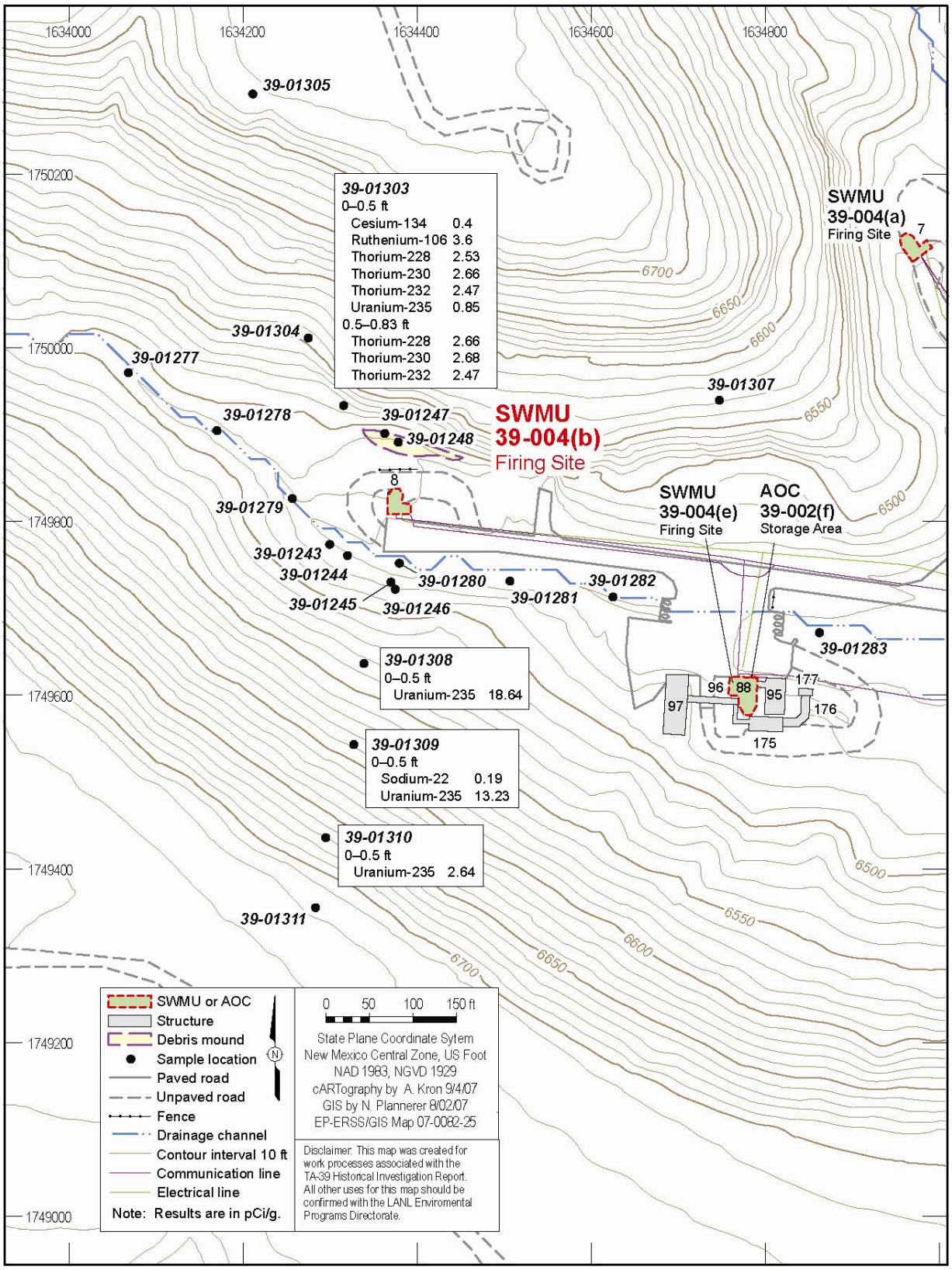


Figure 2.3-4 Radionuclides detected or detected above BVs/FVs at SWMU 39-004(b)

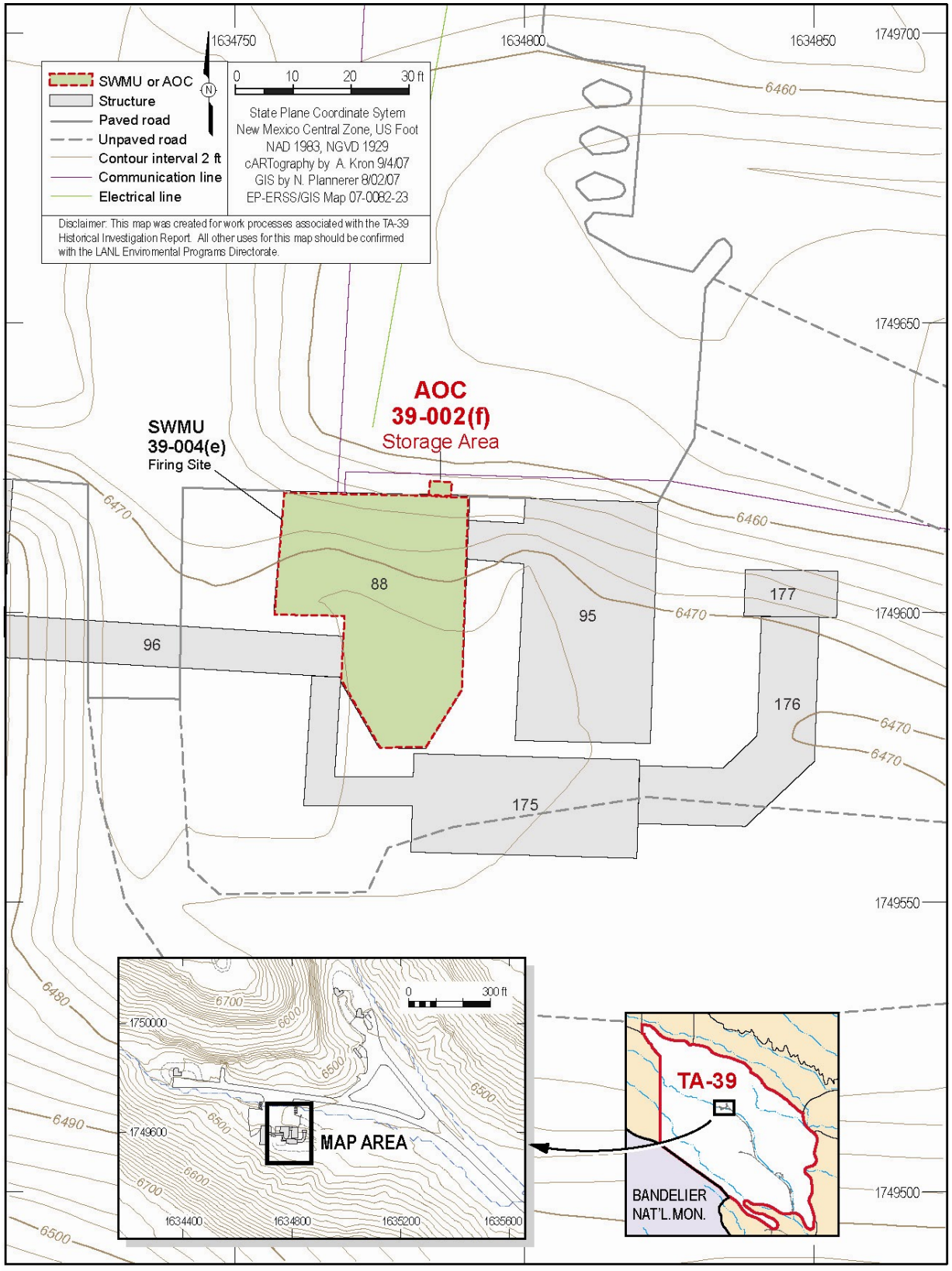


Figure 2.4-1 Location of AOC 39-002(f), storage area

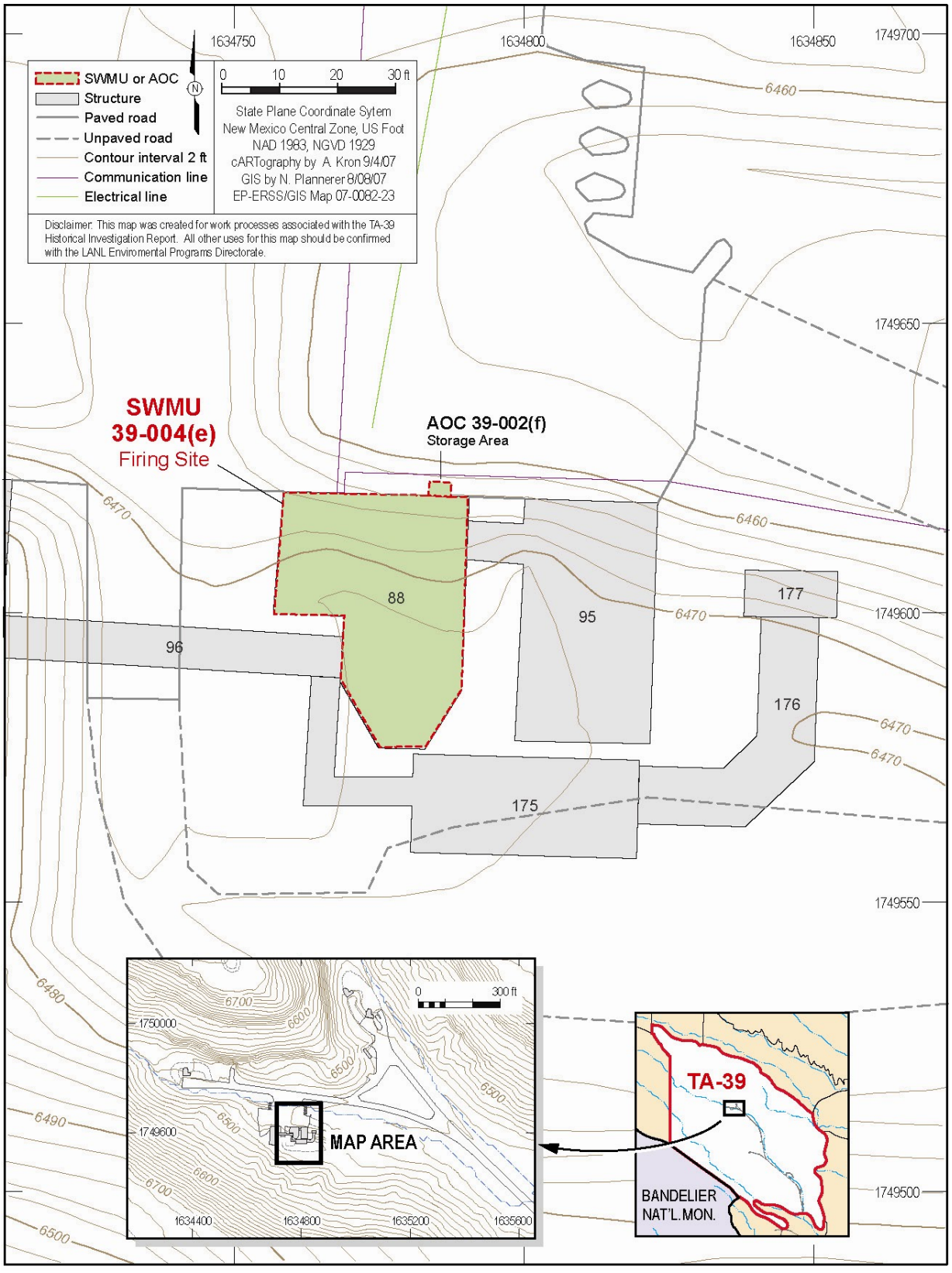


Figure 2.5-1 Location of SWMU 39-004(e), firing site

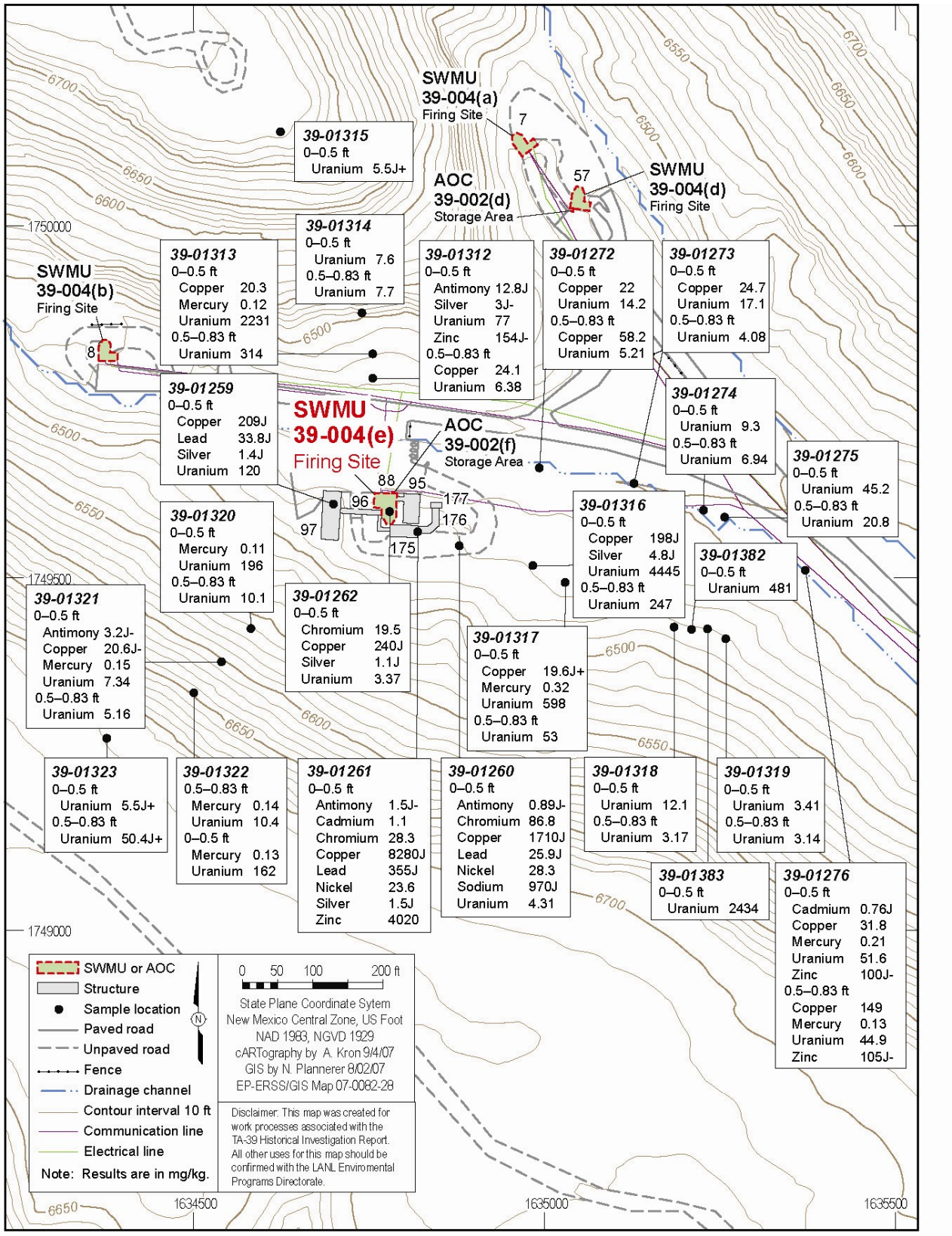


Figure 2.5-2 Inorganic chemicals detected above BVs at SWMU 39-004(e)

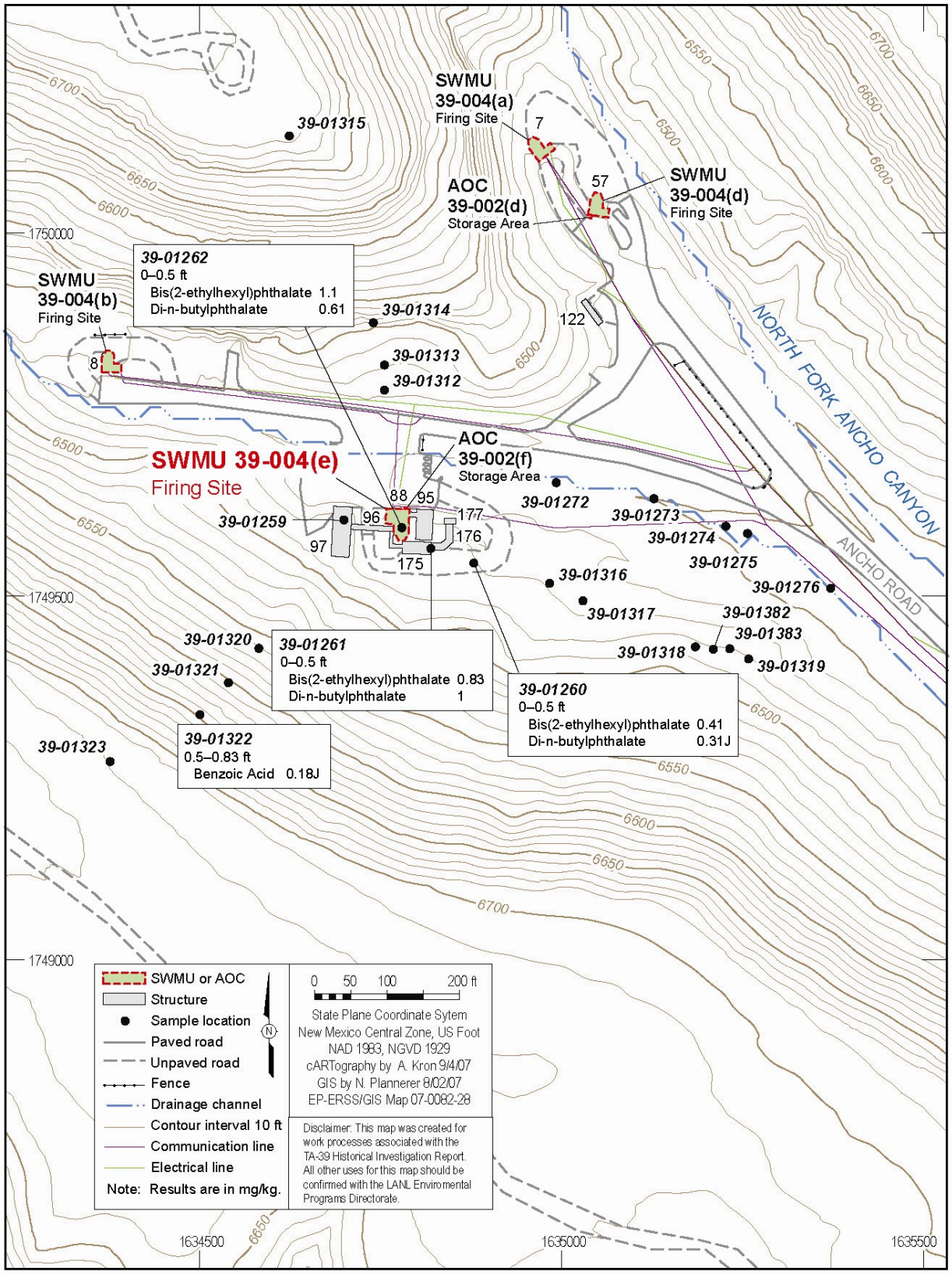


Figure 2.5-3 Organic chemicals detected at SWMU 39-004(e)

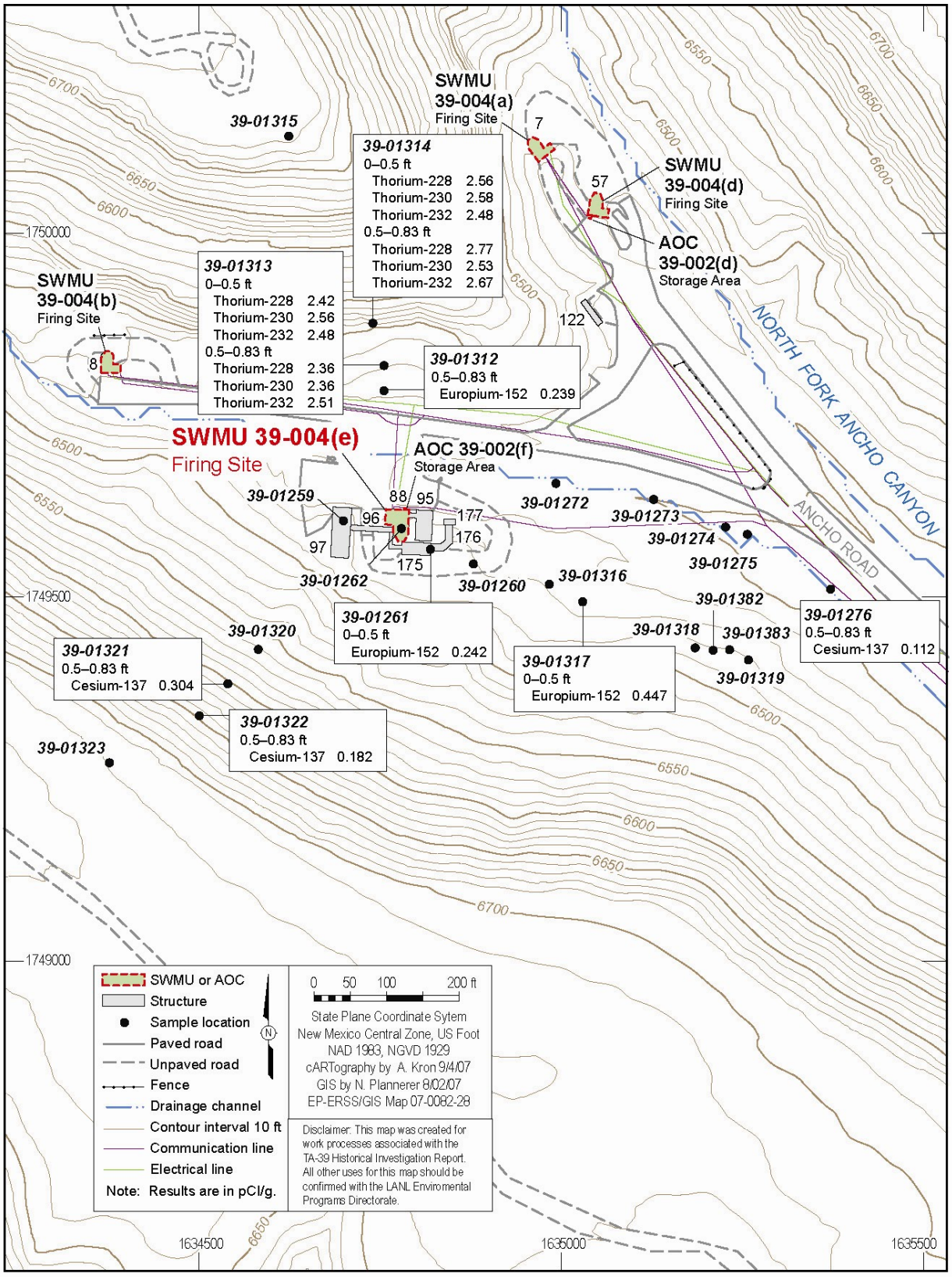


Figure 2.5-4 Radionuclides detected or detected above BVs/FVs at SWMU 39-004(e)

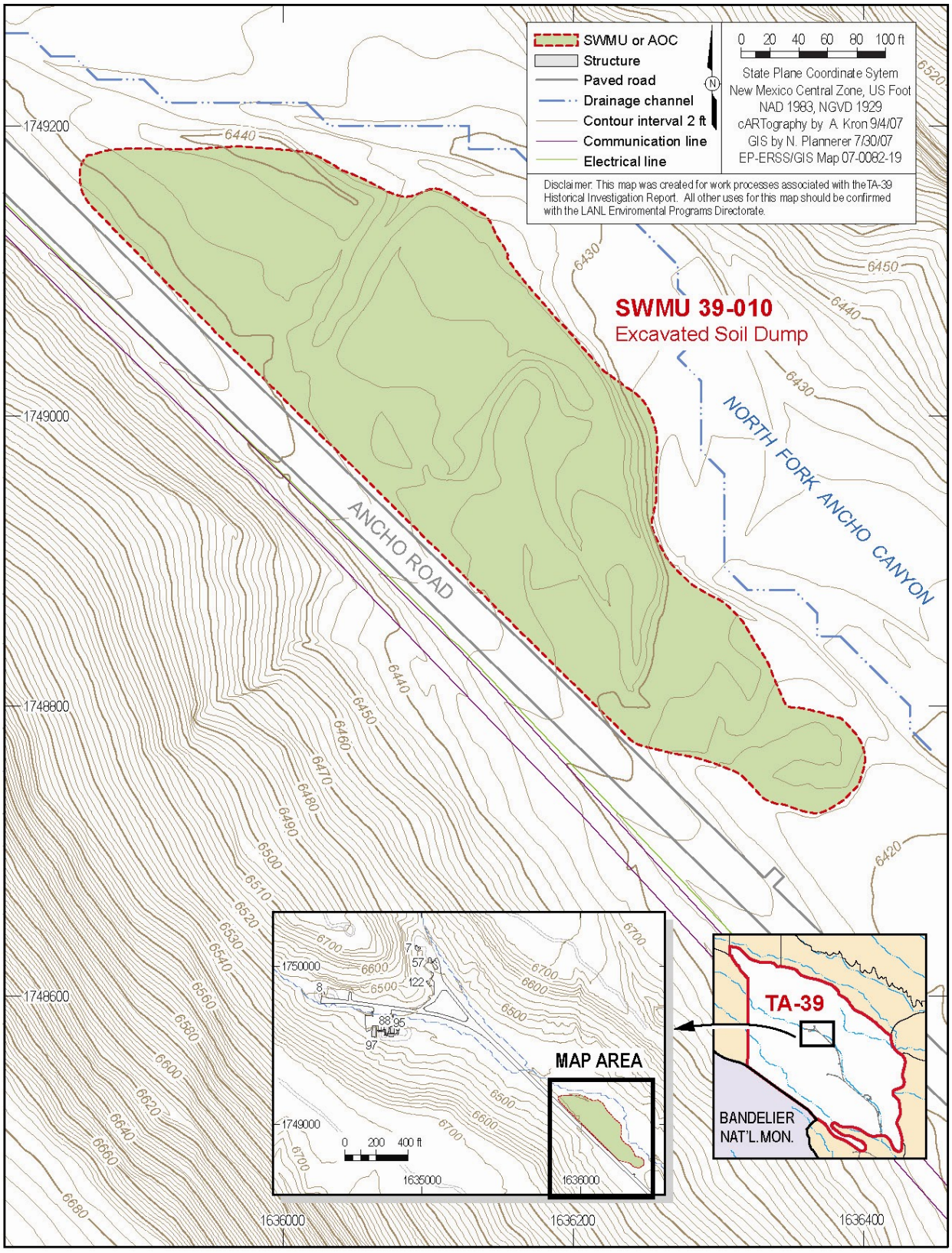


Figure 2.6-1 Location of SWMU 39-010, excavated soil dump

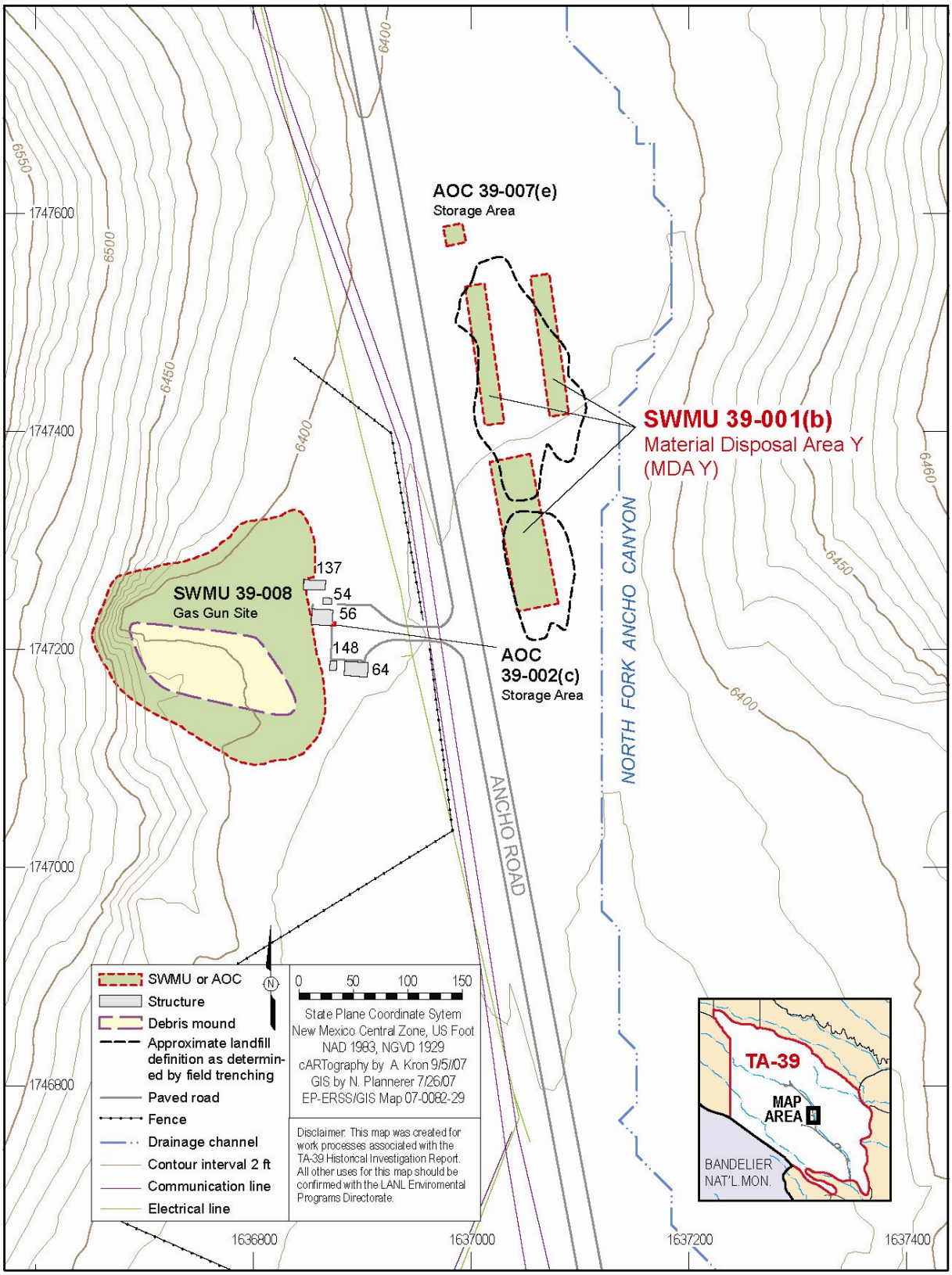


Figure 3.1-1 Location of SWMU 39-001(b), MDA Y

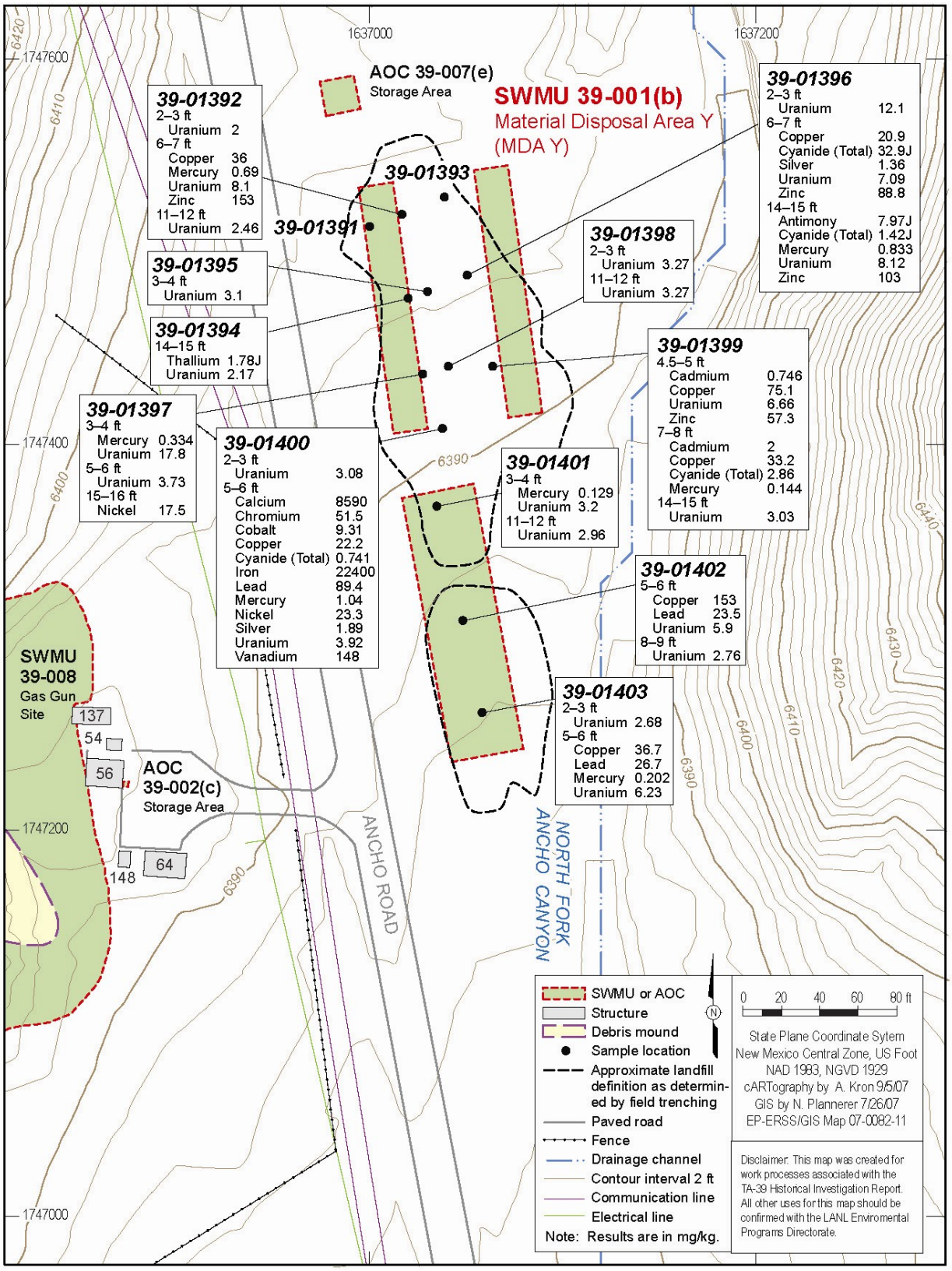


Figure 3.1-2 Inorganic chemicals detected above BVs at SWMU 39-001(b)

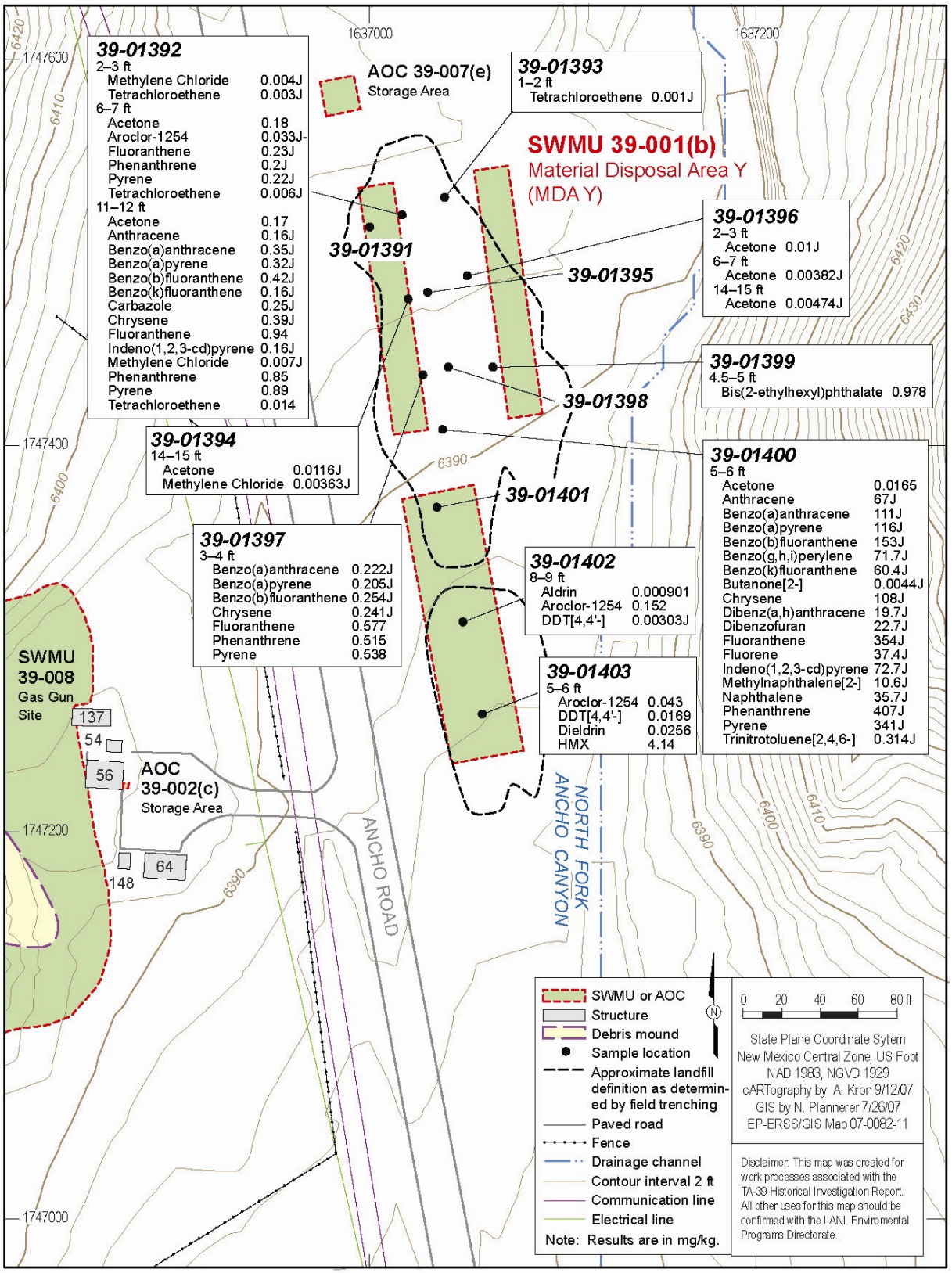


Figure 3.1-3 Organic chemicals detected at SWMU 39-001(b)

