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Voluntary Corrective Action Completion Report for the Investigation and Remediation of Solid Waste Management Units 33-002(a–c) at Technical Area 33

Prepared by the Environmental Programs Directorate

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July 2010

Responsible project manager:

Printed Name	Signature	Title	Organization	Date
John P. McCann		Project Manager	Environmental Programs	7-26-10

Responsible LANS representative:

Printed Name	Signature	Title	Organization	Date
Michael J. Graham	for MJG	Associate Director	Environmental Programs	7-28-10

Responsible DOE representative:

Printed Name	Signature	Title	Organization	Date
George J. Rael	for GJR	Manager	DOE-LASO	7-30-10

EXECUTIVE SUMMARY

This voluntary corrective action (VCA) completion report presents the results of VCA activities at Solid Waste Management Units (SWMUs) 33-002(a–c), a former septic system and two former seepage pits within the Chaquehui Canyon Aggregate Area at Los Alamos National Laboratory (the Laboratory). This VCA was conducted in the summer of 2005 and prompted by the planned construction of a new high-bay complex at Technical Area 33 (TA-33). SWMUs 33-002(a–c) are located within and adjacent to the planned construction design footprint of the TA-33 high-bay complex and were investigated and remediated before the planned commencement of construction activities. Characterization and remediation activities at SWMUs 33-002(a–c) were implemented in 2005 in advance of the Chaquehui Canyon Aggregate Area investigation.

VCA objectives included (1) removing all remaining components of the SWMU 33-002(a) septic system, (2) removing the SWMUs 33-002(b and c) seepage pits and all remaining drainlines, and (3) collecting confirmation samples following the completion of removal activities. To meet these objectives, the Laboratory conducted the following activities at SWMUs 33-002(a–c):

- performed site surveys;
- removed the SMWU 33-002(a) septic tank, all remaining inlet and outlet drainlines, and the entire leach field;
- removed two seepage pits [SWMUs 33-002(b and c)] and all remaining inlet and outlet drainlines;
- collected confirmation samples to characterize the lateral and vertical extent of any residual contamination at SWMUs 33-002(a–c); and
- installed and maintained best management practices during and following site remediation activities.

VCA confirmation sampling results show that the extent of contamination has not been defined for SWMUs 33-002(a–c). Therefore, human health and ecological risk assessments were not performed. Additional sampling to determine the extent of contamination at SWMUs 33-002(a–c) will be implemented as part of the Chaquehui Canyon Aggregate Area investigation.

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1.0 INTRODUCTION

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

The Laboratory's Environmental Programs (EP) Directorate is participating in a national effort by DOE to clean up sites and facilities formerly involved in weapons research and development. The goal of EP is to ensure past operations do not threaten human or environmental health and safety in and around Los Alamos County, New Mexico. To achieve this goal, EP is currently investigating sites potentially contaminated by past Laboratory operations. These sites are designated as either solid waste management units (SWMUs) or areas of concern (AOCs).

This voluntary corrective action (VCA) completion report addresses SWMUs 33-002(a–c) within the Chaquehui Canyon Aggregate Area at the Laboratory. These sites are potentially contaminated with hazardous chemicals and radioactive components. The New Mexico Environment Department (NMED), pursuant to the New Mexico Hazardous Waste Act, regulates cleanup of hazardous wastes and hazardous constituents. DOE regulates cleanup of radioactive contamination, pursuant to 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 analysis of radioactive constituents, is voluntarily provided to NMED in accordance with DOE policy.

Corrective actions at the Laboratory are subject to a Compliance Order on Consent (the Consent Order). This report describes work activities that were executed and completed in accordance with the Consent Order.

1.1 Location of VCA Activities

Technical Area 33 (TA-33) is located in the southeastern corner of the Laboratory (Figure 1.1-1). SWMUs 33-002(a–c) are situated in the north-central portion of TA-33 in an area referred to as Main Site. These sites are located to the east of the security fence that encloses most of the operating facilities at Main Site (Figure 1.1-2).

1.2 Purpose of VCA Activities

This VCA was conducted in the summer of 2005 and prompted by the planned construction of a new high-bay complex at TA-33. SWMUs 33-002(a–c) are located within and adjacent to the planned construction design footprint of the new TA-33 high-bay complex and were investigated and remediated before the planned commencement of construction activities. Characterization and remediation activities at SWMUs 33-002(a–c) were implemented during the accelerated corrective action (ACA) implemented at SWMU 33-013, a former storage area, in 2005 (LANL 2006, 092080) and in advance of the Chaquehui Canyon Aggregate Area investigation. The planned construction design footprint was expanded during the ACA of SWMU 33-013; therefore, the Laboratory prepared a field implementation plan (FIP) for the removal of SWMUs 33-002(a–c) while remediation subcontractors were mobilized to the site (LANL 2005, 091433).

VCA activities at SWMUs 33-002(a–c) were discussed with NMED Hazardous Waste Bureau representatives before implementation (LANL 2005, 089378).

The objectives of the VCA activities described in this report were to remove all remaining structures and potential sources of contamination associated with SWMUs 33-002(a–c) and determine the lateral and vertical extent of contamination associated with these sites.

1.3 Report Organization

This VCA completion report describes investigation and remediation activities performed at SWMUs 33-002(a–c) and presents the analytical sampling results from these activities. Because the VCA activities had not previously been documented, NMED requested the Laboratory prepare this report so that the data could be incorporated into the Chaquehui Canyon Aggregate Area investigation work plan (NMED 2010, 108677). Section 2 presents background information on the site, including general site information, site descriptions and operational history, and summaries of previous investigations. Section 3 describes the scope of the VCA and investigation activities. Section 4 describes field investigation results, including surface and subsurface conditions. Section 5 presents regulatory criteria applicable to the VCA. Section 6 presents the results of the confirmatory sampling performed during the VCA. Sections 7 and 8 present conclusions and recommendations, and Section 9 provides references and the data sources used for maps. Appendix A provides acronyms and abbreviations, a metric conversion table, and data qualifier definitions. Appendix B (on CD) provides copies of the sample collection logs (SCLs), and original field-screening and monitoring sheets. Appendix C (on DVD) contains analytical data, data packages, data validation reports, and chain-of-custody (COC) forms. Appendix D shows site photos taken during VCA activities (on CD).

2.0 BACKGROUND

2.1 General Site Information

TA-33, also known as Hot Point Site, is located on the Lower Pajarito Plateau in the southeastern corner of the Laboratory (Figure 1.1-1). TA-33 occupies approximately 1000 acres and is currently used for experimental research activities that support the creation, delivery, and maintenance of innovative detection and energy-projection systems for remote applications in space and around the world. Structures within TA-33 are located on the mesa top bounded to the north by Ancho Canyon and on the south by Chaquehui Canyon. TA-33 extends southeast to the Rio Grande, southwest to Frijoles Canyon, northeast to Ancho Canyon, and northwest to NM 4.

TA-33 was established in 1947 as a substitute test site for weapons' components experiments being conducted at Trinity Site in southern New Mexico. Main Site houses offices, laboratories, and shops within a fenced area just south of NM 4 (Figure 1.1-2). The former high-pressure tritium facility (former building 33-0086) was located at the southern end of Main Site within a separate fence. Construction of the high-pressure tritium facility, which processed tritium gas, was completed in 1955. The tritium facility ceased operations in 1990 and underwent decontamination and decommissioning in the mid-1990s. SWMUs 33-002(a–c) received wastewater from the former tritium facility.

2.2 SWMU 33-002(a), Septic System

2.2.1 Site Description and Operational History

SWMU 33-002(a) is the former septic system that served the tritium facility (former building 33-0086) and a nearby guard station (former building 33-0090) at TA-33 Main Site (Figure 2.2-1). The septic system was installed in 1954 east of the tritium facility. The system consisted of a drainline, an 860-gal. septic tank (former structure 33-0093), a siphon tank, and an approximately 50-ft ×100-ft drain field. The principal waste stream received by the septic system was sanitary wastewater from former buildings 33-0086 and 33-0090. The system also received tritium- and uranium-contaminated liquids associated with operations and other releases from former building 33-0086, including two releases of plutonium-contaminated liquid in 1961 (LANL 1992, 007671, p. 3-19). The septic system operated until 1990 when discharge of effluent from the tritium facility ceased; however, the septic system continued to receive effluent from the guard station until the mid-1990s.

2.2.2 Summary of Previous Investigations

As part of the Laboratory's Environmental Surveillance Program, a radiation survey was conducted in 1986 at 30 points on a 32.8-ft × 32.8-ft grid covering the area east of former building 33-0086 and at five locations in the drainage channel to the east of the grid (LANL 1992, 007671, pp. 3-27–3-34). Surface soil samples (0 to 0.5 ft below ground surface [bgs]) were collected from the grid points and analyzed for tritium and uranium. Sampling data showed tritium concentrations above the fallout value (FV) (LANL 1992, 007671, pp. 3-27–3-34). In 1989, two boreholes were drilled, one at the east end of the septic system drain field to a depth of 150 ft bgs (location 33-0019) and one just north of the septic system drain field to a depth of 174 ft bgs (location 33-0018) (LANL 1995, 050113, pp. 18–20). Seventeen samples were collected from borehole 33-0018 from depths of 4 to 5 ft, 9 to 10 ft, 14 to 15 ft, 24 to 25 ft, 49 to 50 ft, 59 to 60 ft, 79 to 80 ft, 89 to 90 ft, 99 to 100 ft, 109 to 110 ft, 119 to 120 ft, 129 to 130 ft, 139 to 140 ft, 149 to 150 ft, 159 to 160 ft, 169 to 170 ft, and 173 to 174 ft bgs. Eleven samples were collected from borehole 33-0019 from depths of 4 to 5 ft, 9 to 10 ft, 24 to 25 ft, 44 to 45 ft, 49 to 50 ft, 59 to 60 ft, 69 to 79 ft, 79 to 80 ft, 89 to 90 ft, 99 to 100 ft, and 129 to 130 ft bgs. Twenty-one samples were analyzed for tritium; 20 samples were analyzed for gamma-emitting radionuclides and uranium; 21 samples were analyzed for metals, uranium, semivolatile organic compounds (SVOCs), volatile organic compounds (VOCs), polychlorinated biphenyls (PCBs), and high explosives. All data collected in 1986 and 1989 are screening-level data and are not presented in this report; however, the data showed detected concentrations of VOCs, tritium above the FV, and metals above background values (BVs).

Phase I Resource Conservation and Recovery Act (RCRA) facility investigation (RFI) sampling activities conducted in 1993 at SWMU 33-002(a) included the collection of subsurface soil and tuff samples, as well as the collection of one liquid and one sludge sample from the septic tank for waste characterization purposes (LANL 1995, 050113). Three samples were collected at three depths (0 to 0.5 ft, 3 to 3.5 ft, and 4 to 4.5 ft bgs) from a 4-ft-deep borehole next to the septic tank, two samples were collected from depths of 5 and 10 ft bgs in each of two 10-ft-deep boreholes in the drain field east of the septic tank, and surface samples (0 to 0.5 ft bgs) were collected from two locations in the drain field. All samples were analyzed for metals, uranium, tritium, isotopic plutonium, gamma-emitting radionuclides, and SVOCs; seven subsurface samples were analyzed for VOCs. Data from the 1993 Phase I RFI are screening-level data and are presented in Appendix B of the Chaquehui Canyon Aggregate Area historical investigation report (HIR) (LANL 2009, 107348). Section 2.1.1.3 of the HIR contains a detailed summary of the screening-level data (LANL 2009, 107348).

Additional Phase I RFI sampling at SWMU 33-002(a) involved drilling three deep boreholes near the eastern (downgradient) edge of the drain field to depths of 230 to 315 ft bgs to investigate a tritium plume. Ten samples were collected from borehole 33-1230 from depths of 0 to 1 ft, 10 to 11 ft, 20 to 21 ft, 30 to 31 ft, 65 to 66 ft, 92 to 93 ft, 127 to 128 ft, 150 to 151 ft, 180 to 181 ft, and 230 to 231 ft bgs. All 10 samples were analyzed for tritium, 6 samples were analyzed for metals and SVOCs, and 4 samples were analyzed for VOCs. Thirteen samples were collected from borehole 33-1231 from depths of 0 to 0.5 ft, 10 to 11 ft, 20 to 21 ft, 30 to 31 ft, 60 to 61 ft, 94 to 95 ft, 124 to 126 ft, 153 to 155 ft, 183.9 to 184.6 ft, 211.5 to 212.2 ft, 244.5 to 245 ft, 268.7 to 269 ft, and 314 to 315 ft bgs. All 13 samples were analyzed for tritium, 6 samples were analyzed for metals and SVOCs, and 5 samples were analyzed for VOCs. Twelve samples were collected from borehole 33-1232 from depths of 0 to 0.5 ft, 10 to 11 ft, 20 to 21 ft, 30 to 31 ft, 60 to 61 ft, 90 to 91 ft, 95 to 97 ft, 125 to 126 ft, 150 to 151 ft, 180 to 181 ft, 210 to 211 ft, and 240 to 241 ft bgs. All 12 samples were analyzed for tritium, 5 samples were analyzed for metals and SVOCs, and 4 samples were analyzed for VOCs. Data from the 1993 Phase I RFI are screening-level data and are presented in Appendix B of the Chaquehui Canyon Aggregate Area HIR. Section 2.1.1.3 of the HIR presents a detailed summary of the screening-level data (LANL 2009, 107348).

Phase I RFI data reported detections of antimony, arsenic, barium, beryllium, cadmium, chromium, lead, nickel, selenium, uranium, and zinc above BVs. Thirteen organic chemicals (acetone; benzo[a]anthracene; benzo[a]pyrene; benzo[b]fluoranthene; benzo[g,h,i]perylene; benzo[k]fluoranthene; bis[2-ethylhexyl]phthalate; chrysene; di-n-butylphthalate; fluoranthene; indeno[1,2,3-cd]pyrene; phenanthrene; and pyrene) were detected in the Phase I RFI samples. Radionuclides detected or detected above FVs were cesium-137, plutonium-238, plutonium-239/240, and tritium.

During the 1996 Phase II RFI, one borehole was advanced in the septic tank drain field (borehole 33-01696), and one borehole was advanced adjacent to the septic tank (borehole 33-01652) (LANL 1997, 071478). Six samples were collected from borehole 33-01696 at depths of 2.3 to 3 ft, 8.2 to 8.8 ft, 12.5 to 13.2 ft bgs, 19 to 19.6 ft, 24 to 25 ft, and 26 to 26.5 ft bgs. Thirteen samples were collected from borehole 33-01652 at depths of 1 to 1.5 ft, 3.1 to 4.1 ft, 6 to 7 ft, 12.5 to 12.9 ft, 15.1 to 16.1 ft, 23.4 to 24 ft, 30.1 to 31.1 ft, 61 to 61.8 ft, 73.4 to 74.6 ft, 76.9 to 77.5 ft, 92.5 to 93.5 ft, 113 to 113.7 ft, and 117.5 to 118.3 ft bgs. Samples from 1 to 1.5 ft, 3.1 to 4.1 ft, and 12.5 to 12.9 ft bgs at location 33-01652 and from 2.3 to 3 ft, 8.2 to 8.8 ft, and 12.6 to 13.2 ft bgs at location 33-01696 were analyzed for metals, isotopic plutonium, uranium, VOCs, and SVOCs. All other samples were analyzed for tritium only. Data from the 1996 Phase II RFI are decision-level data and are presented in Appendix B of the Chaquehui Canyon Aggregate Area HIR (LANL 2009, 107348). Section 4.1.1.1 of the Chaquehui Canyon Aggregate Area investigation work plan presents a detailed summary of the 1996 RFI results (LANL 2009, 107347).

Phase II RFI data reported detections of selenium and uranium above BVs. Three organic chemicals (acetone, di-n-butylphthalate, and toluene) were detected in the Phase II RFI samples. Tritium was the only radionuclide detected or detected above FVs in the Phase II RFI samples.

During a 1997 interim action, the SWMU 33-002(a) septic tank was deactivated, the tank contents were removed and disposed of as mixed low-level waste (MLLW), the tank's interior was steam-cleaned, the drainline connections to the tank were plugged, and the tank was left in place (LANL 1997, 071478). No samples were collected.

2.3 SWMU 33-002(b), Seepage Pit

2.3.1 Site Description and Operational History

SWMU 33-002(b) is a former seepage pit (former structure 33-0134) that served the sinks and floor drains of the tritium facility (former building 33-0086) at TA-33 (Figure 2.2-1). Located east of the tritium facility,

the seepage pit was constructed in 1955 and consisted of an unlined, rubble-filled pit that was 6 ft in diameter and 8 ft deep, with a 3-in.-thick concrete lid. The SWMU 33-002(b) seepage pit received discharge from sinks and floor drains that contained organic solvents, including ethanol, methanol, trichloroethene (TCE), benzene, and acetone. Some of these solvents were contaminated with tritium. The seepage pit may have also received wastewater containing beryllium, mercury, and depleted uranium. Discharges to the seepage pit began in 1955 and ceased in 1959, at which time the seepage pit was backfilled with soil. The drainline discharging to the seepage pit was subsequently extended through the pit and routed approximately 75 ft downslope to daylight to an outfall [SWMU 33-002(e)] that discharged stormwater from the roof drains of former building 33-0086. The new drainline angled to the northeast and then to the east following the natural drainage directly east of the SWMU 33-002(a) leach field; however, the two SWMUs [SWMUs 33-002(a) and 33-002(b)] were not connected to each other.

2.3.2 Summary of Previous Investigations

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

Phase I RFI activities conducted at SWMU 33-002(b) in 1993 (LANL 1995, 050113) consisted of collecting a single soil sample from a depth of 5 ft bgs within the seepage pit, augering a 2.5-ft-deep borehole next to the seepage pit to the soil-tuff interface, and collecting two soil samples from depths of 0 to 0.5 ft and 2.5 to 3 ft bgs. Samples were analyzed for metals, uranium, tritium, isotopic plutonium, gamma-emitting radionuclides, VOCs, and SVOCs; the sample collected within the seepage pit was also analyzed for PCBs/pesticides. Data from the 1993 Phase I RFI are screening-level data and are presented in Appendix B of the Chaquehui Canyon Aggregate Area HIR. Section 2.1.2.3 of the HIR presents a detailed summary of the screening-level results (LANL 2009, 107348).