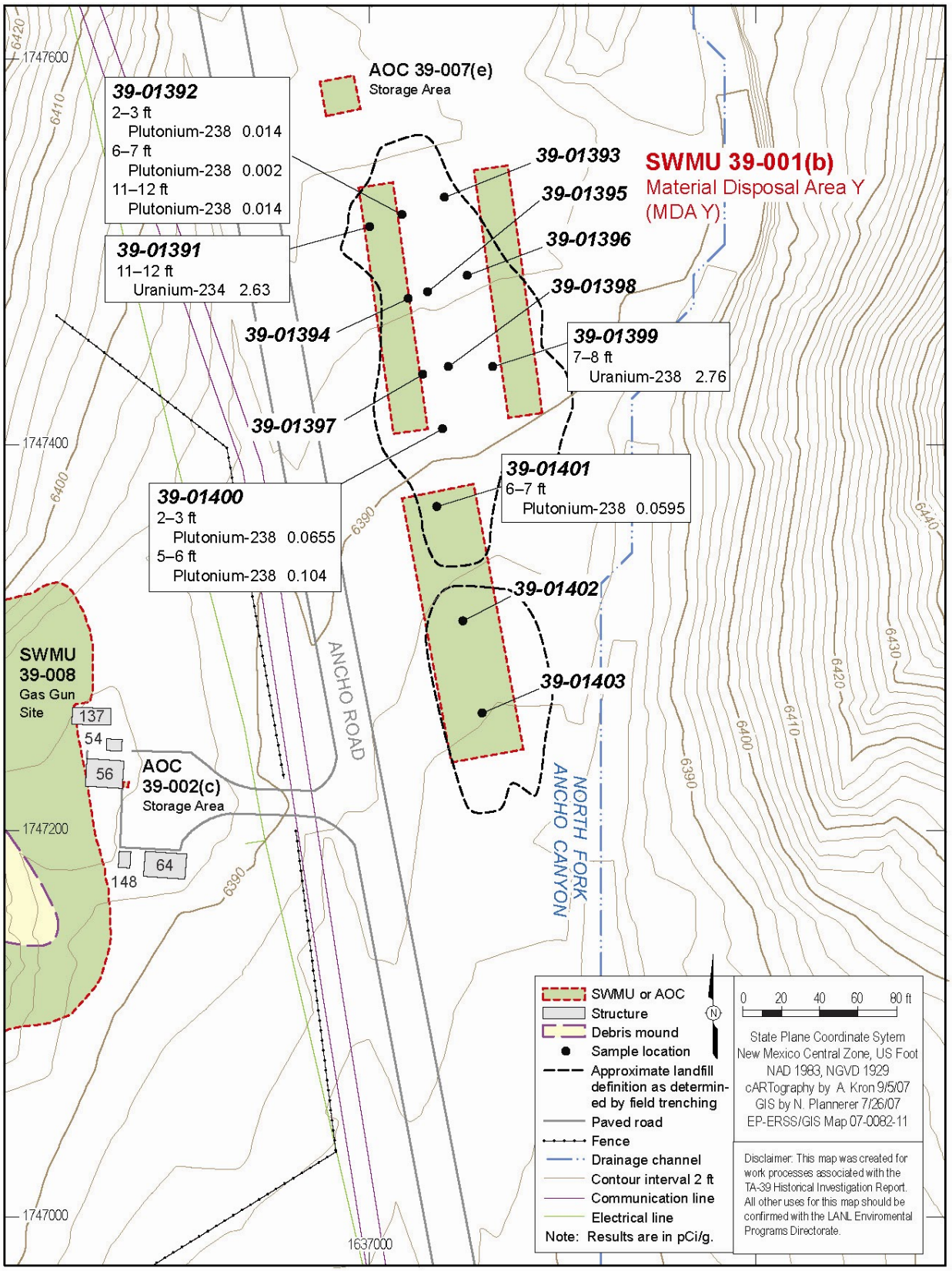


Figure 3.1-4 Radionuclides detected or detected above BVs/FVs at SWMU 39-001(b)

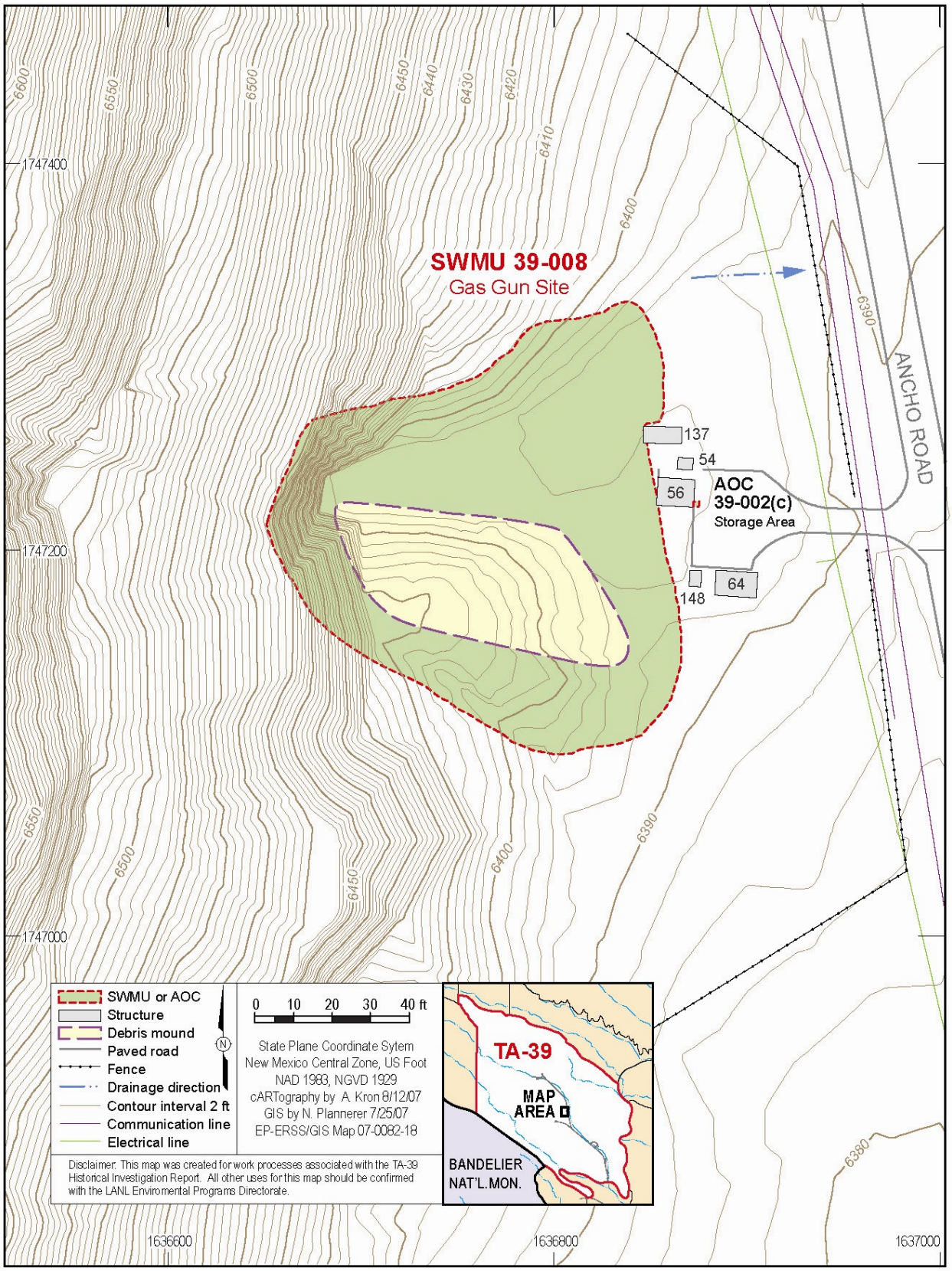


Figure 3.2-1 Location of SWMU 39-008, gas gun site

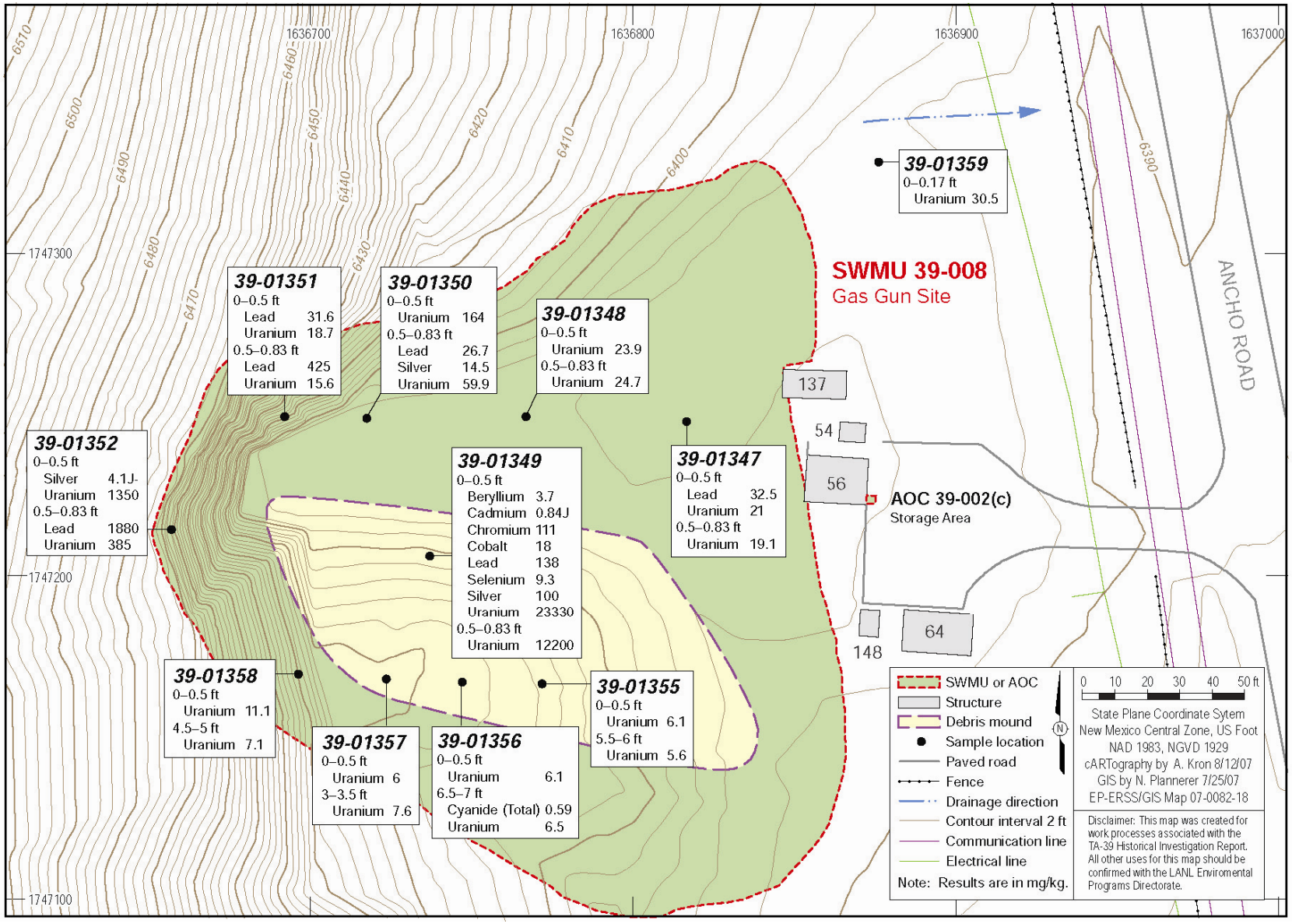


Figure 3.2-2 Inorganic chemicals detected above BVs at SWMU 39-008

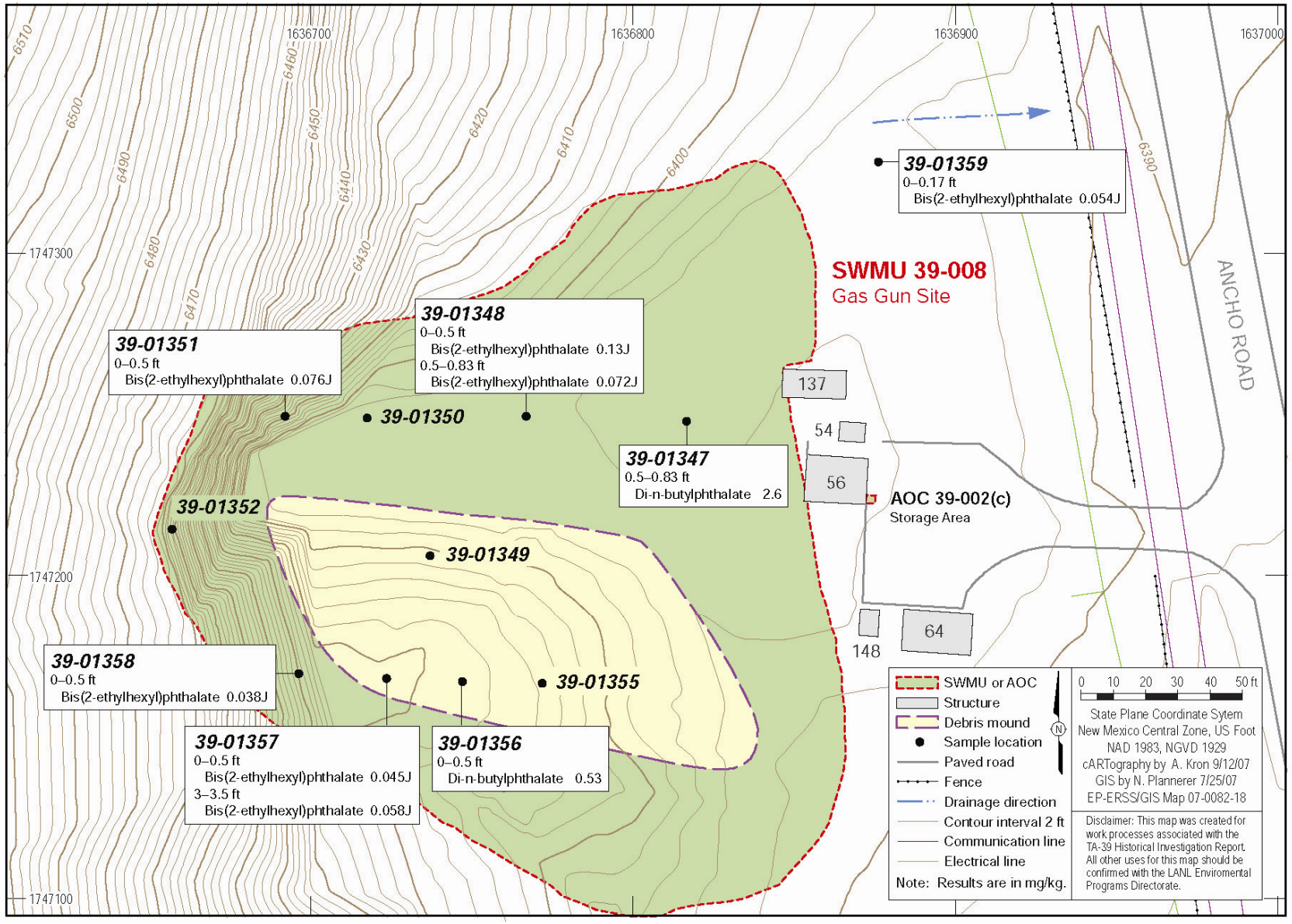


Figure 3.2-3 Organic chemicals detected at SWMU 39-008

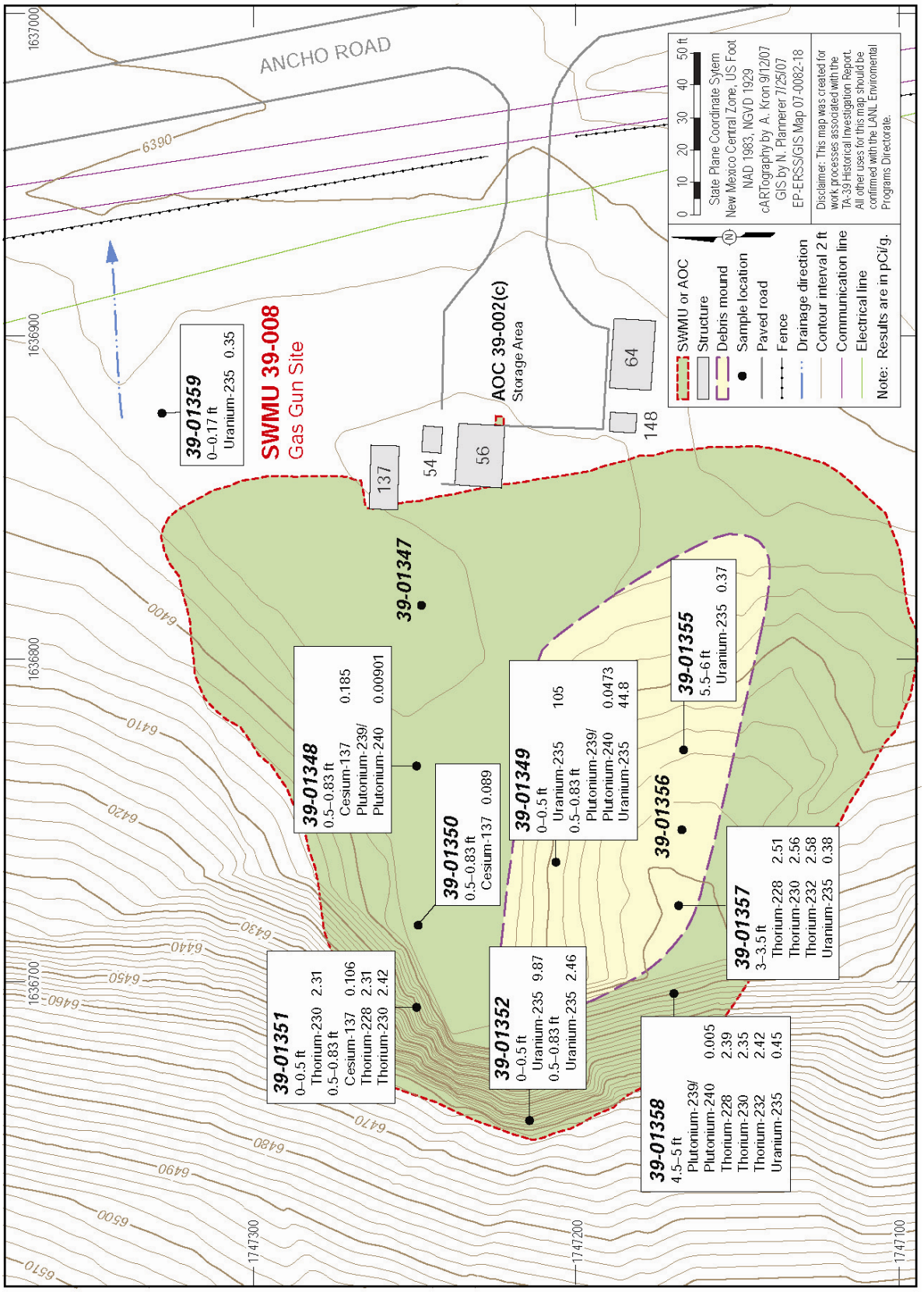


Figure 3.2-4 Radionuclides detected or detected above BVs/FVs at SWMU 39-008

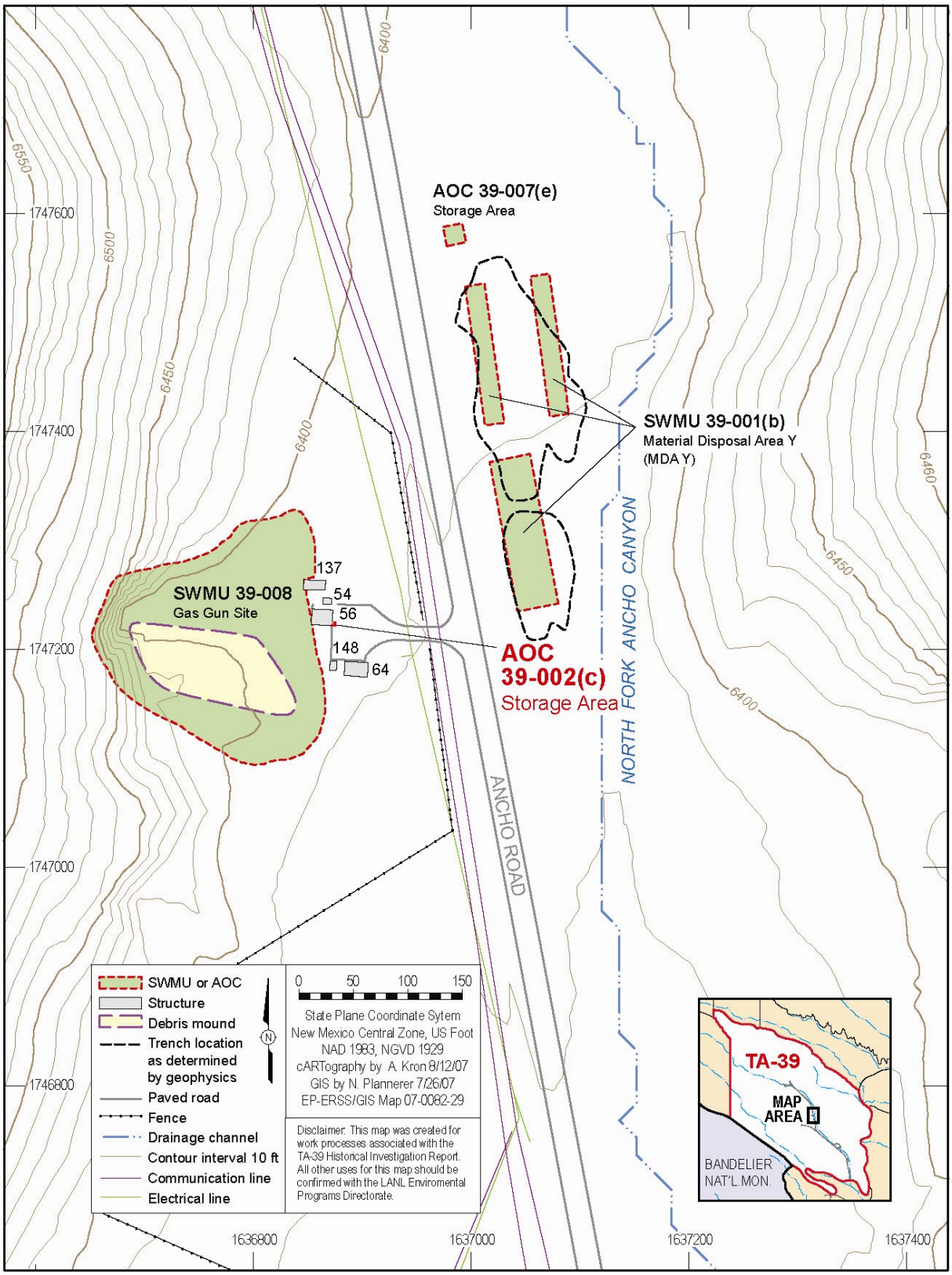


Figure 3.3-1 Location of AOC 39-002(c), storage area

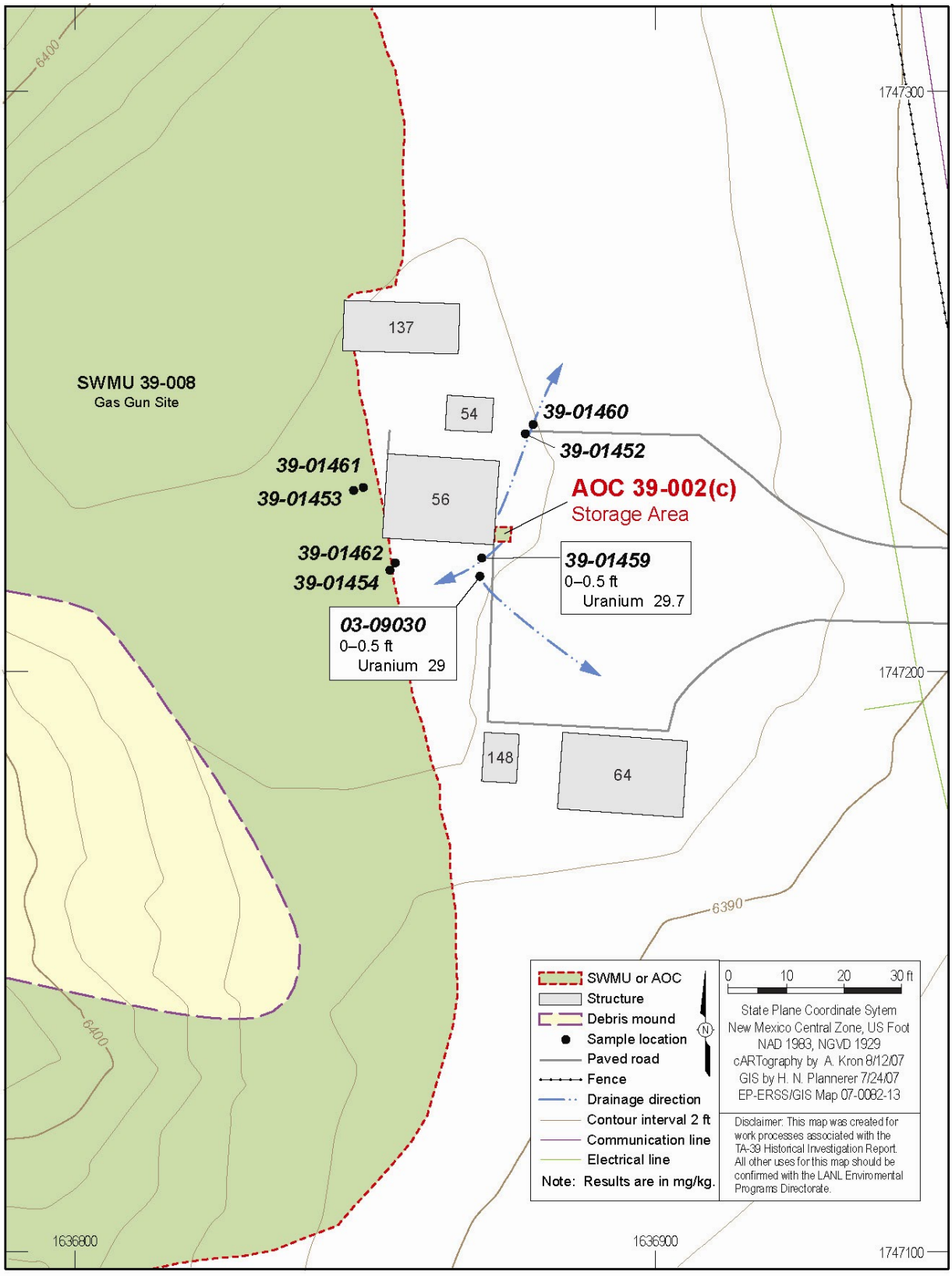


Figure 3.3-2 Inorganic chemicals detected above BVs at AOC 39-002(c)

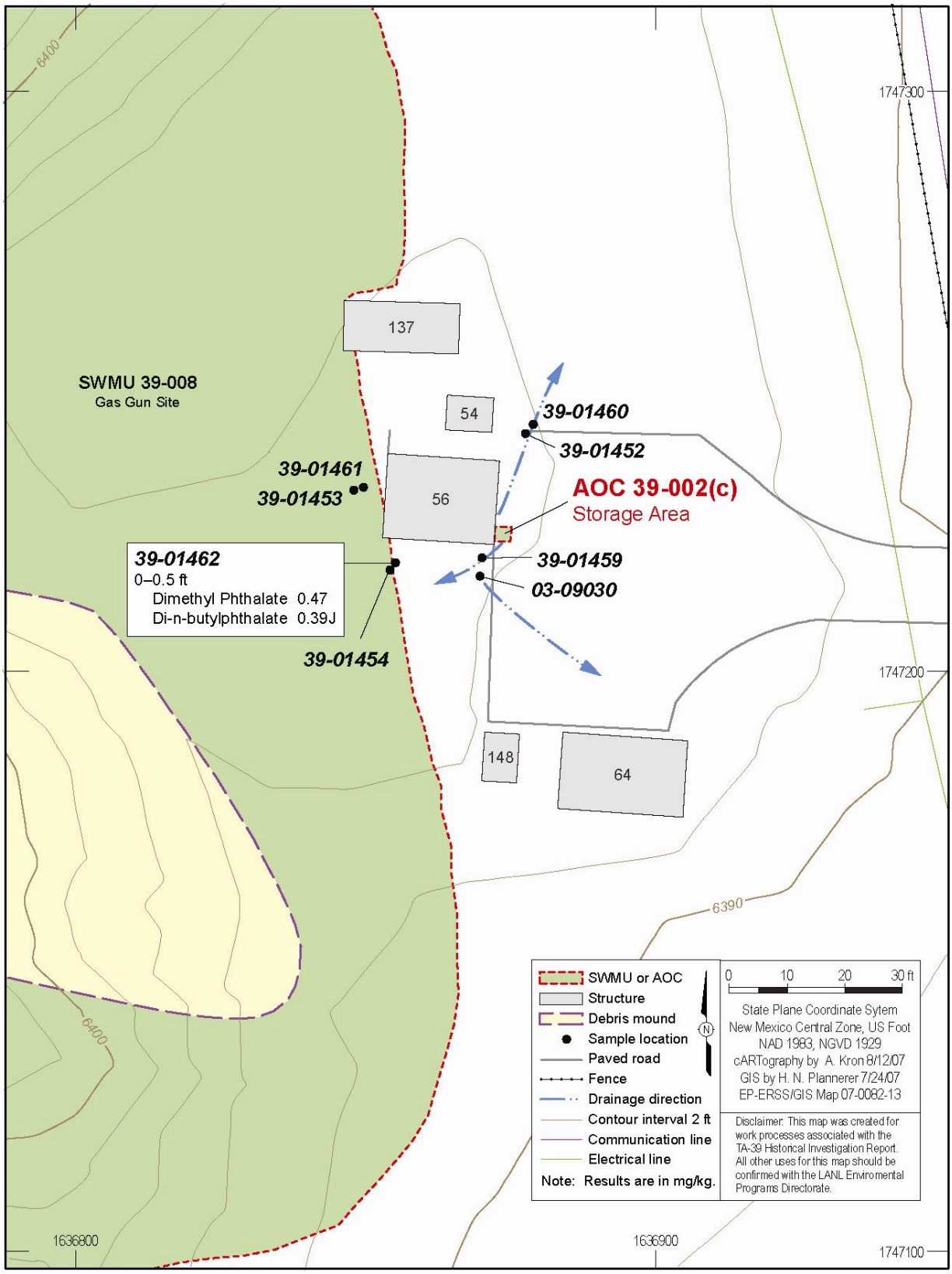


Figure 3.3-3 Organic chemicals detected at AOC 39-002(c)

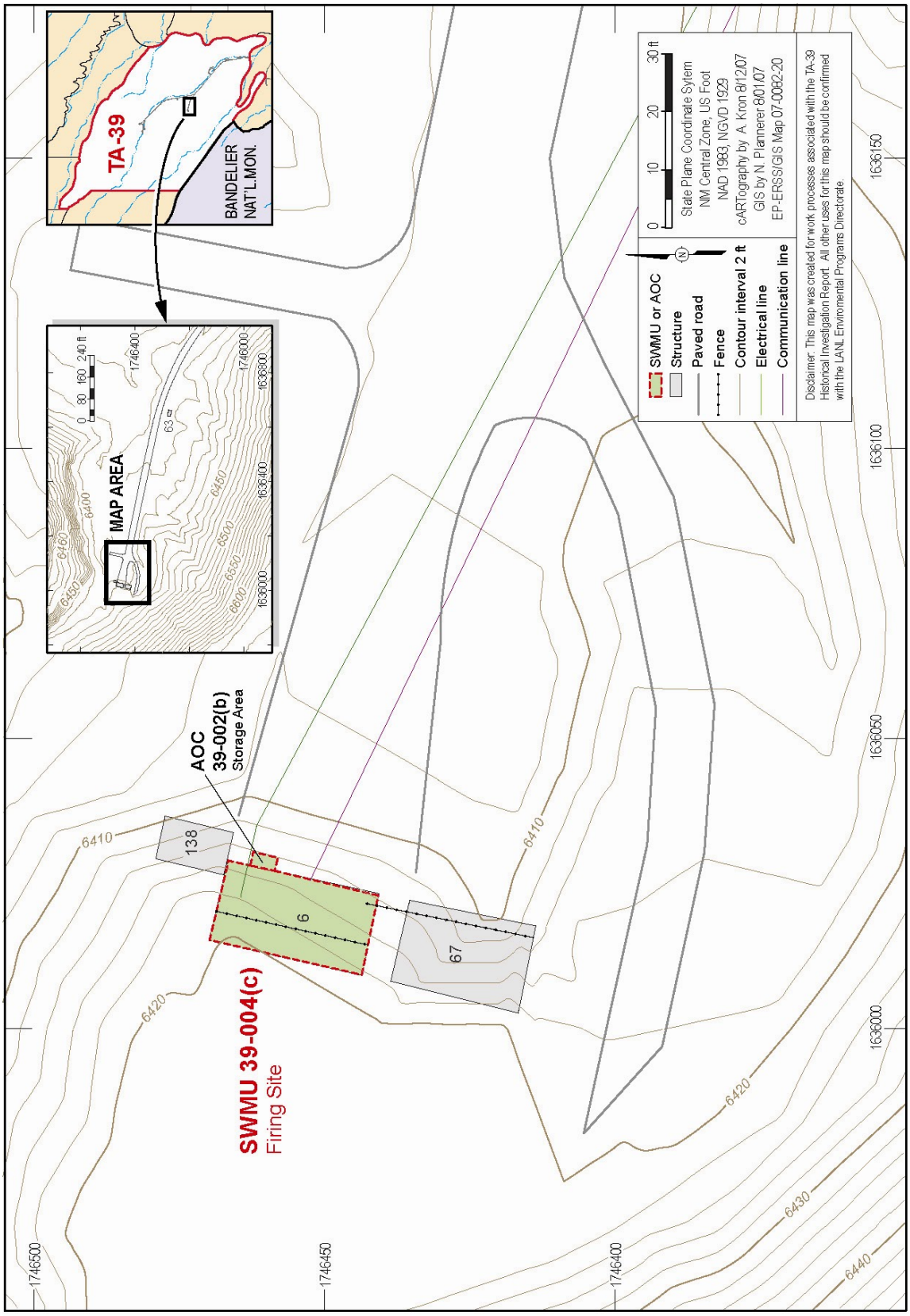


Figure 3.4-1 Location of SWMU 39-004(c), firing site

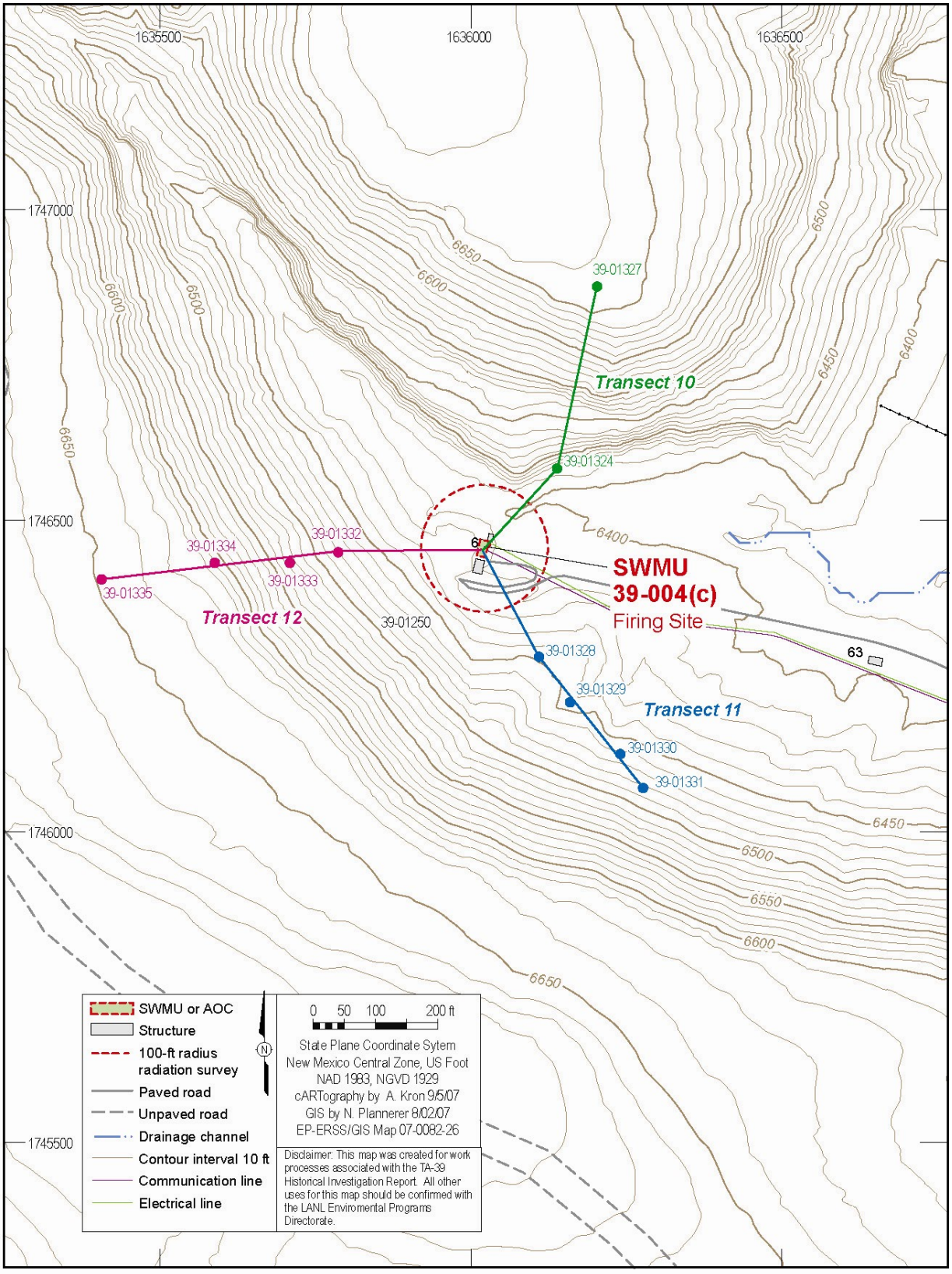


Figure 3.4-2 Transect sampling at the firing site in Subaggregate Area 2

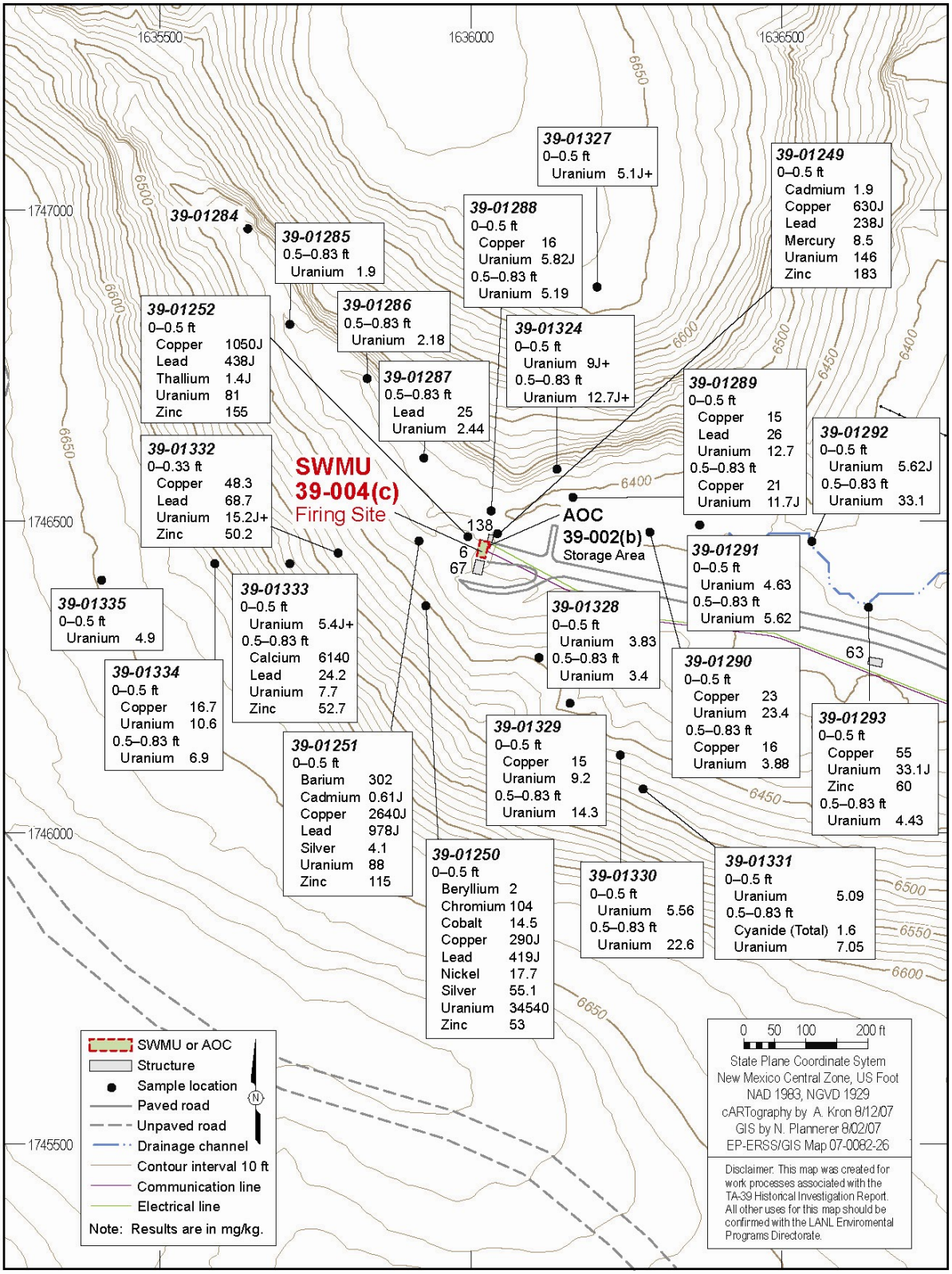


Figure 3.4-3 Inorganic chemicals detected above BVs at SWMU 39-004(c)

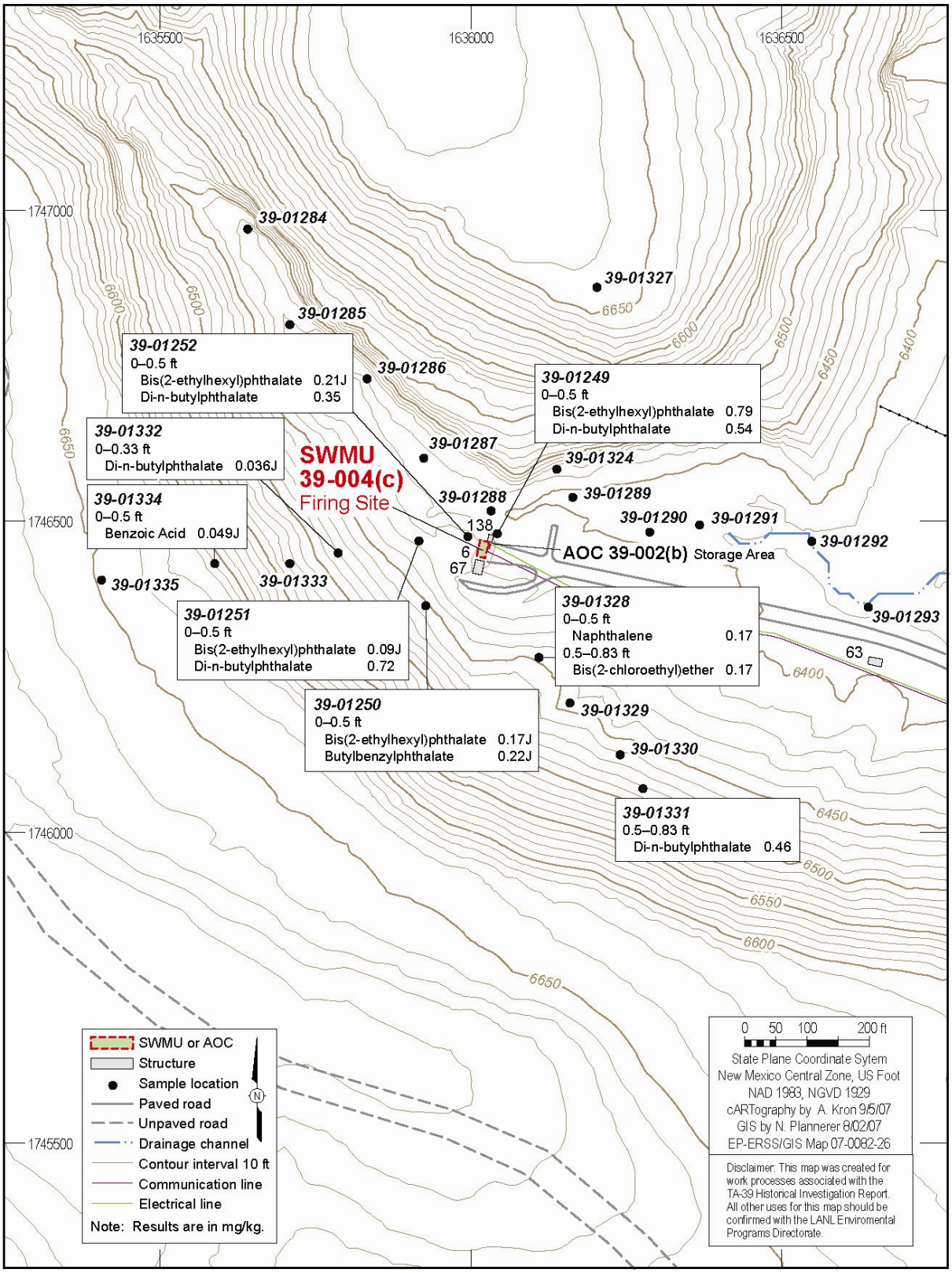


Figure 3.4-4 Organic chemicals detected at SWMU 39-004(c)

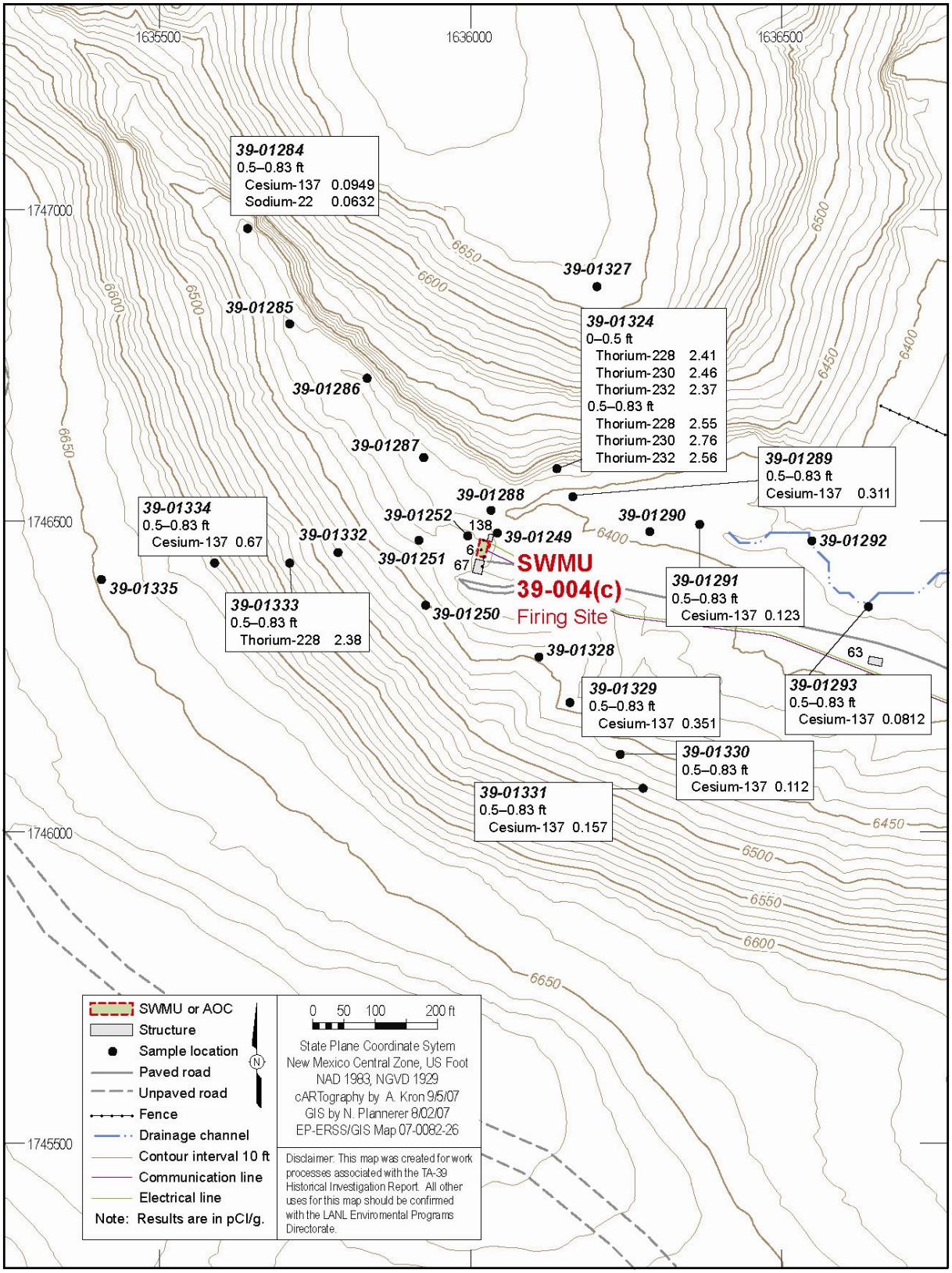


Figure 3.4-5 Radionuclides detected or detected above BVs/FVs at SWMU 39-004(c)

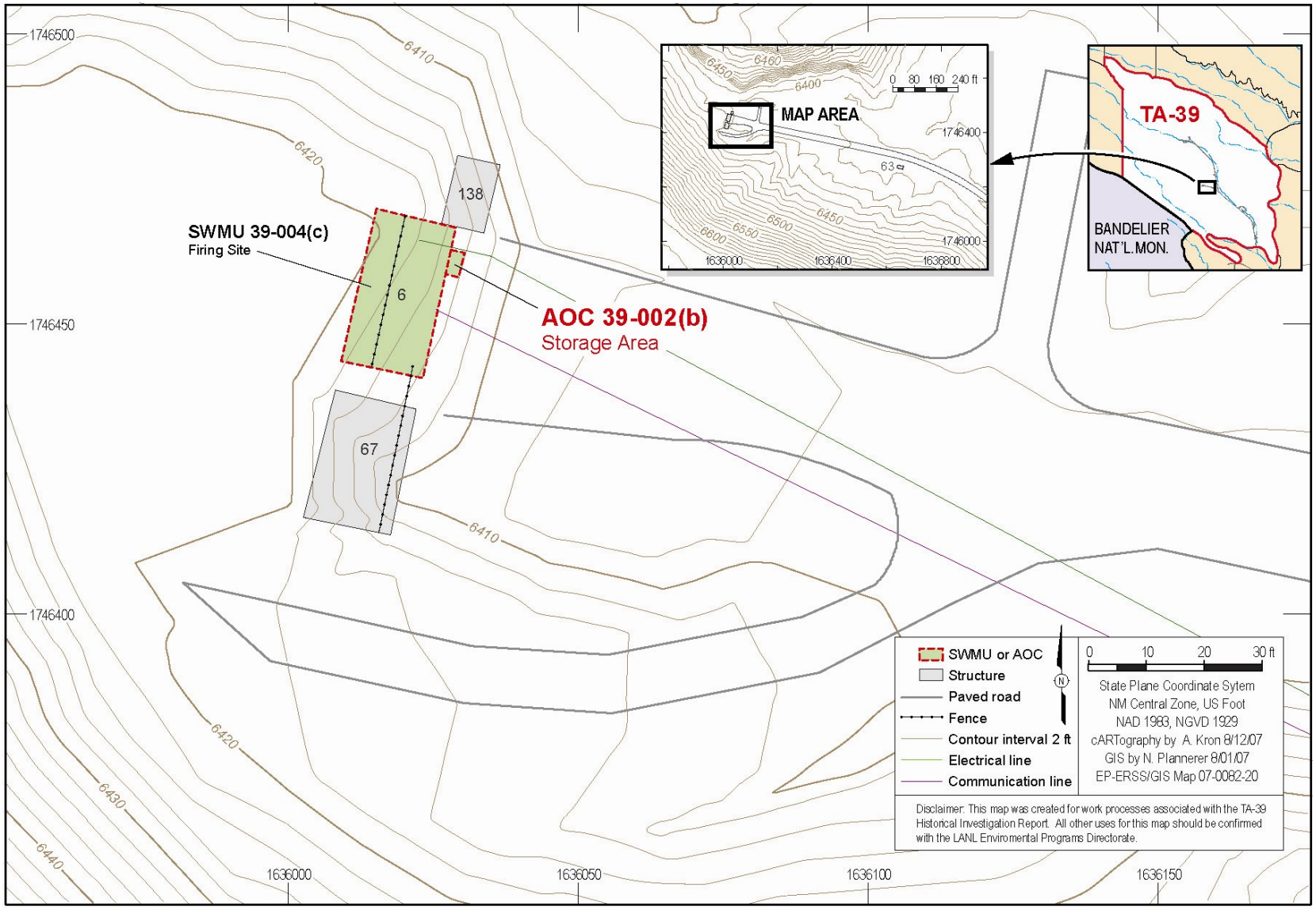


Figure 3.5-1 Location of AOC 39-002(b), storage area

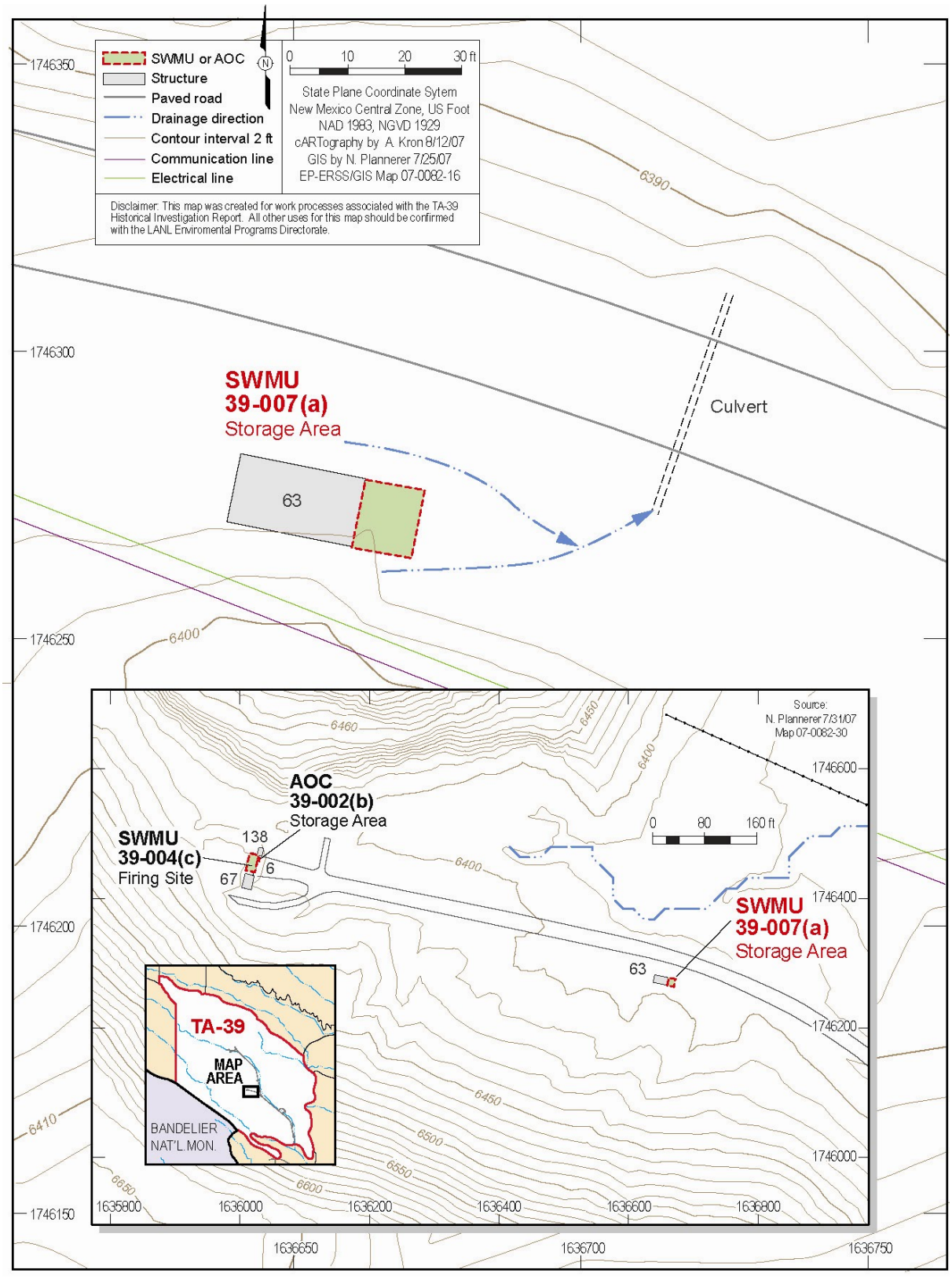


Figure 3.6-1 Location of SWMU 39-007(a), storage area

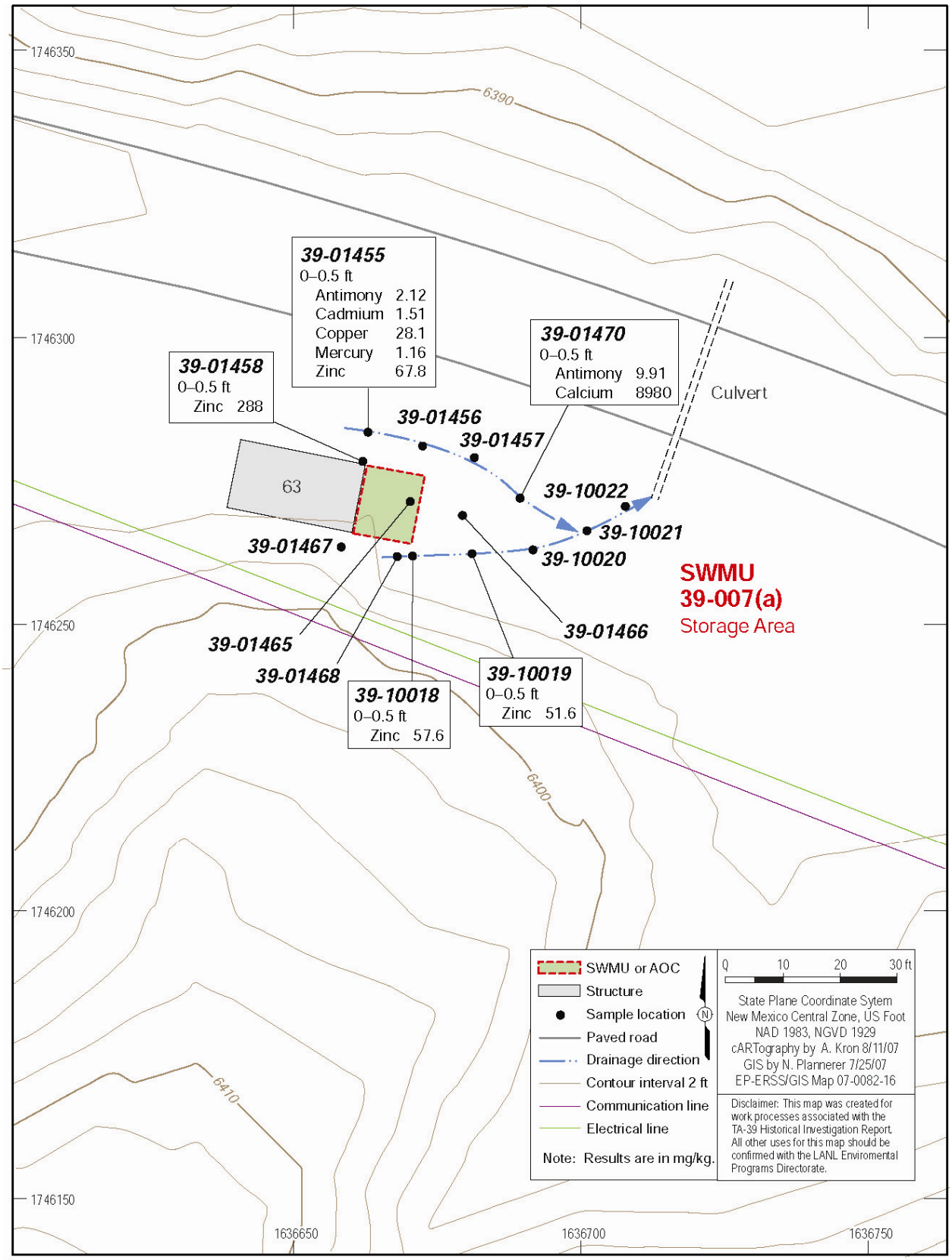


Figure 3.6-2 Inorganic chemicals detected above BVs at SWMU 39-007(a)

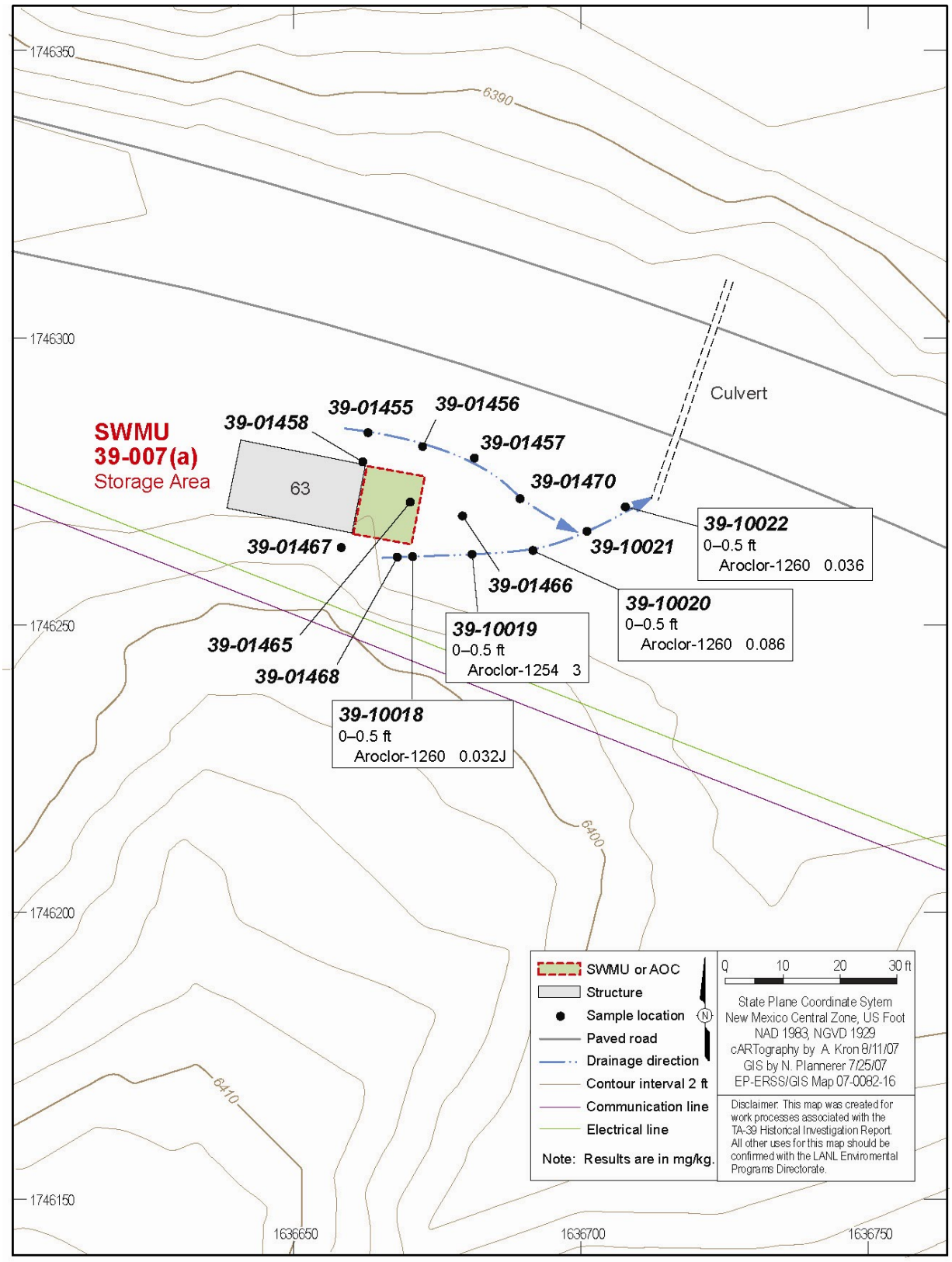


Figure 3.6-3 Organic chemicals detected at SWMU 39-007(a)