Phase I RFI data reported uranium detected above the BV. No organic chemicals were detected in Phase I RFI samples. Radionuclides detected or detected above FVs in Phase I RFI samples were plutonium-238, plutonium-239/240, and tritium.

During Phase II RFI activities conducted at SWMU 33-002(b) in 1996 (LANL 1997, 071478), a borehole was advanced through the SWMU 33-002(b) seepage pit to a depth of 117.5 ft bgs. Fifteen samples were collected at depth intervals of 10 to 15 ft, 16 to 16.3 ft, 21.5 to 22.5 ft, 26.2 to 27.2 ft, 30 to 31.2 ft, 36 to 36.8 ft, 40 to 41 ft, 43 to 45 ft, 59.5 to 60 ft, 71.8 to 72 ft, 87.5 to 88.5 ft, 102.5 ft to 103.5 ft. 109 to 110 ft, 114 to 115 ft, and 116.5 to 117.5 ft bgs and analyzed for tritium. In addition, the sample collected from 10 to 15 ft bgs was also analyzed for metals, uranium, isotopic plutonium, VOCs, and SVOCs. Data from the 1996 Phase II RFI are decision-level data and are presented in Appendix B of the Chaquehui Canyon Aggregate Area HIR (LANL 2009, 107348). Section 4.1.1.2 of the Chaquehui Canyon Aggregate Area investigation work plan presents a detailed summary of the 1996 RFI results (LANL 2009, 107347).

Phase II RFI data reported detections of arsenic, barium, calcium, copper, lead, selenium, and uranium above BVs. No organic chemicals were detected in the Phase II RFI samples. Tritium was the only radionuclide detected or detected above FVs in the Phase II RFI samples.

2.4 SWMU 33-002(c), Seepage Pit

2.4.1 Site Description and Operational History

SWMU 33-002(c) is a former seepage pit (former structure 33-0133) that served the sinks and floor drains in the tritium facility (former building 33-0086) at TA-33 (Figure 2.2-1). Located east of the tritium facility, the seepage pit was constructed in 1955 and consisted of an unlined, rubble-filled pit that was 6 ft in diameter and 8 ft deep, with a 3-in.-thick concrete lid. The SWMU 33-002(c) seepage pit received discharges from sinks and floor drains that contained tritium and organic chemical solvents, including TCE, methanol, ethanol, acetone, and propanol (LANL 1992, 007671, p. 3-19). Discharges to the seepage pit began in 1955 and ceased in 1959, at which time the seepage pit was backfilled with soil. When the seepage pit was deactivated, a drainline for noncontact cooling water from former building 33-0086 was extended through the pit and routed approximately 90 ft downslope to create an outfall [SWMU 33-002(d)].

2.4.2 Summary of Previous Investigations

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

Phase I RFI activities conducted at SWMU 33-002(c) in 1993 (LANL 1995, 050113) consisted of collecting two soil samples from depths of 0 to 0.5 ft and 0 to 1.5 ft bgs within the seepage pit, augering a 5.5-ft-deep borehole next to the seepage pit to the soil-tuff interface, and collecting three soil samples from depths of 0 to 0.5 ft, 2.5 to 3 ft, and 5 to 5.5 ft bgs. Samples were analyzed for metals, uranium, tritium, isotopic plutonium, gamma-emitting radionuclides, VOCs, and SVOCs; samples collected in the seepage pit were also analyzed for PCBs/pesticides. Data from the 1993 Phase I RFI are screening-level data and are presented in Appendix B of the Chaquehui Canyon Aggregate Area HIR. Section 2.1.3.3 of the HIR presents a detailed summary of the screening-level results (LANL 2009, 107348).

Phase I RFI data reported uranium detected above the BV. No organic chemicals were detected. Radionuclides detected or detected above FVs in the Phase I RFI samples were plutonium-238, plutonium-239/240, and tritium.

During Phase II RFI activities conducted at SWMU 33-002(c) in 1996 (LANL 1997, 071478), a borehole was advanced through the SWMU 33-002(c) seepage pit to a depth of 62 ft bgs. Eleven samples were collected at depth intervals of 10 to 12.5 ft, 19.2 to 19.5 ft, 23.8 to 24.2 ft, 28 to 29 ft, 31.4 to 31.8 ft, 36 to 36.4 ft, 40 to 40.6 ft, 47.5 to 48.5 ft, 51.8 to 52 ft, 57.5 to 58.5 ft, and 61.4 to 62.2 ft bgs and analyzed for tritium. In addition, the sample collected from 10 to 12.5 ft bgs was also analyzed for metals, uranium, VOCs, and SVOCs. Data from the 1996 Phase II RFI are decision-level data and are presented in Appendix B of the Chaquehui Canyon Aggregate Area HIR (LANL 2009, 107348). Section 4.1.1.3 of the Chaquehui Canyon Aggregate Area investigation work plan presents a detailed summary of the 1996 RFI results (LANL 2009, 107347).

Phase II RFI data reported detections of antimony and chromium above BVs. Di-n-butylphthalate was the only organic chemical detected in the Phase II RFI samples. Plutonium-238 and tritium were the only radionuclides detected above FVs in the Phase II RFI samples.

2.5 Relationship to Other SWMUs and AOCs

Other consolidated units, SWMUs, and AOCs located in the vicinity of SWMUs 33-002(a–c) include the following.

SWMUs 33-002(a–c) are part of Consolidated Unit 33-002(a)-99, which is also referred to as Material Disposal Area (MDA) K. MDA K also consists of SWMUs 33-002(d and e) and 33-010(f).

SWMU 33-002(d) is an outfall that formerly discharged noncontact cooling water from the tritium facility (former building 33-0086). This outfall was created when the SWMU 33-002(c) seepage pit was deactivated and disconnected from the building 33-0086 drainline. At that time, the drainline to the seepage pit was extended 90 ft to the east to create an outfall for the discharge of noncontact cooling water (Figure 2.2-1).

SWMU 33-002(e) is an outfall and associated outfall from former building 33-0086. This outfall was created when the SWMU 33-002(b) seepage pit was deactivated and disconnected from the building 33-0086 drainline. At that time, the drainline to the seepage pit was extended 90 ft to the east to create an outfall for the discharge of stormwater from roof drains on former building 33-0086 (Figure 2.2-1).

SWMU 33-010(f) is a surface disposal area located southeast of the SWMU 33-002(a) drain field (Figure 2.2-1). Materials observed at the site included pieces of concrete; piles of tuff and cured asphalt; rusted metal cans, rebar, and strapping bands; and other debris.

To the northwest of SWMUs 33-002(a–c) is Consolidated Unit 33-004(a)-00, which consists of SWMUs 33-004(a, h, and i), 33-011(d), 33-015, and 33-017. The SWMUs in this consolidated unit consist of a septic system, three outfalls, a storage area, an incinerator, and operational releases. The SWMUs that make up this consolidated unit are geographically located in the northeast corner of TA-33 Main Site and are generally associated with early operations at TA-33, which involved initiator development from 1950 to 1972. The SWMUs composing Consolidated Unit 33-004(a)-00 are not associated with the tritium facility (former building 33-0086) or the tritium operations at TA-33.

3.0 SCOPE OF ACTIVITIES

This section presents an overview of field activities performed during the implementation of the VCA at SWMUs 33-002(a–c); the field investigation results and observations are presented in sections 4 and 6. The scope of activities for the VCA implemented from late June to early September 2005 included site access and premobilization activities; geodetic, geophysical, and radiological surveys; surface and shallow subsurface sampling; borehole drilling, sampling, and abandonment; health and safety monitoring; and waste management activities.

The applicable field methods are summarized in Table 3.0-1 and are described below.

3.1 Site Access and Premobilization Activities

The area encompassing TA-33 is currently used for Laboratory operations, and some areas are used by Laboratory personnel for automobile and foot traffic. Before field mobilization, the issue of Laboratory worker access (e.g., traffic control plan, notifications) was reviewed as part of the management self-assessment process. All efforts were made to provide a secure and safe work area and to reduce impacts to Laboratory personnel, cultural resources, and the environment.

3.2 Field Activities

The following subsections describe the field activities conducted during the 2005 VCA of SWMUs 33-002(a–c), including surface surveys, field screening, surface and shallow subsurface sampling, and borehole drilling, sampling, and abandonment.

3.2.1 Geodetic Survey

Geodetic surveys were conducted during the 2005 VCA of SWMUs 33-002(a–c) to locate surface and subsurface structures and sampling locations. Initial geodetic surveys were performed to establish and mark the planned sampling locations in the field. Geodetic surveys were conducted following the completion of confirmation sampling to establish the spatial coordinates for all sampling locations. Geodetic surveys were conducted in accordance with Standard Operating Procedure (SOP) 5028, Coordinating and Evaluating Geodetic Surveys, using a Trimble 5700 differential global positioning system (GPS) receiver. The surveyed coordinates for all sampling locations are presented in Table 3.2-1. All geodetic coordinates are expressed as State Plane Coordinate System 1983, New Mexico Central, U.S. survey feet.

3.2.2 Field Screening

Environmental samples were screened for organic vapors using a MiniRAE 2000 photoionization detector (PID) equipped with an 11.7-electron volt (eV) lamp before they were submitted to the Sample Management Office (SMO). Calibration was performed in accordance with the manufacturer's specifications and SOP-06.33, Headspace Vapor Screening with a Photoionization Detector, and recorded in the field logbook. After collection, the sample was placed in a sealed plastic bag and warmed for approximately 5 min. Screening measurements were recorded on the SCLs, COC forms, and the field logbook. The SCLs and COC forms are provided on CD and DVD in Appendixes B and C, respectively.

All samples collected were field screened for radioactivity before they were submitted to the SMO. A Laboratory radiation control technician (RCT) conducted radiological screening using an Eberline E-600 radiation meter with an SHP-380AB alpha/beta scintillation probe held within 1 in. of the sample. All field-screening results for radioactivity were recorded in disintegrations per minute on the SCL/COCs and in field log books. The SCLs and COC forms are provided on CD and DVD in Appendixes B and C, respectively.

3.2.3 Surface and Shallow Subsurface Soil Investigation

Surface samples were collected using the spade-and-scoop method in accordance with SOP-06.09, Spade and Scoop Method for Collection of Soil Samples, or with a hand auger in accordance with SOP-06.10, Hand Auger and Thin-Wall Tube Sampler. The samples were placed in stainless-steel bowls and transferred to sample collection bottles with a stainless-steel spoon.

All surface and shallow subsurface samples were placed in appropriate sample containers and submitted for the analyses specified by the FIP (LANL 2005, 091433). Standard quality assurance / quality control samples (field duplicates, field trip blanks, and rinsate blanks) were also collected in accordance with SOP-5059, Field Quality Control Samples.

All sample collection activities were coordinated with the SMO. After the samples were collected, they remained in the controlled custody of the field team at all times until they were delivered to the SMO.

Sample custody was relinquished to the SMO for delivery to a preapproved off-site analytical laboratory (SCLs and COC forms are provided on CD and DVD in Appendixes B and C, respectively).

3.2.4 Borehole Drilling and Subsurface Sampling

At locations where the required sampling depths could not be reached by hand augers, a hollow-stem auger drilling rig was used to collect subsurface samples. Samples were collected using stainless-steel core-barrel samplers. The samples were extracted from the core barrels and immediately put in sample collection bottles.

Samples were collected at depth intervals based on criteria established in the FIP (LANL 2005, 091433). All sampled core material was placed in the appropriate sample containers, labeled, documented, and preserved (as appropriate) for transport to the SMO. Samples were submitted for laboratory analyses specified in the FIP (see section 3.2.7 below) (LANL 2005, 091433).

3.2.5 Borehole Abandonment

Boreholes were abandoned in accordance with SOP-5034, Monitoring Well and Borehole Abandonment. All boreholes were abandoned with 3/8-in. bentonite chips hydrated in 2-ft lifts from total depth to 2.0 ft bgs. The top 2.0 ft of each borehole was capped with Portland Type I/II cement to surface grade.

3.2.6 Equipment Decontamination

All field equipment that had the potential to contact sampling material (e.g., hand augers, sampling scoops, bowls, core-barrel sections) were decontaminated between sample collections and between sampling locations to prevent cross-contamination of samples and sampling equipment. Decontamination was performed in accordance with SOP-5061, Field Decontamination of Equipment. Rinsate blanks on sampling equipment were collected to check the effectiveness of decontamination.

3.2.7 Chemical and Radiological Sample Analyses

All investigation samples were shipped by the SMO to off-site contract analytical laboratories for the requested analyses. The samples were analyzed for target analyte list (TAL) metals, total cyanide, nitrate, perchlorate, PCBs, SVOCs, VOCs, explosive compounds, strontium-90, americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, strontium-90, and tritium.

While the sample collection paperwork was being prepared for the samples collected beneath the SWMU 33-002(a) outlet drainline and drain field and the SWMUs 33-002(b) and 33-002(c) seepage pit outlet lines, the analyses requested were inadvertently changed to include total petroleum hydrocarbons (TPH) diesel range organics (DRO) instead of explosive compounds. Therefore, no analytical data are available for explosive compounds in confirmation samples collected in the SWMU 33-002(a) septic drain field after the drainlines had been removed.

3.2.8 Health and Safety Measures

All 2005 investigation activities were conducted in accordance with a site-specific health and safety plan and an integrated work document that detailed work steps, potential hazards, hazard controls, and required training to conduct work. These health and safety measures included using modified level-D personal protective equipment in areas where elevated radiation was expected and field monitoring for

VOCs, gross-alpha and gross-beta radiation, and dust-particulate matter using both portable and personal air-monitoring systems.

3.2.9 Investigation-Derived Waste Storage and Disposal

All investigation-derived waste (IDW) generated during the 2005 VCA implemented at SWMUs 33-002(a–c) was managed in accordance with SOP-5238, Characterization and Management of Environmental Program Waste. This procedure incorporates the requirements of all applicable U.S. Environmental Protection Agency (EPA) and NMED regulations, DOE orders, and Laboratory implementation requirements, policies, and/or procedures. IDW was also managed in accordance with the approved waste characterization strategy form (WCSF). Details of IDW management for the VCA of SWMUs 33-002(a–c) were included in Appendix E of the remedy completion report for SWMU 33-013 (LANL 2006, 092080).

The waste streams associated with the investigation included contact waste, returned samples, concrete and vitrified-clay pipe debris, and excavated soil, fill, and tuff. Each waste stream was containerized and placed in an accumulation area appropriate for the regulatory classification of the waste, in accordance with the approved WCSF.

3.2.10 Final Site Conditions

The excavated areas were backfilled with clean fill, covered with new base course mixed with seeds, compacted in place with heavy equipment, and recontoured to prevent stormwater runoff and run-on.

4.0 FIELD INVESTIGATION RESULTS

This section summarizes the methods, procedures, and results of the characterization and remediation activities at SWMUs 33-002(a–c). The methods and procedures are summarized in Table 3.0-1. Information and data specific to the characterization of potential contamination and confirmation sampling are presented in section 6.

4.1 Surface Conditions

4.1.1 Topography and Surface Features

The elevation of the mesa where SWMUs 33-002(a–c) are located ranges from approximately 6510 ft to 6530 ft amsl and slopes to the east with a grade of approximately 10%. Site drainage is to the east and flows into a tributary canyon to Chaquehui Canyon. The surface of the site is currently vegetated with grasses and shrubs. Surface materials primarily consist of fill brought onto the site as part of the VCA (section 3.2.10). The site is located outside the current operating area at TA-33 Main Site and is currently unused. All structures have been removed from the site, with the exception of the security fence that formerly enclosed the TA-33 tritium facility (former building 33-0086).

4.1.2 Soil

Soil on the Pajarito Plateau was initially mapped and described by Nyhan et al. (1978, 005702). The soil on the slopes between the mesa tops and canyon floors was mapped as mostly steep rock outcrops consisting of approximately 90% bedrock with patches of shallow, weakly developed colluvial soil. South-facing canyon walls generally are steep and have shallow soil in limited, isolated patches between rock

outcrops. In contrast, the north-facing canyon walls generally have more extensive areas of shallow dark-colored soil under thicker forest vegetation. The canyon floors generally contain poorly developed, deep, well-drained soil on floodplain terraces or small alluvial fans (Nyhan et al. 1978, 005702).

Soil at Main Site and the surrounding mesa top is classified as Hackroy Rock Complex (Nyhan et al. 1978, 005702). SCLs from sampling conducted at SWMUs 33-002(a–c) indicate that soil ranges in depth from 0 to 8 ft (LANL 1997, 071478, p. 9). Soil may be sandy and contain pumice pebbles ranging up to 0.5 in. in size. Clay lenses may be intermixed with pulverized tuff. Soil in the drainages is sandy, with some clay and many small pebbles. Bedrock is exposed at many areas on the lower (eastern) part of the site, including the drainage east of the former location of the SWMU 33-002(a) septic system.

4.1.3 Surface Water

Most surface water in the Los Alamos area occurs as ephemeral, intermittent, or interrupted streams in canyons cut into the Pajarito Plateau. Springs on the flanks of the Jemez Mountains, west of the Laboratory's western boundary, supply flow to the upper reaches of Cañon de Valle and to Guaje, Los Alamos, Pajarito, and Water Canyons (Purtymun 1975, 011787; Stoker 1993, 056021). These springs discharge water perched in the Bandelier Tuff and Tschicoma Formation at rates from 2 to 135 gal./min (Abeele et al. 1981, 006273). The volume of flow from the springs maintains natural perennial reaches of varying lengths in each of the canyons. The Rio Grande flows through White Rock Canyon immediately to the southeast of TA-33.

At TA-33, ephemeral surface water flow from the mesa top to the surrounding canyons may be expected during spring snowmelt and summer thunderstorms. Surface water does not collect on the mesa top at any of the SWMUs or AOCs in the Chaquehui Canyon Aggregate Area.

4.2 Subsurface Conditions

4.2.1 Stratigraphy

The scope of the current investigation included only collection of shallow samples from excavations following removal of subsurface structures. The maximum depth of excavation was approximately 10 ft bgs. Investigation activities did not include characterization of the subsurface geologic units underlying the site. The Phase I RFI at SWMU 33-002(c) included advancing a borehole to a depth of 315 ft bgs; this is the deepest borehole installed at Main Site. Stratigraphic information from that borehole is presented in the RFI report (LANL 1995, 050113) and summarized below. More detailed descriptions of the stratigraphic units are provided in the Chaquehui Canyon Aggregate Area investigation work plan (LANL 2009, 107347).