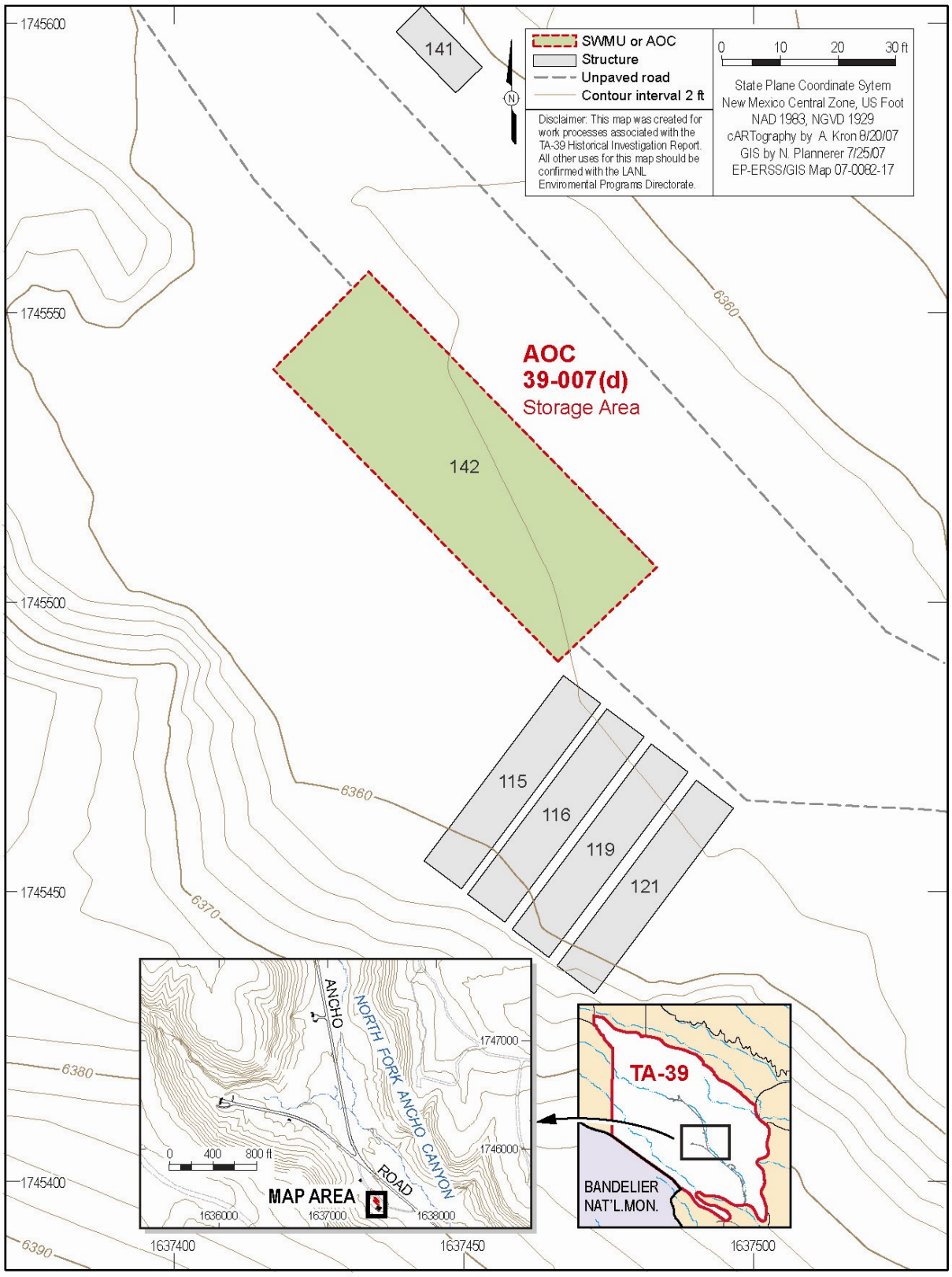


Figure 3.7-1 Location of AOC 39-007(d), storage area

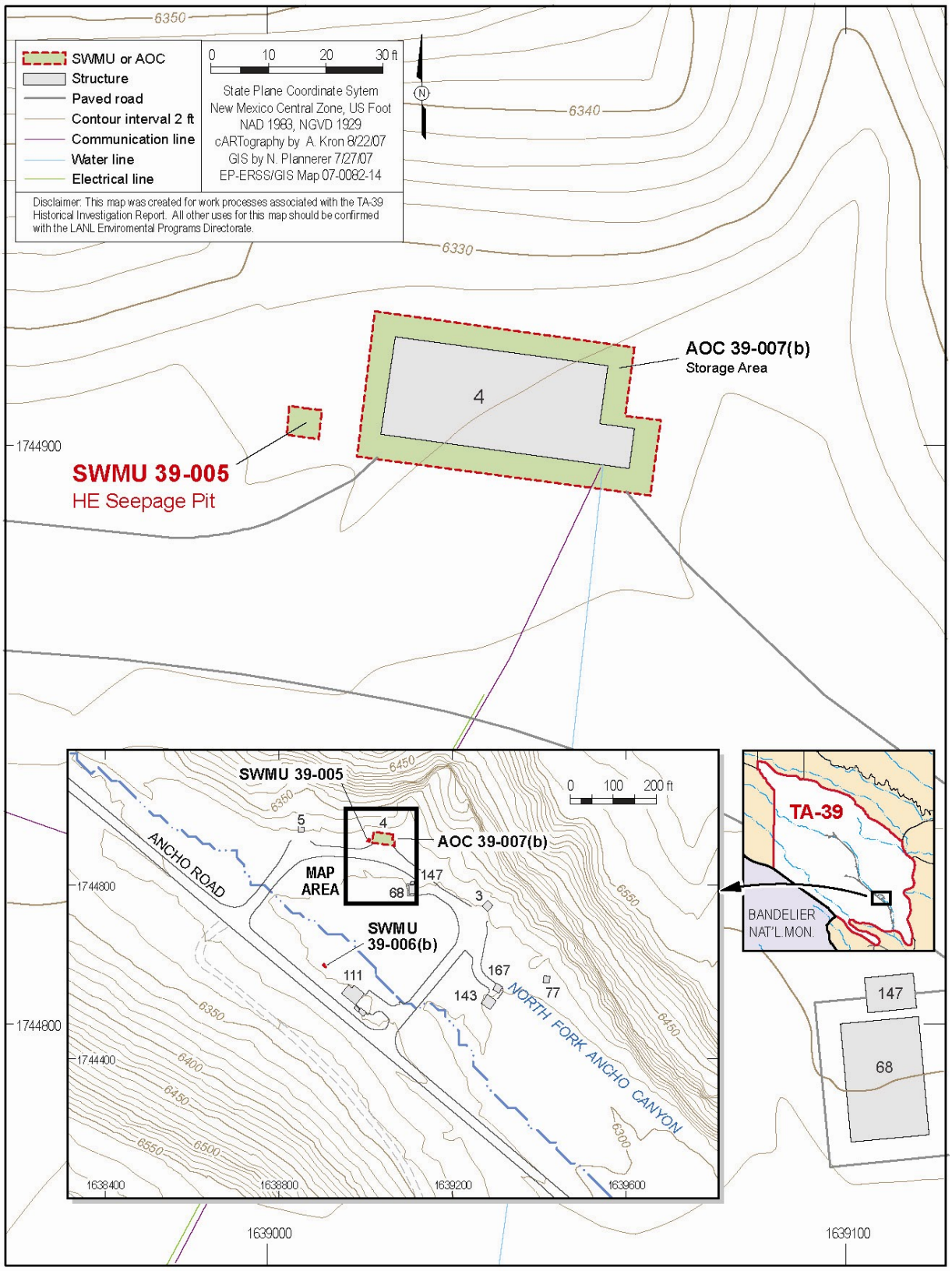


Figure 4.1-1 Location of SWMU 39-005, HE seepage pit

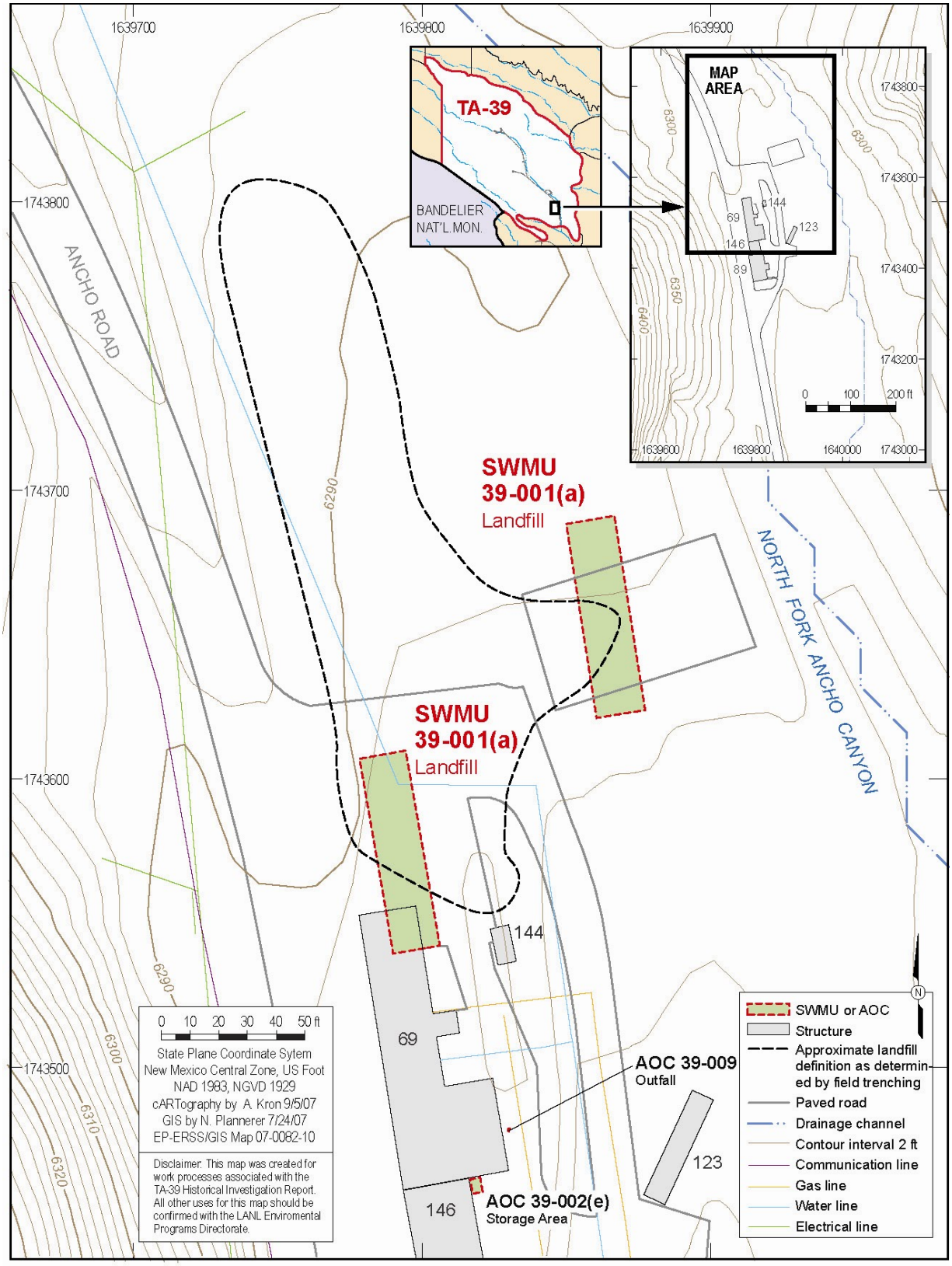


Figure 4.2-1 Location of SWMU 39-001(a), landfill

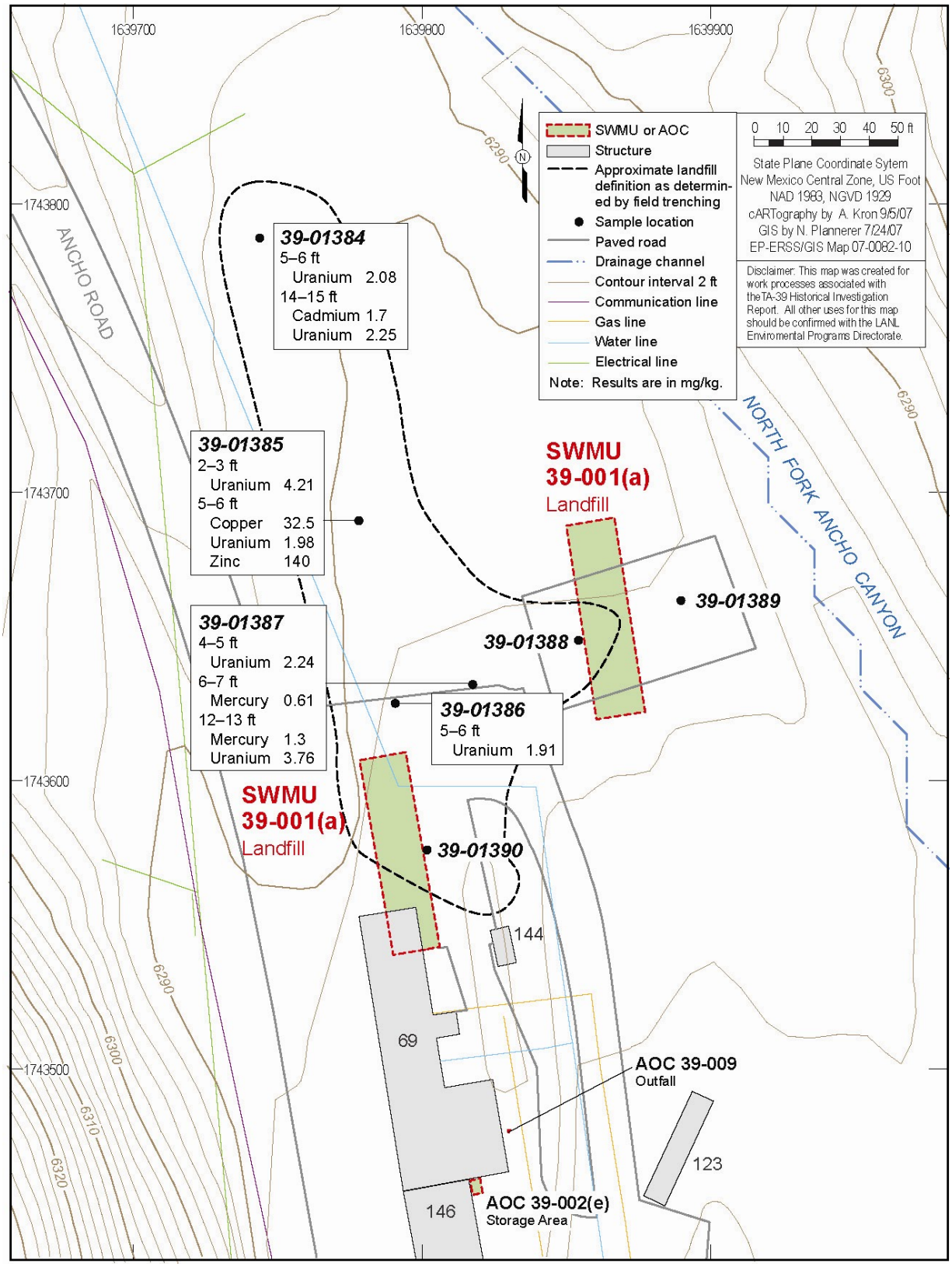


Figure 4.2-2 Inorganic chemicals detected above BVs at SWMU 39-001(a)

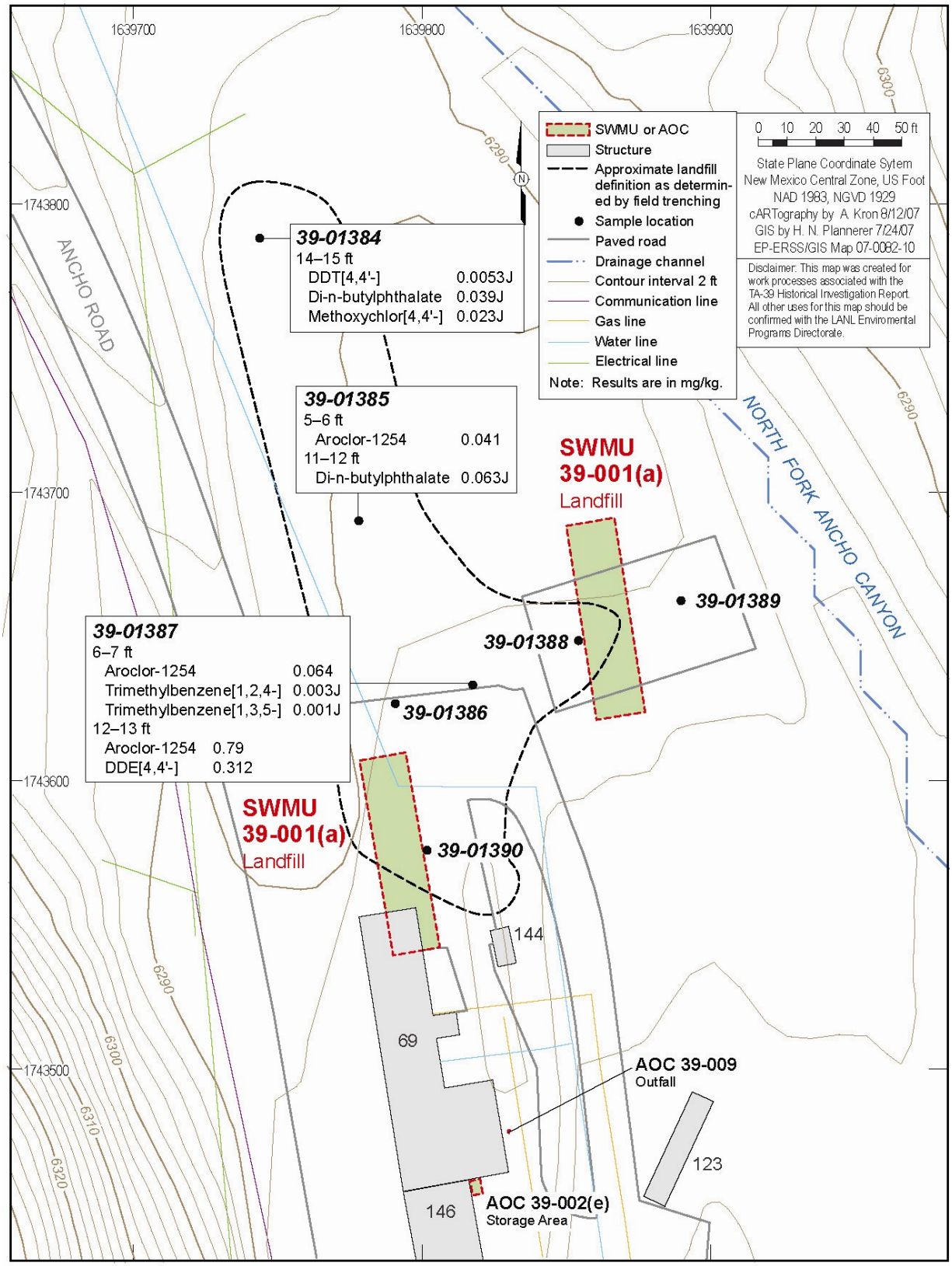


Figure 4.2-3 Organic chemicals detected at SWMU 39-001(a)

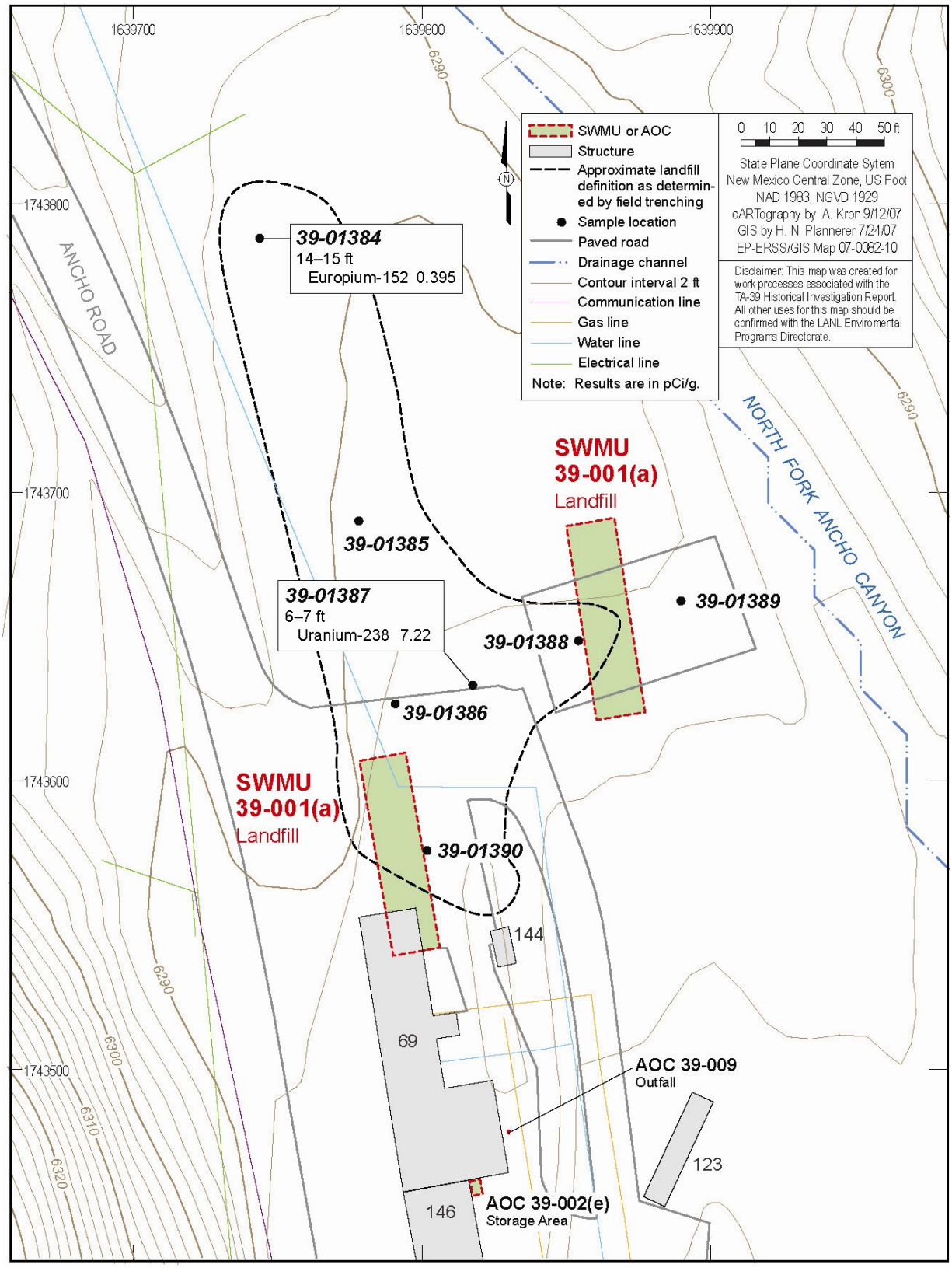


Figure 4.2-4 Radionuclides detected or detected above BVs/FVs at SWMU 39-001(a)

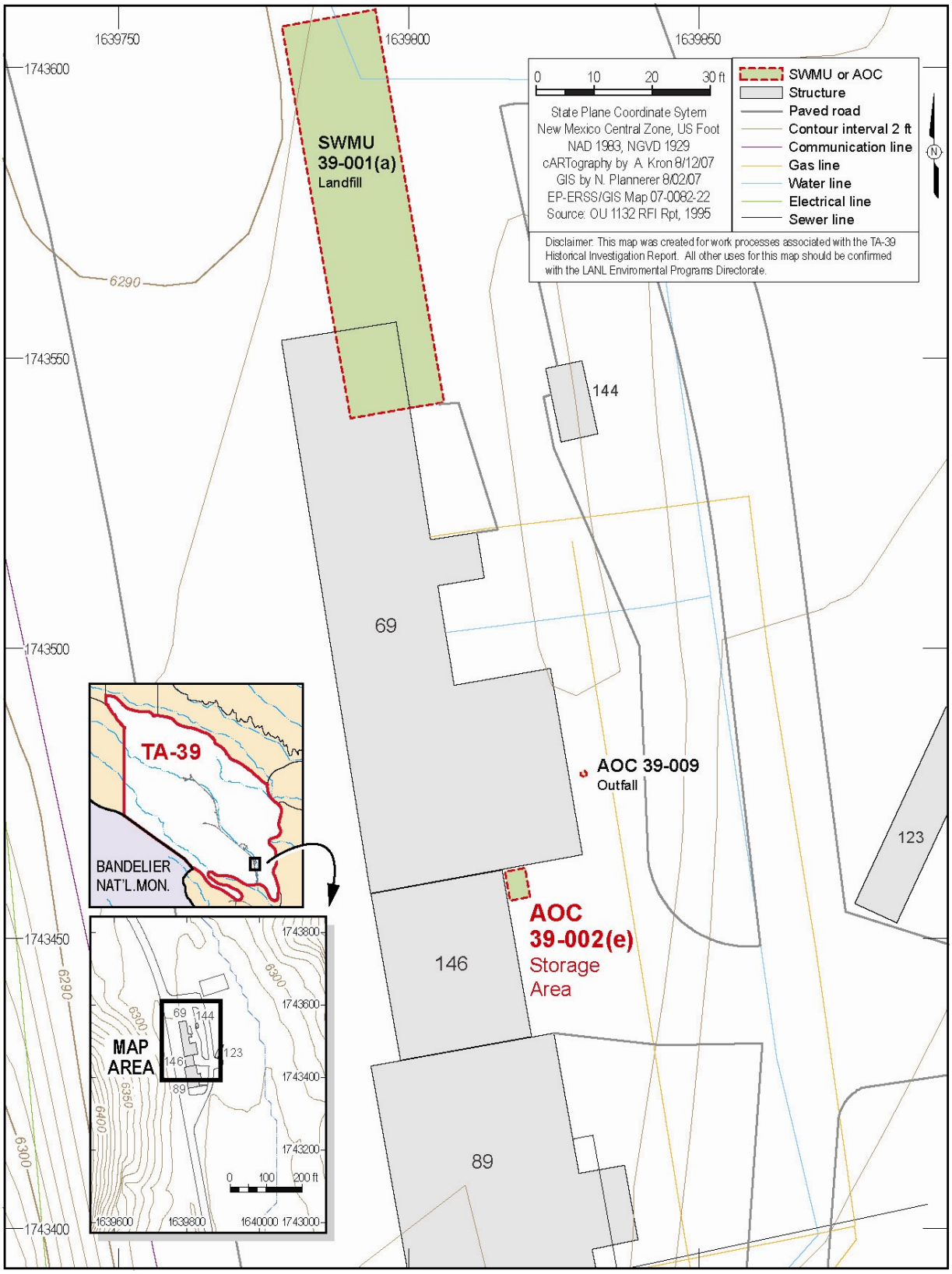


Figure 4.3-1 Location of SWMU 39-002(e), storage area

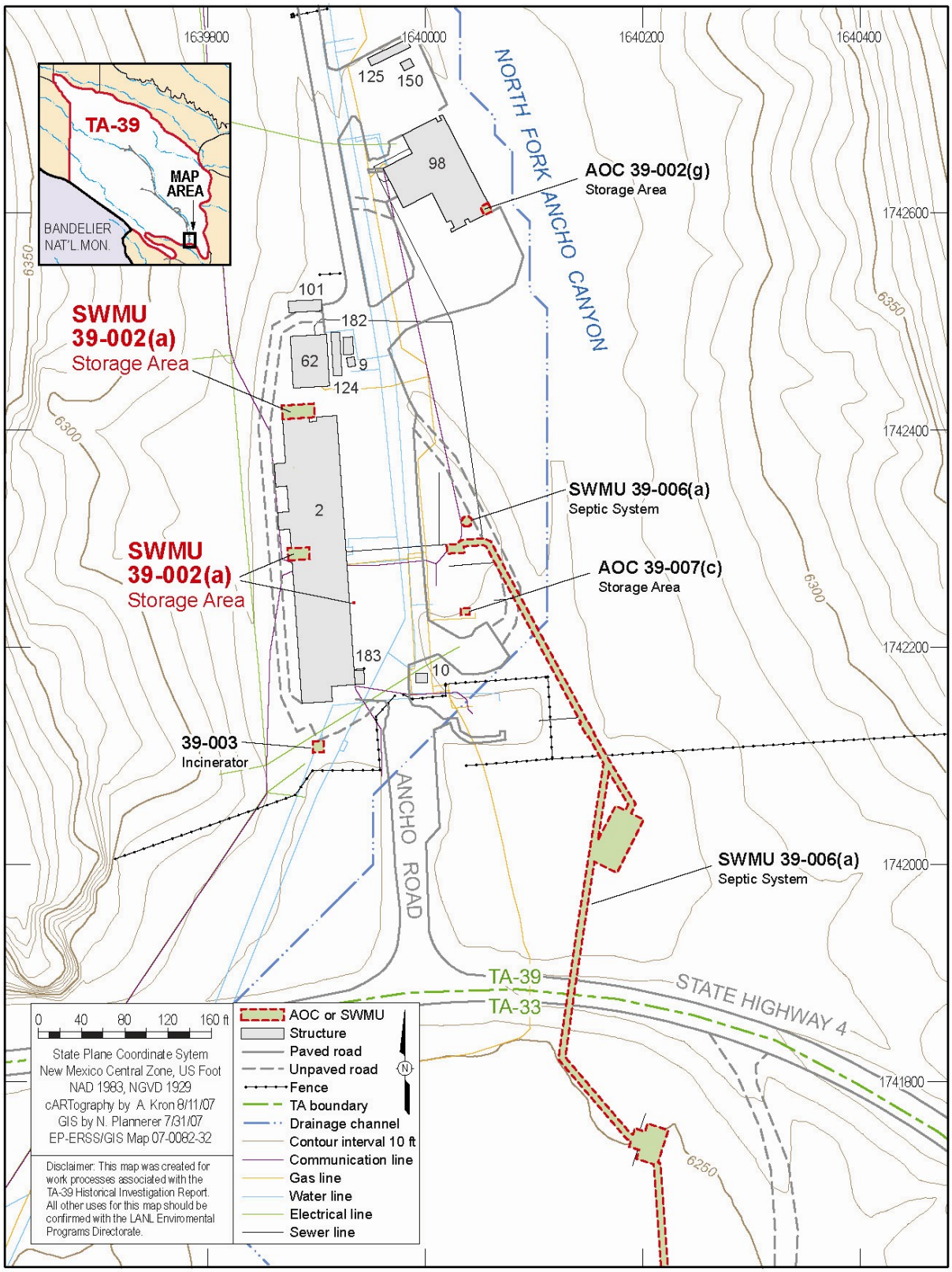


Figure 4.4-1 Location of SWMU 39-002(a), storage area

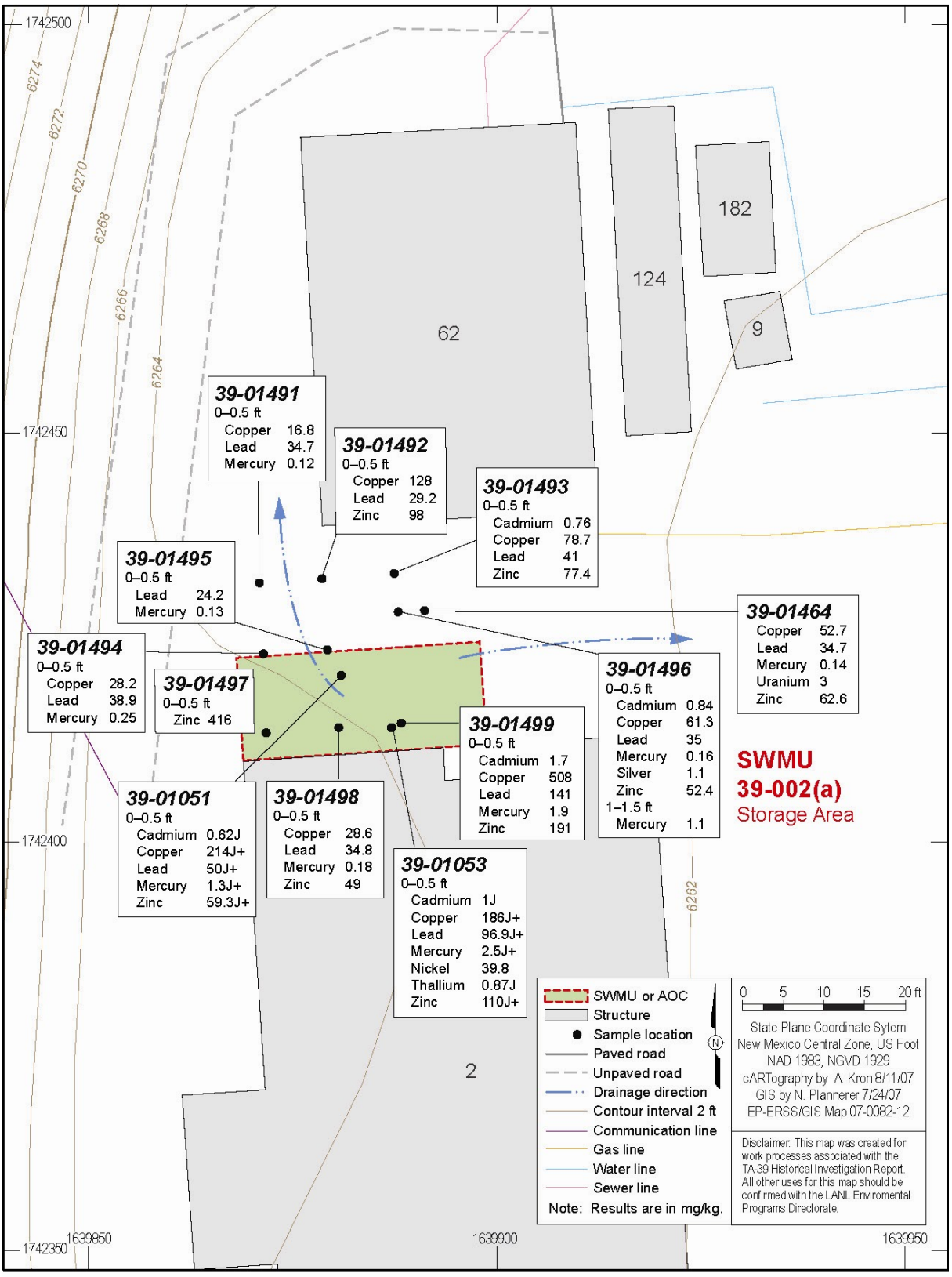


Figure 4.4-2 Inorganic chemicals detected above BVs at SWMU 39-002(a)

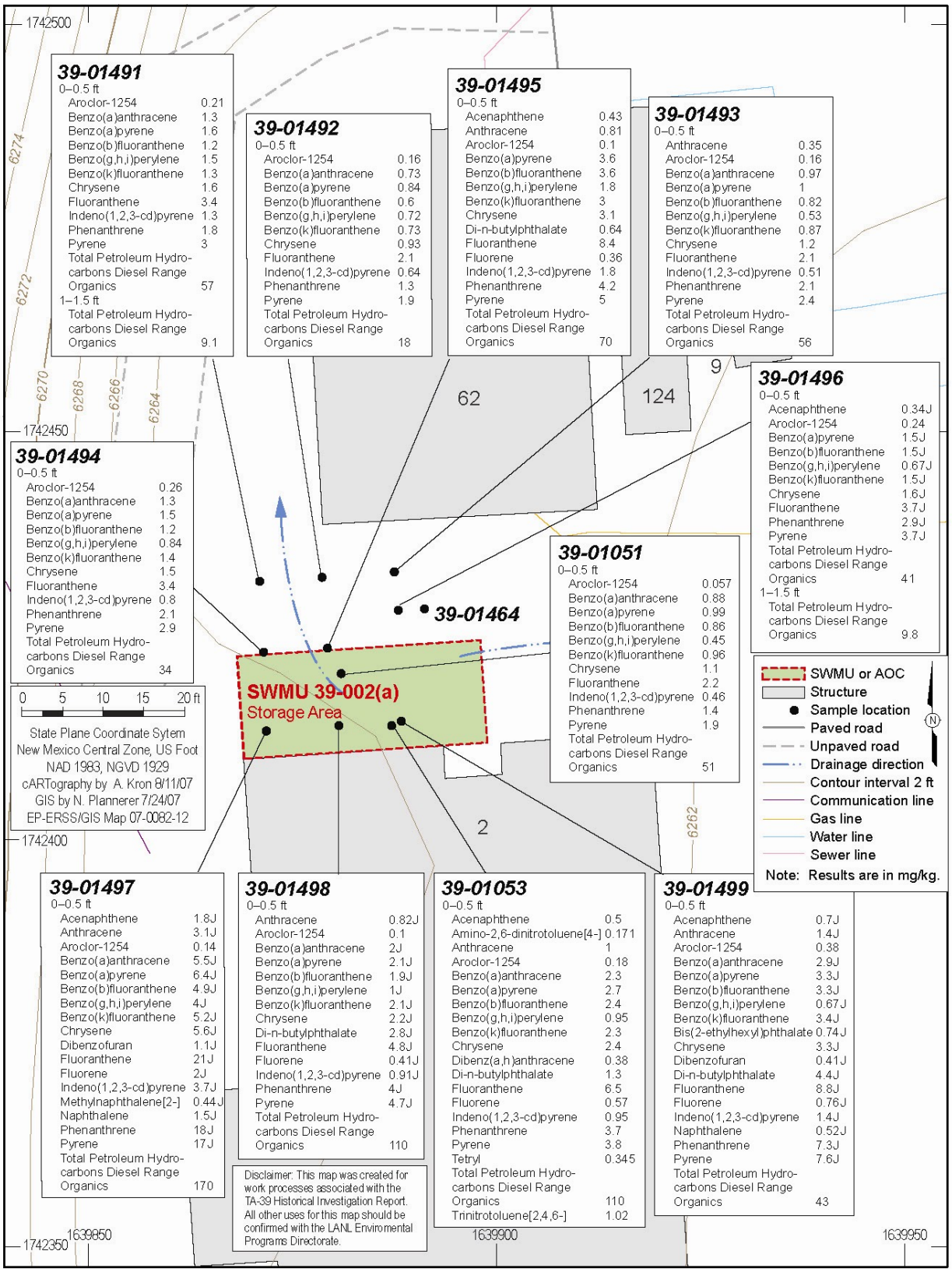


Figure 4.4-3 Organic chemicals detected at SWMU 39-002(a)

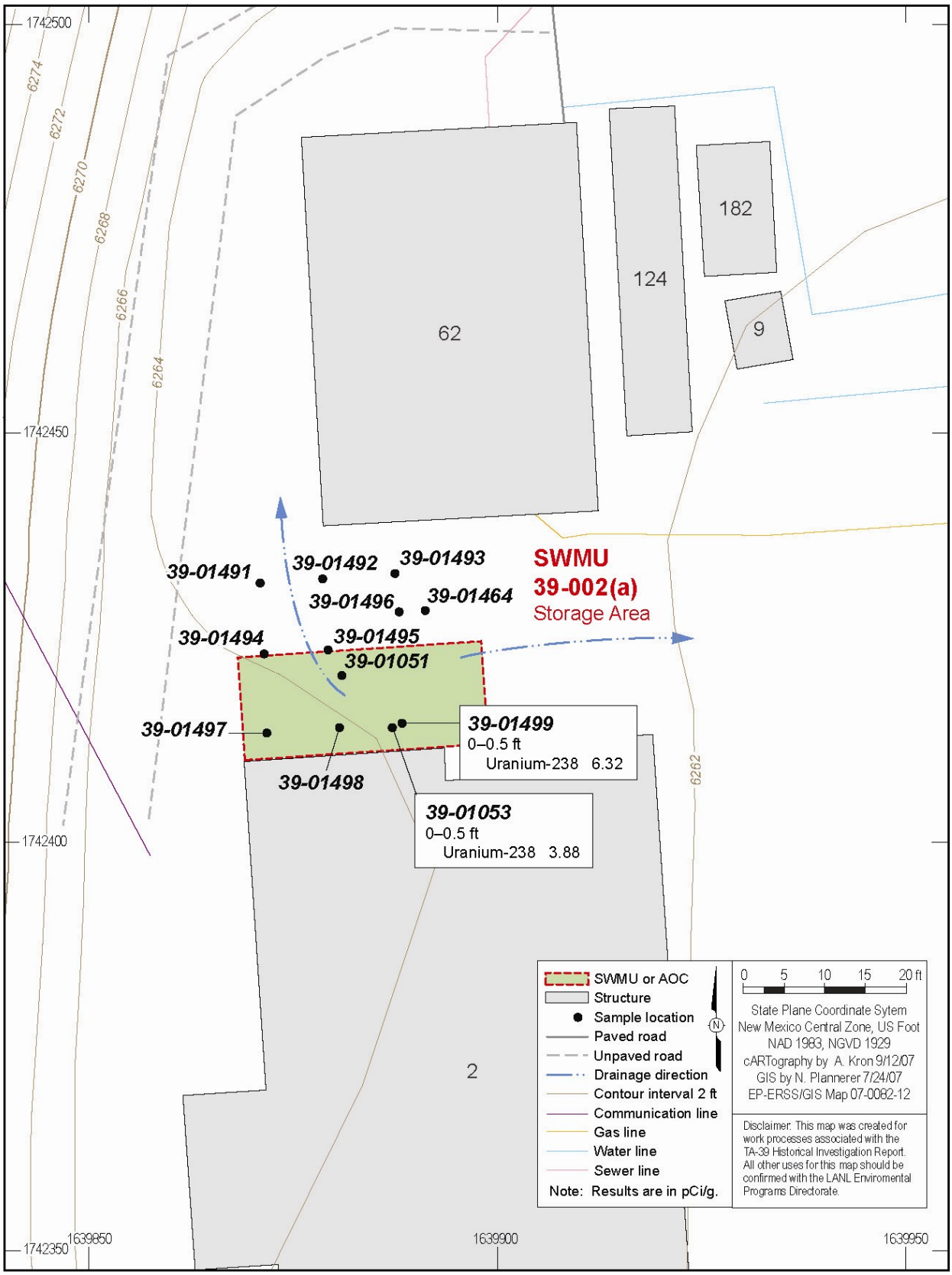


Figure 4.4-4 Radionuclides detected or detected above BVs/FVs at SWMU 39-002(a)