The bedrock directly underlying the site is the Tshirege Member of the Bandelier Tuff. At TA-33, four cooling units of the Tshirege Member are present. These are units 3 (Qbt 3), 2 (Qbt 2), 1v (Qbt 1v), and 1g (Qbt 1g). Qbt 3 was present to a depth of 10 ft bgs, Qbt 2 from 10 to 73 ft bgs, Qbt 1v from 73 to 170 ft bgs, and Qbt 1g from 170 ft to 216 ft bgs. Underlying the Tshirege Member from 216 ft to 222 ft bgs was fallout/surge reworked glassy tuffs, pumice, and sand crystals composing the Tsankawi Pumice Bed (Qtt) and Cerro Toledo Interval (Qct). Sediment of the Puye Formation was encountered from 222 ft to 268 ft bgs, and Cerros del Rio basalts were present from 268 ft bgs until the borehole was terminated at 315 ft bgs.

4.2.2 Hydrogeology

The hydrogeology of the Pajarito Plateau is generally separable in terms of mesas and canyons forming the plateau. Mesas are generally devoid of water, both on the surface and within the rock forming the mesa. Canyons range from wet to relatively dry; the wettest canyons contain continuous streams and contain perennial groundwater in the canyon bottom alluvium. Dry canyons have only occasional streamflow and may lack alluvial groundwater. Perched-intermediate groundwater has been found at certain locations on the plateau at depths ranging between 100 and 400 ft. The regional aquifer is found at depths of about 600 to 1200 ft.

The hydrogeologic conceptual site model for the Laboratory shows that under natural conditions relatively small volumes of water move beneath mesa tops because of low rainfall, high evaporation, and efficient water use by vegetation (Collins et al. 2005, 092028). Atmospheric evaporation may extend into mesas, further inhibiting downward flow.

In the Los Alamos County area, groundwater occurs as (1) water in shallow alluvium in some of the larger canyons, (2) perched-intermediate groundwater (a perched groundwater body lies above a less permeable layer and is separated from the underlying aquifer by an unsaturated zone), and (3) the regional aquifer.

No groundwater wells are located in or near TA-33. Drilling to a depth of 315 ft during a previous investigation of SWMU 33-002(c) did not encounter perched water. Groundwater discharges from four springs (Springs 8A, 9, 9A, and Doe Spring) located in lower Chaquehui Canyon above the Rio Grande. The depth to groundwater is assumed to be 900 ft, based on the elevation (5600 ft above sea level) of Doe Spring.

5.0 REGULATORY CRITERIA

This section describes the criteria used for evaluating potential risk to ecological and human receptors. Regulatory criteria identified by medium in the Consent Order include cleanup standards, risk-based screening levels, and risk-based cleanup goals.

Human health and ecological risk-screening assessments were not conducted for SWMUs 33-002(a–c) because the extent of contamination has not been defined.

5.1 Current and Future Land Use

The specific screening levels used in the risk evaluation and corrective action decision process at a site depend on the current and reasonably foreseeable future land use. The current and reasonably foreseeable future land use for a site determines the receptors and exposure scenarios used to select screening and cleanup levels. The land use within and surrounding the SWMUs 33-002(a–c) is currently industrial and is expected to remain industrial for the reasonably foreseeable future.

5.2 Cleanup Standards

As specified in the Consent Order, screening levels will be used as soil cleanup levels unless they are determined to be impracticable or values do not exist for current and reasonably foreseeable future land use. The cleanup goals are a target risk of 10^{-5} for carcinogens or a hazard index of 1 for noncarcinogens (NMED 2009, 108070). For radionuclides, the target dose is 15 mrem/yr based on DOE guidance (DOE 2000, 067489).

6.0 SITE CONTAMINATION

The review and evaluation of decision-level data from previous investigations and confirmation samples collected from SWMUs 33-002(a–c) during the VCA demonstrate that the extent of contamination has not been defined for any of the sites. Analytical data from the confirmation samples collected following the remediation of SWMUs 33-002(a–c) for each site are discussed below and provided in Appendix C of this report (on DVD).

6.1 SWMU 33-002(a)

6.1.1 VCA Activities at SWMU 33-002(a)

During the 2005 ACA, the empty SWMU 33-002(a) septic tank, inlet and outlet drainlines, and the drain field were uncovered, excavated, removed, sampled for waste characterization purposes, broken up and placed into rolloff bins, and subsequently disposed of as low-level waste (LLW). Excavated areas were backfilled with clean fill, covered with seeded base course mixed with soil, compacted in place with heavy equipment, and recontoured to prevent stormwater runoff and run-on. Photographs showing removal, site restoration, and waste management activities are provided in Appendix D (on CD). Waste management documentation is provided in Appendix E of the remedy completion report for SWMU 33-013 (LANL 2006, 092080).

Following removal of the septic tank, drainlines, and drain field, confirmation sampling was performed. Sixteen confirmation samples were collected at eight locations beneath the septic tank inlet line from two depths beneath the bottom of the drainline (0 to 0.5 ft and 2 to 2.5 ft below the drainlines). Sampling locations were biased to drainline joints, elbows, and cleanouts; no soil staining, elevated radiation, or organic vapor field-screening readings were observed along the drainline. Six confirmation samples were collected from one location beneath the septic tank inlet, one location beneath the septic tank outlet, and one location in the center of the septic tank excavation after it was removed (Figure 2.2-1). Samples were collected 0 to 0.5 ft and 2 to 3 ft below the inlet, outlet, and bottom of the tank. Twenty-six confirmation samples were collected from two depths (0 to 0.5 ft and 2 to 3 ft below the drainlines) at 13 locations along the outlet drainline and within the drain field beneath the bottom of the drainlines. All samples were submitted for laboratory analysis of americium-241, cyanide, gamma-emitting radionuclides, isotopic plutonium, TAL metals, nitrate, PCBs, perchlorate, strontium-90, SVOCs, tritium, and VOCs. As described in section 3.2.7, all samples were also to have been analyzed for explosive compounds, but those samples collected beneath the outlet drainline and drain field were inadvertently analyzed for TPH-DRO instead. Samples collected and the analyses requested for the VCA are presented in Table 6.1-1.

6.1.2 Sampling Results

6.1.2.1 Inorganic Chemicals

Table 6.1-2 presents the concentrations of inorganic chemicals above BVs or detected with no available BV for the VCA. Sampling locations and results for inorganic chemicals detected above BVs or detected with no BV are presented on Plate 1. Identification of chemicals of potential concern (COPCs) was not performed because extent of contamination has not been defined for this site.

Inorganic Chemicals in Soil

Twenty-nine soil (fill) samples were collected and analyzed for TAL metals, cyanide, nitrate, and perchlorate. Table 6.1-1 summarizes the samples collected and the analyses requested for the VCA.

Table 6.1-2 presents the concentrations of inorganic chemicals above BVs or detected with no available BV. Barium, calcium, cadmium, chromium, copper, cyanide, lead, mercury, nitrate, perchlorate, selenium, and zinc were detected above soil BVs, have detection limits (DLs) above BVs, or were detected but have no BVs. The sampling locations with detected concentrations of inorganic chemicals above BVs or detected inorganic chemicals that have no BVs are presented on Plate 1.

Inorganic Chemicals in Tuff

Nineteen tuff (Qbt 3) samples were collected and analyzed for TAL metals, cyanide, nitrate, and perchlorate. Table 6.1-1 summarizes the samples collected and the analyses requested for the VCA.

Table 6.1-2 presents the concentrations of inorganic chemicals above BVs or detected with no available BV. Aluminum, arsenic, barium, calcium, chromium, copper, lead, magnesium, mercury, nickel, nitrate, perchlorate, selenium, silver, vanadium, and zinc were detected above Qbt 3 BVs, have DLs above BVs, or were detected but have no BVs. The sampling locations with detected concentrations of inorganic chemicals above BVs or detected inorganic chemicals that have no BVs are presented on Plate 1.

6.1.2.2 Organic Chemicals

Table 6.1-3 presents organic chemicals detected at SWMU 33-002(a) for the VCA. Sampling locations and results for detected organic chemicals are presented on Plate 2. Identification of COPCs was not performed because extent of contamination has not been defined for this site.

Organic Chemicals in Soil

Twenty-nine soil (fill) samples were collected and analyzed for VOCs, PCBs, and SVOCs; 26 samples were analyzed for TPH-DRO; and 3 samples were analyzed for explosive compounds. Table 6.1-1 summarizes the samples collected and the analyses requested for the VCA.

Table 6.1-3 presents the concentrations of organic chemicals detected in soil. Twenty-four organic chemicals (acenaphthene; acetone; anthracene; Aroclor-1254; Aroclor-1260; benzo[a]pyrene; benzo[b]fluoranthene; benzo[g,h,i]perylene; bis[2-ethylhexyl]phthalate; bromobenzene; 2-butanone; 4-chloroaniline; chrysene; di-n-butylphthalate; fluoranthene; fluorene, indeno[1,2,3-cd]pyrene; 2-methylnaphthalene; naphthalene; phenanthrene; pyrene; tetrachloroethene; toluene; and TPH-DRO) were detected. The detected concentrations of organic chemicals are presented on Plate 2.

Organic Chemicals in Tuff

Nineteen tuff (Qbt 3) samples were collected and analyzed for VOCs, explosive compounds, PCBs, and SVOCs. Table 6.1-1 summarizes the samples collected and the analyses requested for the VCA.

Table 6.1-3 presents the concentrations of organic chemicals detected in tuff. Twenty-two organic chemicals (acenaphthene; acenaphthylene; acetone; anthracene; Aroclor-1242; Aroclor-1254; Aroclor-1260; benzo[a]anthracene; benzo[a]pyrene; benzo[b]fluoranthene; benzo[g,h,i]perylene; bis[2-ethylhexyl]phthalate; chrysene; dibenzofuran; fluoranthene; fluorene, indeno[1,2,3-cd]pyrene; 2-methylnaphthalene; naphthalene; phenanthrene; pyrene; and toluene) were detected. The detected concentrations of organic chemicals are presented on Plate 2.

6.1.2.3 Radionuclides

Table 6.1-4 presents the radionuclides detected or detected above BVs/FVs for the VCA. Sampling locations and results for radionuclides detected or detected above BVs/FVs are presented on Plate 3. Identification of COPCs was not performed because extent of contamination has not been defined for this site.

Radionuclides in Soil

Twenty-nine soil (fill) samples were collected and analyzed for americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, strontium-90, and tritium. Table 6.1-1 summarizes the samples collected and the analyses requested for the VCA.

Table 6.1-4 presents the radionuclides detected or detected above BVs/FVs. Americium-241, plutonium-238, plutonium-239/240, and tritium were detected or detected above FVs in soil. The sampling locations and results for radionuclides detected or detected above BVs/FVs are shown on Plate 3.

Radionuclides in Tuff

Nineteen tuff (Qbt 3) samples were collected and analyzed for americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, strontium-90, and tritium. Table 6.1-1 summarizes the samples collected and the analyses requested for each sample.

Table 6.1-4 presents the radionuclides detected or detected above BVs/FVs. Plutonium-238, tritium, uranium-235/236, and uranium-238 were detected or detected above BVs/FVs in tuff. The sampling locations and results for radionuclides detected or detected above BVs/FVs are shown on Plate 3.

6.1.3 Nature and Extent of Contamination

The following sections discuss the spatial distribution of inorganic chemicals, organic chemicals, and radionuclides in the surface and subsurface at SMWU 33-002(a) based on VCA confirmation sampling results.

6.1.3.1 Inorganic Chemicals

Aluminum was detected above the Qbt 3 BV at locations 33-24721, 33-24722, 33-24723, 33-24724, 33-24725, and 33-24726. Concentrations decreased laterally in the drain field [see also data for SWMU 33-002(b)], and lateral extent is defined. Concentrations increased with depth at all locations, and vertical extent is not defined.

Arsenic was detected above the Qbt 3 BV at seven locations. Concentrations decreased to the end of the drain field, and lateral extent is defined. Concentrations decreased or remained essentially the same with depth at four locations and increased slightly with depth at locations 33-24718, 33-24723, and 33-24726. Vertical extent is not defined.

Barium was detected above the soil BV at one location and above the Qbt 3 BV at nine locations. Concentrations decreased laterally in the drain field [see also data for SWMU 33-002(b)], and lateral extent is defined. Concentrations increased with depth at locations 33-24720, 33-24721, 33-24723, and 33-24726, and vertical extent is not defined.

Cadmium was not detected above BV but had a DL above the BV at one location. The lateral and vertical extent are defined.

Calcium was detected above the soil BV at 3 locations and above the Qbt 3 BV at 11 locations. Concentrations decreased laterally in the drain field [see also data for SWMU 33-002(b)], and lateral extent is defined. Concentrations increased with depth at locations 33-24718, 33-24720, and 33-24726, and vertical extent is not defined.

Chromium was detected above the soil BV at one location and above the Qbt 3 BV at three locations. Concentrations decreased to the end of the drain field [see also data for SWMU 33-002(b)], and lateral extent is defined. Concentrations decreased with depth at two locations and increased slightly with depth at locations 33-24723 and 33-24726. Vertical extent is not defined.

Copper was detected above the soil BV at 7 locations and above the Qbt 3 BV at 11 locations. Concentrations decreased laterally at location 33-25098 [see also data for SWMU 33-002(b)], and lateral extent is defined. Concentrations increased with depth at location 33-25098, and vertical extent is not defined.

Cyanide was not detected above BV but had DLs above the soil BV at 13 locations. The lateral and vertical extent are defined.

Lead was detected above the Qbt 3 BV at four locations and above the soil BV at one location. Concentrations decreased laterally in the drain field [see also data for SWMU 33-002(b)], and lateral extent is defined. Concentrations increased with depth at locations 33-24721 and 33-24722, and vertical extent is not defined.

Magnesium was detected above the Qbt 3 BV at five locations. Concentrations decreased laterally in the drain field [see also data for SWMU 33-002(b)], and lateral extent is defined. Concentrations increased with depth at location 33-24723, and vertical extent is not defined.

Mercury was detected above the soil BV at seven locations and above the Qbt 3 BV at four locations. Concentrations decreased laterally in the drain field [see also data for SWMU 33-002(b)], and lateral extent is defined. Concentrations increased with depth at location 33-25093, and vertical extent is not defined.

Nickel was detected above the Qbt 3 BV at two locations. Concentrations decreased laterally in the drain field [see also data for SWMU 33-002(b)], and lateral extent is defined. Concentrations increased with depth at locations 33-24722 and 33-24726, and vertical extent is not defined.

Nitrate was detected in soil at 14 locations and in Qbt 3 at 6 locations. Nitrate is naturally occurring, and the detected concentrations are likely representative of naturally occurring levels. Therefore, the lateral and vertical extent are defined.

Perchlorate was detected in soil at 14 locations and in Qbt 3 at 15 locations. All detected concentrations were less than the estimated quantitation limit (EQL). Therefore, the lateral and vertical extent are defined.

Selenium was detected above the Qbt 3 BV at locations 33-24724 and 33-24726. Concentrations decreased laterally in the drain field, and lateral extent is defined. Concentrations increased with depth at both locations, and vertical extent is not defined.

Silver was detected above the Qbt 3 BV at two locations. Concentrations decreased laterally in the drain field [see also data for SWMU 33-002(b)], and lateral extent is defined. Concentrations at locations 33-24718 and 33-24723 increased with depth, and vertical extent is not defined.

Vanadium was detected above the Qbt 3 BV at two locations. Concentrations decreased to the end of the drain field (see also data for SWMU 33-002(b)], and lateral extent is defined. Concentrations increased slightly with depth at locations 33-24723 and 33-24726, and vertical extent is not defined.

Zinc was detected above the soil BV at five locations and above the Qbt 3 BV at two locations. Concentrations decreased laterally at locations 33-25098 and 33-25110 [see also data for SWMU 33-002(b)], and lateral extent is defined. Concentrations decreased with depth at all locations, and vertical extent is defined.

6.1.3.2 Organic Chemicals

Acenaphthene was detected at 11 locations. Concentrations decreased laterally in the drain field, and lateral extent is defined. Concentrations increased with depth at locations 33-24717, 33-24718, 33-24722, and 33-24726, and vertical extent is not defined.

Acenaphthylene was detected at two locations. Concentrations decreased laterally in the drain field, and lateral extent is defined. Concentrations decreased with depth at both locations, and vertical extent is defined.

Acetone was detected at two locations. Concentrations decreased laterally in the drain field, and lateral extent is defined. Concentrations decreased with depth at both locations, and vertical extent is defined.

Anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, chrysene, fluoranthene, fluorene, phenanthrene, and pyrene were each detected at 10 locations. Concentrations decreased laterally in the drain field, and lateral extent is defined. Concentrations of one or more of these organic chemicals increased with depth at locations 33-24717, 33-24718, 33-24722, and 33-24723, and vertical extent is not defined.

Aroclor-1242 was detected at three locations. Concentrations decreased laterally in the drain field, and lateral extent is defined. Concentrations increased with depth at locations 33-24716 and 24722, and vertical extent is not defined.

Aroclor-1254 was detected at 10 locations. Concentrations decreased laterally in the drain field [see also data for SWMU 33-002(b)], and lateral extent is defined. Concentrations increased with depth at locations 33-24718 and 33-24722, and vertical extent is not defined.

Aroclor-1260 was detected at four locations. Concentrations decreased laterally in the drain field, and lateral extent is defined. Concentrations increased with depth at location 33-24722, and vertical extent is not defined.

Benzo(a)anthracene was detected at five locations. Concentrations decreased laterally in the drain field, and lateral extent is defined. Concentrations increased with depth at locations 33-24717 and 33-24718, and vertical extent is not defined.

Bis(2-ethylhexyl)phthalate was detected at 11 locations. Concentrations decreased laterally in the drain field [see also data for SWMU 33-002(b)], and lateral extent is defined. Concentrations increased with depth at locations 33-24716, 33-24718, 33-24719, and 33-24722, and vertical extent is not defined.

Bromobenzene and 4-chloroaniline were each detected at one location. Concentrations decreased laterally in the drain field [see also data for SWMU 33-002(b)], and lateral extent is defined. The detected concentrations decreased with depth and were less than the EQL, and vertical extent is defined.