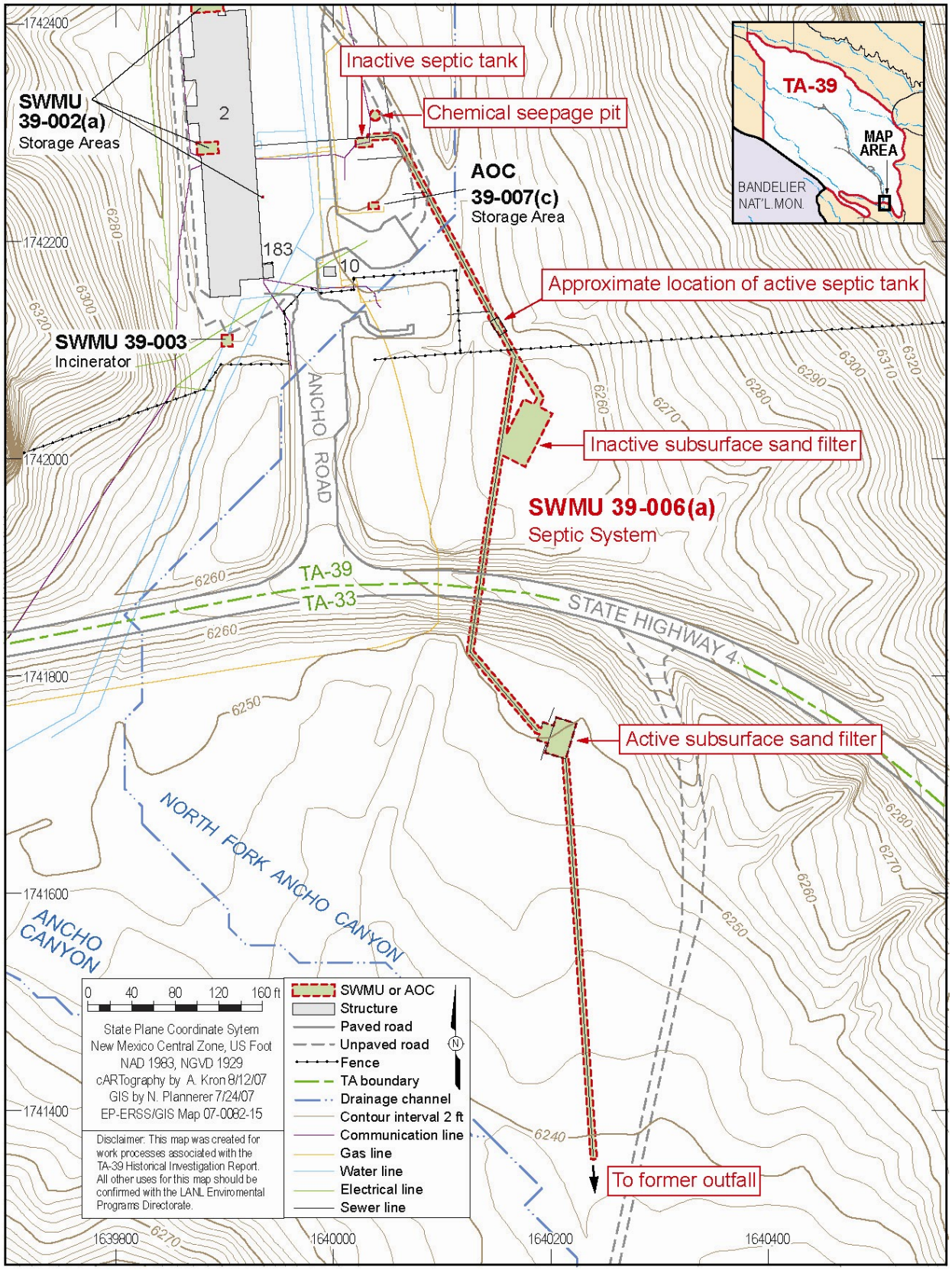


Figure 4.5-1 Location of SWMU 39-006(a), septic system

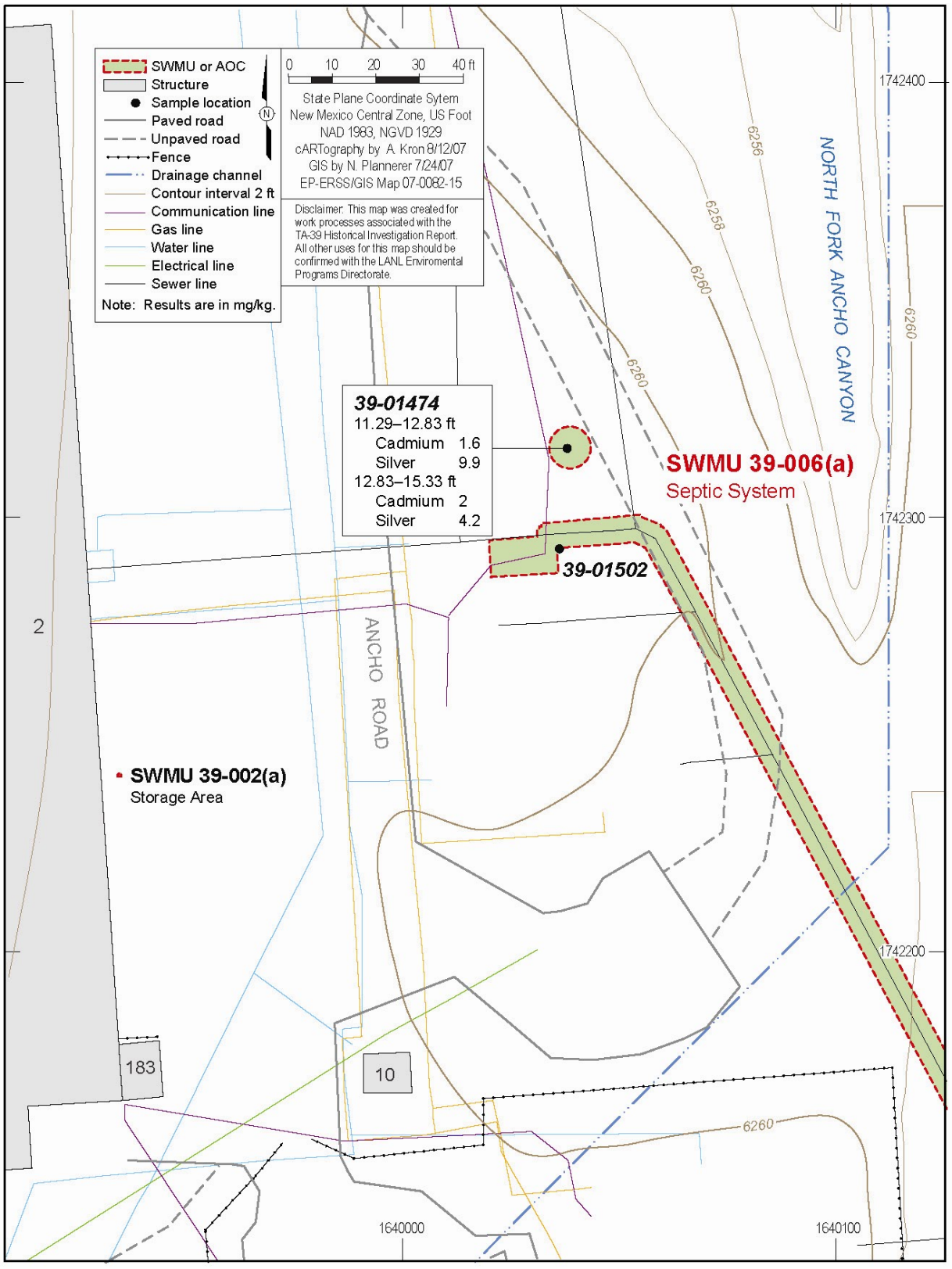


Figure 4.5-2 Inorganic chemicals detected above BVs at SWMU 39-006(a)

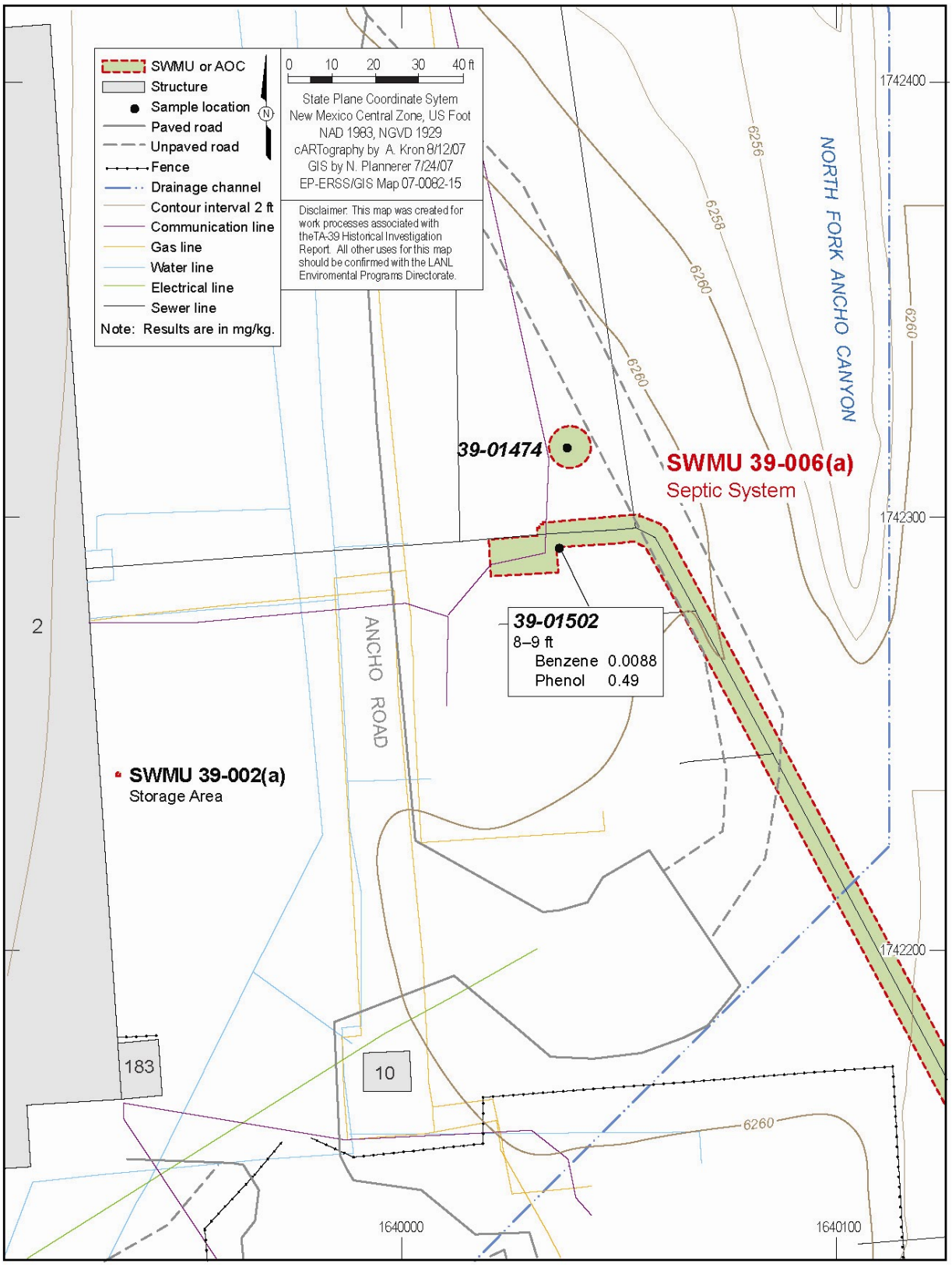


Figure 4.5-3 Organic chemicals detected at SWMU 39-006(a)

Table 1.1-1
Regulatory Status of SWMUs and AOCs in North Ancho Canyon Aggregate Area

SWMU/AOC Number	Description	Regulatory Status	Location
SWMU 39-001(a)	Landfill	Under investigation	Section 4.2
SWMU 39-001(b)	MDA Y	Under investigation	Section 3.1
SWMU 39-002(a)	Storage area	Under investigation	Section 4.4
AOC 39-002(b)	Storage area	Under investigation	Section 3.5
AOC 39-002(c)	Storage area	Under investigation	Section 3.3
AOC 39-002(d)	Storage area	Under investigation	Section 2.2
AOC 39-002(e)	Storage area	Under investigation	Section 4.3
AOC 39-002(f)	Storage area	Under investigation	Section 2.4
AOC 39-002(g)	Storage area	NFA approved by EPA[a]	Section 5.1
SWMU 39-003	Incinerator	Removed from Module VIII, HWFP[b]	Section 5.2
SWMU 39-004(a)	Firing site	Deferred under Consent Order	Section 2.1
SWMU 39-004(b)	Firing site	Deferred under Consent Order	Section 2.3
SWMU 39-004(c)	Firing site 39-6 (open detonation)–RCRA unit	Subject to RCRA Closure not Consent Order	Section 3.4
SWMU 39-004(d)	Firing site 39-57 (open detonation)–RCRA unit	Subject to RCRA Closure not Consent Order	Section 2.1
SWMU 39-004(e)	Firing site	Deferred under Consent Order	Section 2.5
SWMU 39-005	Seepage pit	Under investigation	Section 4.1
SWMU 39-006(a)	Septic system	Under investigation	Section 4.5
SWMU 39-006(b)	Septic system	Removed from Module VIII, HWFP	Section 5.3
SWMU 39-007(a)	Storage area	Under investigation	Section 3.6
AOC 39-007(b)	Storage area	NFA approved by EPA	Section 5.4
AOC 39-007(c)	Storage area	NFA approved by EPA	Section 5.5
AOC 39-007(d)	Storage area	Under investigation	Section 3.7
AOC 39-007(e)	Storage area	NFA approved by EPA	Section 5.6
SWMU 39-008	Firing range	Under investigation	Section 3.2
AOC 39-009	Outfall	NFA approved by EPA	Section 5.7
SWMU 39-010	Excavated soil dump	Under investigation	Section 2.6
SWMU 49-001(a)	MDA AB experimental shafts	Under investigation	TA-49 Nuclear Environmental Sites work plan and HIR[c]
SWMU 49-001(b)	MDA AB experimental shafts	Under investigation	TA-49 Nuclear Environmental Sites work plan and HIR

Table 1.1-1 (continued)

SWMU/AOC Number	Description	Regulatory Status	Location
SWMU 49-001(c)	MDA AB experimental shafts	Under investigation	TA-49 Nuclear Environmental Sites work plan and HIR
SWMU 49-001(d)	MDA AB experimental shafts	Under investigation	TA-49 Nuclear Environmental Sites work plan and HIR
SWMU 49-001(e)	MDA AB experimental shafts	Under investigation	TA-49 Nuclear Environmental Sites work plan and HIR
SWMU 49-001(f)	MDA AB experimental shafts	Under investigation	TA-49 Nuclear Environmental Sites work plan and HIR
SWMU 49-001(g)	MDA AB surface soil contamination	Under investigation	TA-49 Nuclear Environmental Sites work plan and HIR
AOC 49-002	Operational facility (Area 10 underground chamber)	Under investigation	TA-49 Non-Nuclear Environmental Sites work plan and HIR[d]
SWMU 49-003	Leach field (Area 11)	Under investigation	TA-49 Nuclear Environmental Sites work plan and HIR
SWMU 49-005(a)	Disposal area (east of Area 10)	Under Investigation	TA-49 Non-Nuclear Environmental Sites work plan and HIR
AOC 49-005(b)	Disposal area (in Area 5)	Under investigation	TA-49 Non-Nuclear Environmental Sites work plan and HIR
SWMU 49-006	Sump	Under investigation	TA-49 Non-Nuclear Environmental Sites work plan and HIR
AOC 49-007(b)	Septic system (HDT area)	NFA approved by EPA[a]	Not applicable
AOC 49-008(a)	Soil contamination (Area 5)	Under investigation	TA-49 Non-Nuclear Environmental Sites work plan and HIR
AOC 49-008(b)	Soil contamination (Area 6)	Under investigation	TA-49 Non-Nuclear Environmental Sites work plan and HIR
AOC 49-008(c)	Soil contamination (Area 11)	Under investigation	TA-49 Nuclear Environmental Sites work plan and HIR
AOC 49-008(d)	Bottle house and cable pull test facilities	Under investigation	TA-49 Nuclear Environmental Sites work plan and HIR
AOC 49-009	Former aboveground tank	NFA approved by EPA	Not applicable

[a] EPA 2005, 088464.

[b] NMED 1998, 063042 , Table A.1, 12/23/98.

[c] The TA-49 Nuclear Environmental Sites work plan and HIR are due to NMED on 10/31/07.

[d] The TA-49 Non-Nuclear Environmental Sites work plan and HIR are due to NMED on 10/31/07.

Table 2.0-1
Summary of Analytical Suites for Samples Previously Collected at SWMUs and AOCs in Subaggregate Area 1—Decision-Level Data

Sample ID	Location ID	Depth (ft)	Media	Cyanide	Metals	Uranium	High Explosives	SVOCs	Gamma Spectroscopy	Isotopic Thorium
SWMUs 39-004(a) and 39-004(d)										
0239-95-0099	39-01237	0–0.5	Soil	√ [a]	√	√	√	√	—[b]	√
0239-95-0100	39-01238	0–0.5	Soil	√	√	√	√	√	—	√
0239-95-0101	39-01239	0–0.5	Soil	√	√	√	√	√	√	√
0239-95-0103	39-01240	0–0.5	Soil	√	√	√	√	√	√	√
0239-95-0104	39-01241	0–0.5	Soil	√	√	—	√	√	√	√
0239-95-0107	39-01242	0–0.5	Soil	√	√	—	√	√	—	√
0239-95-0089	39-01253	0–0.5	Soil	—	√	—	√	√	—	√
0239-95-0090	39-01254	0–0.5	Soil	—	√	—	√	√	—	√
0239-95-0091	39-01255	0–0.5	Soil	—	√	—	√	√	√	√
0239-95-0092	39-01256	0–0.5	Soil	—	√	—	√	√	√	√
0239-95-0093	39-01257	0–0.5	Soil	√	√	√	√	√	√	√
0239-95-0096	39-01258	0–0.5	Soil	√	√	√	√	√	√	√
0239-95-0110	39-01263	0–0.5	Soil	√	√	—	√	√	√	√
0239-95-0111	39-01263	0.5–0.83	Soil	√	√	—	√	√	√	√
0239-95-0112	39-01264	0–0.5	Soil	√	√	—	—	√	—	√
0239-95-0113	39-01264	0.5–0.83	Soil	√	√	—	—	√	—	√
0239-95-0114	39-01265	0–0.5	Soil	√	√	—	—	√	—	√
0239-95-0115	39-01265	0.5–0.83	Soil	√	√	—	—	√	—	√
0239-95-0116	39-01266	0–0.5	Soil	√	√	—	√	√	√	√
0239-95-0118	39-01266	0.5–0.83	Soil	√	√	—	√	√	√	√
0239-95-0119	39-01267	0–0.5	Soil	√	√	—	—	√	—	√
0239-95-0120	39-01267	0.5–0.83	Soil	√	√	—	—	√	—	√
0239-95-0121	39-01268	0–0.5	Soil	√	√	—	—	√	—	√
0239-95-0122	39-01268	0.5–0.83	Soil	√	√	—	—	√	—	√
0239-95-0123	39-01269	0–0.5	Soil	√	√	—	√	√	√	√
0239-95-0124	39-01269	0.5–0.83	Soil	√	√	—	√	√	√	√
0239-95-0125	39-01270	0–0.5	Soil	√	√	√	√	√	√	√
0239-95-0126	39-01270	0.5–0.83	Soil	√	√	√	√	√	—	√
0239-95-0127	39-01271	0–0.5	Soil	√	√	√	√	√	√	√

Table 2.0-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Cyanide	Metals	Uranium	High Explosives	SVOCs	Gamma Spectroscopy	Isotopic Thorium
0239-95-0128	39-01271	0.5–0.83	Soil	√	√	√	√	√	—	√
0239-95-0129	39-01294	0–0.5	Soil	√	√	√	√	√	√	√
0239-95-0130	39-01294	0.5–0.83	Soil	√	√	√	√	√	√	√
0239-95-0131	39-01295	0–0.5	Soil	√	√	√	√	√	√	√
0239-95-0133	39-01296	0–0.5	Soil	√	√	√	√	√	√	√
0239-95-0134	39-01296	0.5–0.83	Soil	√	√	√	√	√	√	√
0239-95-0135	39-01297	0–0.5	Soil	√	√	√	√	√	√	√
0239-95-0137	39-01298	0–0.5	Soil	√	√	√	√	√	√	√
0239-95-0138	39-01298	0.5–0.83	Soil	√	√	√	√	√	√	√
0239-95-0139	39-01299	0–0.5	Soil	√	√	√	√	√	√	√
0239-95-0140	39-01299	0.5–0.83	Soil	√	√	√	√	√	√	√
0239-95-0141	39-01300	0–0.5	Soil	√	√	√	√	√	√	√
0239-95-0142	39-01300	0.5–0.83	Soil	√	√	√	√	√	√	√
0239-95-0143	39-01301	0–0.5	Soil	√	√	√	√	√	√	√
0239-95-0144	39-01301	0.5–0.83	Soil	√	√	√	√	√	√	√
0239-95-0145	39-01302	0–0.5	Soil	√	√	—	√	√	√	√
0239-95-0147	39-01302	0.5–0.83	Soil	√	√	—	√	√	√	√
SWMU 39-004(b)										
0239-95-0048	39-01243	0–0.5	Soil	√	√	√	√	√	—	√
0239-95-0049	39-01244	0–0.5	Soil	√	√	√	√	√	—	√
0239-95-0050	39-01245	0–0.5	Soil	√	√	√	√	√	√	√
0239-95-0052	39-01246	0–0.5	Soil	√	√	√	√	√	√	√
0239-95-0053	39-01247	0–0.5	Soil	√	√	√	√	√	√	√
0239-95-0056	39-01248	0–0.5	Soil	√	√	√	√	√	—	√
0239-95-0008	39-01277	0–0.5	Sed	√	√	√	√	√	√	√
0239-95-0009	39-01277	0.5–0.83	Sed	√	√	√	√	√	√	√
0239-95-0010	39-01278	0–0.5	Sed	√	√	√	—	√	—	√
0239-95-0011	39-01278	0.5–0.83	Sed	√	√	√	—	√	—	√
0239-95-0012	39-01279	0–0.5	Sed	√	√	√	—	√	—	√
0239-95-0013	39-01279	0.5–0.83	Sed	√	√	√	—	√	—	√
0239-95-0014	39-01280	0–0.5	Sed	√	√	√	√	√	√	√
0239-95-0015	39-01280	0.5–0.83	Sed	√	√	√	√	√	√	√
0239-95-0016	39-01281	0–0.5	Sed	√	√	√	—	√	—	√
0239-95-0017	39-01281	0.5–0.83	Sed	√	√	√	—	√	—	√
0239-95-0018	39-01282	0–0.5	Sed	√	√	—	—	√	—	√

Table 2.0-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Cyanide	Metals	Uranium	High Explosives	SVOCs	Gamma Spectroscopy	Isotopic Thorium
0239-95-0020	39-01282	0.5–0.83	Sed	√	√	√	—	√	—	√
0239-95-0021	39-01283	0–0.5	Sed	√	√	√	√	√	√	√
0239-95-0022	39-01283	0.5–0.83	Sed	√	√	√	√	√	√	√
0239-95-0070	39-01303	0–0.5	Soil	—	√	—	√	√	√	√
0239-95-0072	39-01303	0.5–0.83	Soil	—	√	—	√	√	√	√
0239-95-0073	39-01304	0–0.33	Soil	—	√	—	√	√	√	√
0239-95-0074	39-01304	0.25–0.33	Soil	—	√	—	√	√	√	√
0239-95-0075	39-01305	0–0.5	Soil	√	√	—	√	√	√	√
0239-95-0079	39-01307	0–0.5	Soil	√	√	—	√	√	√	√
0239-95-0080	39-01307	0.5–0.83	Soil	√	√	—	√	√	√	√
0239-95-0081	39-01308	0–0.5	Soil	√	√	—	√	√	√	√
0239-95-0083	39-01309	0–0.5	Soil	√	√	—	√	√	√	√
0239-95-0085	39-01310	0–0.5	Soil	√	√	—	√	√	√	√
0239-95-0087	39-01311	0–0.5	Soil	√	√	—	√	√	√	√
SWMU 39-004(e)										
0239-95-0003	39-01259	0–0.5	Soil	√	√	√	√	√	√	√
0239-95-0004	39-01260	0–0.5	Soil	√	√	√	√	√	√	√
0239-95-0005	39-01261	0–0.5	Soil	√	√	√	√	√	√	√
0239-95-0006	39-01262	0–0.5	Soil	√	√	√	√	√	√	√
0239-95-0059	39-01272	0–0.5	Soil	√	√	√	√	√	√	√
0239-95-0060	39-01272	0.5–0.83	Soil	√	√	√	√	√	√	√
0239-95-0061	39-01273	0–0.5	Soil	√	√	√	—	√	—	√
0239-95-0062	39-01273	0.5–0.83	Soil	√	√	√	—	√	—	√
0239-95-0063	39-01274	0–0.5	Soil	√	√	√	√	√	√	√
0239-95-0065	39-01274	0.5–0.83	Soil	√	√	√	√	√	√	√
0239-95-0066	39-01275	0–0.5	Soil	√	√	√	—	√	—	√
0239-95-0067	39-01275	0.5–0.83	Soil	√	√	√	—	√	—	√
0239-95-0068	39-01276	0–0.5	Soil	√	√	√	√	√	√	√
0239-95-0069	39-01276	0.5–0.83	Soil	√	√	√	√	√	√	√
0239-95-0023	39-01312	0–0.5	Sed	√	√	√	√	√	√	√
0239-95-0024	39-01312	0.5–0.83	Soil	√	√	√	√	√	√	√
0239-95-0025	39-01313	0–0.5	Soil	√	√	√	√	√	√	√
0239-95-0026	39-01313	0.5–0.83	Soil	√	√	√	√	√	√	√
0239-95-0027	39-01314	0–0.5	Soil	√	√	√	√	√	√	√
0239-95-0028	39-01314	0.5–0.83	Soil	√	√	√	√	√	√	√

Table 2.0-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Cyanide	Metals	Uranium	High Explosives	SVOCs	Gamma Spectroscopy	Isotopic Thorium
0239-95-0029	39-01315	0–0.5	Soil	√	√	—	√	√	√	√
0239-95-0031	39-01316	0–0.5	Soil	√	√	√	√	√	√	√
0239-95-0032	39-01316	0.5–0.83	Soil	√	√	√	√	√	√	√
0239-95-0033	39-01317	0–0.5	Soil	√	√	√	√	√	√	√
0239-95-0034	39-01317	0.5–0.83	Soil	√	√	√	√	√	√	√
0239-95-0035	39-01318	0–0.5	Soil	√	√	√	√	√	√	√
0239-95-0036	39-01318	0.5–0.83	Soil	√	√	√	√	√	√	√
0239-95-0037	39-01319	0–0.5	Soil	√	√	√	√	√	√	√
0239-95-0038	39-01319	0.5–0.83	Soil	√	√	√	√	√	√	√
0239-95-0039	39-01320	0–0.5	Soil	√	√	√	√	√	√	√
0239-95-0041	39-01320	0.5–0.83	Soil	√	√	√	√	√	√	√
0239-95-0042	39-01321	0–0.5	Soil	√	√	√	√	√	√	√
0239-95-0043	39-01321	0.5–0.83	Soil	√	√	√	√	√	√	√
0239-95-0045	39-01322	0–0.5	Soil	√	√	√	√	√	√	√
0239-95-0044	39-01322	0.5–0.83	Soil	√	√	√	√	√	√	√
0239-95-0046	39-01323	0–0.5	Soil	√	√	—	√	√	√	√
0239-95-0047	39-01323	0.5–0.83	Soil	√	√	—	√	√	√	√
0239-95-0202	39-01382	0–0.5	Soil	√	√	√	√	√	√	√
0239-95-0203	39-01383	0–0.5	Soil	√	√	√	√	√	√	√

[a] √ = Analysis was performed.

[b] — = Analysis was not requested.

Table 2.1-1
Inorganic Chemicals above BVs at SWMUs 39-004(a) and 39-004(d)

Sample ID	Location ID	Depth (ft)	Media	Antimony	Barium	Beryllium	Cadmium	Calcium	Cobalt	Copper	Cyanide (Total)	Lead	Mercury	Nickel	Silver	Thallium	Uranium (Total)	Zinc
Soil Background Value				**0.83**	**295**	**1.83**	**0.4**	**6120**	**8.64**	**14.7**	**0.5**	**22.3**	**0.1**	**15.4**	**1**	**0.73**	**1.82**	**48.8**
Maximum Soil Background Concentration				**1**	**410**	**3.95**	**2.6**	**14000**	**9.5**	**16**	**0.5**	**28**	**0.1**	**29**	**na**[a]	**1**	**3.6**	**75.5**
0239-95-0099	39-01237	0.00–0.50	Soil	11 (UJ)	—[b]	—	0.55 (UJ)	—	—	—	0.55 (U)	—	0.11 (U)	—	2.2 (U)	1.1 (U)	7.15	—
0239-95-0100	39-01238	0.00–0.50	Soil	11 (UJ)	—	—	0.54 (UJ)	—	—	—	0.54 (U)	—	0.11 (U)	—	2.2 (U)	1.1 (U)	6.55	—
0239-95-0101	39-01239	0.00–0.50	Soil	10 (UJ)	—	—	0.51 (J-)	—	—	54	0.51 (U)	54	0.41	—	2 (U)	1 (U)	551	—
0239-95-0103	39-01240	0.00–0.50	Soil	11 (UJ)	—	—	0.53 (UJ)	—	—	38	0.53 (U)	35	0.42	—	2.1 (U)	1.1 (U)	166	—
0239-95-0104	39-01241	0.00–0.50	Soil	—	—	—	0.57 (U)	—	—	—	0.57 (U)	—	0.11 (U)	—	2.3 (U)	1.1 (U)	9.8	—
0239-95-0107	39-01242	0.00–0.50	Soil	—	—	—	0.59 (U)	—	—	—	0.59 (U)	—	0.12 (U)	—	2.4 (U)	1.2 (U)	6.28	52
0239-95-0089	39-01253	0.00–0.50	Soil	11 (UJ)	—	—	1.4 (U)	—	—	—	0.55 (U)	—	0.44	—	2.2 (U)	—	76.8	—
0239-95-0090	39-01254	0.00–0.50	Soil	11 (UJ)	—	—	7.6	—	440	3500	0.55 (U)	320	4	270	2.2 (U)	—	264	63
0239-95-0091	39-01255	0.00–0.50	Soil	11 (UJ)	—	—	0.78 (U)	—	—	—	0.56 (U)	120	0.44	—	2.2 (U)	—	96.9	—
0239-95-0092	39-01256	0.00–0.50	Soil	11 (UJ)	540	9.1	1.5	—	—	910	0.53 (U)	82	6.8	—	2.1 (U)	1.1 (U)	1300	690
0239-95-0093	39-01257	0.00–0.50	Soil	13 (UJ)	—	—	0.65 (UJ)	—	—	—	0.65 (U)	—	0.13 (U)	—	2.6 (U)	1.3 (U)	9.4	—
0239-95-0096	39-01258	0.00–0.50	Soil	11 (UJ)	—	—	0.56 (UJ)	—	—	—	0.56 (U)	—	0.22	—	2.2 (U)	1.1 (U)	73.3	—
0239-95-0110	39-01263	0.00–0.50	Soil	10 (U)	—	—	0.52 (U)	—	—	—	0.52 (U)	—	—	—	2.1 (U)	—	—	—
0239-95-0111	39-01263	0.50–0.83	Soil	11 (U)	—	—	0.53 (U)	—	—	—	0.53 (U)	—	0.11 (U)	—	2.1 (U)	—	—	—
0239-95-0112	39-01264	0.00–0.50	Soil	11 (U)	—	—	0.53 (U)	—	—	—	0.53 (U)	—	0.11 (U)	—	2.1 (U)	—	2.05	—
0239-95-0113	39-01264	0.50–0.83	Soil	11 (U)	—	—	0.54 (U)	—	—	—	0.54 (U)	—	0.11 (U)	—	2.2 (U)	—	2.65	—
0239-95-0114	39-01265	0.00–0.50	Soil	11 (U)	—	—	0.54 (U)	—	—	—	0.54 (U)	—	0.11 (U)	—	2.2 (U)	—	5.73	—
0239-95-0115	39-01265	0.50–0.83	Soil	11 (U)	—	—	0.56 (U)	—	—	—	0.56 (U)	—	0.11 (U)	—	2.2 (U)	—	5.29	—
0239-95-0116	39-01266	0.00–0.50	Soil	11 (U)	—	—	0.53 (U)	—	—	—	0.53 (U)	—	0.11 (U)	—	2.1 (U)	—	4.92	—
0239-95-0118	39-01266	0.50–0.83	Soil	11 (U)	—	—	0.54 (U)	—	—	—	0.54 (U)	—	0.11 (U)	—	2.2 (U)	—	7.5	—
0239-95-0119	39-01267	0.00–0.50	Soil	11 (U)	—	—	0.53 (U)	—	—	—	0.53 (U)	—	0.11 (U)	—	2.1 (U)	—	1.95	—
0239-95-0120	39-01267	0.50–0.83	Soil	11 (U)	—	—	0.53 (U)	—	—	—	0.53 (U)	—	0.11 (U)	—	2.1 (U)	—	9.6	—
0239-95-0121	39-01268	0.00–0.50	Soil	11 (U)	—	—	0.54 (U)	—	—	—	0.54 (U)	—	0.11 (U)	—	2.2 (U)	—	32.1	—

Table 2.1-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Antimony	Barium	Beryllium	Cadmium	Calcium	Cobalt	Copper	Cyanide (Total)	Lead	Mercury	Nickel	Silver	Thallium	Uranium (Total)	Zinc
Soil Background Value				**0.83**	**295**	**1.83**	**0.4**	**6120**	**8.64**	**14.7**	**0.5**	**22.3**	**0.1**	**15.4**	**1**	**0.73**	**1.82**	**48.8**
Maximum Soil Background Concentration				**1**	**410**	**3.95**	**2.6**	**14000**	**9.5**	**16**	**0.5**	**28**	**0.1**	**29**	**na**[a]	**1**	**3.6**	**75.5**
0239-95-0122	39-01268	0.50–0.83	Soil	11 (U)	—	—	0.54 (U)	—	—	—	0.54 (U)	—	0.11 (U)	—	2.2 (U)	—	54.9	—
0239-95-0123	39-01269	0.00–0.50	Soil	11 (U)	—	—	0.54 (U)	—	—	—	0.54 (U)	—	0.11 (U)	—	2.2 (U)	—	16.4	—
0239-95-0124	39-01269	0.50–0.83	Soil	11 (U)	—	—	0.53 (U)	—	—	—	0.53 (U)	—	0.11 (U)	—	2.1 (U)	—	23.4	—
0239-95-0125	39-01270	0.00–0.50	Soil	10 (UJ)	—	—	0.52 (UJ)	—	—	—	0.52 (U)	—	—	—	2.1 (U)	1 (U)	29.8	—
0239-95-0126	39-01270	0.50–0.83	Soil	11 (UJ)	—	—	0.53 (UJ)	—	—	—	0.53 (U)	—	0.11 (U)	—	2.1 (U)	1.1 (U)	21.2	—
0239-95-0127	39-01271	0.00–0.50	Soil	10 (UJ)	—	—	0.52 (UJ)	—	—	—	0.52 (U)	—	—	—	2.1 (U)	1 (U)	21.6	—
0239-95-0128	39-01271	0.50–0.83	Soil	11 (UJ)	—	—	0.53 (UJ)	—	—	—	0.53 (U)	—	0.11 (U)	—	2.1 (U)	1.1 (U)	5.66	—
0239-95-0129	39-01294	0.00–0.50	Soil	11 (UJ)	—	—	0.53 (UJ)	—	—	—	0.53 (U)	—	0.11 (U)	—	2.1 (U)	1.1 (U)	8.9	—
0239-95-0130	39-01294	0.50–0.83	Soil	10 (UJ)	—	—	0.52 (UJ)	—	—	—	0.52 (U)	—	—	—	2.1 (U)	1 (U)	17	—
0239-95-0131	39-01295	0.00–0.50	Soil	11 (UJ)	—	—	0.53	—	—	—	0.53 (U)	—	0.11	—	2.1	1.1 (U)	15.9	—
0239-95-0133	39-01296	0.00–0.50	Soil	11 (UJ)	—	—	0.53 (UJ)	—	—	—	0.53 (U)	—	0.11	—	2.1 (U)	1.1 (U)	24.9	—
0239-95-0134	39-01296	0.50–0.83	Soil	10 (UJ)	—	—	0.52 (UJ)	—	—	—	0.52 (U)	—	—	—	2.1 (U)	1 (U)	6.75	—
0239-95-0135	39-01297	0.00–0.50	Soil	10 (UJ)	—	—	0.52 (UJ)	—	—	—	0.52 (U)	—	—	—	3.1 (J+)	1 (U)	2796	—
0239-95-0137	39-01298	0.00–0.50	Soil	2.8 (UJ)	—	—	0.47 (U)	—	—	77600 (J-)	0.51 (U)	—	0.29	—	1.2 (U)	—	20	—
0239-95-0138	39-01298	0.50–0.83	Soil	2.8 (UJ)	—	—	—	—	—	—	0.51 (U)	—	0.14	—	—	—	16.5	—
0239-95-0139	39-01299	0.00–0.50	Soil	2.9 (UJ)	—	—	—	—	—	—	0.53 (U)	—	—	—	—	—	39.3	—
0239-95-0140	39-01299	0.50–0.83	Soil	2.9 (UJ)	—	—	—	—	—	—	0.53 (U)	—	—	—	—	—	137	—
0239-95-0141	39-01300	0.00–0.50	Soil	4 (J-)	—	—	—	—	—	—	0.52 (U)	—	—	—	—	—	8.1	—
0239-95-0142	39-01300	0.50–0.83	Soil	2.8 (UJ)	—	—	—	—	—	—	0.51 (U)	—	—	—	—	—	3.91	—
0239-95-0143	39-01301	0.00–0.50	Soil	2.8 (UJ)	—	—	—	—	—	—	0.52 (U)	—	—	—	—	—	9.9	—
0239-95-0144	39-01301	0.50–0.83	Soil	2.9 (UJ)	—	—	0.42 (U)	—	—	—	0.53 (U)	—	—	—	—	—	4.67	—
0239-95-0145	39-01302	0.00–0.50	Soil	5.6 (U)	—	—	0.7 (U)	—	—	16.2	—	36.7	0.31	—	1.2 (U)	—	61.9 (J+)	—
0239-95-0147	39-01302	0.50–0.83	Soil	5.2 (U)	—	3.6	0.66 (U)	6280	—	—	—	—	—	—	1.2 (U)	—	10.3 (J+)	—

Note: Values are in units of mg/kg. Soil BVs and concentrations are from LANL 1998, 059730.