2-Butanone was detected at two locations. Concentrations decreased laterally in the drain field, and lateral extent is defined. Detected concentrations decreased with depth and/or were less than the EQL, and vertical extent is defined.

Di-n-butylphthalate was detected at three locations. Concentrations decreased laterally in the drain field [see also data for SWMU 33-002(b)], and lateral extent is defined. Detected concentrations decreased with depth and/or were less than the EQL, and vertical extent is defined.

Dibenzofuran was detected at one location. Concentrations decreased laterally in the drain field, and lateral extent is defined. Concentrations decreased with depth, and vertical extent is defined.

Indeno(1,2,3-cd)pyrene was detected at nine locations. Concentrations decreased laterally in the drain field, and lateral extent is defined. Concentrations increased with depth at locations 33-24717, 33-24718, 33-24719, and 33-24722, and vertical extent is not defined.

2-Methylnaphthalene was detected at seven locations. Concentrations decreased laterally in the drain field, and lateral extent is defined. Concentrations increased with depth at locations 33-24717 and 33-24722, and vertical extent is not defined.

Naphthalene was detected at nine locations. Concentrations decreased laterally in the drain field, and lateral extent is defined. Concentrations increased with depth at locations 33-24717, 33-24718, 33-24719, and 33-24722, and vertical extent is not defined.

Tetrachloroethene was detected at five locations. Concentrations decreased laterally in the drain field [see also data for SWMU 33-002(b)], and lateral extent is defined. Detected concentrations decreased with depth and/or were less than the EQL, and vertical extent is defined.

Toluene was detected at three locations. Concentrations decreased laterally in the drain field [see also data for SWMU 33-002(b)], and lateral extent is defined. Concentrations decreased with depth and/or were less than EQLs, and vertical extent is defined.

TPH-DRO was detected at two locations. TPH-DRO was not detected in samples collected to the north, south, east, and west of these locations, and lateral extent is defined. Concentrations decreased with depth at both locations, and vertical extent is defined.

6.1.3.3 Radionuclides

Americium-241 was detected above the soil FV in one sample at location 33-25098. Concentrations decreased laterally in the drain field [see also data for SWMU 33-002(b)], and lateral extent is defined. Concentrations decreased with depth at this location, and vertical extent is defined.

Plutonium-238 was detected above the soil FV in one sample at location 33-25112 and was also detected in one tuff sample at location 33-24717. Concentrations decreased laterally in the drain field, and lateral extent is defined. The detection of plutonium-238 was in the deeper sample at location 33-24717, and vertical extent is not defined.

Plutonium-239/240 was detected above the soil FV in one sample at location 33-25098. Concentrations decreased laterally in the drain field [see also data for SWMU 33-002(b)], and lateral extent is defined. Concentrations decreased with depth at this location, and vertical extent is defined.

Tritium was detected at 24 locations. The highest concentrations are in the former drain field and decreased laterally. Lateral extent is defined. Concentrations increased with depth at locations 33-24717, 33-24718, 33-24724, 33-25098, and 33-25117, and vertical extent is not defined.

Uranium-235/236 was detected above the soil BV in one sample at location 33-24716. Concentrations decreased laterally in the drain field, and lateral extent is defined. Concentrations decreased with depth at this location, and vertical extent is defined.

Uranium-238 was detected above the Qbt 3 BV in one sample at location 33-24722. Concentrations decreased laterally in the drain field, and lateral extent is defined. Uranium-238 was not detected above BV in the shallower sample at this location, and vertical extent is not defined.

6.1.3.4 Summary

The lateral extent of all inorganic chemicals has been defined. The vertical extent of inorganic chemicals has not been defined at locations 33-24718, 33-24720, 33-24721, 33-24722, 33-24723, 33-24724, 33-24725, 33-24726, and 33-25098.

The lateral extent of all organic chemicals has been defined. The vertical extent of organic chemicals has not been defined at locations 33-24716, 33-24717, 33-24718, 33-24719, 33-24722, 33-24723, and 33-24726.

The lateral extent of all radionuclides has been defined. The vertical extent of radionuclides has not been defined at locations 33-24717, 24-24718, 33-24722, 33-24724, 33-25098, and 33-25117.

6.2 SWMU 33-002(b)

6.2.1 VCA Activities at SWMU 33-002(b)

During the 2005 VCA, the remaining sections of the SWMU 33-002(b) inlet and outlet drainlines for the seepage pit were removed and disposed of as LLW, and the entire seepage pit was excavated and disposed of as MLLW (LANL 2005, 091433). The seepage pit location was overexcavated to dimensions of 9 ft in diameter × 8 ft deep. All excavated areas were backfilled with clean fill, covered with seeded base course mixed with soil, compacted in place with heavy equipment, and recontoured to prevent stormwater runoff and run-on.

Twenty-two confirmation samples were collected from two depths (0 to 0.5 ft and 2 to 2.5 ft) beneath the bottom of the drainlines at three locations beneath the remaining seepage pit inlet line and eight locations along the seepage pit outlet line. Sampling locations were biased to drainline joints and elbows; no soil staining, elevated radiation, or organic vapor field-screening readings were observed along the drainlines. Four confirmation samples were also collected at two locations from the bottom of the seepage pit excavation (Figure 2.2-1). All samples were submitted for laboratory analysis of americium-241, cyanide, gamma-emitting radionuclides, isotopic plutonium, TAL metals, nitrate, PCBs, perchlorate, strontium-90, SVOCs, tritium, and VOCs. As described in section 3.2.7, all samples were also to have been analyzed for explosive compounds, but those collected beneath the seepage pit outlet line were inadvertently analyzed for TPH-DRO instead. Samples collected and the analyses requested for the VCA are presented in Table 6.1-1.

6.2.2 Sampling Results

6.2.2.1 Inorganic Chemicals

Table 6.1-2 presents the concentrations of inorganic chemicals above BVs or detected with no available BV for the VCA. Sampling locations and results for inorganic chemicals detected above BVs or detected with no BV are presented in Figure 6.2-1. Identification of COPCs was not performed because extent of contamination has not been defined for this site.

Inorganic Chemicals in Soil

Three soil (fill) samples were collected and analyzed for TAL metals, cyanide, nitrate, and perchlorate. Table 6.1-1 summarizes the samples collected and the analyses requested for the VCA.

Table 6.1-2 presents the concentrations of inorganic chemicals above BVs or detected with no available BV. Copper, cyanide, mercury, nitrate, and perchlorate were detected above soil BVs or have DLs above BVs. The sampling locations with detected concentrations of inorganic chemicals above BVs or detected inorganic chemicals that have no BVs are presented in Figure 6.2-1.

Inorganic Chemicals in Tuff

Twenty-three tuff (Qbt 3) samples were collected and analyzed for TAL metals, cyanide, nitrate, and perchlorate. Table 6.1-1 summarizes the samples collected and the analyses requested for the VCA.

Table 6.1-2 presents the concentrations of inorganic chemicals above BVs or detected with no available BV. Aluminum, arsenic, barium, calcium, chromium, cobalt, copper, cyanide, magnesium, mercury, nickel, nitrate, perchlorate, selenium, and vanadium were detected above Qbt 3 BVs, have DLs above BVs, or were detected but have no BVs. The sampling locations with detected concentrations of inorganic chemicals above BVs or detected inorganic chemicals that have no BVs are presented in Figure 6.2-1 for SWMU 33-002(b).

6.2.2.2 Organic Chemicals

Table 6.1-3 presents organic chemicals detected at SWMU 33-002(b) for the VCA. Sampling locations and results for detected organic chemicals are presented in Figure 6.2-2. Identification of COPCs was not performed because extent of contamination has not been defined for this site.

Organic Chemicals in Soil

Three soil (fill) samples were collected. All three samples were analyzed for VOCs, PCBs, SVOCs, and TPH-DRO. Table 6.1-1 summarizes the samples collected and the analyses requested for the VCA.

Table 6.1-3 presents the concentrations of organic chemicals detected in soil. Acenaphthene and TPH-DRO were detected. The detected concentrations of organic chemicals are presented in Figure 6.2-2.

Organic Chemicals in Tuff

Twenty-three tuff (Qbt 3) samples were collected. All 23 samples were analyzed for VOCs, PCBs, and SVOCs; 13 samples were analyzed for TPH-DRO, and 4 samples were analyzed for explosive compounds. Table 6.1-1 summarizes the samples collected and the analyses requested for the VCA.

Table 6.1-3 presents the concentrations of organic chemicals detected in tuff. Twenty-four organic chemicals (acenaphthene; acetone; anthracene; Aroclor-1254; benzo[a]anthracene; benzo[a]pyrene; benzo[b]fluoranthene; benzo[g,h,i]perylene; benzo[k]fluoranthene, benzoic acid, chrysene; di-n-butylphthalate, fluoranthene; fluorene, indeno[1,2,3-cd]pyrene; methylene chloride, 2-methylnaphthalene; naphthalene; phenanthrene; pyrene; tetrachloroethene, toluene, 1,1,1-trochloroethane, and trichloroethene) were detected. The concentrations of detected organic chemicals are presented in Figure 6.2-2.

6.2.2.3 Radionuclides

Table 6.1-4 presents the radionuclides detected or detected above BVs/FVs for the VCA. Sampling locations and results for radionuclides detected or detected above BVs/FVs are presented in Figure 6.2-3. Identification of COPCs was not performed because extent of contamination has not been defined for this site.

Radionuclides in Soil

Three soil (fill) samples were collected and analyzed for americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, strontium-90, and tritium. Table 6.1-1 summarizes the samples collected and the analyses requested for the VCA.

Table 6.1-4 presents the radionuclides detected or detected above BVs/FVs. Tritium was detected in soil. Sampling locations and results for tritium are shown in Figure 6.2-3.

Radionuclides in Tuff

Twenty-three tuff (Qbt 3) samples were collected and analyzed for americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, strontium-90, and tritium. Table 6.1-1 summarizes the samples collected and the analyses requested for the VCA.

Table 6.1-4 presents the radionuclides detected or detected above BVs/FVs. Americium-241, strontium-90, tritium, and uranium-235/236 were detected or detected above BVs/FVs. Sampling locations and results for radionuclides detected or detected above BVs/FVs are shown in Figure 6.2-3.

6.2.3 Nature and Extent of Contamination

The following sections discuss the spatial distribution of inorganic chemicals, organic chemicals, and radionuclides in the surface and subsurface at SMWU 33-002(b) based on VCA confirmation sampling results.

6.2.3.1 Inorganic Chemicals

Aluminum, chromium, magnesium, and nickel were detected above Qbt 3 BVs at three locations. Concentrations decreased downgradient, and lateral extent is defined. Concentrations decreased with depth at all locations, and vertical extent is defined.

Arsenic was detected above the Qbt 3 BV at three locations. Concentrations decreased downgradient and with depth. The lateral and vertical extent of arsenic are defined.

Barium was detected above the Qbt 3 BV at six locations. Concentrations decreased at the two most downgradient locations, and lateral extent is defined. Concentrations increased with depth at location 33-25088, and vertical extent is not defined.

Calcium was detected above the Qbt 3 BV at eight locations. Concentrations decreased at the two most downgradient locations, and lateral extent is defined. Concentrations increased with depth at locations 33-25084, 33-25087, 33-25094, and 33-25095, and vertical extent is not defined.

Cobalt was detected above the Qbt 3 BV at two locations. Concentrations decreased downgradient of these locations, and lateral extent is defined. Concentrations decreased with depth at both locations, and vertical extent is defined.

Copper was detected above the soil and Qbt 3 BVs at 1 location and above the Qbt 3 BV at 10 locations. The highest concentration was at the most downgradient location (33-25092), and lateral extent is not defined. Concentrations decreased with depth at all locations, and vertical extent is defined.

Cyanide was not detected above the soil or Qbt 3 BVs but had DLs above BVs at 10 locations. The lateral and vertical extent of cyanide are defined.

Mercury was detected above the soil BV at one location and above the Qbt 3 BV at four locations. Concentrations decreased at the two most downgradient locations, and lateral extent is defined. Concentrations increased with depth at location 33-25088, and vertical extent is not defined.

Nitrate was detected in soil at three locations and in Qbt 3 at nine locations. Nitrate is naturally occurring, and the detected concentrations are likely representative of naturally occurring levels. The lateral and vertical extent of nitrate are defined.

Perchlorate was detected in soil at 3 locations and in Qbt 3 at 12 locations. Except for location 33-25083, all detected values were less than EQLs. Concentrations decreased downgradient of location 33-25083, and lateral extent is defined. Concentrations decreased with depth at location 33-25083, and vertical extent is defined.

Selenium was detected above the Qbt 3 BV at three locations. Concentrations increased at the two most downgradient locations, and lateral extent is not defined. Concentrations increased with depth at locations 33-25092 and 33-25125, and vertical extent is not defined.

Vanadium was detected above the Qbt 3 BV at two locations. Concentrations decreased downgradient of these locations, and lateral extent is defined. Concentrations decreased with depth at both locations, and vertical extent is defined.

6.2.3.2 Organic Chemicals

Acenaphthene was detected at two locations. The maximum detected concentration was at location 33-25092, which is the most downgradient location. Lateral extent is not defined. Concentrations decreased with depth at both locations, and vertical extent is defined.

Acetone was detected at six locations. Concentrations decreased in the two most downgradient locations, and lateral extent is defined. The detected concentrations decreased with depth and/or were less than the EQL, and vertical extent is defined.

Anthracene was detected at one location. Concentrations decreased downgradient, and lateral extent is defined. Concentrations decreased with depth, and vertical extent is defined.

Aroclor-1254 was detected at three locations. Concentrations decreased downgradient, and lateral extent is defined. At location 33-25083, the detected concentration was in the deeper of two samples, but was below EQL. Concentrations increased with depth at location 33-25088, and vertical extent is not defined.

Benzo(a)anthracene, benzo(g,h,i)perylene, and benzo(k)fluoranthene were each detected at the same two locations. Concentrations decreased in the two most downgradient locations, and lateral extent is defined. At location 33-25084, concentrations decreased with depth. At location 33-25095, benzo(a)anthracene, benzo(g,h,i)perylene, and benzo(k)fluoranthene were only detected in the deeper sample. However, detected concentrations in the deeper sample were below EQLs. Therefore, vertical extent is defined.

Benzo(a)pyrene, benzo(b)fluoranthene, and chrysene were each detected at the same three locations. Concentrations decreased in the two most downgradient locations, and lateral extent is defined. At locations 33-25082 and 33-25084, concentrations decreased with depth. At location 33-25095, benzo(a)pyrene, benzo(b)fluoranthene, and chrysene were only detected in the deeper sample. However, detected concentrations in the deeper sample were below EQLs. Therefore, vertical extent is defined.

Benzoic acid, di-n-butylphthalate, 2-methylnaphthalane, and 1,1,1-trichloroethane were each detected at one location. Concentrations decreased in the two most downgradient locations, and lateral extent is defined. The detected concentrations decreased with depth and were less than the EQLs, and vertical extent is defined.

Fluoranthene was detected at six locations. Concentrations decreased in the two most downgradient locations, and lateral extent is defined. At locations 33-25082, 33-25083, 33-25084, 33-25087, and 33-25088, concentrations decreased with depth. At location 33-25095, fluoranthene was only detected in the deeper sample. However, the detected concentration in the deeper sample was below the EQL. Therefore, vertical extent is defined.

Fluorene and naphthalene were each detected in one sample. Concentrations decreased downgradient, and lateral extent is defined. Concentrations decreased with depth, and vertical extent is defined.

Indeno(1,2,3-cd)pyrene was detected at two locations. Concentrations decreased in the two most downgradient locations, and lateral extent is defined. At location 33-25084, concentrations decreased with depth. At location 33-25095, concentrations increased with depth, and vertical extent is not defined.

Methylene chloride and toluene were each detected at three locations. Concentrations decreased in the two most downgradient locations, and lateral extent is defined. The detected concentrations decreased with depth and/or were less than the EQL, and vertical extent is defined.

Phenanthrene and pyrene were each detected at five locations. Concentrations decreased in the two most downgradient locations, and lateral extent is defined. At locations 33-25082, 33-25083, 33-25084, and 33-25087, concentrations decreased with depth. At location 33-25095, phenanthrene and pyrene were only detected in the deeper sample. However, the detected concentrations in the deeper sample were below EQLs. Therefore, vertical extent is defined.

Tetrachloroethene was detected at four locations. Concentrations decreased in the two most downgradient locations, and lateral extent is defined. At location 33-25095, tetrachloroethene was only detected in the deeper sample. However, the detected concentrations in the deeper sample were below EQLs, and vertical extent is defined at this location. At location 33-25125, concentrations increased with depth, and vertical extent is not defined at this location.

TPH-DRO was detected at location 33-25092, which is the most downgradient location. Lateral extent is not defined. Concentrations decreased with depth, and vertical extent is defined.

Trichloroethene was detected at three locations. Concentrations decreased in the two most downgradient locations, and lateral extent is defined. At locations 33-25123 and 33-25125, concentrations decreased with depth. At location 33-25124, concentrations were approximately the same at both depths and were near or below the EQL, and vertical extent is defined.

6.2.3.3 Radionuclides

Americium-241 was detected at two locations. Concentrations decreased in the two most downgradient locations, and lateral extent is defined. Concentrations increased with depth at location 33-25095, and vertical extent is not defined.

Strontium-90 was detected at three locations. Concentrations decreased downgradient, and lateral extent is defined. Concentrations increased with depth at locations 33-25093 and 33-25094, and vertical extent is not defined.

Tritium was detected at thirteen locations. The maximum concentration was detected at location 33-25095, and concentrations decreased at the most downgradient location. Lateral extent is defined. Concentrations increased with depth at locations 33-25082, 3325083, 33-25092, 33-25093, 33-25094, and 33-25095, and vertical extent is not defined.

Uranium-235/236 was detected above the BV at location 33-25125. Concentrations decreased downgradient, and lateral extent is defined. Concentrations decreased with depth, and vertical extent is defined.

6.2.3.4 Summary

The lateral extent of inorganic chemicals has not been defined at VCA sampling locations 33-25092 and 33-25093.The vertical extent of inorganic chemicals has not been defined at VCA sampling locations 33-25084, 33-25087, 33-25088, 33-25092, 33-25094, 33-25095, and 33-25125.

The lateral extent of organic chemicals has not been defined at VCA sampling location 33-25092. The vertical extent of organic chemicals has not been defined at VCA sampling locations 33-25088, 33-25095, and 33-25125.

The lateral extent of all radionuclides has been defined. The vertical extent of radionuclides has not been defined at VCA sampling locations 33-25082, 24-25083, 33-25092, 33-25093, 33-25094, and 33-25095.

6.3 SWMU 33-002(c)

6.3.1 VCA Activities at SWMU 33-002(c)

During the 2005 VCA, the remaining sections of the SWMU 33-002(c) inlet and outlet drainlines for the seepage pit were removed and disposed of as LLW, and the entire seepage pit was excavated and disposed of as MLLW (LANL 2005, 091433). The seepage pit location was overexcavated to dimensions of 9 ft in diameter × 10 ft deep. All excavated areas were backfilled with clean fill, covered with seeded base course mixed with soil, compacted in place with heavy equipment, and recontoured to prevent stormwater runoff and run-on.

Sixteen confirmation samples were collected from two depths (0 to 0.5 ft and 2 to 2.5 ft) beneath the bottom of the drainlines at three locations beneath the remaining seepage pit inlet line and at five locations along the seepage pit outlet line Sampling locations were biased to drainline joints; no soil staining, elevated radiation, or organic vapor field-screening readings were observed along the drainlines. Four confirmation samples were also collected at two locations in the bottom of the seepage pit excavation (0 to 0.5 ft and 2 to 3 ft) (Figure 2.2-1). All samples were submitted for laboratory analysis of americium-241, cyanide, gamma-emitting radionuclides, isotopic plutonium, TAL metals, nitrate, PCBs, perchlorate, strontium-90, SVOCs, tritium, and VOCs. As described in section 3.2.7, all samples were also to have been analyzed for explosive compounds, but those samples collected beneath the seepage pit outlet line were inadvertently analyzed for TPH-DRO instead. Samples collected and the analyses requested for the VCA are presented in Table 6.1-1.

6.3.2 Sampling Results

6.3.2.1 Inorganic Chemicals

Table 6.1-2 presents the concentrations of inorganic chemicals above BVs or detected with no available BV for the VCA. Sampling locations and results for inorganic chemicals above BVs or detected with no BV are presented in Figure 6.3-1. Identification of COPCs was not performed because extent of contamination has not been defined for this site.

Inorganic Chemicals in Soil

During the VCA, no soil samples were collected and analyzed for inorganic chemicals.

Inorganic Chemicals in Tuff

Twenty tuff (Qbt 3) samples were collected and analyzed for TAL metals, cyanide, nitrate, and perchlorate. Table 6.1-1 summarizes the samples collected and the analyses requested for the VCA.

Table 6.1-2 presents the concentrations of inorganic chemicals above BVs or detected with no available BV. Aluminum, arsenic, barium, cadmium, calcium, chromium, copper, cyanide, lead, magnesium, mercury, nickel, nitrate, perchlorate, selenium, silver, and zinc were detected above Qbt 3 BVs or have DLs above BVs. The sampling locations with detected concentrations of inorganic chemicals above BVs or detected inorganic chemicals that have no BVs are presented in Figure 6.3-1.

6.3.2.2 Organic Chemicals

Table 6.1-3 presents organic chemicals detected at SWMU 33-002(c) for the VCA. Sampling locations and results for detected organic chemicals are presented in Figure 6.3-2. Identification of COPCs was not performed because extent of contamination has not been defined for this site.

Organic Chemicals in Soil

During the VCA, no soil (fill) samples were collected and analyzed for organic chemicals.

Organic Chemicals in Tuff

Twenty tuff (Qbt 3) samples were collected. All 20 samples were analyzed for VOCs, PCBs, and SVOCs; 10 samples were also analyzed for TPH-DRO and explosive compounds. Table 6.1-1 summarizes the samples collected and the analyses requested for the VCA.

Table 6.1-3 presents the concentrations of organic chemicals detected in tuff. Eighteen organic chemicals (acenaphthene; anthracene; Aroclor-1254; Aroclor-1260, benzo[a]anthracene; benzo[a]pyrene; benzo[b]fluoranthene; benzo[g,h,i]perylene; benzo[k]fluoranthene, chrysene; fluoranthene; fluorene, indeno[1,2,3-cd]pyrene; 2-methylnaphthalene; naphthalene; phenanthrene; pyrene; and TPH-DRO) were detected. The concentrations of detected organic chemicals are presented in Figure 6.3-2.

6.3.2.3 Radionuclides

Table 6.1-4 presents the radionuclides detected or detected above BVs/FVs for the VCA. Sampling locations and results for radionuclides detected or detected above BVs/FVs are presented in Figure 6.3-3.

Radionuclides in Soil

No soil samples were collected and analyzed for radionuclides.

Radionuclides in Tuff

Twenty tuff (Qbt 3) samples were collected. All 20 samples were analyzed for americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, and strontium-90; 18 samples were also analyzed for tritium. Table 6.1-1 summarizes the samples collected and the analyses requested for the VCA.

Table 6.1-4 presents the radionuclides detected or detected above BVs/FVs. Americium-241, cesium-137, plutonium-238, plutonium-239/240, strontium-90, and tritium were detected in tuff. Sampling locations and results for radionuclides detected or detected above BVs/FVs are shown in Figure 6.3-3.

6.3.3 Nature and Extent of Contamination

The following sections discuss the spatial distribution of inorganic chemicals, organic chemicals, and radionuclides in the surface and subsurface at SMWU 33-002(c) based on VCA confirmation sampling results.

6.3.3.1 Inorganic Chemicals

Aluminum was detected above the Qbt 3 BV at three locations. Concentrations decreased downgradient of these locations, and lateral extent is defined. Concentrations decreased with depth at all locations, and vertical extent is defined.

Arsenic was detected above the Qbt 3 BV at two locations. Concentrations decreased downgradient and with depth. The lateral and vertical extent of arsenic are defined.

Barium was detected above the Qbt 3 BV at 10 locations. Concentrations decreased downgradient, and lateral extent is defined. Concentrations decreased with depth at all locations except location 33-25122. Vertical extent is not defined.

Cadmium was detected above the Qbt 3 BV at location 33-25118. This is the most downgradient sampling location, and lateral extent is not defined. Concentrations decreased with depth at this location, and vertical extent is defined.

Calcium was detected above the Qbt 3 BV at nine locations. Concentrations decreased downgradient, and lateral extent is defined. Concentrations increased with depth at locations 33-25085, 33-25119, and 33-25121, and vertical extent is not defined.

Chromium was detected above the Qbt 3 BV at five locations. Concentrations increased downgradient at location 33-25118, and lateral extent is not defined. Concentrations increased with depth at locations 33-24727 and 33-25122, and vertical extent is not defined.

Copper was detected above the Qbt 3 BV at four locations. Concentrations increased downgradient at location 33-25118, and lateral extent is not defined. Concentrations increased with depth at location 33-24727, and vertical extent is not defined.

Cyanide was detected above the Qbt 3 BV at location 33-25122 and was not detected but had DLs above the Qbt 3 BV at six other locations. Concentrations decreased downgradient, and lateral extent is defined. Concentrations decreased with depth at location 33-25122, and vertical extent is defined.

Lead was detected above the Qbt 3 BV at three locations. Concentrations increased downgradient at location 33-25118, and lateral extent is not defined. Concentrations increased with depth at location 33-24727, and vertical extent is not defined.

Magnesium was detected above the Qbt 3 BV at two locations. Concentrations decreased downgradient, and lateral extent is defined. Concentrations decreased with depth at both locations, and vertical extent is defined.

Mercury was detected above the Qbt 3 BV at eight locations. Concentrations increased downgradient at location 33-25118, and lateral extent is not defined. Concentrations decreased with depth at all locations except 33-24727, and vertical extent is not defined.

Nickel was detected above the Qbt 3 BV at two locations. Concentrations increased downgradient at location 33-25118, and lateral extent is not defined. Concentrations decreased with depth at both locations, and vertical extent is defined.

Nitrate was detected in Qbt 3 at five locations. Nitrate is naturally occurring, and the detected concentrations are likely representative of naturally occurring levels. Therefore, the lateral and vertical extent are defined.

Perchlorate was detected in Qbt 3 at five locations. Concentrations decreased downgradient at location 33-25118, and lateral extent is defined. Concentrations decreased with depth or showed no change with depth at all locations, except location 33-25122, where concentrations increased with depth. Vertical extent is not defined.

Selenium was detected above the Qbt 3 BV at seven locations. Concentrations decreased downgradient, and lateral extent is defined. Concentrations increased with depth at locations 33-25118 and 33-25119, and vertical extent is not defined.

Silver was detected above the Qbt 3 BV at location 33-25118. This is the most downgradient sampling location, and lateral extent is not defined. Concentrations decreased with depth at this location, and vertical extent is defined.

Zinc was detected above the Qbt 3 BV at two locations. Concentrations increased downgradient at location 33-25118, and lateral extent is not defined. Concentrations decreased with depth at both locations, and vertical extent is defined.

6.3.3.2 Organic Chemicals

Acenaphthene was detected at location 33-24729. Concentrations decreased downgradient, and lateral extent is defined. Concentrations decreased with depth, and vertical extent is defined.

Anthracene was detected at two locations. Concentrations decreased downgradient, and lateral extent is defined. Concentrations decreased with depth at both locations, and vertical extent is defined.

Aroclor-1254 and Aroclor-1260 were each detected at three locations. Concentrations decreased downgradient, and lateral extent is defined. Concentrations decreased with depth at all locations, except location 33-24727. At location 33-24727, Aroclor-1254 and Aroclor-1260 were only detected in the deeper sample. However, the detected concentrations in the deeper sample were below the EQLs. Therefore, vertical extent is defined.

Benzo(a)anthracene and benzo(k)fluoranthene were each detected at the same three locations. Concentrations decreased downgradient, and lateral extent is defined. Concentrations decreased with depth at all locations, except location 33-25086. At location 33-25086, benzo(a)anthracene and benzo(k)fluoranthene were only detected in the deeper sample. However, the detected concentrations in the deeper sample were below EQLs. Therefore, vertical extent is defined.

Benzo(a)pyrene was detected at six locations. Concentrations decreased downgradient, and lateral extent is defined. Concentrations decreased with depth at all locations, except locations 33-24727 and 33-25086. At these locations, benzo(a)pyrene was only detected in the deeper sample. However, the detected concentrations in the deeper samples were below EQLs. Therefore, vertical extent is defined.

Benzo(b)fluoranthene and benzo(g,h,i)perylene were detected at five and three locations, respectively. Concentrations decreased downgradient, and lateral extent is defined. Concentrations decreased with depth at all locations, except location 33-24727. At this location, benzo(b)fluoranthene and benzo(g,h,i)perylene were only detected in the deeper sample. However, the detected concentrations in the deeper sample were below the EQLs. Therefore, vertical extent is defined.

Chrysene was detected at five locations. Concentrations decreased downgradient, and lateral extent is defined. Concentrations decreased with depth at all locations, except location 33-25086. At this location, chrysene was only detected in the deeper sample. However, the detected concentration in the deeper sample was below the EQL. Therefore, vertical extent is defined.

Fluoranthene was detected at seven locations. Concentrations decreased at the two most downgradient locations, and lateral extent is defined. Concentrations decreased with depth at all locations, except locations 33-24727 and 33-25086. At location 33-24727, concentrations were approximately the same at both depths sampled, and both results were below the EQL. At location 33-25086, concentrations increased with depth but both results were below the EQL. Therefore, vertical extent is defined.

Fluorene was detected at location 33-24729. Concentrations decreased downgradient, and lateral extent is defined. Concentrations were approximately the same at both depths sampled, and both results were below EQLs. Vertical extent is defined.

Indeno(1,2,3-cd)pyrene was detected at four locations. Concentrations decreased downgradient, and lateral extent is defined. Concentrations decreased with depth at all locations, except location 33-24727. At this location, indeno(1,2,3-cd)pyrene was only detected in the deeper sample. However, the detected concentration in the deeper sample was below the EQL. Therefore, vertical extent is defined.

2-Methylnaphthalene and naphthalene were each detected at location 33-24729. Concentrations decreased downgradient, and lateral extent is defined. Concentrations were approximately the same at both depths sampled at location 33-24729, and results were below EQLs. Vertical extent is defined.

Phenanthrene and pyrene were each detected at the same six locations. Concentrations decreased downgradient, and lateral extent is defined. Concentrations decreased with depth at all locations, except locations 33-24727 and 33-25086. At location 33-24727, concentrations were approximately the same at both depths sampled, and results were below EQLs. Vertical extent is defined at this location. At location 33-25086, concentrations increased with depth, and vertical extent is not defined.

TPH-DRO was detected at location 33-25118, which is the most downgradient sampling location, and lateral extent is not defined. Concentrations decreased with depth at location 33-25118, and vertical extent is defined.

6.3.3.3 Radionuclides

Americium-241 was detected at location 33-24727. Concentrations decreased downgradient, and lateral extent is defined. Concentrations decreased with depth at location 33-24727, and vertical extent is defined.

Cesium-137 was detected at location 33-25086. Concentrations decreased downgradient, and lateral extent is defined. Concentrations decreased with depth at location 33-25806, and vertical extent is defined.

Plutonium-238 was detected at locations 33-24728, 33-25086, and 33-25119. Concentrations decreased downgradient, and lateral extent is defined. Concentrations increased with depth at all three locations, and vertical extent is not defined.

Plutonium-239/240 was detected at location 33-25119. Concentrations decreased downgradient, and lateral extent is defined. Concentrations decreased with depth at location 33-25119, and vertical extent is defined.

Strontium-90 was detected at locations 33-24727, 33-24728, and 33-25118. Concentrations decreased downgradient, and lateral extent is defined. Concentrations increased with depth at location 33-24727, and vertical extent is not defined.

Tritium was detected at 10 locations. Concentrations increased downgradient at the most downgradient location, and lateral extent is not defined. Concentrations increased with depth at locations 33-24727, 33-25119, and 33-25121, and only one depth was sampled at location 33-25086. Vertical extent is not defined.

6.3.3.4 Summary

The lateral extent of inorganic chemicals has not been defined at location 33-25118.The vertical extent of inorganic chemicals has not been defined at locations 33-24727, 33-25085, 33-25118, 33-25119, 33-25121, and 33-25122.

The lateral extent of organic chemicals has not been defined at location 33-25118. The vertical extent of organic chemicals has not been defined at location 33-25086.

The lateral extent of radionuclides has not been defined at location 33-25118. The vertical extent of radionuclides has not been defined at locations 33-24727, 33-24728, 33-25086, 33-25119, and 33-25121.

7.0 CONCLUSIONS

The nature and extent of contamination are not defined for the three SWMUs remediated and investigated during the 2005 VCA. The remaining extent issues are summarized below.

- *SWMU 33-002(a).* Vertical extent of aluminum, arsenic, barium, calcium, chromium, copper, lead, magnesium, mercury, nickel, selenium, silver, vanadium, acenaphthene, anthracene, Aroclor-1242, Aroclor-1254, Aroclor-1260, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, bis(2-ethylhexyl)phthalate, chrysene, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, 2-methylnaphthalene, naphthalene, phenanthrene, pyrene, plutonium-238, tritium, and uranium-238 is not defined.
- *SWMU 33-002(b).* Lateral extent of copper, selenium, acenaphthene, and TPH-DRO is not defined. Vertical extent of barium, calcium, mercury, selenium, Aroclor-1254, indeno(1,2,3-cd)pyrene, tetrachloroethene, americium-241, strontium-90, and tritium is not defined.
- *SWMU 33-002(c).* Lateral extent of cadmium, chromium, copper, lead, mercury, nickel, silver, zinc, TPH-DRO, and tritium is not defined. Vertical extent of calcium, chromium, copper, lead, mercury, perchlorate, selenium, phenanthrene, plutonium-238, strontium-90, and tritium is not defined.

8.0 RECOMMENDATIONS

Additional sampling is recommended to determine the extent of contamination at SWMUs 33-002(a–c). This sampling will be performed as part of the Chaquehui Canyon Aggregate Area investigation (LANL 2009, 107347). Specific sampling for each SWMU is presented in the investigation work plan for Chaquehui Canyon Aggregate Area.