[a] na = Not available.

[b] — = Value was less than BV or the analyte was not detected.

Table 2.1-2
Organic Chemicals Detected at SWMUs 39-004(a) and 39-004(d)—Decision-Level Data

Sample ID	Location ID	Depth (ft)	Media	Anthracene	Chrysene	HMX	RDX
0239-95-0099	39-01237	0.00–0.50	Soil	—*	—	25.1	9.17
0239-95-0091	39-01255	0.00–0.50	Soil	—	0.18	—	—
0239-95-0093	39-01257	0.00–0.50	Soil	0.18	—	—	—
0239-95-0133	39-01296	0.00–0.50	Soil	—	—	2.33	—

Note: Values are in units of mg/kg.

* — = Analyte was not detected.

Table 2.1-3
Radionuclides Detected or Detected above BVs/FVs at SWMUs 39-004(a) and 39-004(d)—Decision-Level Data

Sample ID	Location ID	Depth (ft)	Media	Cesium-137	Europium-152	Sodium-22	Thorium-228	Thorium-230	Thorium-232	Uranium-235
Soil Background Value				**1.65**	**na[a]**	**na**	**2.28**	**2.29**	**2.33**	**0.2**
Maximum Soil Background Concentration				**1.7**	**na**	**na**	**na**	**na**	**na**	**0.16**
0239-95-0101	39-01239	0.00–0.50	Soil	—[b]	—	—	—	—	—	2.76
0239-95-0103	39-01240	0.00–0.50	Soil	—	—	—	—	—	—	2.23
0239-95-0090	39-01254	0.00–0.50	Soil	—	—	—	2.53	—	2.63	—
0239-95-0091	39-01255	0.00–0.50	Soil	—	—	0.38	—	—	—	0.77
0239-95-0092	39-01256	0.00–0.50	Soil	—	—	—	3.54	—	3.46	4.53
0239-95-0093	39-01257	0.00–0.50	Soil	—	—	—	3.191	3.198	3.014	—
0239-95-0096	39-01258	0.00–0.50	Soil	—	—	—	2.383	2.446	—	—
0239-95-0118	39-01266	0.50–0.83	Soil	0.0741	—	—	—	—	—	—
0239-95-0123	39-01269	0.00–0.50	Soil	—	—	—	—	—	—	0.425
0239-95-0124	39-01269	0.50–0.83	Soil	0.117	—	—	—	—	—	—
0239-95-0130	39-01294	0.50–0.83	Soil	0.225	—	—	—	—	—	—
0239-95-0134	39-01296	0.50–0.83	Soil	0.177	—	—	—	—	—	—
0239-95-0135	39-01297	0.00–0.50	Soil	—	—	—	—	—	—	18.3
0239-95-0137	39-01298	0.00–0.50	Soil	—	—	—	2.363	—	—	—
0239-95-0138	39-01298	0.50–0.83	Soil	0.186	0.407	—	2.543	—	2.374	—
0239-95-0139	39-01299	0.00–0.50	Soil	—	0.189	—	—	—	—	—
0239-95-0140	39-01299	0.50–0.83	Soil	0.254	—	—	—	—	—	—
0239-95-0141	39-01300	0.00–0.50	Soil	—	0.234	—	—	—	—	—
0239-95-0145	39-01302	0.00–0.50	Soil	—	—	—	2.58	2.59	2.46	0.56
0239-95-0147	39-01302	0.50–0.83	Soil	—	—	—	2.47	2.46	2.47	—

Note: Values are in units of pCi/g. Soil BVs and maximum soil background concentrations are from LANL 1998, 059730.

[a] na = Not available.

[b] — = Value was less than BV/FV or the analyte was not detected.

Table 2.3-1
Inorganic Chemicals above BV at SWMU 39-004(b)—Decision-Level Data

Sample ID	Location ID	Depth (ft)	Media	Antimony	Barium	Beryllium	Cadmium	Calcium	Cobalt	Copper	Cyanide (Total)	Lead	Mercury	Nickel	Selenium	Silver	Thallium	Uranium	Zinc
Soil Background Value				**0.83**	**295**	**1.83**	**0.4**	**6120**	**8.64**	**14.7**	**0.5**	**22.3**	**0.1**	**15.4**	**1.52**	**1**	**0.73**	**1.82**	**48.8**
Maximum Soil Background Concentration				**1**	**410**	**3.95**	**2.6**	**14000**	**9.5**	**16**	**na**[a]	**28**	**0.1**	**29**	**1.7**	**na**	**1**	**3.6**	**75.5**
Sediment Background Value				**0.83**	**127**	**1.31**	**0.4**	**4420**	**4.73**	**11.2**	**0.82**	**19.7**	**0.1**	**9.38**	**0.3**	**1**	**0.73**	**2.22**	**60.2**
Maximum Sediment Background Concentration				**na**	**127**	**1.3**	**0.18**	**4420**	**4.2**	**12**	**0.63**	**25.6**	**0.03**	**8.9**	**0.1**	**0.28**	**na**	**2**	**56.2**
0239-95-0048	39-01243	0.00–0.50	Soil	—[b]	—	—	—	—	—	1290 (J)	0.602 (U)	83.1 (J)	29.6	—	—	—	1.4 (U)	953	587
0239-95-0049	39-01244	0.00–0.50	Soil	—	—	—	—	—	—	206 (J)	0.579 (U)	47.3 (J)	44.1	—	—	—	1.4 (U)	157	157
0239-95-0050	39-01245	0.00–0.50	Soil	—	—	—	—	—	—	609 (J)	0.566 (U)	102 (J)	3.6	—	—	—	1.4 (U)	4465	—
0239-95-0052	39-01246	0.00–0.50	Soil	—	—	—	—	—	—	345 (J)	0.562 (U)	68.4 (J)	13.8	—	—	—	1.3 (U)	507	—
0239-95-0053	39-01247	0.00–0.50	Soil	—	—	—	—	—	—	—	0.567 (U)	—	0.11 (U)	—	—	—	1.4 (U)	8.5	—
0239-95-0056	39-01248	0.00–0.50	Soil	—	—	—	—	—	—	—	0.609 (U)	—	0.12 (U)	—	—	—	1.5 (U)	18.4	—
0239-95-0008	39-01277	0.00–0.50	Sed	—	—	—	—	—	—	—	—	—	—	—	0.76 (U)	—	1.3 (U)	—	—
0239-95-0009	39-01277	0.50–0.83	Sed	—	—	—	—	—	—	—	—	—	—	—	0.75 (U)	—	2 (J)	—	—
0239-95-0010	39-01278	0.00–0.50	Sed	—	—	—	—	—	—	—	—	—	—	—	0.77 (U)	—	1.3 (U)	—	—
0239-95-0011	39-01278	0.50–0.83	Sed	—	—	—	—	—	—	—	—	—	—	—	0.76 (U)	—	1.3 (U)	—	—
0239-95-0012	39-01279	0.00–0.50	Sed	—	—	—	—	—	5.6 (J)	—	—	—	0.11 (UJ)	—	0.75 (U)	—	1.3 (U)	2.49	—
0239-95-0013	39-01279	0.50–0.83	Sed	—	—	—	—	—	—	—	—	—	—	—	0.76 (U)	—	1.3 (U)	—	—

Table 2.3-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Antimony	Barium	Beryllium	Cadmium	Calcium	Cobalt	Copper	Cyanide (Total)	Lead	Mercury	Nickel	Selenium	Silver	Thallium	Uranium	Zinc
Soil Background Value				**0.83**	**295**	**1.83**	**0.4**	**6120**	**8.64**	**14.7**	**0.5**	**22.3**	**0.1**	**15.4**	**1.52**	**1**	**0.73**	**1.82**	**48.8**
Maximum Soil Background Concentration				**1**	**410**	**3.95**	**2.6**	**14000**	**9.5**	**16**	**na[a]**	**28**	**0.1**	**29**	**1.7**	**na**	**1**	**3.6**	**75.5**
Sediment Background Value				**0.83**	**127**	**1.31**	**0.4**	**4420**	**4.73**	**11.2**	**0.82**	**19.7**	**0.1**	**9.38**	**0.3**	**1**	**0.73**	**2.22**	**60.2**
Maximum Sediment Background Concentration				**na**	**127**	**1.3**	**0.18**	**4420**	**4.2**	**12**	**0.63**	**25.6**	**0.03**	**8.9**	**0.1**	**0.28**	**na**	**2**	**56.2**
0239-95-0014	39-01280	0.00–0.50	Sed	—	227	—	—	—	—	142	—	21	4.3 (J-)	—	0.86 (U)	—	1.7 (U)	35.1	73.5
0239-95-0015	39-01280	0.50–0.83	Sed	—	362	—	—	—	—	84.4	—	26.8	7.4 (J-)	9.7	0.84 (U)	—	1.4 (U)	86	79.4
0239-95-0016	39-01281	0.00–0.50	Sed	—	—	—	—	—	—	—	—	—	0.54 (J-)	—	0.74 (U)	—	1.2 (U)	11.5	—
0239-95-0017	39-01281	0.50–0.83	Sed	—	—	—	—	—	—	130	—	—	0.83 (J-)	—	0.74 (U)	—	1.2 (U)	17.1	—
0239-95-0018	39-01282	0.00–0.50	Sed	—	—	—	—	—	7.7 (J)	37.2	—	—	0.11 (J-)	—	0.74 (U)	—	1.2 (U)	19.5	—
0239-95-0020	39-01282	0.50–0.83	Sed	—	—	—	—	—	—	—	—	—	0.23 (J-)	—	0.73 (U)	—	1.2 (U)	13.9	—
0239-95-0021	39-01283	0.00–0.50	Sed	—	—	—	—	—	6.5 (J)	40.9	—	—	—	—	0.75 (U)	—	1.3 (U)	23.7	—
0239-95-0022	39-01283	0.50–0.83	Sed	—	—	—	—	—	—	152	—	—	0.11 (UJ)	—	0.74 (U)	—	1.2 (U)	26.8	—
0239-95-0070	39-01303	0.00–0.50	Soil	11 (UJ)	—	—	0.57 (U)	—	—	75	0.57 (U)	—	0.34	—	—	2.3 (U)	—	94.1	—
0239-95-0072	39-01303	0.50–0.83	Soil	12 (UJ)	—	—	0.59 (U)	—	—	—	0.59 (U)	—	0.24	—	—	2.4 (U)	—	20	—
0239-95-0073	39-01304	0.00–0.33	Soil	11 (UJ)	—	—	0.55 (U)	—	—	—	0.55 (U)	—	0.55	—	—	2.2 (U)	—	20	—
0239-95-0074	39-01304	0.25–0.33	Soil	11 (UJ)	—	—	0.56 (U)	—	—	—	0.56 (U)	—	0.45	—	—	2.2 (U)	—	26.4	—
0239-95-0075	39-01305	0.00–0.50	Soil	5.6 (U)	—	2.6	0.7 (U)	8870	—	—	0.56 (U)	—	0.32	—	—	1.2 (U)	—	30.2 (J+)	—

Table 2.3-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Antimony	Barium	Beryllium	Cadmium	Calcium	Cobalt	Copper	Cyanide (Total)	Lead	Mercury	Nickel	Selenium	Silver	Thallium	Uranium	Zinc
Soil Background Value				**0.83**	**295**	**1.83**	**0.4**	**6120**	**8.64**	**14.7**	**0.5**	**22.3**	**0.1**	**15.4**	**1.52**	**1**	**0.73**	**1.82**	**48.8**
Maximum Soil Background Concentration				**1**	**410**	**3.95**	**2.6**	**14000**	**9.5**	**16**	**na[a]**	**28**	**0.1**	**29**	**1.7**	**na**	**1**	**3.6**	**75.5**
Sediment Background Value				**0.83**	**127**	**1.31**	**0.4**	**4420**	**4.73**	**11.2**	**0.82**	**19.7**	**0.1**	**9.38**	**0.3**	**1**	**0.73**	**2.22**	**60.2**
Maximum Sediment Background Concentration				**na**	**127**	**1.3**	**0.18**	**4420**	**4.2**	**12**	**0.63**	**25.6**	**0.03**	**8.9**	**0.1**	**0.28**	**na**	**2**	**56.2**
0239-95-0079	39-01307	0.00–0.50	Soil	5 (U)	—	—	0.63 (U)	—	—	—	0.51 (U)	—	0.22	—	—	1.1 (U)	—	29.5 (J+)	—
0239-95-0080	39-01307	0.50–0.83	Soil	5.1 (U)	—	—	0.64 (U)	—	—	—	0.52 (U)	—	-	—	—	1.1 (U)	—	18 (J+)	—
0239-95-0081	39-01308	0.00–0.50	Soil	5.2 (U)	—	—	0.65 (U)	—	—	15.6	0.53 (U)	—	0.65	—	—	1.2 (U)	—	1260 (J+)	—
0239-95-0083	39-01309	0.00–0.50	Soil	5.2 (U)	—	—	0.66 (U)	—	—	21	0.53 (U)	—	0.72	—	—	1.2 (U)	—	2520 (J+)	—
0239-95-0085	39-01310	0.00–0.50	Soil	5.2 (U)	—	—	0.65 (U)	—	—	—	0.52 (U)	—	—	—	—	1.2 (U)	—	569	—
0239-95-0087	39-01311	0.00–0.50	Soil	5.6 (U)	—	—	0.7 (U)	—	—	—	0.56 (U)	—	—	—	—	1.2 (U)	—	12.8 (J+)	—

Note: Values are in units of mg/kg. Soil BVs and concentrations are from LANL 1998, 059730.

[a] na = Not Available.

[b] — = Value was less than BV or the analyte was not detected.

Table 2.3-2
Detected Organic Chemicals at SWMU 39-004(b)—Decision-Level Data

Sample ID	Location ID	Depth (ft)	Media	Bis(2-ethylhexyl)phthalate	Di-n-butylphthalate
0239-95-0021	39-01283	0.00-0.50	Sediment	—*	0.23 (J)
0239-95-0022	39-01283	0.50-0.83	Sediment	46	—
0239-95-0074	39-01304	0.25-0.33	Soil	0.24	—
0239-95-0083	39-01309	0.00-0.50	Soil	—	0.042 (J)

Note: Values are in units of mg/kg.
* — = Analyte was not detected.

Table 2.3-3
Radionuclides Detected or Detected above BV/FV at SWMU 39-004(b)—Decision-Level Data

Sample ID	Location ID	Depth (ft)	Media	Cesium-134	Ruthenium-106	Sodium-22	Thorium-228	Thorium-230	Thorium-232	Uranium-235
Soil Background Value				**na**[a]	**na**	**na**	**2.28**	**2.29**	**2.33**	**0.2**
Maximum Soil Background Concentration				**na**	**na**	**na**	**na**	**na**	**na**	**0.16**
0239-95-0070	39-01303	0.00–0.50	Soil	0.4	3.6	—[b]	2.53	2.66	2.47	0.85
0239-95-0072	39-01303	0.50–0.83	Soil	—	—	—	2.66	2.68	2.47	—
0239-95-0081	39-01308	0.00–0.50	Soil	—	—	—	—	—	—	18.64
0239-95-0083	39-01309	0.00–0.50	Soil	—	—	0.19	—	—	—	13.23
0239-95-0085	39-01310	0.00–0.50	Soil	—	—	—	—	—	—	2.64

Note: Values are in units of pCi/g. Soil BVs and concentrations are from LANL 1998, 059730.
[a] na = Not available.
[b] — = Value was less than BV/FV or the analyte was not detected.

Table 2.5-1
Inorganic Chemicals above BVs at SWMU 39-004(e)—Decision-Level Data

Sample ID	Location ID	Depth (ft)	Media	Antimony	Cadmium	Chromium	Copper	Cyanide (Total)	Lead	Mercury	Nickel	Selenium	Silver	Sodium	Thallium	Uranium	Zinc
Soil Background Value				**0.83**	**0.4**	**19.3**	**14.7**	**0.5**	**22.3**	**0.1**	**15.4**	**1.52**	**1**	**915**	**0.73**	**1.82**	**48.8**
Maximum Soil Background Concentration				**1**	**2.6**	**36.5**	**16**	**na**[a]	**28**	**0.1**	**29**	**1.7**	**na**	**1800**	**1**	**3.6**	**75.5**
Sediment Background Value				**0.83**	**0.4**	**10.5**	**11.2**	**0.82**	**19.7**	**0.1**	**9.38**	**0.3**	**1**	**1470**	**0.73**	**2.22**	**60.2**
Maximum Sediment Background Concentration				**na**	**0.18**	**9.2**	**12**	**0.63**	**25.6**	**0.03**	**8.9**	**0.1**	**0.28**	**1970**	**na**	**2**	**56.2**
0239-95-0003	39-01259	0.00–0.50	Soil	—[b]	—	—	209 (J)	0.514 (U)	33.8 (J)	—	—	—	1.4 (J)	—	1.2 (U)	120	—
0239-95-0004	39-01260	0.00–0.50	Soil	0.89 (J-)	—	86.8	1710 (J)	0.523 (U)	25.9 (J)	—	28.3	—	—	970 (J)	1.3 (U)	4.31	—
0239-95-0005	39-01261	0.00–0.50	Soil	1.5 (J-)	1.1	28.3	8280 (J)	0.522 (U)	355 (J)	—	23.6	—	1.5 (J)	—	1.3 (U)	—	4020
0239-95-0006	39-01262	0.00–0.50	Soil	—	—	19.5	240 (J)	0.516 (U)	—	—	—	—	1.1 (J)	—	1.2 (U)	3.37	—
0239-95-0059	39-01272	0.00–0.50	Soil	5.9 (U)	0.62 (U)	—	22	0.54 (U)	—	—	—	—	—	—	—	14.2	—
0239-95-0060	39-01272	0.50–0.83	Soil	5.8 (U)	0.62 (U)	—	58.2	0.53 (U)	—	—	—	—	—	—	—	5.21	—
0239-95-0061	39-01273	0.00–0.50	Soil	5.8 (U)	0.62 (U)	—	24.7	0.53 (U)	—	—	—	—	—	—	—	17.1	—
0239-95-0062	39-01273	0.50–0.83	Soil	5.8 (U)	0.62 (U)	—	—	0.53 (U)	—	—	—	—	—	—	—	4.08	—
0239-95-0063	39-01274	0.00–0.50	Soil	5.8 (U)	0.62 (U)	—	—	0.53 (U)	—	—	—	—	—	—	—	9.3	—
0239-95-0065	39-01274	0.50–0.83	Soil	5.7 (U)	0.6 (U)	—	—	0.52 (U)	—	—	—	—	—	—	—	6.94	—
0239-95-0066	39-01275	0.00–0.50	Soil	5.9 (U)	0.63 (U)	—	—	0.54 (U)	—	—	—	—	—	—	—	45.2	—
0239-95-0067	39-01275	0.50–0.83	Soil	5.7 (U)	0.61 (U)	—	—	0.53 (U)	—	—	—	—	—	—	—	20.8	—
0239-95-0068	39-01276	0.00–0.50	Soil	5.7 (U)	0.76 (J)	—	31.8	0.53 (U)	—	0.21	—	—	—	—	—	51.6	100 (J-)
0239-95-0069	39-01276	0.50–0.83	Soil	6.1 (U)	0.65 (U)	—	149	0.56 (U)	—	0.13	—	—	—	—	—	44.9	105 (J-)

Table 2.5-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Antimony	Cadmium	Chromium	Copper	Cyanide (Total)	Lead	Mercury	Nickel	Selenium	Silver	Sodium	Thallium	Uranium	Zinc
Soil Background Value				**0.83**	**0.4**	**19.3**	**14.7**	**0.5**	**22.3**	**0.1**	**15.4**	**1.52**	**1**	**915**	**0.73**	**1.82**	**48.8**
Maximum Soil Background Concentration				**1**	**2.6**	**36.5**	**16**	**na[a]**	**28**	**0.1**	**29**	**1.7**	**na**	**1800**	**1**	**3.6**	**75.5**
Sediment Background Value				**0.83**	**0.4**	**10.5**	**11.2**	**0.82**	**19.7**	**0.1**	**9.38**	**0.3**	**1**	**1470**	**0.73**	**2.22**	**60.2**
Maximum Sediment Background Concentration				**na**	**0.18**	**9.2**	**12**	**0.63**	**25.6**	**0.03**	**8.9**	**0.1**	**0.28**	**1970**	**na**	**2**	**56.2**
0239-95-0023	39-01312	0.00–0.50	Sediment	12.8 (J)	0.64 (U)	—	—	—	—	—	—	0.33 (U)	3 (J-)	—	—	77	154 (J-)
0239-95-0024	39-01312	0.50–0.83	Soil	5.7 (U)	0.6 (U)	—	24.1	0.52 (U)	—	—	—	—	—	—	—	6.38	—
0239-95-0025	39-01313	0.00–0.50	Soil	6 (U)	0.64 (U)	—	20.3	0.55 (U)	—	0.12	—	—	—	—	—	2231	—
0239-95-0026	39-01313	0.50–0.83	Soil	5.7 (U)	0.6 (U)	—	—	0.52 (U)	—	—	—	—	—	—	—	314	—
0239-95-0027	39-01314	0.00–0.50	Soil	5.7 (U)	0.61 (U)	—	—	0.53 (U)	—	—	—	—	—	—	—	7.6	—
0239-95-0028	39-01314	0.50–0.83	Soil	5.6 (U)	0.59 (U)	—	—	0.51 (U)	—	—	—	—	—	—	—	7.7	—
0239-95-0029	39-01315	0.00–0.50	Soil	5.1 (U)	0.64 (U)	—	—	0.52 (U)	—	—	—	—	1.1 (U)	—	—	5.5 (J+)	—
0239-95-0031	39-01316	0.00–0.50	Soil	11.1 (U)	0.42 (UJ)	—	198 (J)	0.643 (U)	—	0.13 (U)	—	—	4.8 (J)	—	—	4445	—
0239-95-0032	39-01316	0.50–0.83	Soil	10.3 (U)	—	—	—	0.599 (U)	—	0.11 (U)	—	—	1.7 (U)	—	—	247	—
0239-95-0033	39-01317	0.00–0.50	Soil	10.8 (U)	0.41 (UJ)	—	19.6 (J+)	0.626 (U)	—	0.32	—	—	1.7 (U)	—	—	598	—
0239-95-0034	39-01317	0.50–0.83	Soil	9.7 (U)	—	—	—	0.553 (U)	—	0.11 (U)	—	—	1.6 (U)	—	—	53	—
0239-95-0035	39-01318	0.00–0.50	Soil	9.9 (U)	—	—	—	0.576 (U)	—	—	—	—	1.6 (U)	—	—	12.1	—
0239-95-0036	39-01318	0.50–0.83	Soil	9.6 (U)	—	—	—	0.542 (U)	—	—	—	—	1.5 (U)	—	—	3.17	—
0239-95-0037	39-01319	0.00–0.50	Soil	10.1 (U)	—	—	—	0.578 (U)	—	0.12 (U)	—	—	1.6 (U)	—	—	3.41	—
0239-95-0038	39-01319	0.50–0.83	Soil	9.9 (U)	—	—	—	0.561 (U)	—	0.11 (U)	—	—	1.6 (U)	—	—	3.14	—

Table 2.5-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Antimony	Cadmium	Chromium	Copper	Cyanide (Total)	Lead	Mercury	Nickel	Selenium	Silver	Sodium	Thallium	Uranium	Zinc
Soil Background Value				**0.83**	**0.4**	**19.3**	**14.7**	**0.5**	**22.3**	**0.1**	**15.4**	**1.52**	**1**	**915**	**0.73**	**1.82**	**48.8**
Maximum Soil Background Concentration				**1**	**2.6**	**36.5**	**16**	**na[a]**	**28**	**0.1**	**29**	**1.7**	**na**	**1800**	**1**	**3.6**	**75.5**
Sediment Background Value				**0.83**	**0.4**	**10.5**	**11.2**	**0.82**	**19.7**	**0.1**	**9.38**	**0.3**	**1**	**1470**	**0.73**	**2.22**	**60.2**
Maximum Sediment Background Concentration				**na**	**0.18**	**9.2**	**12**	**0.63**	**25.6**	**0.03**	**8.9**	**0.1**	**0.28**	**1970**	**na**	**2**	**56.2**
0239-95-0039	39-01320	0.00–0.50	Soil	2.9 (UJ)	—	—	—	0.53 (U)	—	0.11	—	—	—	—	—	196	—
0239-95-0041	39-01320	0.50–0.83	Soil	2.9 (UJ)	—	—	—	0.54 (U)	—	—	—	—	—	—	—	10.1	—
0239-95-0042	39-01321	0.00–0.50	Soil	3.2 (J-)	—	—	20.6 (J-)	0.51 (U)	—	0.15	—	—	—	—	—	7.34	—
0239-95-0043	39-01321	0.50–0.83	Soil	2.9 (UJ)	—	—	—	0.53 (U)	—	—	—	—	—	—	—	5.16	—
0239-95-0045	39-01322	0.00–0.50	Soil	2.9 (UJ)	—	—	—	0.53 (U)	—	0.13	—	—	—	—	—	162	—
0239-95-0044	39-01322	0.50–0.83	Soil	2.9 (UJ)	—	—	—	0.53 (U)	—	0.14	—	—	—	—	—	10.4	—
0239-95-0046	39-01323	0.00–0.50	Soil	6 (U)	0.76 (U)	—	—	0.61 (U)	—	—	—	—	1.3 (U)	—	—	5.5 (J+)	—
0239-95-0047	39-01323	0.50–0.83	Soil	6 (U)	0.75 (U)	—	—	0.61 (U)	—	—	—	—	1.3 (U)	—	—	50.4 (J+)	—
0239-95-0202	39-01382	0.00–0.50	Soil	10.5 (U)	—	—	—	0.6 (U)	—	0.11 (U)	—	—	1.7 (U)	—	—	481	—
0239-95-0203	39-01383	0.00–0.50	Soil	10.4 (U)	—	—	—	0.601 (U)	—	0.12 (U)	—	—	1.7 (U)	—	—	2434	—

Note: Values are in units of mg/kg. Soil BVs and concentrations are from LANL 1998, 059730.

[a] na = Not available.

[b] — = Value was less than BV or the analyte was not detected.

Table 2.5-2
Detected Organic Chemicals at SWMU 39-004(e)—Decision-Level Data

Sample ID	Location ID	Depth (ft)	Media	Benzoic Acid	Bis(2-ethylhexyl)phthalate	Di-n-butylphthalate
0239-95-0004	39-01260	0.00–0.50	Soil	—*	0.41	0.31 (J)
0239-95-0005	39-01261	0.00–0.50	Soil	—	0.83	1
0239-95-0006	39-01262	0.00–0.50	Soil	—	1.1	0.61
0239-95-0044	39-01322	0.50–0.83	Soil	0.18 (J)	—	—

Note: Values are in units of mg/kg.
* — = The analyte was not detected.

Table 2.5-3
Radionuclides Detected or Detected above
BV/FV at SWMU 39-004(e)—Decision-Level Data

Sample ID	Location ID	Depth (ft)	Media	Cesium-137	Europium-152	Thorium-228	Thorium-230	Thorium-232
Soil Background Value				**1.65**	**na**[a]	**2.28**	**2.29**	**2.33**
Maximum Soil Background Concentration				**1.7**	**na**	**na**	**na**	**na**
0239-95-0005	39-01261	0.00-0.50	Soil	—[b]	0.242	—	—	—
0239-95-0069	39-01276	0.50-0.83	Soil	0.112	—	—	—	—
0239-95-0024	39-01312	0.50-0.83	Soil	—	0.239	—	—	—
0239-95-0025	39-01313	0.00-0.50	Soil	—	—	2.42	2.56	2.48
0239-95-0026	39-01313	0.50-0.83	Soil	—	—	2.36	2.36	2.51
0239-95-0027	39-01314	0.00-0.50	Soil	—	—	2.56	2.58	2.48
0239-95-0028	39-01314	0.50-0.83	Soil	—	—	2.77	2.53	2.67
0239-95-0033	39-01317	0.00-0.50	Soil	—	0.447	—	—	—
0239-95-0043	39-01321	0.50-0.83	Soil	0.304	—	—	—	—
0239-95-0044	39-01322	0.50-0.83	Soil	0.182	—	—	—	—

Note: Values are in units of pCi/g. Soil background values and concentrations are from LANL 1998, 059730.
[a] na = Not available.
[b] — = Value was less than BV/FV or the analyte was not detected.

Table 3.0-1
Summary of Analytical Suites for Samples Previously Collected at SWMUs and AOCs in Subaggregate Area 2—Decision-Level Data

Sample ID	Location ID	Depth (ft)	Media	Cyanide (Total)	METALS	Uranium (Total)	High Explosives	PCBs	Pesticides/PCBs	SVOCs	VOCs	Gamma Spectroscopy	Isotopic Plutonium	Isotopic Thorium	Isotopic Uranium
SWMU 39-001(b)															
0239-96-0429	39-01391	11–12	Soil	√ [a]	—[b]	—	√	—	—	√	—	—	—	—	√
0239-96-0431	39-01392	2–3	Soil	√	√	—	√	—	√	√	√	√	√	√	—
0239-96-0432	39-01392	6–7	Soil	√	√	—	√	—	√	√	√	√	√	√	—
0239-96-0433	39-01392	11–12	Soil	√	√	—	√	—	√	√	√	√	√	√	—
0239-96-0434	39-01393	1–2	Soil	√	√	—	√	—	√	√	√	√	√	√	√
0239-96-0435	39-01393	5–6	Soil	√	√	—	√	—	√	√	√	√	√	√	—
0239-96-0436	39-01393	11–12	Soil	√	√	—	√	—	√	√	√	√	√	√	—
0239-96-0440	39-01394	14–15	Soil	√	√	√	√	—	—	—	√	√	—	—	—
0239-96-0441	39-01395	3–4	Soil	√	—	√	√	—	—	—	—	—	—	—	—
0239-96-0442	39-01395	6–7	Soil	√	—	—	—	—	—	—	—	—	—	—	√
0239-96-0446	39-01396	2–3	Soil	√	√	√	√	—	—	—	√	√	—	—	—
0239-96-0447	39-01396	6–7	Soil	√	√	√	√	—	—	—	√	√	—	—	—
0239-96-0448	39-01396	14–15	Soil	√	√	√	√	—	—	—	√	√	—	—	—
0239-96-0449	39-01397	3–4	Soil	√	√	√	—	—	—	√	√	√	√	—	—
0239-96-0450	39-01397	5–6	Soil	√	√	√	—	—	—	√	√	√	√	—	—
0239-96-0451	39-01397	15–16	Soil	√	√	√	—	—	—	√	√	√	√	—	—
0239-96-0453	39-01398	2–3	Soil	√	—	√	√	—	—	—	—	√	—	—	—
0239-96-0455	39-01398	11–12	Soil	√	—	√	—	—	—	—	—	√	—	—	—
0239-96-0456	39-01399	4.5–5	Soil	√	√	√	√	—	—	√	√	√	√	—	—
0239-96-0457	39-01399	7–8	Soil	√	√	—	√	—	—	√	√	√	√	—	√

Table 3.0-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Cyanide (Total)	METALS	Uranium (Total)	High Explosives	PCBs	Pesticides/PCBs	SVOCs	VOCs	Gamma Spectroscopy	Isotopic Plutonium	Isotopic Thorium	Isotopic Uranium
0239-96-0458	39-01399	14–15	Soil	√	√	√	√	—	—	√	√	√	—	—	—
0239-96-0460	39-01400	2–3	Soil	√	√	√	√	—	√	√	√	√	√	—	—
0239-96-0461	39-01400	5–6	Soil	√	√	√	√	—	√	√	√	√	√	—	—
0239-96-0462	39-01400	15–16	Soil	√	√	—	—	—	—	—	—	—	—	—	—
0239-96-0463	39-01401	3–4	Soil	√	√	√	√	—	√	√	√	√	√	—	—
0239-96-0464	39-01401	6–7	Soil	√	√	—	√	—	√	√	√	√	√	—	√
0239-96-0465	39-01401	11–12	Soil	√	√	√	—	—	—	—	—	—	—	—	—
0239-96-0467	39-01402	2–3	Soil	√	√	—	√	—	√	√	√	√	√	—	√
0239-96-0468	39-01402	5–6	Soil	√	√	√	√	—	√	√	√	√	√	—	√
0239-96-0469	39-01402	8–9	Soil	√	√	√	√	—	√	√	√	√	√	—	√
0239-96-0470	39-01403	2–3	Soil	√	√	√	√	—	√	√	√	√	√	—	√
0239-96-0471	39-01403	5–6	Soil	√	√	√	√	—	√	√	√	√	√	—	√
0239-96-0472	39-01403	12–13	Soil	√	—	—	—	—	—	—	—	√	—	—	√
SWMU 39-008															
0239-95-0204	39-01347	0–0.5	Soil	√	√	√	—	—	—	√	—	√	√	√	—
0239-95-0205	39-01347	0.5–0.83	Soil	√	√	√	—	—	—	√	—	√	√	√	—
0239-95-0206	39-01348	0–0.5	Soil	√	√	√	—	—	—	√	—	√	√	√	—
0239-95-0207	39-01348	0.5–0.83	Soil	√	√	√	—	—	—	√	—	√	√	√	—
0239-95-0208	39-01349	0–0.5	Soil	√	√	—	√	—	—	√	—	√	√	√	—
0239-95-0210	39-01349	0.5–0.83	Soil	√	√	√	√	—	—	√	—	√	√	√	—
0239-95-0211	39-01350	0–0.5	Soil	√	√	√	—	—	—	√	—	√	√	√	—

Table 3.0-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Cyanide (Total)	METALS	Uranium (Total)	High Explosives	PCBs	Pesticides/PCBs	SVOCs	VOCs	Gamma Spectroscopy	Isotopic Plutonium	Isotopic Thorium	Isotopic Uranium
0239-95-0212	39-01350	0.5–0.83	Soil	√	√	√	—	—	—	√	—	√	√	√	—
0239-95-0213	39-01351	0–0.5	Soil	√	√	√	—	—	—	√	—	√	√	√	—
0239-95-0214	39-01351	0.5–0.83	Soil	√	√	√	—	—	—	√	—	√	√	√	—
0239-95-0215	39-01352	0–0.5	Soil	√	√	—	—	—	—	√	—	√	√	√	—
0239-95-0216	39-01352	0.5–0.83	Soil	√	√	—	—	—	—	√	—	√	√	√	—
0239-95-0219	39-01355	0–0.5	Soil	√	√	—	—	—	—	√	—	√	√	√	—
0239-95-0221	39-01355	5.5–6	Soil	√	√	—	—	—	—	√	—	√	√	√	—
0239-95-0222	39-01356	0–0.5	Soil	√	√	—	√	—	—	√	—	√	√	√	—
0239-95-0223	39-01356	6.5–7	Soil	√	√	—	√	—	—	√	—	√	√	√	—
0239-95-0225	39-01357	0–0.5	Soil	√	√	—	—	—	—	√	—	√	√	√	—
0239-95-0227	39-01357	3–3.5	Soil	√	√	—	—	—	—	√	—	√	√	√	—
0239-95-0228	39-01358	0–0.5	Soil	√	√	—	—	—	—	√	—	√	√	√	—
0239-95-0230	39-01358	4.5–5	Soil	√	√	—	—	—	—	√	—	√	√	√	—
0239-95-0231	39-01359	0–0.17	Soil	√	√	—	—	—	—	√	—	√	√	√	—
AOC 39-002(c)															
VCXX-95-0100	03-09030	0–0.5	Soil	—	—	√	—	—	—	—	—	—	—	—	—
VCXX-95-0101	39-01452	0–0.5	Soil	—	√	—	—	—	√	—	—	—	—	—	—
VCXX-95-0102	39-01453	0–0.5	Soil	—	—	√	—	—	√	—	—	—	—	—	—
VCXX-95-0103	39-01454	0–0.5	Soil	—	—	—	—	—	√	√	√	—	—	—	—
VCXX-95-0173	39-01459	0–0.5	Soil	—	—	√	—	—	—	—	—	—	—	—	—
VCXX-95-0174	39-01460	0–0.5	Soil	—	√	—	—	—	√	—	—	—	—	—	—