9.0 REFERENCES AND MAP DATA SOURCES

9.1 References

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

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

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9.2 Map Data Sources

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

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

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

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

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

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

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

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

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

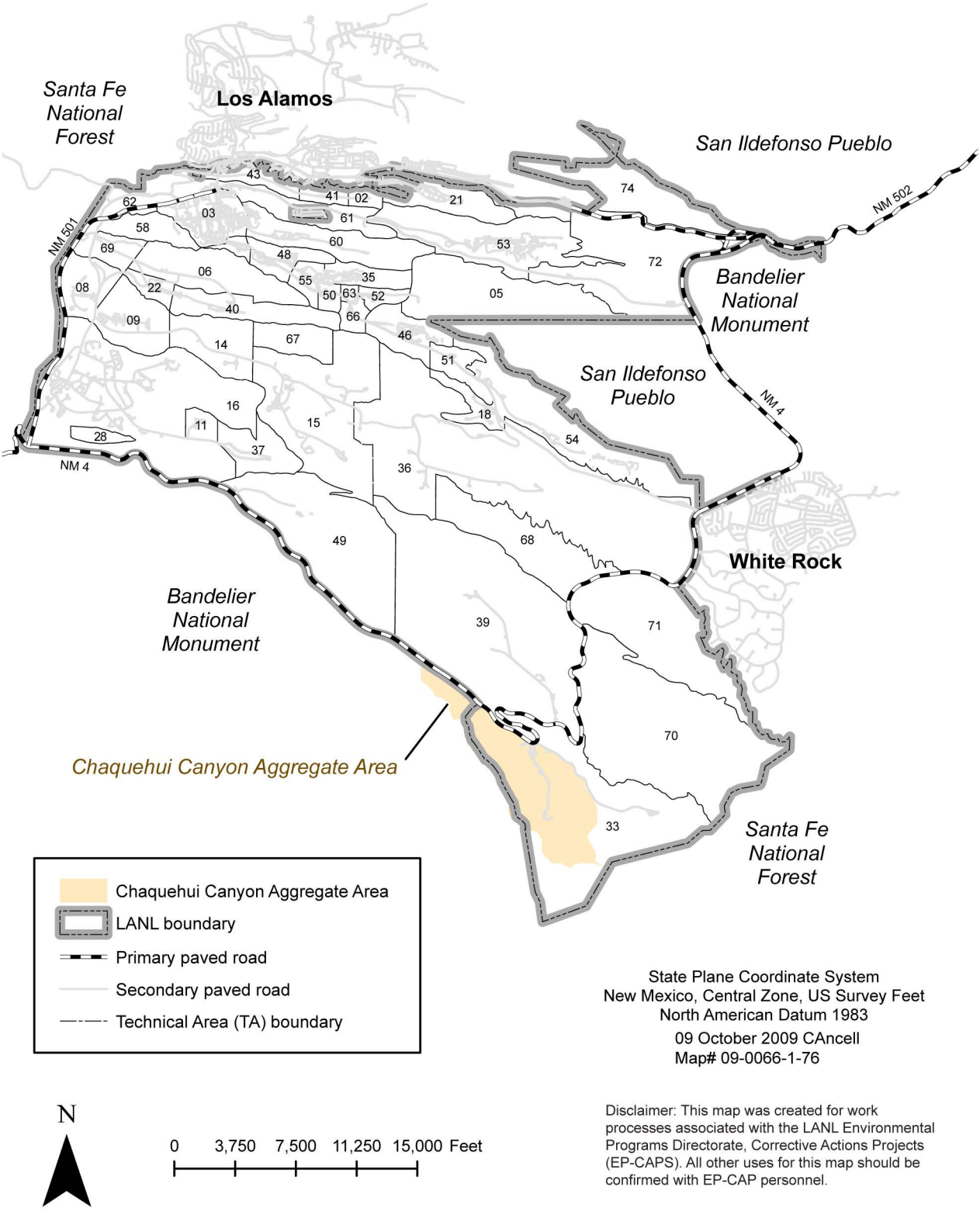


Figure 1.1-1 Location of TA-33 with respect to Laboratory TAs and surrounding land holdings

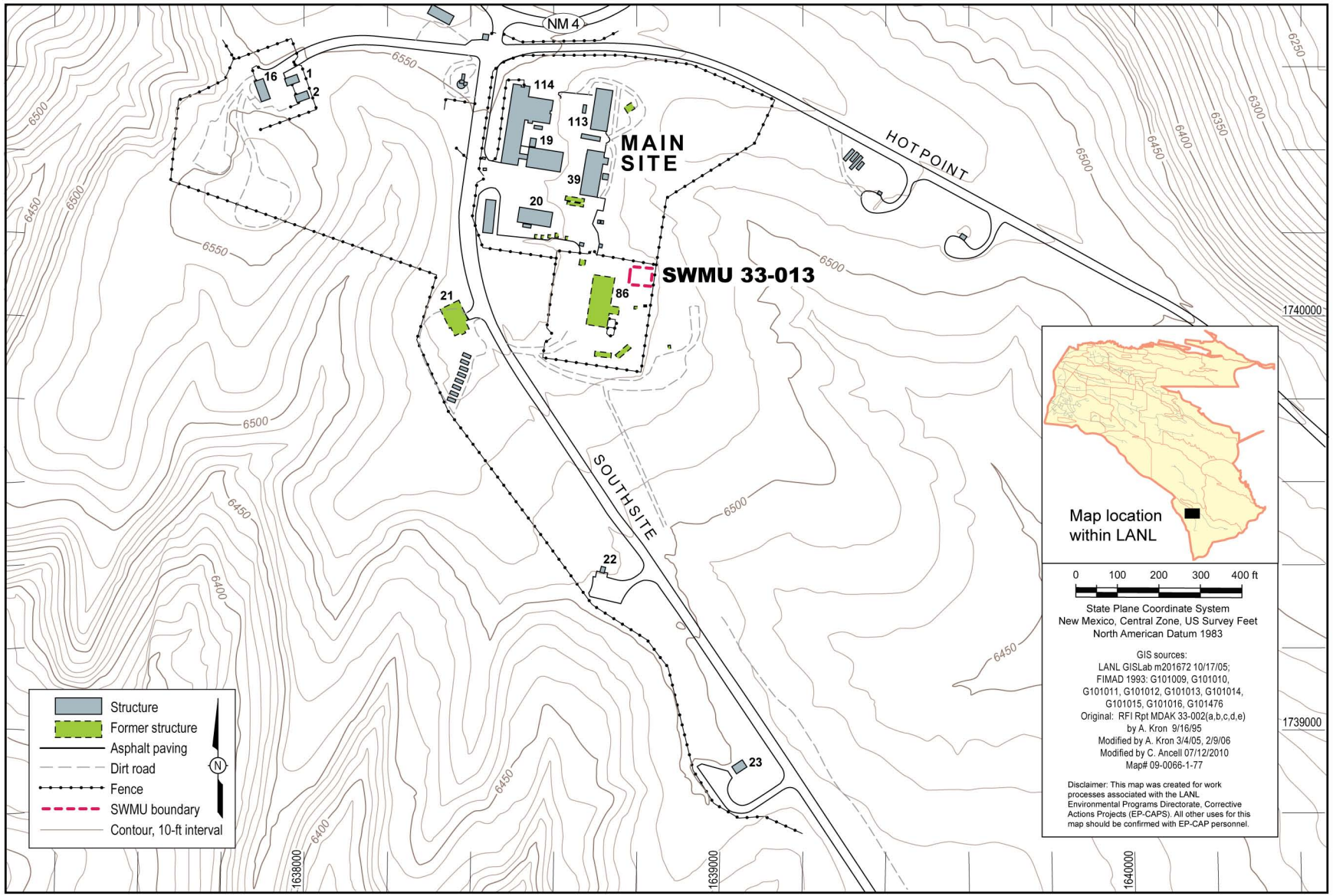
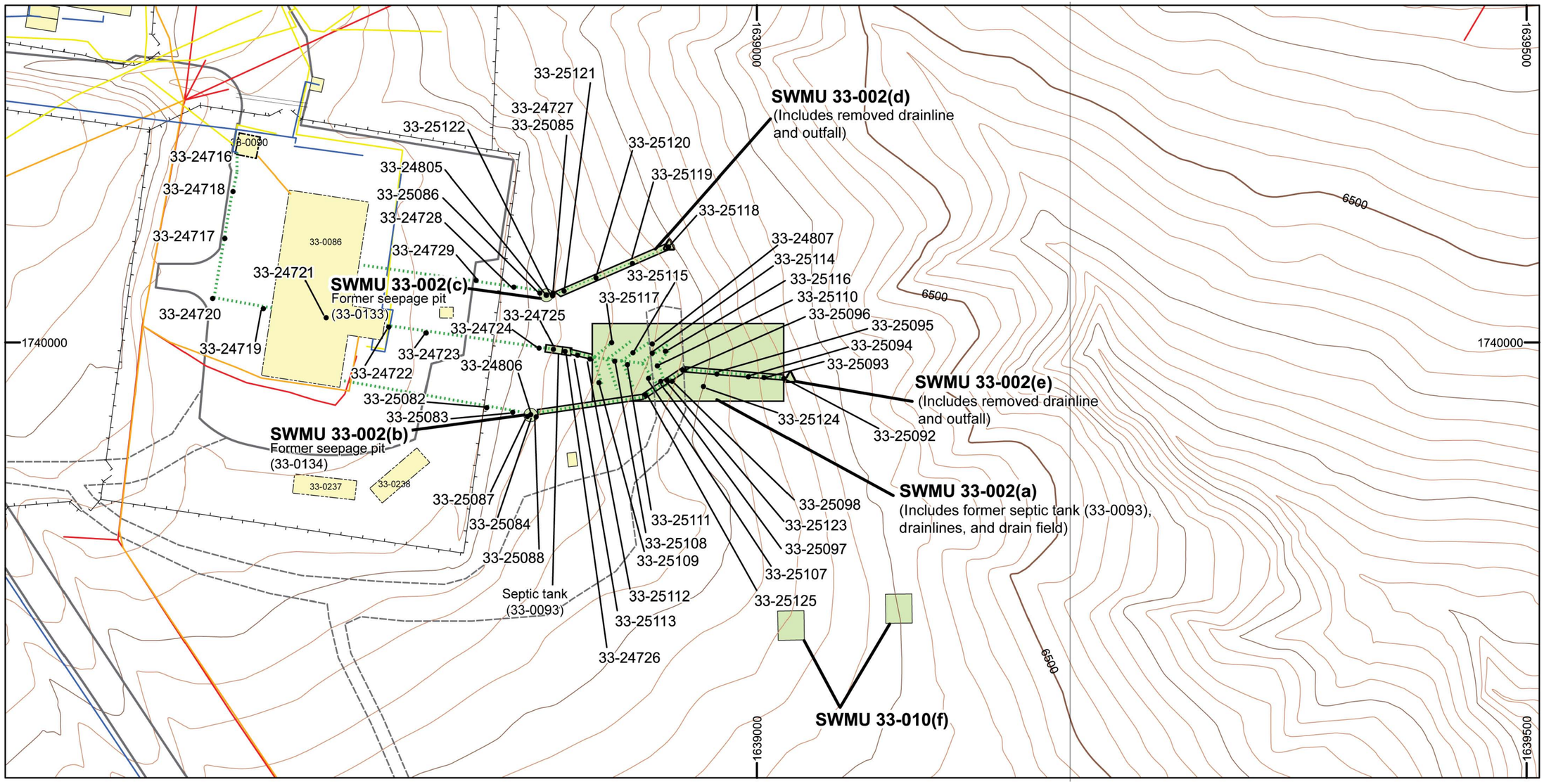


Figure 1.1-2 Location of Main Site at TA-33



- 2005 VCA sampling location
- Outfall
- AOC or SWMU
- Former structure
- Structure
- Fence
- Paved road
- Storm drain
- Unpaved road
- Communications
- Electric
- Former drainline
- Gas
- Water
- 2-ft contour
- 10-ft contour
- 20-ft contour
- 100-ft contour

Disclaimer: This map was created for work processes associated with the LANL Environmental Programs Directorate, Corrective Actions Projects (EP-CAPS). All other uses for this map should be confirmed with EP-CAP personnel.

40 20 0 40 80 120 160 Feet

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

13 October 2009 CAncell
Map# 09-0066-1-40

Figure 2.2-1 Site features and 2005 VCA sampling locations for SWMUs 33-002(a–c)

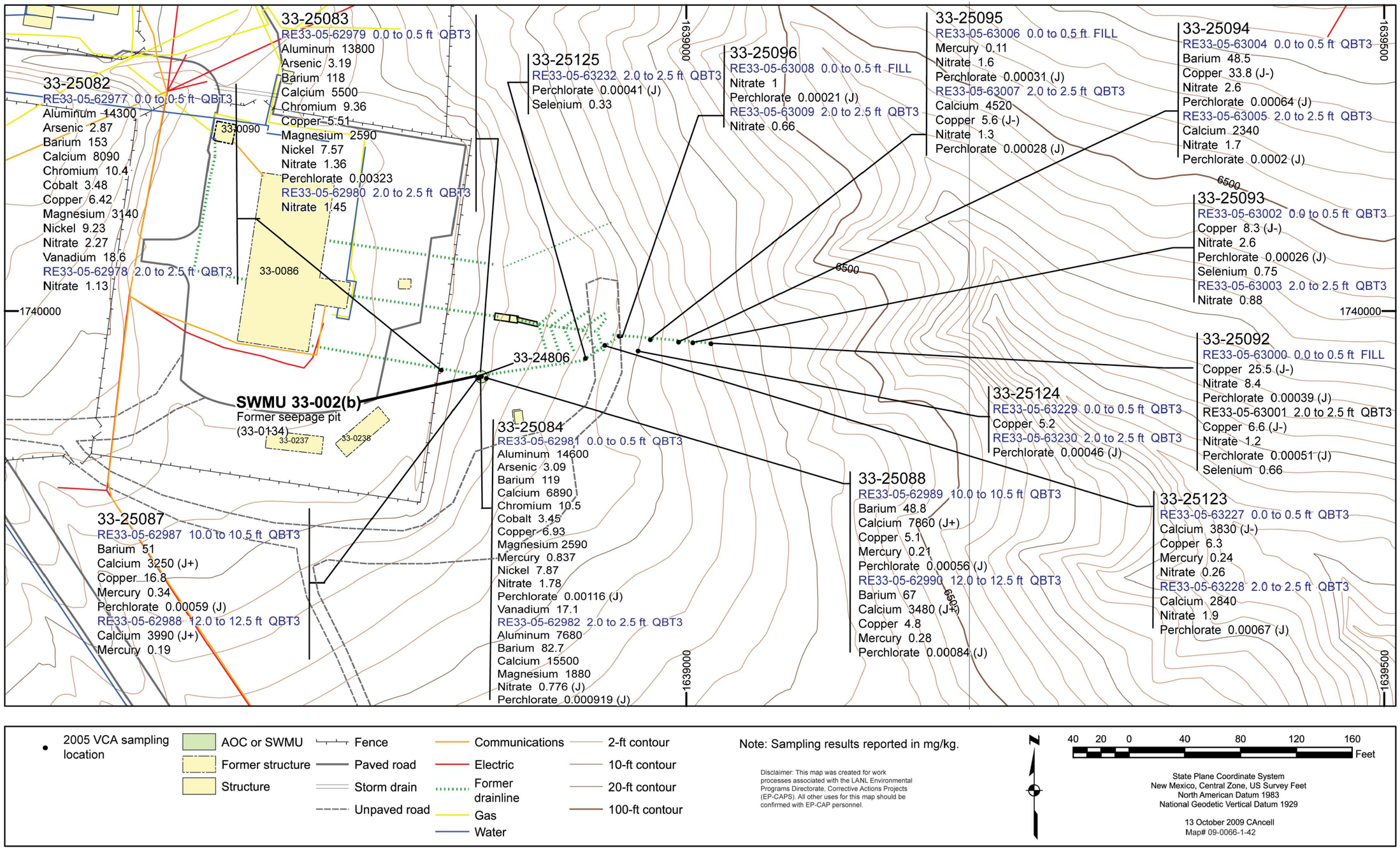


Figure 6.2-1 Inorganic chemicals detected or detected above BVs in 2005 VCA confirmation samples at SWMU 33-002(b)

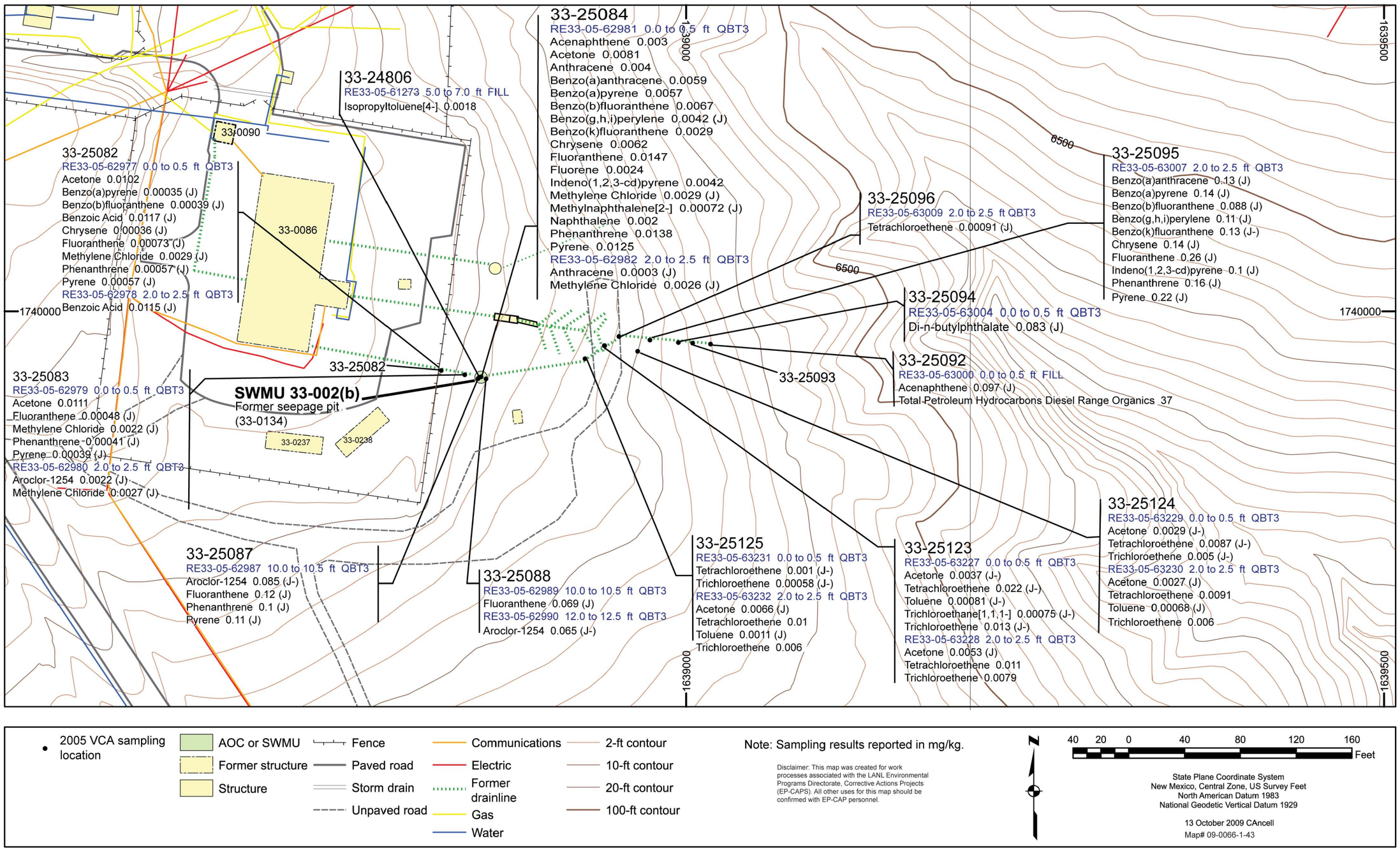


Figure 6.2-2 Organic chemicals detected in 2005 VCA confirmation samples at SWMU 33-002(b)

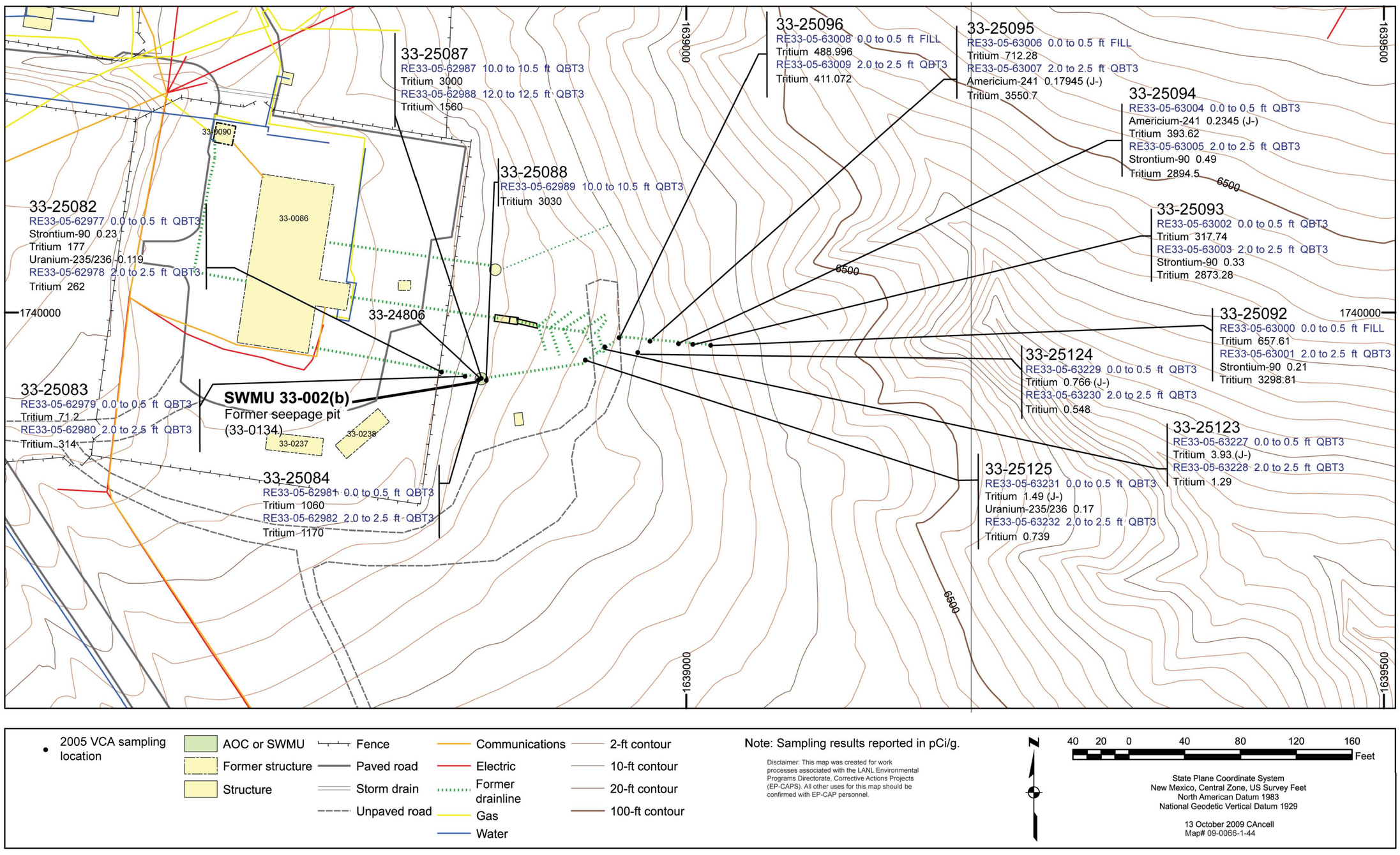


Figure 6.2-3 Radionuclides detected or detected above BVs/FVs in 2005 VCA confirmation samples at SWMU 33-002(b)

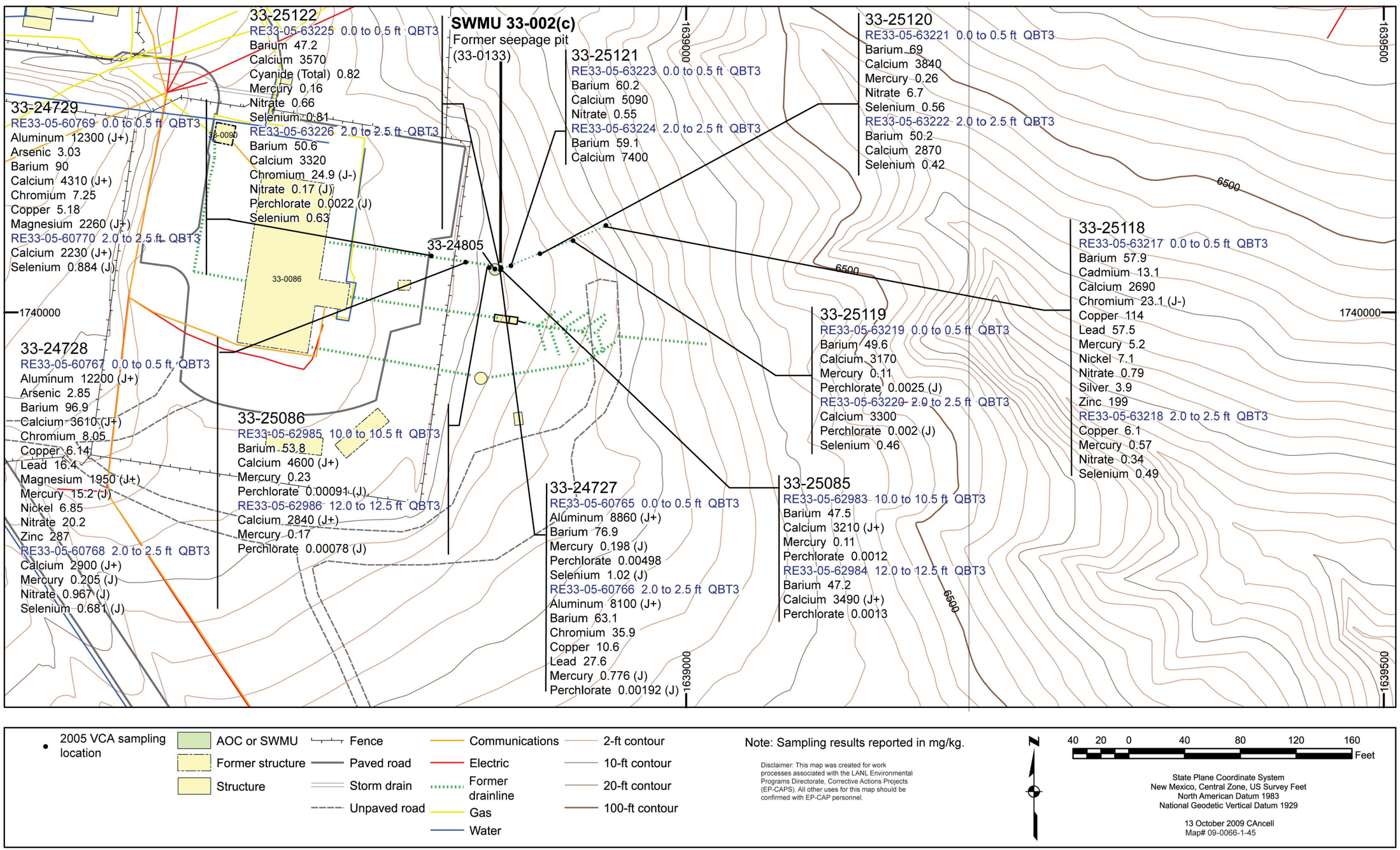


Figure 6.3-1 Inorganic chemicals detected or detected above BVs in 2005 VCA confirmation samples at SWMU 33-002(c)

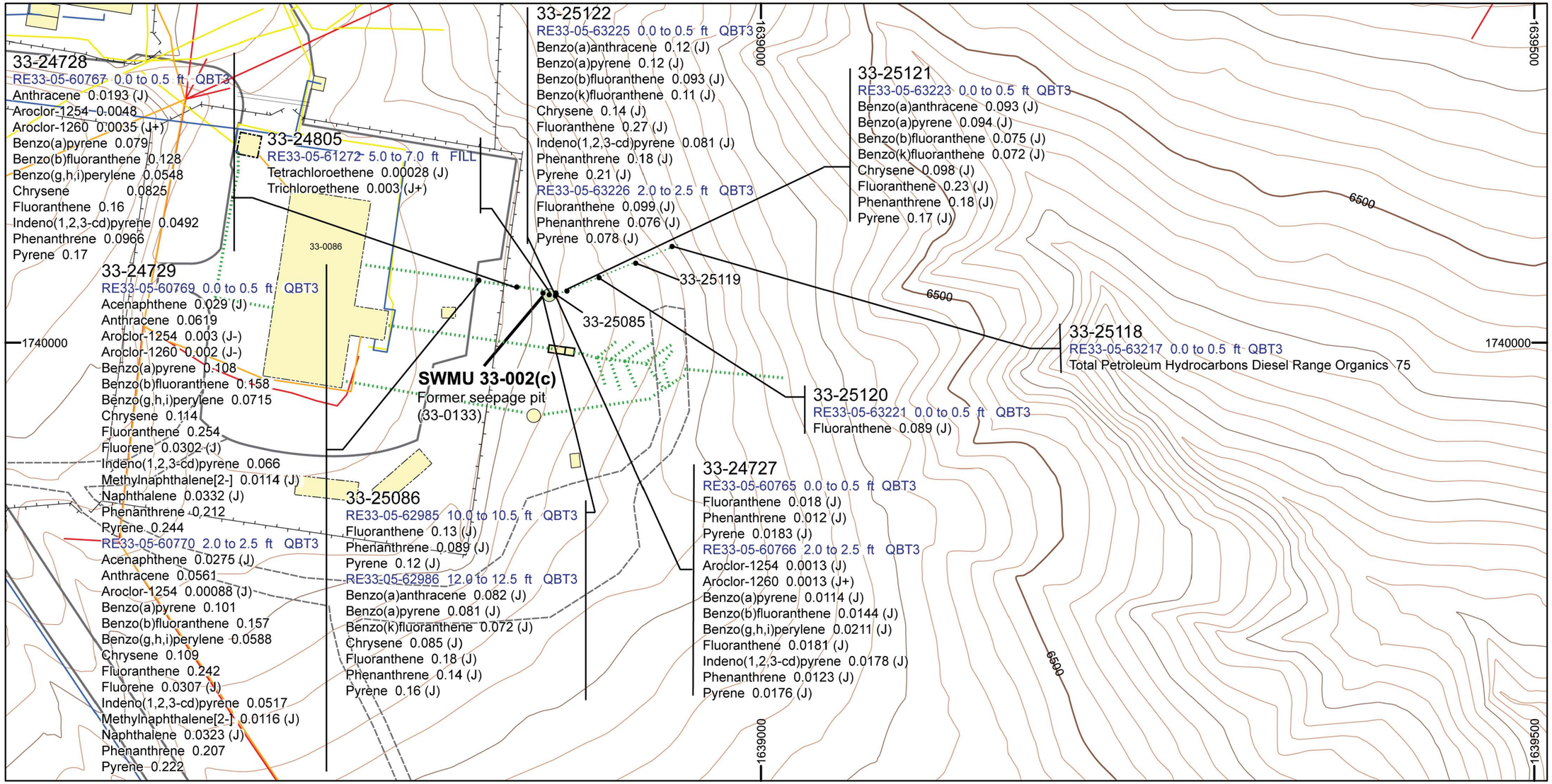


Figure 6.3-2 Organic chemicals detected in 2005 VCA confirmation samples at SWMU 33-002(c)

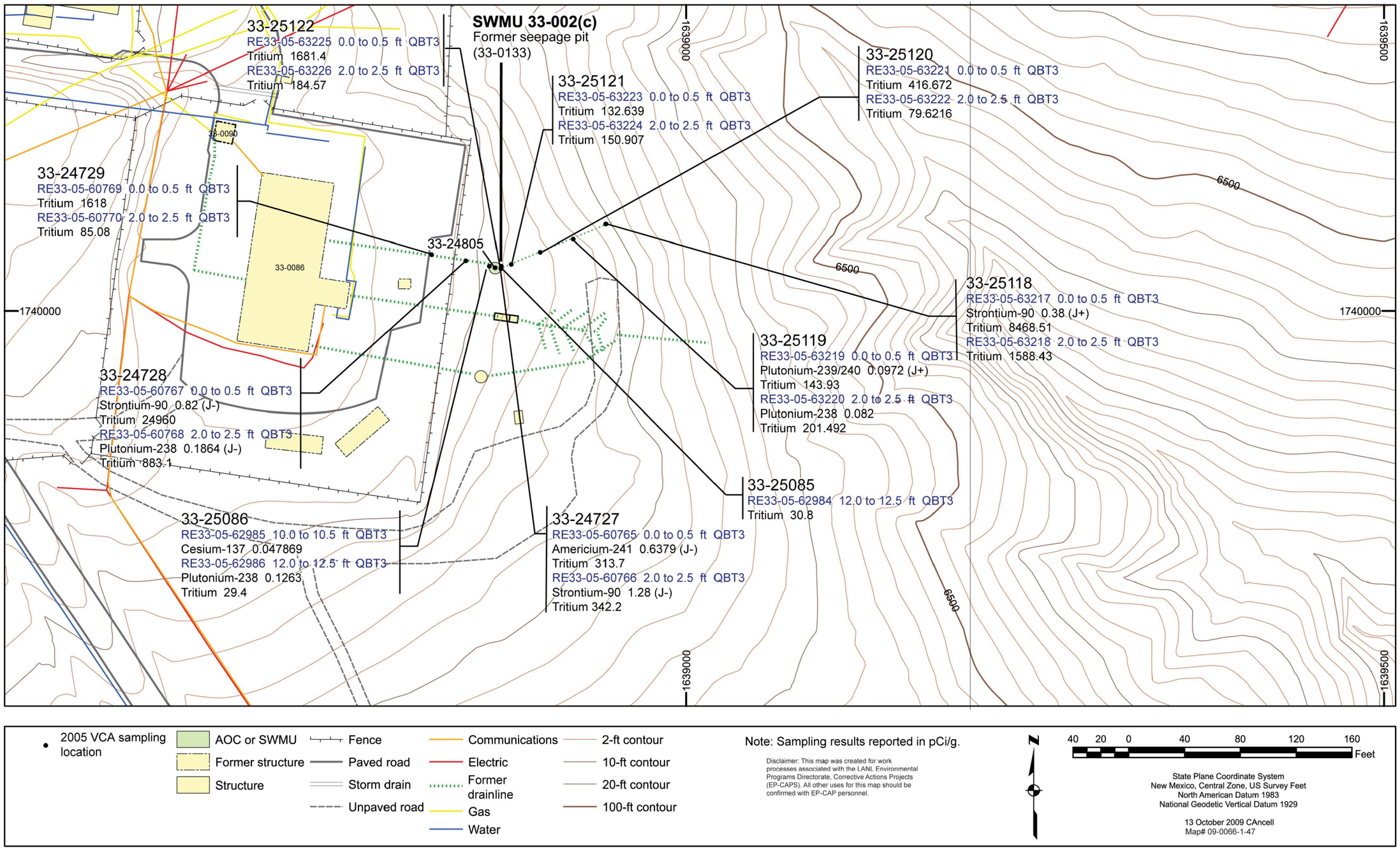


Figure 6.3-3 Radionuclides detected or detected above BVs/FVs in 2005 VCA confirmation samples at SWMU 33-002(c)

Table 3.0-1
Summary of VCA Investigation Methods

Method	Summary
Locating Utilities	Excavation/Soil Disturbance Permits were obtained from the Industrial Hygiene and Safety–Operational Support Group. Underground utilities were located and the excavation permits were secured before the readiness and planning review and before any VCA field activities were undertaken.
Spade-and-Scoop Collection of Soil Samples	This method was used to collect surface (i.e., 0–1 ft) soil or fill samples. A hole was dug to the desired depth and a discrete grab sample collected. The sample was homogenized in a decontaminated stainless-steel bowl before it was transferred to the appropriate sample containers.
Hand Auger Collection of Soil Samples	This method was used for subsurface sampling of soil or tuff at depths of less than 10–15 ft. The method involved hand-turning a stainless-steel bucket auger (3–4 in.-inside diameter), creating a vertical hole that was advanced to the desired sampling depth. When the desired depth was reached, the auger was decontaminated before the hole was advanced through the sampling depth. The sampling material was transferred from the auger bucket to a stainless-steel sampling bowl before the various required sample containers were filled.
Headspace Vapor Screening	All soil and tuff samples were field-screened for VOCs by placing a portion of the sample in a glass jar. The jar was sealed with foil and gently shaken and allowed to equilibrate for approximately 5 min. The sample was then screened by inserting a PID probe equipped with an 11.7-eV lamp into the container. The results were recorded in units of parts per million.
Radiological Screening	Samples were field-screened using an Eberline E-600/SHP-380AB to detect both alpha and undifferentiated beta/gamma gross readings. A 1-min reading was performed to determine gross alpha and beta/gamma radiation levels. All screening data were then recorded on the RCT field log and the SCLs.
Handling, Packaging, and Shipping of Samples	Samples were sealed and labeled before they were packed in ice. Sample and transport containers were examined to ensure they were free of external contamination. Samples were packaged to minimize the possibility of breakage during transport. After environmental samples were collected, packaged, and preserved, they were transported to the SMO. A split of each sample was sent to an SMO-approved radiation-screening laboratory under COC. Once radiation-screening results were received, the SMO sent the corresponding analytical samples to fixed laboratories for full analysis.
Sample Control and Field Documentation	The collection, screening, and transport of samples were documented on standard forms generated by the SMO. These forms include SCLs, COC forms, and sample container labels. SCLs were completed at the time the samples were collected and signed by the sampler and a reviewer who verified that the logs were complete and accurate. Corresponding labels were initialed and applied to each sample container, and custody seals were placed around container lids or openings. The COC forms were completed and assigned to verify that the samples were not left unattended.
Field Quality Control Samples	Field quality control samples were collected as follows. Field duplicate samples and equipment rinsate blanks were collected at a frequency of 10%. Field duplicates and equipment rinsate blanks were collected at the same time as regular samples and submitted for the same analyses. Trip blanks were collected whenever samples were collected for VOC analysis. Trip blanks were collected at a frequency of one sample per day when VOC samples were collected. Trip-blank containers consisted of certified clean sand that was opened and kept with the other sample containers during the sampling process.
Containers and Preservation of Samples	Specific requirements/processes for sample containers, preservation techniques, and holding times were based on EPA guidance for environmental sampling, preservation, and quality assurance. Specific requirements for each sample were printed on the SCLs provided by the SMO (size and type of container, preservatives, etc.). All samples were preserved by placing them in insulated containers with ice to maintain a temperature of 4°C.