Table 3.0-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Cyanide (Total)	METALS	Uranium (Total)	High Explosives	PCBs	Pesticides/PCBs	SVOCs	VOCs	Gamma Spectroscopy	Isotopic Plutonium	Isotopic Thorium	Isotopic Uranium
VCXX-95-0175	39-01461	0–0.5	Soil	—	—	√	—	—	√	—	—	—	—	—	—
VCXX-95-0176	39-01462	0–0.5	Soil	—	—	—	—	—	√	√	√	—	—	—	—
SWMU 39-004(c)															
0239-95-0148	39-01249	0–0.5	Soil	√	√	√	√	—	—	√	—	—	—	√	—
0239-95-0149	39-01250	0–0.5	Soil	√	√	√	√	—	—	√	—	—	—	√	—
0239-95-0150	39-01251	0–0.5	Soil	√	√	√	√	—	—	√	—	√	—	√	—
0239-95-0151	39-01252	0–0.5	Soil	√	√	√	√	—	—	√	—	√	—	√	—
0239-95-0153	39-01284	0–0.5	Soil	√	√	—	√	—	—	√	—	√	—	√	—
0239-95-0154	39-01284	0.5–0.83	Soil	√	√	—	√	—	—	√	—	√	—	√	—
0239-95-0155	39-01285	0–0.5	Soil	√	√	—	—	—	—	√	—	—	—	√	—
0239-95-0156	39-01285	0.5–0.83	Soil	√	√	—	—	—	—	√	—	—	—	√	—
0239-95-0157	39-01286	0–0.5	Soil	√	√	—	—	—	—	√	—	—	—	√	—
0239-95-0158	39-01286	0.5–0.83	Soil	√	√	—	—	—	—	√	—	—	—	√	—
0239-95-0159	39-01287	0–0.5	Soil	√	√	—	—	—	—	√	—	—	—	√	—
0239-95-0160	39-01287	0.5–0.83	Soil	√	√	—	—	—	—	√	—	—	—	√	—
0239-95-0161	39-01288	0–0.5	Soil	√	√	—	—	—	—	√	—	—	—	√	—
0239-95-0163	39-01288	0.5–0.83	Soil	√	√	—	—	—	—	√	—	—	—	√	—
0239-95-0164	39-01289	0–0.5	Soil	√	√	—	√	—	—	√	—	√	—	√	—
0239-95-0165	39-01289	0.5–0.83	Soil	√	√	—	√	—	—	√	—	√	—	√	—
0239-95-0166	39-01290	0–0.5	Soil	√	√	—	—	—	—	√	—	—	—	√	—
0239-95-0167	39-01290	0.5–0.83	Soil	√	√	—	—	—	—	√	—	—	—	√	—

Table 3.0-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Cyanide (Total)	METALS	Uranium (Total)	High Explosives	PCBs	Pesticides/PCBs	SVOCs	VOCs	Gamma Spectroscopy	Isotopic Plutonium	Isotopic Thorium	Isotopic Uranium
0239-95-0168	39-01291	0–0.5	Soil	√	√	—	√	—	—	√	—	√	—	√	—
0239-95-0169	39-01291	0.5–0.83	Soil	√	√	—	√	—	—	√	—	√	—	√	—
0239-95-0170	39-01292	0–0.5	Soil	√	√	—	—	—	—	√	—	—	—	√	—
0239-95-0171	39-01292	0.5–0.83	Soil	√	√	—	—	—	—	√	—	—	—	√	—
0239-95-0172	39-01293	0–0.5	Soil	√	√	—	√	—	—	√	—	√	—	√	—
0239-95-0173	39-01293	0.5–0.83	Soil	√	√	—	√	—	—	√	—	√	—	√	—
0239-95-0174	39-01324	0–0.5	Soil	√	√	—	√	—	—	√	—	√	—	√	—
0239-95-0176	39-01324	0.5–0.83	Soil	√	√	—	√	—	—	√	—	√	—	√	—
0239-95-0181	39-01327	0–0.5	Soil	√	√	—	√	—	—	√	—	√	—	√	—
0239-95-0183	39-01328	0–0.5	Soil	√	√	√	√	—	—	√	—	√	—	√	—
0239-95-0184	39-01328	0.5–0.83	Soil	√	√	√	√	—	—	√	—	√	—	√	—
0239-95-0185	39-01329	0–0.5	Soil	√	√	√	√	—	—	√	—	√	—	√	—
0239-95-0186	39-01329	0.5–0.83	Soil	√	√	√	√	—	—	√	—	√	—	√	—
0239-95-0187	39-01330	0–0.5	Soil	√	√	√	√	—	—	√	—	√	—	√	—
0239-95-0188	39-01330	0.5–0.83	Soil	√	√	√	√	—	—	√	—	√	—	√	—
0239-95-0189	39-01331	0–0.5	Soil	√	√	√	√	—	—	√	—	√	—	√	—
0239-95-0190	39-01331	0.5–0.83	Soil	√	√	√	√	—	—	√	—	√	—	√	—
0239-95-0191	39-01332	0–0.33	Soil	√	√	—	√	—	—	√	—	√	—	√	—
0239-95-0194	39-01333	0–0.5	Soil	√	√	—	√	—	—	√	—	√	—	√	—
0239-95-0195	39-01333	0.5–0.83	Soil	√	√	—	√	—	—	√	—	√	—	√	—
0239-95-0196	39-01334	0–0.5	Soil	√	√	—	√	—	—	√	—	√	—	√	—

Table 3.0-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Cyanide (Total)	METALS	Uranium (Total)	High Explosives	PCBs	Pesticides/PCBs	SVOCs	VOCs	Gamma Spectroscopy	Isotopic Plutonium	Isotopic Thorium	Isotopic Uranium
0239-95-0197	39-01334	0.5–0.83	Soil	√	√	—	√	—	—	√	—	√	—	√	—
0239-95-0198	39-01335	0–0.5	Soil	√	√	—	√	—	—	√	—	√	—	√	—
SWMU 39-007(a)															
VCXX-95-0109	39-01455	0–0.5	Soil	—	√	—	—	NA[c]	√	—	—	—	—	—	—
VCXX-95-0110	39-01456	0–0.5	Soil	—	√	—	—	NA	√	—	—	—	—	—	—
VCXX-95-0111	39-01457	0–0.5	Soil	—	√	—	—	NA	√	—	—	—	—	—	—
VCXX-95-0112	39-01458	0–0.5	Soil	—	√	—	—	NA	√	—	—	—	—	—	—
VCXX-95-0114	39-01465	0–0.5	Soil	—	√	—	—	NA	√	—	—	—	—	—	—
VCXX-95-0115	39-01466	0–0.5	Soil	—	√	—	—	NA	√	—	—	—	—	—	—
VCXX-95-0116	39-01467	0–0.5	Soil	—	√	—	—	NA	√	—	—	—	—	—	—
VCXX-95-0117	39-01468	0–0.5	Soil	—	√	—	—	NA	√	—	—	—	—	—	—
VCXX-95-0119	39-01470	0–0.5	Soil	—	√	—	—	NA	√	—	—	—	—	—	—
RC39-01-0001	39-10018	0–0.5	Fill	—	√	—	—	√	NA	—	—	—	—	—	—
RC39-01-0002	39-10019	0–0.5	Fill	—	√	—	—	√	NA	—	—	—	—	—	—
RC39-01-0003	39-10020	0–0.5	Fill	—	√	—	—	√	NA	—	—	—	—	—	—
RC39-01-0004	39-10021	0–0.5	Fill	—	√	—	—	√	NA	—	—	—	—	—	—
RC39-01-0005	39-10022	0–0.5	Fill	—	√	—	—	√	NA	—	—	—	—	—	—

[a] √ = Analysis was requested for sample.

[b] — = Analysis was not requested for sample.

[c] NA = Not analyzed.

Table 3.1-1
Inorganic Chemicals above BVs at SWMU 39-001(b)—Decision-Level Data

Sample ID	Location ID	Depth (ft)	Media	Antimony	Cadmium	Calcium	Chromium	Cobalt	Copper	Cyanide (Total)	Iron	Lead	Mercury	Nickel	Silver	Thallium	Uranium (Total)	Vanadium	Zinc
Soil Background Value				**0.83**	**0.4**	**6120**	**19.3**	**8.64**	**14.7**	**0.5**	**21500**	**22.3**	**0.1**	**15.4**	**1**	**0.73**	**1.82**	**39.6**	**48.8**
Maximum Soil Background Concentration				**1**	**2.6**	**14000**	**36.5**	**9.5**	**16**	**na[a]**	**36000**	**28**	**0.1**	**29**	**na**	**1**	**3.6**	**56.5**	**75.5**
0239-96-0431	39-01392	2.00–3.00	Soil	5.4 (U)	0.54 (U)	— b	—	—	—	1.1 (U)	—	—	—	—	—	—	2	—	—
0239-96-0432	39-01392	6.00–7.00	Soil	5.7 (U)	0.57 (U)	—	—	—	36	1.1 (U)	—	—	0.69	—	—	—	8.1	—	153
0239-96-0433	39-01392	11.00–12.00	Soil	5 (U)	0.5 (U)	—	—	—	—	1.07 (U)	—	—	—	—	—	—	2.46	—	—
0239-96-0440	39-01394	14.00–15.00	Soil	—	0.5 (U)	—	—	—	—	—	—	—	—	—	—	1.78 (J)	2.17	—	—
0239-96-0441	39-01395	3.00–4.00	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	3.1	—	—
0239-96-0446	39-01396	2.00–3.00	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	12.1	—	—
0239-96-0447	39-01396	6.00–7.00	Soil	—	—	—	—	—	20.9	32.9 (J)	—	—	—	—	1.36	—	7.09	—	88.8
0239-96-0448	39-01396	14.00–15.00	Soil	7.97 (J)	—	—	—	—	—	1.42 (J)	—	—	0.833	—	—	—	8.12	—	103
0239-96-0449	39-01397	3.00–4.00	Soil	—	0.49 (U)	—	—	—	—	—	—	—	0.334	—	—	0.98 (U)	17.8	—	—
0239-96-0450	39-01397	5.00–6.00	Soil	1 (U)	0.5 (U)	—	—	—	—	—	—	—	—	—	—	1 (U)	3.73	—	—
0239-96-0451	39-01397	15.00–16.00	Soil	—	0.495 (U)	—	—	—	—	—	—	—	—	17.5	—	2.48 (U)	—	—	—
0239-96-0453	39-01398	2.00–3.00	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	3.27	—	—
0239-96-0455	39-01398	11.00–12.00	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	3.27	—	—
0239-96-0456	39-01399	4.50–5.00	Soil	1 (U)	0.746	—	—	—	75.1	—	—	—	—	—	—	2.5 (U)	6.66	—	57.3
0239-96-0457	39-01399	7.00–8.00	Soil	0.971 (U)	2	—	—	—	33.2	2.86	—	—	0.144	—	—	2.43 (U)	—	—	—
0239-96-0458	39-01399	14.00–15.00	Soil	1 (U)	0.5 (U)	—	—	—	—	—	—	—	—	—	—	2.5 (U)	3.03	—	—
0239-96-0460	39-01400	2.00–3.00	Soil	1 (U)	0.5 (U)	—	—	—	—	—	—	—	—	—	—	1 (U)	3.08	—	—

Table 3.1-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Antimony	Cadmium	Calcium	Chromium	Cobalt	Copper	Cyanide (Total)	Iron	Lead	Mercury	Nickel	Silver	Thallium	Uranium (Total)	Vanadium	Zinc
Soil Background Value				**0.83**	**0.4**	**6120**	**19.3**	**8.64**	**14.7**	**0.5**	**21500**	**22.3**	**0.1**	**15.4**	**1**	**0.73**	**1.82**	**39.6**	**48.8**
Maximum Soil Background Concentration				**1**	**2.6**	**14000**	**36.5**	**9.5**	**16**	**na[a]**	**36000**	**28**	**0.1**	**29**	**na**	**1**	**3.6**	**56.5**	**75.5**
0239-96-0461	39-01400	5.00–6.00	Soil	—	0.495 (U)	8590	51.5	9.31	22.2	0.741	22400	89.4	1.04	23.3	1.89	0.99 (U)	3.92	148	—
0239-96-0463	39-01401	3.00–4.00	Soil	0.971 (U)	—	—	—	—	—	—	—	—	0.129	—	—	0.971 (U)	3.2	—	—
0239-96-0464	39-01401	6.00–7.00	Soil	—	—	—	—	—	—	—	—	—	—	—	—	4.85 (U)	—	—	—
0239-96-0465	39-01401	11.00–12.00	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	2.96	—	—
0239-96-0467	39-01402	2.00-3.00	Soil	—	0.495 (U)	—	—	—	—	—	—	—	—	—	—	0.99 (U)	—	—	—
0239-96-0468	39-01402	5.00-6.00	Soil	—	—	—	—	—	153	—	—	23.5	—	—	—	2.48 (U)	5.9	—	—
0239-96-0469	39-01402	8.00-9.00	Soil	0.971 (U)	—	—	—	—	—	—	—	—	—	—	—	2.43 (U)	2.76	—	—
0239-96-0470	39-01403	2.00-3.00	Soil	0.971 (U)	—	—	—	—	—	—	—	—	—	—	—	0.971 (U)	2.68	—	—
0239-96-0471	39-01403	5.00-6.00	Soil	—	—	—	—	—	36.7	—	—	26.7	0.202	—	—	0.98 (U)	6.23	—	—

Note: Values are in units of mg/kg. Soil background values and concentrations are from LANL 1998, 059730.

[a] na = Not available.

[b] — = Value was less than BV or the analyte was not detected.

Table 3.1-2
Detected Organic Chemicals at SWMU 39-001(b)—Decision-Level Data

Sample ID	Location ID	Depth (ft)	Media	Acetone	Aldrin	Anthracene	Aroclor-1254	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Bis(2-ethylhexyl)phthalate	Butanone[2-]	Carbazole	Chrysene	DDT[4,4'-]
0239-96-0431	39-01392	2.00–3.00	Soil	—*	—	—	—	—	—	—	—	—	—	—	—	—	—
0239-96-0432	39-01392	6.00–7.00	Soil	0.18	—	—	0.033 (J-)	—	—	—	—	—	—	—	—	—	—
0239-96-0433	39-01392	11.00–12.00	Soil	0.17	—	0.16 (J)	—	0.35 (J)	0.32 (J)	0.42 (J)	—	0.16 (J)	—	—	0.25 (J)	0.39 (J)	—
0239-96-0434	39-01393	1.00–2.00	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—
0239-96-0440	39-01394	14.00–15.00	Soil	0.0116 (J)	—	—	—	—	—	—	—	—	—	—	—	—	—
0239-96-0446	39-01396	2.00–3.00	Soil	0.01 (J)	—	—	—	—	—	—	—	—	—	—	—	—	—
0239-96-0447	39-01396	6.00–7.00	Soil	0.00382 (J)	—	—	—	—	—	—	—	—	—	—	—	—	—
0239-96-0448	39-01396	14.00–15.00	Soil	0.00474 (J)	—	—	—	—	—	—	—	—	—	—	—	—	—
0239-96-0449	39-01397	3.00–4.00	Soil	—	—	—	—	0.222 (J)	0.205 (J)	0.254 (J)	—	—	—	—	—	0.241 (J)	—
0239-96-0456	39-01399	4.50–5.00	Soil	—	—	—	—	—	—	—	—	—	0.978	—	—	—	—
0239-96-0461	39-01400	5.00–6.00	Soil	0.0165	—	67 (J)	—	111 (J)	116 (J)	153 (J)	71.7 (J)	60.4 (J)	—	0.0044 (J)	—	108 (J)	—
0239-96-0469	39-01402	8.00–9.00	Soil	—	0.000901	—	0.152	—	—	—	—	—	—	—	—	—	0.00303 (J)
0239-96-0471	39-01403	5.00–6.00	Soil	—	—	—	0.043	—	—	—	—	—	—	—	—	—	0.0169

Table 3.1-2 (continued)

Sample ID	Location ID	Depth (ft)	Media	Dibenz(a,h)anthracene	Dibenzofuran	Dieldrin	Fluoranthene	Fluorene	HMX	Indeno(1,2,3-cd)pyrene	Methylene Chloride	Methylnaphthalene[2-]	Naphthalene	Phenanthrene	Pyrene	Tetrachloroethene	Trinitrotoluene[2,4,6-]
0239-96-0431	39-01392	2.00–3.00		—	—	—	—	—	—	—	0.004 (J)	—	—	—	—	0.003 (J)	—
0239-96-0432	39-01392	6.00–7.00		—	—	—	0.23 (J)	—	—	—	—	—	—	0.2 (J)	0.22 (J)	0.006 (J)	—
0239-96-0433	39-01392	11.00–12.00		—	—	—	0.94	—	—	0.16 (J)	0.007	—	—	0.85	0.89	0.014	—
0239-96-0434	39-01393	1.00–2.00		—	—	—	—	—	—	—	—	—	—	—	—	0.001 (J)	—
0239-96-0440	39-01394	14.00–15.00	Soil	—	—	—	—	—	—	—	0.00363 (J)	—	—	—	—	—	—
0239-96-0446	39-01396	2.00–3.00	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—
0239-96-0447	39-01396	6.00–7.00	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—
0239-96-0448	39-01396	14.00–15.00	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—
0239-96-0449	39-01397	3.00–4.00	Soil	—	—	—	0.577	—	—	—	—	—	—	0.515	0.538	—	—
0239-96-0456	39-01399	4.50–5.00	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—
0239-96-0461	39-01400	5.00–6.00	Soil	19.7 (J)	22.7 (J)	—	354 (J)	37.4 (J)	—	72.7 (J)	—	10.6 (J)	35.7 (J)	407 (J)	341 (J)	—	0.314
0239-96-0469	39-01402	8.00–9.00	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—
0239-96-0471	39-01403	5.00–6.00	Soil	—	—	0.0256	—	—	4.14	—	—	—	—	—	—	—	—

Note: Values are in units of mg/kg. Soil BVs and concentrations are from LANL 1998, 059730.

* — = Value was less than BV or the analyte was not detected.

Table 3.1-3
Radionuclides Detected or Detected above BVs/FVs at
SWMU 39-001(b)—Decision-Level Data

Sample ID	Location ID	Depth (ft)	Media	Plutonium-238	Uranium-234	Uranium-238
Soil Background Value				**0.023**	**2.59**	**2.29**
Maximum Soil Background Concentration				**0.037**	**na[a]**	**na**
0239-96-0429	39-01391	11.00–12.00	Soil	—[b]	2.63	—
0239-96-0431	39-01392	2.00–3.00	Soil	0.014	—	—
0239-96-0432	39—01392	6.00–7.00	Soil	0.002	—	—
0239-96-0433	39-01392	11.00–12.00	Soil	0.014	—	—
0239-96-0457	39-01399	7.00–8.00	Soil	—	—	2.76
0239-96-0460	39-01400	2.00–3.00	Soil	0.0655	—	—
0239-96-0461	39-01400	5.00–6.00	Soil	0.104	—	—
0239-96-0464	39-01401	6.00–7.00	Soil	0.0595	—	—

Note: Values are in units of pCi/g. Soil BVs and concentrations are from LANL 1998, 059730.

[a] na = Not available.

[b] — = Value was less than BV or the analyte was not detected.

Table 3.2-1
Inorganic Chemicals above BVs at SWMU 39-008—Decision-Level Data

Sample ID	Location ID	Depth (ft)	Media	Antimony	Beryllium	Cadmium	Chromium	Cobalt	Cyanide (Total)	Lead	Mercury	Selenium	Silver	Thallium	Uranium
Soil Background Value				**0.83**	**1.83**	**0.4**	**19.3**	**8.64**	**0.5**	**22.3**	**0.1**	**1.52**	**1**	**0.73**	**1.82**
Maximum Soil Background Concentration				**1**	**3.95**	**2.6**	**36.5**	**9.5**	**na**[a]	**28**	**0.1**	**1.7**	**na**	**1**	**3.6**
0239-95-0204	39-01347	0.00–0.50	Soil	—[b]	—	—	—	—	—	—	—	—	—	—	21
0239-95-0205	39-01347	0.50–0.83	Soil	—	—	—	—	—	—	—	—	—	—	—	19.1
0239-95-0206	39-01348	0.00–0.50	Soil	—	—	—	—	—	—	—	—	—	—	—	23.9
0239-95-0207	39-01348	0.50–0.83	Soil	—	—	—	—	—	—	—	—	—	—	—	24.7
0239-95-0208	39-01349	0.00–0.50	Soil	3.2 (U)	3.7	0.84 (J)	111	18	—	138	—	9.3	100	14.2 (U)	23330
0239-95-0210	39-01349	0.50–0.83	Soil	—	—	—	—	—	—	—	—	—	2.2 (U)	—	12200
0239-95-0211	39-01350	0.00–0.50	Soil	—	—	—	—	—	—	—	—	—	—	—	164
0239-95-0212	39-01350	0.50–0.83	Soil	—	—	—	—	—	—	26.7	—	—	14.5	2.3 (U)	59.9
0239-95-0213	39-01351	0.00–0.50	Soil	—	—	—	—	—	—	31.6	—	—	—	—	18.7
0239-95-0214	39-01351	0.50–0.83	Soil	—	—	—	—	—	—	425	—	—	—	—	15.6
0239-95-0215	39-01352	0.00–0.50	Soil	—	—	—	—	—	584 (U)	—	0.12 (U)	—	4.1 (J-)	1.4 (U)	1350
0239-95-0216	39-01352	0.50–0.83	Soil	—	—	—	—	—	0.588 (U)	1880	0.11 (U)	—	—	1.4 (U)	385
0239-95-0219	39-01355	0.00–0.50	Soil	—	—	—	—	—	0.542 (U)	—	0.11 (U)	—	—	1.3 (U)	6.1
0239-95-0221	39-01355	5.50–6.00	Soil	—	—	—	—	—	0.532 (U)	—	0.11 (U)	—	—	1.3 (U)	5.6
0239-95-0222	39-01356	0.00–0.50	Soil	—	—	—	—	—	0.536 (U)	—	—	—	—	1.3 (U)	6.1
0239-95-0223	39-01356	6.50–7.00	Soil	—	—	—	—	—	0.59	—	0.11 (U)	—	—	1.3 (U)	6.5
0239-95-0225	39-01357	0.00–0.50	Soil	—	—	—	—	—	0.535 (U)	—	0.11 (U)	—	—	1.3 (U)	6
0239-95-0227	39-01357	3.00–3.50	Soil	—	—	—	—	—	0.532 (U)	—	0.11 (U)	—	—	1.3 (U)	7.6
0239-95-0228	39-01358	0.00–0.50	Soil	—	—	—	—	—	0.532 (U)	—	0.11 (U)	—	—	1.3 (U)	11.1
0239-95-0230	39-01358	4.50–5.00	Soil	—	—	—	—	—	0.534 (U)	—	0.11 (U)	—	—	1.3 (U)	7.1
0239-95-0231	39-01359	0.00–0.17	Soil	—	—	—	—	—	0.536 (U)	—	0.11 (U)	—	—	1.2 (U)	30.5

Note: Values are in units of mg/kg. Soil BVs and concentrations are from LANL 1998, 059730.

[a] na = Not available.

[b] — = Value was less than BV or the analyte was not detected.

Table 3.2-2
Detected Organic Chemicals at SWMU 39-008—Decision-Level Data

Sample ID	Location ID	Depth (ft)	Media	Bis(2-ethylhexyl)phthalate	Di-n-butylphthalate
0239-95-0205	39-01347	0.50–0.83	Soil	—*	2.6
0239-95-0206	39-01348	0.00–0.50	Soil	0.13 (J)	—
0239-95-0207	39-01348	0.50–0.83	Soil	0.072 (J)	—
0239-95-0213	39-01351	0.00–0.50	Soil	0.076 (J)	—
0239-95-0222	39-01356	0.00–0.50	Soil	—	0.53
0239-95-0225	39-01357	0.00–0.50	Soil	0.045 (J)	—
0239-95-0227	39-01357	3.00–3.50	Soil	0.058 (J)	—
0239-95-0228	39-01358	0.00–0.50	Soil	0.038 (J)	—
0239-95-0231	39-01359	0.00–0.17	Soil	0.054 (J)	—

Note: Values are in units of mg/kg.
* — = Analyte was not detected.

Table 3.2-3
Radionuclides Detected or Detected above BVs/FVs at SWMU 39-008—Decision-Level Data

Sample ID	Location ID	Depth (ft)	Media	Cesium-137	Plutonium-239/ Plutonium-240	Thorium-228	Thorium-230	Thorium-232	Uranium-235
Soil Background Value				**1.65**	**0.054**	**2.28**	**2.29**	**2.33**	**0.2**
Maximum Soil Background Concentration				**1.7**	**0.055**	**na**[a]	**na**	**na**	**0.16**
0239-95-0207	39-01348	0.50–0.83	Soil	0.185	0.00901	—[b]	—	—	—
0239-95-0208	39-01349	0.00–0.50	Soil	—	—	—	—	—	105
0239-95-0210	39-01349	0.50–0.83	Soil	—	0.0473	—	—	—	44.8
0239-95-0212	39-01350	0.50–0.83	Soil	0.089	—	—	—	—	—
0239-95-0213	39-01351	0.00–0.50	Soil	—	—	—	2.31	—	—
0239-95-0214	39-01351	0.50–0.83	Soil	0.106	—	2.31	2.42	—	—
0239-95-0215	39-01352	0.00–0.50	Soil	—	—	—	—	—	9.87
0239-95-0216	39-01352	0.50–0.83	Soil	—	—	—	—	—	2.46
0239-95-0221	39-01355	5.50–6.00	Soil	—	—	—	—	—	0.37
0239-95-0227	39-01357	3.00–3.50	Soil	—	—	2.51	2.56	2.58	0.38
0239-95-0230	39-01358	4.50–5.00	Soil	—	0.005	2.39	2.35	2.42	0.45
0239-95-0231	39-01359	0.00–0.17	Soil	—	—	—	—	—	0.35

Note: Values are in units of pCi/g. Soil BVs and concentrations are from LANL 1998, 059730.
[a] na = Not available.
[b] — = Value was less than BV/FV or the analyte was not detected.

Table 3.3-1
Inorganic Chemicals above BVs at AOC 39-002(c)—Decision-Level Data

Sample ID	Location ID	Depth (ft)	Media	Antimony	Cadmium	Molybdenum	Silver	Thallium	Uranium
Soil Background Value				**0.83**	**0.4**	**na[a]**	**1**	**0.73**	**1.82**
VCXX-95-0100	03-09030	0.00-0.50	Soil	—[b]	—	—	—	—	29
VCXX-95-0101	39-01452	0.00-0.50	Soil	9.1 (U)	1.1 (U)	4.6 (U)	2.3 (U)	1 (U)	—
VCXX-95-0173	39-01459	0.00-0.50	Soil	—	—	—	—	—	29.7
VCXX-95-0174	39-01460	0.00-0.50	Soil	9 (U)	1.1 (U)	4.6 (U)	2.3 (U)	1.1 (U)	—

Note: Values are in units of mg/kg. Soil BVs and concentrations are from LANL 1998, 059730.

[a] na = Not available.

[b] — = Value was less than BV/FV or the analyte was not detected.

Table 3.3-2
Detected Organic Chemicals at AOC 39-002(c)—Decision-Level Data

Sample ID	Location ID	Depth (ft)	Media	Dimethyl Phthalate	Di-n-butylphthalate
VCXX-95-0176	39-01462	0.00–0.50	Soil	0.47	0.39 (J)

Note: Values are in units of mg/kg.

Table 3.4-1
Inorganic Chemicals above BVs at SWMU 39-004(c)—Decision-Level Data

Sample ID	Location ID	Depth (ft)	Media	Antimony	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Copper	Cyanide (Total)	Lead	Mercury	Nickel	Silver	Thallium	Uranium (Total)	Zinc
Soil Background Value				**0.83**	**1.83**	**0.4**	**0.4**	**6120**	**19.3**	**8.64**	**14.7**	**0.5**	**22.3**	**0.1**	**15.4**	**1**	**0.73**	**1.82**	**48.8**
Maximum Soil Background Concentration				**1**	**3.95**	**2.6**	**2.6**	**14000**	**36.5**	**9.5**	**16**	**na**[a]	**28**	**0.1**	**29**	**na**	**1**	**3.6**	**75.5**
0239-95-0148	39-01249	0.00–0.50	Soil	—[b]	—	—	1.9	—	—	—	630 (J)	0.546 (U)	238 (J)	8.5	—	—	1.5 (U)	146	183
0239-95-0149	39-01250	0.00–0.50	Soil	—	—	2	—	—	104	14.5	290 (J)	0.582 (U)	419 (J)	0.11 (U)	17.7	55.1	1.4 (U)	34540	53
0239-95-0150	39-01251	0.00–0.50	Soil	—	302	—	0.61 (J)	—	—	—	2640 (J)	0.579 (U)	978 (J)	0.11 (U)	—	4.1	1.4 (U)	88	115
0239-95-0151	39-01252	0.00–0.50	Soil	—	—	—	-	—	—	—	1050 (J)	0.521 (U)	438 (J)	—	—	—	1.4 (J)	81	155
0239-95-0153	39-01284	0.00–0.50	Soil	—	—	—	0.55 (U)	—	—	—	—	0.55 (U)	—	0.11 (U)	—	2.2 (U)	1.1 (U)	—	—
0239-95-0154	39-01284	0.50–0.83	Soil	—	—	—	0.55 (U)	—	—	—	—	0.55 (U)	—	0.11 (U)	—	2.2 (U)	1.1 (U)	—	—
0239-95-0155	39-01285	0.00–0.50	Soil	—	—	—	0.55 (U)	—	—	—	—	0.55 (U)	—	0.11 (U)	—	2.2 (U)	1.1 (U)	—	—
0239-95-0156	39-01285	0.50–0.83	Soil	—	—	—	0.57 (U)	—	—	—	—	0.57 (U)	—	0.11 (U)	—	2.3 (U)	1.1 (U)	1.9	—
0239-95-0157	39-01286	0.00–0.50	Soil	—	—	—	0.52 (U)	—	—	—	—	0.52 (U)	—	—	—	2.1 (U)	1 (U)	—	—
0239-95-0158	39-01286	0.50–0.83	Soil	—	—	—	0.57 (U)	—	—	—	—	0.57 (U)	—	0.11 (U)	—	2.3 (U)	1.1 (U)	2.18	—
0239-95-0159	39-01287	0.00–0.50	Soil	—	—	—	0.55 (U)	—	—	—	—	0.55 (U)	—	0.11 (U)	—	2.2 (U)	1.1 (U)	—	—
0239-95-0160	39-01287	0.50–0.83	Soil	—	—	—	0.57 (U)	—	—	—	—	0.57 (U)	25	0.11 (U)	—	2.3 (U)	1.1 (U)	2.44	—
0239-95-0161	39-01288	0.00–0.50	Soil	—	—	—	0.53 (U)	—	—	—	16	0.53 (U)	—	0.11 (U)	—	2.1 (U)	1.1 (U)	5.82 (J)	—
0239-95-0163	39-01288	0.50–0.83	Soil	—	—	—	0.53 (U)	—	—	—	—	0.53 (U)	—	0.11 (U)	—	2.1 (U)	1.1 (U)	5.19	—
0239-95-0164	39-01289	0.00–0.50	Soil	—	—	—	0.53 (U)	—	—	—	15	0.53 (U)	26	0.11 (U)	—	2.1 (U)	1.1 (U)	12.7	—
0239-95-0165	39-01289	0.50–0.83	Soil	—	—	—	0.56 (U)	—	—	—	21	0.56 (U)	—	0.11 (U)	—	2.2 (U)	1.1 (U)	11.7 (J)	—
0239-95-0166	39-01290	0.00–0.50	Soil	—	—	—	0.52 (U)	—	—	—	23	0.52 (U)	—	-	—	2.1 (U)	1 (U)	23.4	—
0239-95-0167	39-01290	0.50–0.83	Soil	—	—	—	0.53 (U)	—	—	—	16	0.53 (U)	—	0.11 (U)	—	2.1 (U)	1.1 (U)	3.88	—
0239-95-0168	39-01291	0.00–0.50	Soil	—	—	—	0.54 (U)	—	—	—	—	0.54 (U)	—	0.11 (U)	—	2.2 (U)	1.1 (U)	4.63	—

Table 3.4-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Antimony	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Copper	Cyanide (Total)	Lead	Mercury	Nickel	Silver	Thallium	Uranium (Total)	Zinc
Soil Background Value				**0.83**	**1.83**	**0.4**	**0.4**	**6120**	**19.3**	**8.64**	**14.7**	**0.5**	**22.3**	**0.1**	**15.4**	**1**	**0.73**	**1.82**	**48.8**
Maximum Soil Background Concentration				**1**	**3.95**	**2.6**	**2.6**	**14000**	**36.5**	**9.5**	**16**	**na**	**28**	**0.1**	**29**	**na**	**1**	**3.6**	**75.5**
0239-95-0169	39-01291	0.50–0.83	Soil	—	—	—	0.53 (U)	—	—	—	—	0.53 (U)	—	0.11 (U)	—	2.1 (U)	1.1 (U)	5.62	—
0239-95-0170	39-01292	0.00–0.50	Soil	—	—	—	0.52 (U)	—	—	—	—	0.52 (U)	—	—	—	2.1 (U)	1 (U)	5.62 (J)	—
0239-95-0171	39-01292	0.50–0.83	Soil	—	—	—	0.52 (U)	—	—	—	—	0.52 (U)	—	—	—	2.1 (U)	1 (U)	33.1	—
0239-95-0172	39-01293	0.00–0.50	Soil	—	—	—	0.52 (U)	—	—	—	55	0.52 (U)	—	—	—	2.1 (U)	1 (U)	33.1 (J)	60
0239-95-0173	39-01293	0.50–0.83	Soil	—	—	—	0.51 (U)	—	—	—	—	0.51 (U)	—	—	—	2 (U)	1 (U)	4.43	—
0239-95-0174	39-01324	0.00–0.50	Soil	5.3 (U)	—	—	0.67 (U)	—	—	—	—	—	—	—	—	1.2 (U)	—	9 (J+)	—
0239-95-0176	39-01324	0.50–0.83	Soil	5.4 (U)	—	—	0.68 (U)	—	—	—	—	—	—	—	—	1.2 (U)	—	12.7 (J+)	—
0239-95-0181	39-01327	0.00–0.50	Soil	5.1 (U)	—	—	0.64 (U)	—	—	—	—	—	—	—	—	1.1 (U)	—	5.1 (J+)	—
0239-95-0183	39-01328	0.00–0.50	Soil	11 (UJ)	—	—	0.53 (U)	—	—	—	—	0.53 (U)	—	0.11 (U)	—	2.1 (U)	—	3.83	—
0239-95-0184	39-01328	0.50–0.83	Soil	11 (UJ)	—	—	0.54 (U)	—	—	—	—	0.54 (U)	—	0.11 (U)	—	2.2 (U)	—	3.4	—
0239-95-0185	39-01329	0.00–0.50	Soil	11 (UJ)	—	—	0.53 (U)	—	—	—	15	0.53 (U)	—	0.11 (U)	—	2.1 (U)	—	9.2	—
0239-95-0186	39-01329	0.50–0.83	Soil	11 (UJ)	—	—	0.53 (U)	—	—	—	—	53 (U)	—	0.11 (U)	—	2.1 (U)	—	14.3	—
0239-95-0187	39-01330	0.00–0.50	Soil	11 (UJ)	—	—	0.53 (U)	—	—	—	—	0.53 (U)	—	0.53 (U)	—	2.1 (U)	—	5.56	—
0239-95-0188	39-01330	0.50–0.83	Soil	11 (UJ)	—	—	0.53 (U)	—	—	—	—	0.53 (U)	—	0.11 (U)	—	2.1 (U)	—	22.6	—
0239-95-0189	39-01331	0.00–0.50	Soil	10 (UJ)	—	—	0.52 (U)	—	—	—	—	0.52 (U)	—	—	—	2.1 (U)	—	5.09	—
0239-95-0190	39-01331	0.50–0.83	Soil	10 (UJ)	—	—	0.52 (U)	—	—	—	—	1.6	—	—	—	2.1 (U)	—	7.05	—
0239-95-0191	39-01332	0.00–0.33	Soil	5.1 (U)	—	—	0.64 (U)	—	—	—	48.3	—	68.7	—	—	1.1 (U)	—	15.2 (J+)	50.2
0239-95-0194	39-01333	0.00–0.50	Soil	9.2 (U)	—	—	0.74 (U)	—	—	—	—	0.53 (U)	-	—	—	—	—	5.4 (J+)	—
0239-95-0195	39-01333	0.50–0.83	Soil	9.2 (U)	—	—	0.72 (U)	6140	—	—	—	0.53 (U)	24.2	—	—	—	1.9 (U)	7.7	52.7
0239-95-0196	39-01334	0.00–0.50	Soil	9.3 (U)	—	—	0.73 (U)	—	—	—	16.7	0.54 (U)	—	—	—	—	—	10.6	—
0239-95-0197	39-01334	0.50–0.83	Soil	9.2 (U)	—	—	0.73 (U)	—	—	—	—	0.53 (U)	—	—	—	—	—	6.9	—
0239-95-0198	39-01335	0.00–0.50	Soil	8.9 (U)	—	—	0.7 (U)	—	—	—	—	0.51 (U)	—	—	—	—	—	4.9	—

Note: Values are in units of mg/kg. Soil BVs and concentrations are from LANL 1998, 059730.

[a] na = Not available.

[b] — = Value was less than BV or the analyte was not detected.

Table 3.4-2
Detected Organic Chemicals at SWMU 39-004(c)—Decision-Level Data

Sample ID	Location ID	Depth (ft)	Media	Benzoic Acid	Bis(2-chloroethyl)ether	Bis(2-ethylhexyl)phthalate	Butylbenzylphthalate	Di-n-butylphthalate	Naphthalene
0239-95-0148	39-01249	0.00-0.50	Soil	—*	—	0.79	—	0.54	—
0239-95-0149	39-01250	0.00-0.50	Soil	—	—	0.17 (J)	0.22 (J)	—	—
0239-95-0150	39-01251	0.00-0.50	Soil	—	—	0.09 (J)	—	0.72	—
0239-95-0151	39-01252	0.00-0.50	Soil	—	—	0.21 (J)	—	0.35	—
0239-95-0183	39-01328	0.00-0.50	Soil	—	—	—	—	—	0.17
0239-95-0184	39-01328	0.50-0.83	Soil	—	0.17	—	—	—	—
0239-95-0190	39-01331	0.50-0.83	Soil	—	—	—	—	0.46	—
0239-95-0191	39-01332	0.00-0.33	Soil	—	—	—	—	0.036 (J)	—
0239-95-0196	39-01334	0.00-0.50	Soil	0.049 (J)	—	—	—	—	—

Note: Values are in units of mg/kg.
* — = Analyte was not detected.

Table 3.4-3
Radionuclides Detected or Detected above BVs/FVs at SWMU 39-004(c)—Decision-Level Data

Sample ID	Location ID	Depth (ft)	Media	Cesium-137	Sodium-22	Thorium-228	Thorium-230	Thorium-232
Soil Background Value				**1.65**	**na[a]**	**2.28**	**2.29**	**2.33**
Maximum Soil Background Concentration				**1.7**	**na**	**na**	**na**	**na**
0239-95-0154	39-01284	0.50–0.83	Soil	0.0949	0.0632	—[b]	—	—
0239-95-0165	39-01289	0.50–0.83	Soil	0.311	—	—	—	—
0239-95-0169	39-01291	0.50–0.83	Soil	0.123	—	—	—	—
0239-95-0173	39-01293	0.50–0.83	Soil	0.0812	—	—	—	—
0239-95-0174	39-01324	0.00–0.50	Soil	—	—	2.41	2.46	2.37
0239-95-0176	39-01324	0.50–0.83	Soil	—	—	2.55	2.76	2.56
0239-95-0186	39-01329	0.50–0.83	Soil	0.351	—	—	—	—
0239-95-0188	39-01330	0.50–0.83	Soil	0.112	—	—	—	—
0239-95-0190	39-01331	0.50-0–83	Soil	0.157	—	—	—	—
0239-95-0195	39-01333	0.50-0–83	Soil	—	—	2.38	—	—
0239-95-0197	39-01334	0.50–0.83	Soil	0.67	—	—	—	—

Note: Values are in units of pCi/g. Soil background values and concentrations are from LANL 1998, 059730.
[a] na = Not available.
[b] — = Value was less than BV/FV or the analyte was not detected.

Table 3.5-1
Inorganic Chemicals above BVs at SWMU 39-007(a)—Decision-Level Data

Sample ID	Location ID	Depth (ft)	Media	Antimony	Cadmium	Calcium	Copper	Mercury	Zinc
Soil/Fill Background Value				**0.83**	**0.4**	**6120**	**14.7**	**0.1**	**48.8**
Maximum Soil/Fill Background Concentration				**1**	**2.6**	**14000**	**16**	**0.1**	**75.5**
VCXX-95-0109	39-01455	0.00–0.50	Soil	2.12	1.51	—*	28.1	1.16	67.8
VCXX-95-0112	39-01458	0.00–0.50	Soil	—	—	—	—	—	288
VCXX-95-0119	39-01470	0.00–0.50	Soil	9.91	—	8980	—	—	—
RC39-01-0001	39-10018	0.00–0.50	Fill	—	—	—	—	—	57.6
RC39-01-0002	39-10019	0.00–0.50	Fill	—	—	—	—	—	51.6

Note: Values are in units of mg/kg. Soil BVs and concentrations are from LANL 1998, 059730.
* — = Value was less than BV or the analyte was not detected.

Table 3.5-2
Detected Organic Chemicals at SWMU 39-007(a)—Decision-Level Data

Sample ID	Location ID	Depth (ft)	Media	Aroclor-1254	Aroclor-1260
RC39-01-0001	39-10018	0.00–0.50	Fill	—*	0.032 (J)
RC39-01-0002	39-10019	0.00–0.50	Fill	3	—
RC39-01-0003	39-10020	0.00–0.50	Fill	—	0.086
RC39-01-0005	39-10022	0.00–0.50	Fill	—	0.036

Note: Values are in units of mg/kg.
* — = Analyte was not detected.

Table 4.0-1
Summary of Analytical Suites for Samples Previously Collected at SWMUs in Subaggregate Area 3—Decision-Level Data

Sample ID	Location ID	Depth (ft)	Media	Cyanide	METALS	Uranium	High Explosives	PCBs	Pesticides/PCBs	SVOCs	TPH DRO	VOCs	Gamma Spectroscopy	Isotopic Plutonium	Isotopic Thorium	Isotopic Uranium
SWMU 39-001(a)																
0239-96-0402	39-01384	5–6	Fill	√ [a]	√	—[b]	√	NA[c]	√	√	—	√	√	—	√	—
0239-96-0403	39-01384	14–15	Fill	√	√	—	√	NA	√	√	—	√	√	√	√	—
0239-96-0404	39-01385	2–3	Fill	√	√	—	√	NA	√	√	—	√	√	—	√	—
0239-96-0405	39-01385	5–6	Fill	√	√	—	√	NA	√	√	—	√	√	—	√	—
0239-96-0406	39-01385	11–12	Fill	√	√	—	√	NA	√	√	—	√	√	—	√	√
0239-96-0407	39-01386	3–4	Fill	√	√	—	√	NA	√	√	—	√	√	—	√	—
0239-96-0409	39-01386	5–6	Fill	√	√	—	√	NA	√	√	—	√	√	—	√	—
0239-96-0411	39-01386	12–13	Fill	√	√	—	√	NA	√	√	—	√	√	—	√	—
0239-96-0412	39-01387	4–5	Fill	√	√	—	√	NA	√	√	—	√	√	—	√	—
0239-96-0413	39-01387	6–7	Fill	√	√	—	√	NA	√	√	—	√	√	—	√	√
0239-96-0414	39-01387	12–13	Fill	√	√	—	√	NA	√	√	—	√	√	—	√	—
0239-96-0418	39-01388	11–12	Fill	√	√	—	√	NA	√	√	—	√	√	—	√	—
0239-96-0421	39-01389	11–12	Fill	√	√	—	√	NA	√	√	—	√	√	—	√	—
0239-96-0426	39-01390	11–12	Fill	√	√	—	√	NA	√	√	—	√	√	—	√	√
SWMU 39-002(a)																
0239-97-0013	39-01051	0–0.5	Soil	—	√	—	√	NA	√	√	√	√	—	—	—	√
0239-97-0014	39-01053	0–0.5	Soil	—	√	—	√	NA	√	√	√	√	—	—	—	√
ECXX-95-0313	39-01464	0–0.5	Soil	—	√	√	—	—	—	—	—	—	—	—	—	—
0239-97-0001	39-01491	0–0.5	Soil	—	√	—	√	√	NA	√	√	√	—	—	—	√
0239-97-0010	39-01491	1–1.5	Soil	—	√	—	√	√	NA	√	√	√	—	—	—	√
0239-97-0002	39-01492	0–0.5	Soil	—	√	—	√	√	NA	√	√	√	—	—	—	√
0239-97-0003	39-01493	0–0.5	Soil	—	√	—	√	√	NA	√	√	√	—	—	—	√
0239-97-0004	39-01494	0–0.5	Soil	—	√	—	√	√	NA	√	√	√	—	—	—	√

Table 4.0-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Cyanide	METALS	Uranium	High Explosives	PCBs	Pesticides/PCBs	SVOCs	TPH DRO	VOCs	Gamma Spectroscopy	Isotopic Plutonium	Isotopic Thorium	Isotopic Uranium
0239-97-0005	39-01495	0–0.5	Soil	—	√	—	√	√	NA	√	√	√	—	—	—	√
0239-97-0006	39-01496	0–0.5	Soil	—	√	—	√	√	NA	√	√	√	—	—	—	√
0239-97-0011	39-01496	1–1.5	Soil	—	√	—	√	√	NA	√	√	√	—	—	—	√
0239-97-0007	39-01497	0–0.5	Soil	—	√	—	√	√	NA	√	√	√	—	—	—	√
0239-97-0008	39-01498	0–0.5	Soil	—	√	—	√	√	NA	√	√	√	—	—	—	√
0239-97-0012	39-01498	1–1.5	Soil	—	√	—	√	√	NA	√	√	√	—	—	—	√
0239-97-0009	39-01499	0–0.5	Soil	—	√	—	√	√	NA	√	√	√	—	—	—	√
SWMU 39-006(a)																
ECXX-95-0317	39-01474	11.29–12.83	Soil	—	√	—	—	—	—	—	—	—	—	—	—	—
ECXX-95-0318	39-01474	12.83–15.33	Soil	—	√	—	—	—	—	—	—	—	—	—	—	—
0239-96-0485	39-01502	8–9	Fill	—	—	—	—	—	√	√	—	√	√	—	—	√

[a] √ = Analysis was requested for sample.

[b] — = Analysis was not requested for sample.

[c] NA = Not analyzed.

Table 4.2-1
Inorganic Chemicals above BVs at SWMU 39-001(a)—Decision-Level Data

Sample ID	Location ID	Depth (ft)	Media	Antimony	Cadmium	Copper	Cyanide (Total)	Mercury	Silver	Uranium	Zinc
Soil/Fill Background Value				**0.83**	**0.4**	**14.7**	**0.5**	**0.1**	**48.8**	**1.82**	**48.8**
Maximum Soil/Fill Background Concentration				**1**	**2.6**	**16**	**na**[a]	**0.1**	**75.5**	**3.6**	**75.5**
0239-96-0402	39-01384	5.00–6.00	Fill	8.3 (U)	0.69 (U)	—[b]	0.52 (U)	—	—	2.08	—
0239-96-0403	39-01384	14.00–15.00	Fill	6.1 (U)	1.7	—	0.53 (U)	—	—	2.25	—
0239-96-0404	39-01385	2.00–3.00	Fill	6.8 (U)	0.78 (U)	—	0.59 (U)	—	—	4.21	—
0239-96-0405	39-01385	5.00–6.00	Fill	5.9 (U)	0.68 (U)	32.5	0.54 (U)	—	—	1.98	140
0239-96-0406	39-01385	11.00–12.00	Fill	6.1 (U)	0.71 (U)	—	0.55 (U)	—	—	—	—
0239-96-0407	39-01386	3.00–4.00	Fill	6.4 (U)	0.74 (U)	—	0.57 (U)	—	—	—	—
0239-96-0409	39-01386	5.00–6.00	Fill	6.2 (U)	0.71 (U)	—	0.54 (U)	—	—	1.91	—
0239-96-0411	39-01386	12.00–13.00	Fill	6 (U)	0.7 (U)	—	0.54 (U)	—	—	—	—
0239-96-0412	39-01387	4.00–5.00	Fill	6.7 (U)	0.77 (U)	—	0.59 (U)	—	—	2.24	—
0239-96-0413	39-01387	6.00–7.00	Fill	6.4 (U)	0.74 (U)	—	0.59 (U)	0.61	—	—	—
0239-96-0414	39-01387	12.00–13.00	Fill	6.2 (U)	0.71 (U)	—	0.56 (U)	1.3	—	3.76	—
0239-96-0418	39-01388	11.00–12.00	Fill	9.4 (U)	0.59 (U)	—	0.54 (U)	—	1.9 (U)	—	—
0239-96-0421	39-01389	11.00–12.00	Fill	8.7 (U)	0.54 (U)	—	0.52 (U)	—	1.7 (U)	—	—
0239-96-0426	39-01390	11.00–12.00	Fill	10 (U)	0.62 (U)	—	0.58 (U)	—	2 (U)	—	—

Note: Values are in units of mg/kg. Soil background values and concentrations are from LANL 1998, 059730.

[a] na = Not available.

[b] — = Value was less than BV or the analyte was not detected.

Table 4.2-2
Detected Organic Chemicals at SWMU 39-001(a)—Decision-Level Data

Sample ID	Location ID	Depth (ft)	Media	Aroclor-1254	DDE[4,4'-]	DDT[4,4'-]	Di-n-butylphthalate	Methoxychlor[4,4'-]	Trimethylbenzene[1,2,4-]	Trimethylbenzene[1,3,5-]
0239-96-0403	39-01384	14.00–15.00	Fill	—*	—	0.0053 (J-)	0.039 (J)	0.023 (J-)	—	—
0239-96-0405	39-01385	5.00–6.00	Fill	0.041	—	—	—	—	—	—
0239-96-0406	39-01385	11.00–12.00	Fill	—	—	—	0.063(J)	—	—	—
0239-96-0413	39-01387	6.00–7.00	Fill	0.064	—	—	—	—	0.003 (J)	0.001 (J)
0239-96-0414	39-01387	12.00–13.00	Fill	0.79	0.312	—	—	—	—	—

Note: Values are in units of mg/kg.
*— = Analyte was not detected.

Table 4.2-3
Radionuclides Detected or Detected above BVs/FVs at SWMU 39-001(a)—Decision-Level Data

Sample ID	Location ID	Depth (ft)	Media	Europium-152	Uranium-238
Soil Background Value				**na[a]**	**2.29**
Maximum Soil/Fill Background Concentration				**na**	**na**
0239-96-0403	39-01384	14.00–15.00	Fill	0.395	—[b]
0239-96-0413	39-01387	6.00–7.00	Fill	—	7.22

Note: Values are in units of pCi/g. Soil BVs and concentrations are from LANL 1998, 059730.
[a] na = Not available.
[b] — = Value was less than BV/FV or the analyte was not detected.

Table 4.4-1
Inorganic Chemicals above BVs at SWMU 39-002(a)—Decision-Level Data

Sample ID	Location ID	Depth (ft)	Media	Antimony	Cadmium	Copper	Lead	Mercury	Nickel	Silver	Thallium	Uranium	Zinc
Soil/Fill Background Value				**0.83**	**0.4**	**14.7**	**22.3**	**0.1**	**15.4**	**1**	**0.73**	**1.82**	**48.8**
Maximum Soil/Fill Background Concentration				**1**	**2.6**	**16**	**28**	**0.1**	**29**	**1**	**1**	**3.6**	**75.5**
0239-97-0013	39-01051	0.00–0.50	Soil	—*	0.62 (J)	214 (J+)	50 (J+)	1.3 (J+)	—	—	0.78 (U)	—	59.3 (J+)
0239-97-0014	39-01053	0.00–0.50	Soil	—	1 (J)	186 (J+)	96.9 (J+)	2.5 (J+)	39.8	—	0.87 (J)	—	110 (J+)
ECXX-95-0313	39-01464	0.00–0.50	Soil	8.7 (U)	1.1 (U)	52.7	34.7	0.14	—	2.2 (U)	1.1 (U)	3	62.6
0239-97-0001	39-01491	0.00–0.50	Soil	5.2 (U)	0.52 (U)	16.8	34.7	0.12	—	—	—	—	—
0239-97-0010	39-01491	1.00–1.50	Soil	6.1 (U)	0.61 (U)	—	—	—	—	—	—	—	—
0239-97-0002	39-01492	0.00–0.50	Soil	5.2 (U)	0.52 (U)	128	29.2	—	—	—	—	—	98
0239-97-0003	39-01493	0.00–0.50	Soil	4.9 (U)	0.76	78.7	41	—	—	—	—	—	77.4
0239-97-0004	39-01494	0.00–0.50	Soil	5.1 (U)	0.51 (U)	28.2	38.9	0.25	—	—	—	—	—
0239-97-0005	39-01495	0.00–0.50	Soil	5.2 (U)	0.52 (U)	—	24.2	0.13	—	—	—	—	—
0239-97-0006	39-01496	0.00–0.50	Soil	5.1 (U)	0.84	61.3	35	0.16	—	1.1	—	—	52.4
0239-97-0011	39-01496	1.00–1.50	Soil	5.8 (U)	0.58 (U)	—	—	1.1	—	—	—	—	—
0239-97-0007	39-01497	0.00–0.50	Soil	5.5 (U)	0.55 (U)	—	—	—	—	—	—	—	416
0239-97-0008	39-01498	0.00–0.50	Soil	5.3 (U)	0.53 (U)	28.6	34.8	0.18	—	—	—	—	49
0239-97-0012	39-01498	1.00–1.50	Soil	5.9 (U)	0.59 (U)	—	—	—	—	—	—	—	—
0239-97-0009	39-01499	0.00–0.50	Soil	5.2 (U)	1.7	508	141	1.9	—	—	—	—	191

Note: Values are in units of mg/kg. Soil BVs and concentrations are from LANL 1998, 059730.

* — = Value was less than BV or the analyte was not detected.

Table 4.4-2
Detected Organic Chemicals at SWMU 39-002(a)—Decision-Level Data

Sample ID	Location ID	Depth (ft)	Media	Acenaphthene	Amino-2,6-dinitrotoluene[4-]	Anthracene	Aroclor-1254	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Bis(2-ethylhexyl)phthalate	Chrysene	Dibenz(a,h)anthracene
0239-97-0013	39-01051	0.00–0.50	Soil	—*	—	—	0.057	0.88	0.99	0.86	0.45	0.96	—	1.1	—
0239-97-0014	39-01053	0.00–0.50	Soil	0.5	0.171	1	0.18	2.3	2.7	2.4	0.95	2.3	—	2.4	0.38
0239-97-0001	39-01491	0.00–0.50	Soil	—	—	—	0.21	1.3	1.6	1.2	1.5	1.3	—	1.6	—
0239-97-0010	39-01491	1.00–1.50	Soil	—	—	—	—	—	—	—	—	—	—	—	—
0239-97-0002	39-01492	0.00–0.50	Soil	—	—	—	0.16	0.73	0.84	0.6	0.72	0.73	—	0.93	—
0239-97-0003	39-01493	0.00–0.50	Soil	—	—	0.35	0.16	0.97	1	0.82	0.53	0.87	—	1.2	—
0239-97-0004	39-01494	0.00–0.50	Soil	—	—	—	0.26	1.3	1.5	1.2	0.84	1.4	—	1.5	—
0239-97-0005	39-01495	0.00–0.50	Soil	0.43	—	0.81	0.1	—	3.6	3.6	1.8	3	—	3.1	—
0239-97-0006	39-01496	0.00–0.50	Soil	0.34 (J)	—	—	0.24	—	1.5 (J)	1.5 (J)	0.67 (J)	1.5 (J)	—	1.6 (J)	—
0239-97-0011	39-01496	1.00–1.50	Soil	—	—	—	—	—	—	—	—	—	—	—	—
0239-97-0007	39-01497	0.00–0.50	Soil	1.8 (J)	—	3.1 (J)	0.14	5.5 (J)	6.4 (J)	4.9 (J)	4 (J)	5.2 (J)	—	5.6 (J)	—
0239-97-0008	39-01498	0.00–0.50	Soil	—	—	0.82 (J)	0.1	2 (J)	2.1 (J)	1.9 (J)	1 (J)	2.1 (J)	—	2.2 (J)	—
0239-97-0009	39-01499	0.00–0.50	Soil	0.7 (J)	—	1.4 (J)	0.38	2.9 (J)	3.3 (J)	3.3 (J)	0.67 (J)	3.4 (J)	0.74 (J)	3.3 (J)	—
0239-97-0013	39-01051	0.00–0.50	Soil	—	—	2.2	—	0.46	—	—	1.4	1.9	—	51	—
0239-97-0014	39-01053	0.00–0.50	Soil	—	1.3	6.5	0.57	0.95	—	—	3.7	3.8	0.345	110	1.02
0239-97-0001	39-01491	0.00–0.50	Soil	—	—	3.4	—	1.3	—	—	1.8	3	—	57	—
0239-97-0010	39-01491	1.00–1.50	Soil	—	—	—	—	—	—	—	—	—	—	9.1	—
0239-97-0002	39-01492	0.00–0.50	Soil	—	—	2.1	—	0.64	—	—	1.3	1.9	—	18	—
0239-97-0003	39-01493	0.00–0.50	Soil	—	—	2.1	—	0.51	—	—	2.1	2.4	—	56	—

Table 4.4-2 (continued)

Sample ID	Location ID	Depth (ft)	Media	Acenaphthene	Amino-2,6-dinitrotoluene[4-]	Anthracene	Aroclor-1254	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Bis(2-ethylhexyl)phthalate	Chrysene	Dibenz(a,h)anthracene
0239-97-0004	39-01494	0.00–0.50	Soil	—	—	3.4	—	0.8	—	—	2.1	2.9	—	34	—
0239-97-0005	39-01495	0.00–0.50	Soil	—	0.64	8.4	0.36	1.8	—	—	4.2	5	—	70	—
0239-97-0006	39-01496	0.00–0.50	Soil	—	—	3.7 (J)	—	—	—	—	2.9 (J)	3.7 (J)	—	41	—
0239-97-0011	39-01496	1.00–1.50	Soil	—	—	—	—	—	—	—	—	—	—	9.8	—
0239-97-0007	39-01497	0.00–0.50	Soil	1.1 (J)	—	21 (J)	2 (J)	3.7 (J)	0.44 (J)	1.5 (J)	18 (J)	17 (J)	—	170	—
0239-97-0008	39-01498	0.00–0.50	Soil	—	2.8 (J)	4.8 (J)	0.41 (J)	0.91 (J)	—	—	4 (J)	4.7 (J)	—	110	—
0239-97-0009	39-01499	0.00–0.50	Soil	0.41 (J)	4.4 (J)	8.8 (J)	0.76 (J)	1.4 (J)	—	0.52 (J)	7.3 (J)	7.6 (J)	—	43	—

Note: Values are in units of mg/kg.

* — = Analyte was not detected.

Table 4.4-3
Radionuclides Detected above BV at SWMU 39-002(a)—Decision-Level Data

Sample ID	Location ID	Depth (ft)	Media	Uranium-238
Soil Background Value				**2.29**
Maximum Soil Background Concentration				**na***
0239-97-0014	39-01053	0.00–0.50	Soil	3.88
0239-97-0009	39-01499	0.00–0.50	Soil	6.32

Note: Values are in units of pCi/g. Soil BVs and concentrations are from LANL 1998, 059730.
* na = Not available.

Table 4.5-1
Inorganic Chemicals above BVs at SWMU 39-006(a)—Decision-Level Data

Sample ID	Location ID	Depth (ft)	Media	Antimony	Cadmium	Mercury	Silver	Thallium
Soil Background Value				**0.83**	**0.4**	**0.1**	**1**	**0.73**
Maximum Soil Background Concentration				**1**	**2.6**	**0.1**	**1**	**1**
ECXX-95-0317	39-01474	11.29–12.83	Soil	10 (U)	1.6	0.13 (U)	9.9	1 (U)
ECXX-95-0318	39-01474	12.83–15.33	Soil	11 (U)	2	0.14 (U)	4.2	1 (U)

Note: Values are in units of mg/kg. Soil BVs and concentrations are from LANL 1998, 059730.

Table 4.5-2
Detected Organic Chemicals at SWMU 39-006(a)—Decision-Level Data

Sample ID	Location ID	Depth (ft)	Media	Benzene	Phenol
0239-96-0485	39-01502	8.00–9.00	Fill	0.0088	0.49

Note: Values are in units of mg/kg.

Appendix A

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

A-1.0 ACRONYMS

AOC	area of concern
bgs	below ground surface
BV	background value
CD	compact disc
CST	Chemical Science and Technology Division
DDE	dichlorophenyltrichloroethylene
DDT	dichlorodiphenyltrichloroethane
DOE	Department of Energy [U.S.]
EP	Environmental Protection Division
EPA	Environmental Protection Agency [U.S.]
FV	fallout value
HE	high explosive(s)
HIR	historical investigation report
HMX	high-melting explosive (also 1,3,5,7-tetranitro-1,3,5,7-tetrazocine)
LANL	Los Alamos National Laboratory
MDA	material disposal area
NMED	New Mexico Environment Department
NFA	no further action
OU	operable unit
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl
RCRA	Resource Conservation and Recovery Act
RDX	research depart explosive (also hexahydro-1,3,5-trinitro-1,3,5-triazine)
RFI	RCRA facility investigation
SAA	satellite accumulation action
SMO	Sample Management Office
SVOC	semivolatile organic compound
SWMU	solid waste management unit
TA	technical area
TPH-DRO	total petroleum hydrocarbons-diesel range organic
TNT	2,4,6-trinitrotoluene [dynamite]
VCA	voluntary corrective action
VOC	volatile organic compound
XRF	x-ray fluorescence

A-2.0 GLOSSARY

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

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

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

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

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

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

background level—(1) The concentration of a substance in an environmental medium (air, water, or soil) that occurs naturally or is not the result of human activities. (2) In exposure assessment, the concentration of a substance in a defined control area over a fixed period of time before, during, or after a data-gathering operation.

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

best management practices—Methods that have been determined to be the most effective, practical means of preventing or reducing pollution from nonpoint sources.

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

catchment—(1) A structure, such as a basin or reservoir, used for collecting or draining water. (2) The amount of water collected in such a structure. (3) A catching or collecting of water, especially rainwater.

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

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

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

Compliance Order on Consent (Consent Order)—For the Environmental Remediation and Surveillance Program, an enforcement document signed by the New Mexico Environment Department, the U.S. Department of Energy, and the Regents of the University of California on March 1, 2005, which prescribes the requirements for corrective action at Los Alamos National Laboratory. The purposes of

the Consent Order are (1) to define the nature and extent of releases of contaminants at, or from, the facility; (2) to identify and evaluate, where needed, alternatives for corrective measures to clean up contaminants in the environment and prevent or mitigate the migration of contaminants at, or from, the facility; and (3) to implement such corrective measures. The Consent Order supersedes the corrective action requirements previously specified in Module VIII of the Laboratory's Hazardous Waste Facility Permit.

Consent Order—See Compliance Order on Consent.

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

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

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

data validation—A systematic process that applies a defined set of performance-based criteria to a body of data and that may result in the qualification of the data. The data-validation process is performed independently of the analytical laboratory that generates the data set and occurs before conclusions are drawn from the data. The process may include a standardized data review (routine data validation) and/or a problem-specific data review (focused data validation).

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

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

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

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

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

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

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

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

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

groundwater—Interstitial water that occurs in saturated earth material and is capable of entering a well in sufficient amounts to be used as a water supply.

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

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

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

HSWA module—See Module VIII.

infiltration—(1) The penetration of water through the ground surface into subsurface soil. (2) The technique of applying large volumes of wastewater to land to penetrate the surface and percolate through the underlying soil.

intermittent stream—A stream that flows only in certain reaches as a result of the channel bed's losing and gaining characteristics.

laboratory control sample (LCS)—A known matrix that has been spiked with compound(s) representative of target analytes. LCSs are used to document laboratory performance, and the acceptance criteria for LCSs are method-specific.

LANL (Los Alamos National Laboratory) data validation qualifiers—The Los Alamos National Laboratory data qualifiers which are defined by, and used, in the Environmental Remediation and Surveillance (ERS) Program validation process. The qualifiers describe the general usability (or quality) of data. For a complete list of data qualifiers applicable to any particular analytical suite, consult the appropriate ERS standard operating procedure.

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

matrix spike—An aliquot of a sample to which a known concentration of target analyte has been added. Matrix spike samples are used to measure the ability to recover prescribed analytes from a native sample matrix. The spiking typically occurs before sample preparation and analysis.

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

method detection limit (MDL)—The minimum concentration of a substance that can be measured and reported with a known statistical confidence that the analyte concentration is greater than zero. After subjecting samples to the usual preparation, the MDL is determined by analyzing those samples of a given matrix type that contain the analyte. The MDL is used to establish detection status.

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

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

model—A schematic description of a physical, biological, or social system, theory, or phenomenon that accounts for its known or inferred properties and may be used for the further study of its characteristics.

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

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

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

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

outfall—A place where effluent is discharged into receiving waters.

permit—An authorization, license, or equivalent control document issued by the U.S. Environmental Protection Agency or an approved state agency to implement the requirements of an environmental regulation.

polychlorinated biphenyls (PCBs)—Any chemical substance limited to the biphenyl molecule that has been chlorinated to varying degrees, or any combination that contains such substances. PCBs are colorless, odorless compounds that are chemically, electrically, and thermally stable and have proven to be toxic to both humans and other animals.

quality assurance/quality control—A system of procedures, checks, audits, and corrective actions set up to ensure that all U.S. Environmental Protection Agency research design and performance,

environmental monitoring and sampling, and other technical and reporting activities are of the highest achievable quality.

radiation—A stream of particles or electromagnetic waves emitted by atoms and molecules of a radioactive substance as a result of nuclear decay. The particles or waves emitted can consist of neutrons, positrons, alpha particles, beta particles, or gamma radiation.

radioactive material—For purposes of complying with U.S. Department of Transportation regulations, any material having a specific activity (activity per unit mass of the material) greater than 2 nanocuries per gram (nCi/g) and in which the radioactivity is evenly distributed.

radionuclide—Radioactive particle (human-made or natural) with a distinct atomic weight number.

RCRA facility investigation (RFI)—A Resource Conservation and Recovery Act (RCRA) investigation that determines if a release has occurred and characterizes the nature and extent of contamination at a hazardous waste facility. The RFI is generally equivalent to the remedial investigation portion of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) process.

regional aquifer—Geologic material(s) or unit(s) of regional extent whose saturated portion yields significant quantities of water to wells, contains the regional zone of saturation, and is characterized by the regional water table or potentiometric surface.

relative percent difference (RPD)—The measure used to assess the precision between parent results and their associated duplicate results. The RPD is calculated as follows:

$$\left|RPD\right| = \frac{S - R}{\left(\frac{S + R}{2}\right)100} \quad ,$$

where RPD = relative percent difference,
S = parent sample result, and
R = duplicate sample result.

The Environmental Remediation and Surveillance Program criteria for the RPD are less than 20% for aqueous samples and less than 35% for soil samples when the sample concentrations are greater than, or equal to, five times the method detection limit (MDL). For samples with concentrations less than five times the MDL, but greater than the MDL, the control is +/-MDL. No precision criterion applies to samples with concentrations less than the MDL.

release—Any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing of hazardous waste or hazardous constituents into the environment.

Resource Conservation and Recovery Act—The Solid Waste Disposal Act as amended by the Resource Conservation and Recovery Act of 1976 (Public Law [PL] 94-580, as amended by PL 95-609 and PL 96-482, United States Code 6901 et seq.).

runoff—The portion of the precipitation on a drainage area that is discharged from the area.

run-on—Surface water that flows onto an area as a result of runoff occurring higher up on a slope.

sample—A portion of a material (e.g., rock, soil, water, or air), which, alone or in combination with other portions, is expected to be representative of the material or area from which it is taken. Samples are typically either sent to a laboratory for analysis or inspection or are analyzed in the field. When referring to samples of environmental media, the term field sample may be used.

sediment—(1) A mass of fragmented inorganic solid that comes from the weathering of rock and is carried or dropped by air, water, gravity, or ice. (2) A mass that is accumulated by any other natural agent and that forms in layers on the earth's surface (e.g., sand, gravel, silt, mud, fill, or loess). (3) A solid material that is not in solution and is either distributed through the liquid or has settled out of the liquid.

site characterization—Defining the pathways and methods of migration of hazardous waste or constituents, including the media affected; the extent, direction and speed of the contaminants; complicating factors influencing movement; or concentration profiles.

soil—(1) A material that overlies bedrock and has been subject to soil-forming processes. (2) A sample media group that includes naturally occurring and artificial fill materials.

solid waste management unit (SWMU)—(1) Any discernible site at which solid wastes have been placed at any time, whether or not the site use was intended to be the management of solid or hazardous waste. SWMUs include any site at a facility at which solid wastes have been routinely and systematically released. This definition includes regulated sites (i.e., landfills, surface impoundments, waste piles, and land treatment sites), but does not include passive leakage or one-time spills from production areas and sites in which wastes have not been managed (e.g., product storage areas). (2) According to the March 1, 2005, Compliance Order on Consent (Consent Order), any discernible site at which solid waste has been placed at any time, and from which the New Mexico Environment Department determines there may be a risk of a release of hazardous waste or hazardous waste constituents (hazardous constituents), whether or not the site use was intended to be the management of solid or hazardous waste. Such sites include any area in Los Alamos National Laboratory at which solid wastes have been routinely and systematically released; they do not include one-time spills.

standard operating procedure—A document that details the officially approved method(s) for an operation, analysis, or action, with thoroughly prescribed techniques and steps.

surface sample—A sample taken at a collection depth that is (or was) representative of the medium's surface during the period of investigative interest. A typical depth interval for a surface sample is 0 to 6 in. for mesa-top locations, but may be up to several feet in sediment-deposition areas within canyons.

target analyte—A chemical or parameter, the concentration, mass, or magnitude of which is designed to be quantified by a particular test method.

technical area (TA)—At Los Alamos National Laboratory, an administrative unit of operational organization (e.g., TA-21).

topography—The physical or natural features of an object or entity and their structural relationships.

transport (transportation)—(1) The movement of a hazardous waste by air, rail, highway, or water. (2) The movement of a contaminant from a source through a medium to a receptor.

tuff—Consolidated volcanic ash, composed largely of fragments produced by volcanic eruptions.

U.S. Department of Energy—The federal agency that sponsors energy research and regulates nuclear materials for weapons production.

U.S. Environmental Protection Agency (EPA)—The federal agency responsible for enforcing environmental laws. Although state regulatory agencies may be authorized to administer some of this responsibility, EPA retains oversight authority to ensure the protection of human health and the environment.

vadose zone—The zone between the land surface and the water table within which the moisture content is less than saturation (except in the capillary fringe) and pressure is less than atmospheric. Soil pore space also typically contains air or other gases. The capillary fringe is included in the vadose zone.

A-3.0 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-4.0 DATA QUALIFIER DEFINITIONS

Qualifier	Explanation
U	The analyte was analyzed for but not detected. Reported value is the sample-specific EQL or detection limit.
J	The reported value should be regarded as estimated.
J+	The reported value should be regarded as estimated and biased high.
J-	The reported value should be regarded as estimated and biased low.
UJ	The analyte was analyzed for but not detected. Reported value is an estimate of the sample-specific quantitation limit or detection limit.
R	The sample results were rejected because of serious deficiencies in the ability to analyze the sample and meet quality control criteria; presence or absence cannot be verified.

Appendix B

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

Appendix C

Historical Location Survey Data
(on CD included with this document)