Table 3.0-1 (continued)

Method	Summary
Coordinating and Evaluating Geodetic Surveys	Geodetic surveys were conducted with a Trimble digital GPS receiver. The survey data conformed to Laboratory Information Architecture project standards IA-CB02, "GIS Horizontal Spatial Reference System," and IA-D802, "Geospatial Positioning Accuracy Standards for A/E/C and Facility Management." All coordinates were expressed as State Plane Coordinate System, North American Datum 83, New Mexico Central Zone, U.S. survey feet. All elevation data were reported relative to the National Geodetic Vertical Datum of 1983.
Management, Characterization, and Storage of IDW	The IDW was managed, characterized, and stored in accordance with an approved WCSF that documented site history, field activities, and the characterization approach for each waste stream managed. Waste characterization complied with on-site or off-site waste acceptance criteria, as appropriate. All stored IDW was marked with appropriate signs and labels. Each waste-generated container was individually labeled with waste classification, item identification, and radioactivity (if applicable) immediately following containerization. All waste was segregated by classification and compatibility to prevent cross-contamination.
Field Decontamination of Equipment	Dry decontamination was used to minimize generating liquid waste. Dry decontamination included using a wire brush or other tool to remove soil or other material adhering to the sampling equipment, followed by applying a commercial cleaning agent (i.e., Fantastik) and paper wipes.

Table 3.2-1
Survey Coordinates of 2005 VCA Sampling Locations

Location ID	Easting (ft)	Northing (ft)
SWMU 33-002(a)		
33-24716	1638417.65	1740112.10
33-24717	1638654.17	1740067.59
33-24718	1638659.48	1740098.13
33-24719	1638646.19	1740028.56
33-24720	1638679.24	1740022.01
33-24721	1638719.94	1740016.09
33-24722	1638760.69	1740009.98
33-24723	1638784.92	1740006.15
33-24724	1638858.42	1739996.27
33-24725	1638867.64	1739995.47
33-24726	1638875.25	1739994.16
33-24807	1638932.00	1739999.00
33-25097	1638937.53	1739974.65
33-25098	1638944.69	1739974.65
33-25107	1638929.58	1739976.63
33-25108	1638907.56	1739987.78
33-25109	1638897.27	1739973.82
33-25110	1638935.31	1739984.75
33-25111	1638915.85	1739985.56
33-25112	1638891.42	1739989.20
33-25113	1638883.34	1739991.68
33-25114	1638931.99	1739992.95
33-25115	1638919.38	1739993.26
33-25116	1638940.56	1739994.24
33-25117	1638905.54	1739999.84
SWMU 33-002(b)		
33-25082	1638824.35	1739957.57
33-25083	1638841.24	1739954.49
33-25084	1638851.80	1739952.70
33-25087	1638850.81	1739951.84
33-25088	1638856.55	1739951.65
33-25092	1639017.48	1739976.49
33-25093	1639004.64	1739977.21
33-25094	1638994.34	1739977.64
33-25095	1638973.85	1739979.42
33-25096	1638951.66	1739981.95
33-25123	1638941.42	1739975.40

Table 3.2-1 (continued)

Location ID	Easting (ft)	Northing (ft)
33-25124	1638965.09	1739971.37
33-25125	1638927.50	1739966.00
SWMU 33-002(c)		
33-24727	1638867.31	1740031.47
33-24728	1638842.00	1740035.94
33-24729	1638817.40	1740040.32
33-24805	1638863.00	1740031.00
33-25085	1638867.31	1740032.05
33-25086	1638858.94	1740032.00
33-25118	1638942.35	1740062.13
33-25119	1638919.03	1740051.30
33-25120	1638895.33	1740041.99
33-25121	1638874.54	1740033.35
33-25122	1638867.12	1740030.29

Table 6.1-1
Samples Collected and Analyses Requested during 2005 VCA at SWMUs 33-002(a–c)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cyanide	Gamma Spectroscopy	High Explosives	Isotopic Plutonium	Isotopic Uranium	Metals	Nitrate	PCBs	Perchlorate	Strontium-90	SVOCs	TPH-DRO	Tritium	VOCs
SWMU 33-002(a)																		
RE33-05-60743	33-24716	0.0–0.5	Qbt3	3419S[a]	3421S	3419S	3420S	3419S	3419S	3421S	3421S	3420S	3421S	3419S	3420S	—[b]	3419S	3420S
RE33-05-60747	33-24716	2.0–2.5	Qbt3	3419S	3421S	3419S	3420S	3419S	3419S	3421S	3421S	3420S	3421S	3419S	3420S	—	3419S	3420S
RE33-05-60745	33-24717	0.0–0.5	Qbt3	3419S	3421S	3419S	3420S	3419S	3419S	3421S	3421S	3420S	3421S	3419S	3420S	—	3419S	3420S
RE33-05-60749	33-24717	2.0–2.5	Qbt3	3419S	3421S	3419S	3420S	3419S	3419S	3421S	3421S	3420S	3421S	3419S	3420S	—	3419S	3420S
RE33-05-60744	33-24718	0.0–0.5	Qbt3	3419S	3421S	3419S	3420S	3419S	3419S	3421S	3421S	3420S	3421S	3419S	3420S	—	3419S	3420S
RE33-05-60748	33-24718	2.0–2.5	Qbt3	3419S	3421S	3419S	3420S	3419S	3419S	3421S	3421S	3420S	3421S	3419S	3420S	—	3419S	3420S
RE33-05-60746	33-24719	0.0–0.5	Qbt3	3419S	3421S	3419S	3420S	3419S	3419S	3421S	3421S	3420S	3421S	3419S	3420S	—	3419S	3420S
RE33-05-60750	33-24719	2.0–2.5	Qbt3	3419S	3421S	3419S	3420S	3419S	3419S	3421S	3421S	3420S	3421S	3419S	3420S	—	3419S	3420S
RE33-05-60751	33-24720	0.0–0.5	Qbt3	3419S	3421S	3419S	3420S	3419S	3419S	3421S	3421S	3420S	3421S	3419S	3420S	—	3419S	3420S
RE33-05-60752	33-24720	2.0–2.5	Qbt3	3419S	3421S	3419S	3420S	3419S	3419S	3421S	3421S	3420S	3421S	3419S	3420S	—	3419S	3420S
RE33-05-60753	33-24721	0.0–0.5	Qbt3	3419S	3421S	3419S	3420S	3419S	3419S	3421S	3421S	3420S	3421S	3419S	3420S	—	3419S	3420S
RE33-05-60754	33-24721	2.0–2.5	Qbt3	3419S	3421S	3419S	3420S	3419S	3419S	3421S	3421S	3420S	3421S	3419S	3420S	—	3419S	3420S
RE33-05-60755	33-24722	0.0–0.5	Qbt3	3419S	3421S	3419S	3420S	3419S	3419S	3421S	3421S	3420S	3421S	3419S	3420S	—	3419S	3420S
RE33-05-60756	33-24722	2.0–2.5	Qbt3	3419S	3421S	3419S	3420S	3419S	3419S	3421S	3421S	3420S	3421S	3419S	3420S	—	3419S	3420S
RE33-05-60757	33-24723	0.0–0.5	Qbt3	3419S	3421S	3419S	3420S	3419S	3419S	3421S	3421S	3420S	3421S	3419S	3420S	—	3419S	3420S
RE33-05-60758	33-24723	2.0–2.5	Qbt3	3419S	3421S	3419S	3420S	3419S	3419S	3421S	3421S	3420S	3421S	3419S	3420S	—	3419S	3420S
RE33-05-60759	33-24724	0.0–0.5	Fill	3455S	3455S	3455S	3454S	3455S	3455S	3455S	3455S	3454S	3455S	3455S	3454S	—	3455S	3454S
RE33-05-60760	33-24724	2.0–2.5	Qbt3	3455S	3455S	3455S	3454S	3455S	3455S	3455S	3455S	3454S	3455S	3455S	3454S	—	3455S	3454S
RE33-05-60761	33-24725	0.0–0.5	Fill	3455S	3455S	3455S	3454S	3455S	3455S	3455S	3455S	3454S	3455S	3455S	3454S	—	3455S	3454S
RE33-05-60762	33-24725	2.0–2.5	Qbt3	3455S	3455S	3455S	3454S	3455S	3455S	3455S	3455S	3454S	3455S	3455S	3454S	—	3455S	3454S
RE33-05-60763	33-24726	0.0–0.5	Fill	3455S	3455S	3455S	3454S	3455S	3455S	3455S	3455S	3454S	3455S	3455S	3454S	—	3455S	3454S
RE33-05-60764	33-24726	2.0–2.5	Qbt3	3455S	3455S	3455S	3454S	3455S	3455S	3455S	3455S	3454S	3455S	3455S	3454S	—	3455S	3454S
RE33-05-63010	33-25097	0.0–0.5	Fill	3714S	3713S	3714S	—	3714S	3714S	3713S	3713S	3712S	3713S	3714S	3712S	3712S	3714S	3712S
RE33-05-63011	33-25097	2.0–2.5	Fill	3769S	3768S	3769S	—	3769S	3769S	3768S	3768S	3767S	3768S	3769S	3767S	3767S	3769S	3767S
RE33-05-63012	33-25098	0.0–0.5	Fill	3714S	3713S	3714S	—	3714S	3714S	3713S	3713S	3712S	3713S	3714S	3712S	3712S	3714S	3712S
RE33-05-63013	33-25098	2.0–2.5	Fill	3769S	3768S	3769S	—	3769S	3769S	3768S	3768S	3767S	3768S	3769S	3767S	3767S	3769S	3767S
RE33-05-63195	33-25107	0.0–0.5	Fill	3714S	3713S	3714S	—	3714S	3714S	3713S	3713S	3712S	3713S	3714S	3712S	3712S	3714S	3712S
RE33-05-63196	33-25107	2.0–2.5	Fill	3769S	3768S	3769S	—	3769S	3769S	3768S	3768S	3767S	3768S	3769S	3767S	3767S	3769S	3767S
RE33-05-63197	33-25108	0.0–0.5	Fill	3714S	3713S	3714S	—	3714S	3714S	3713S	3713S	3712S	3713S	3714S	3712S	3712S	3714S	3712S
RE33-05-63198	33-25108	2.0–2.5	Fill	3769S	3768S	3769S	—	3769S	3769S	3768S	3768S	3767S	3768S	3769S	3767S	3767S	3769S	3767S
RE33-05-63199	33-25109	0.0–0.5	Fill	3714S	3713S	3714S	—	3714S	3714S	3713S	3713S	3712S	3713S	3714S	3712S	3712S	3714S	3712S
RE33-05-63200	33-25109	2.0–2.5	Fill	3769S	3768S	3769S	—	3769S	3769S	3768S	3768S	3767S	3768S	3769S	3767S	3767S	3769S	3767S

Table 6.1-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cyanide	Gamma Spectroscopy	High Explosives	Isotopic Plutonium	Isotopic Uranium	Metals	Nitrate	PCBs	Perchlorate	Strontium-90	SVOCs	TPH-DRO	Tritium	VOCs
RE33-05-63201	33-25110	0.0–0.5	Fill	3769S	3768S	3769S	—	3769S	3769S	3768S	3768S	3767S	3768S	3769S	3767S	3767S	3769S	3767S
RE33-05-63202	33-25110	2.0–2.5	Fill	3769S	3768S	3769S	—	3769S	3769S	3768S	3768S	3767S	3768S	3769S	3767S	3767S	3769S	3767S
RE33-05-63203	33-25111	0.0–0.5	Fill	3769S	3768S	3769S	—	3769S	3769S	3768S	3768S	3767S	3768S	3769S	3767S	3767S	3769S	3767S
RE33-05-63204	33-25111	2.0–2.5	Fill	3769S	3768S	3769S	—	3769S	3769S	3768S	3768S	3767S	3768S	3769S	3767S	3767S	3769S	3767S
RE33-05-63205	33-25112	0.0–0.5	Fill	3769S	3768S	3769S	—	3769S	3769S	3768S	3768S	3767S	3768S	3769S	3767S	3767S	3769S	3767S
RE33-05-63206	33-25112	2.0–2.5	Fill	3769S	3768S	3769S	—	3769S	3769S	3768S	3768S	3767S	3768S	3769S	3767S	3767S	3769S	3767S
RE33-05-63207	33-25113	0.0–0.5	Fill	3769S	3768S	3769S	—	3769S	3769S	3768S	3768S	3767S	3768S	3769S	3767S	3767S	3769S	3767S
RE33-05-63208	33-25113	2.0–2.5	Fill	3769S	3768S	3769S	—	3769S	3769S	3768S	3768S	3767S	3768S	3769S	3767S	3767S	3769S	3767S
RE33-05-63209	33-25114	0.0–0.5	Fill	3769S	3768S	3769S	—	3769S	3769S	3768S	3768S	3767S	3768S	3769S	3767S	3767S	3769S	3767S
RE33-05-63210	33-25114	2.0–2.5	Fill	3769S	3768S	3769S	—	3769S	3769S	3768S	3768S	3767S	3768S	3769S	3767S	3767S	3769S	3767S
RE33-05-63211	33-25115	0.0–0.5	Fill	3769S	3768S	3769S	—	3769S	3769S	3768S	3768S	3767S	3768S	3769S	3767S	3767S	3769S	3767S
RE33-05-63212	33-25115	2.0–2.5	Fill	3769S	3768S	3769S	—	3769S	3769S	3768S	3768S	3767S	3768S	3769S	3767S	3767S	3769S	3767S
RE33-05-63213	33-25116	0.0–0.5	Fill	3769S	3768S	3769S	—	3769S	3769S	3768S	3768S	3767S	3768S	3769S	3767S	3767S	3769S	3767S
RE33-05-63214	33-25116	2.0–2.5	Fill	3769S	3768S	3769S	—	3769S	3769S	3768S	3768S	3767S	3768S	3769S	3767S	3767S	3769S	3767S
RE33-05-63215	33-25117	0.0–0.5	Fill	3769S	3768S	3769S	—	3769S	3769S	3768S	3768S	3767S	3768S	3769S	3767S	3767S	3769S	3767S
RE33-05-63216	33-25117	2.0–2.5	Fill	3769S	3768S	3769S	—	3769S	3769S	3768S	3768S	3767S	3768S	3769S	3767S	3767S	3769S	3767S
SWMU 33-002(b)																		
RE33-05-62977	33-25082	0.0–0.5	Qbt3	3634S	3634S	3634S	3633S	3634S	3634S	3634S	3634S	3634S	3634S	3634S	3634S	—	3634S	3634S
RE33-05-62978	33-25082	2.0–2.5	Qbt3	3634S	3634S	3634S	3633S	3634S	3634S	3634S	3634S	3634S	3634S	3634S	3634S	—	3634S	3634S
RE33-05-62979	33-25083	0.0–0.5	Qbt3	3634S	3634S	3634S	3633S	3634S	3634S	3634S	3634S	3634S	3634S	3634S	3634S	—	3634S	3634S
RE33-05-62980	33-25083	2.0–2.5	Qbt3	3634S	3634S	3634S	3633S	3634S	3634S	3634S	3634S	3634S	3634S	3634S	3634S	—	3634S	3634S
RE33-05-62981	33-25084	0.0–0.5	Qbt3	3634S	3634S	3634S	3633S	3634S	3634S	3634S	3634S	3634S	3634S	3634S	3634S	—	3634S	3634S
RE33-05-62982	33-25084	2.0–2.5	Qbt3	3634S	3634S	3634S	3633S	3634S	3634S	3634S	3634S	3634S	3634S	3634S	3634S	—	3634S	3634S
RE33-05-62987	33-25087	10.0–10.5	Qbt3	3972S	3971S	3972S	3970S	3972S	3972S	3971S	3971S	3970S	3971S	3972S	3970S	—	3971S	3970S
RE33-05-62988	33-25087	12.0–12.5	Qbt3	3972S	3971S	3972S	3970S	3972S	3972S	3971S	3971S	3970S	3971S	3972S	3970S	—	3971S	3970S
RE33-05-62989	33-25088	10.0–10.5	Qbt3	3972S	3971S	3972S	3970S	3972S	3972S	3971S	3971S	3970S	3971S	3972S	3970S	—	3971S	3970S
RE33-05-62990	33-25088	12.0–12.5	Qbt3	3972S	3971S	3972S	3970S	3972S	3972S	3971S	3971S	3970S	3971S	3972S	3970S	—	—	3970S
RE33-05-63000	33-25092	0.0–0.5	Fill	3701S	3700S	3701S	—	3701S	3701S	3700S	3700S	3699S	3700S	3701S	3699S	3699S	3701S	3699S
RE33-05-63001	33-25092	2.0–2.5	Qbt3	3714S	3713S	3714S	—	3714S	3714S	3713S	3713S	3712S	3713S	3714S	3712S	3712S	3714S	3712S
RE33-05-63002	33-25093	0.0–0.5	Qbt3	3701S	3700S	3701S	—	3701S	3701S	3700S	3700S	3699S	3700S	3701S	3699S	3699S	3701S	3699S
RE33-05-63003	33-25093	2.0–2.5	Qbt3	3714S	3713S	3714S	—	3714S	3714S	3713S	3713S	3712S	3713S	3714S	3712S	3712S	3714S	3712S
RE33-05-63004	33-25094	0.0–0.5	Qbt3	3701S	3700S	3701S	—	3701S	3701S	3700S	3700S	3699S	3700S	3701S	3699S	3699S	3701S	3699S
RE33-05-63005	33-25094	2.0–2.5	Qbt3	3714S	3713S	3714S	—	3714S	3714S	3713S	3713S	3712S	3713S	3714S	3712S	3712S	3714S	3712S
RE33-05-63006	33-25095	0.0–0.5	Fill	3701S	3700S	3701S	—	3701S	3701S	3700S	3700S	3699S	3700S	3701S	3699S	3699S	3701S	3699S

Table 6.1-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cyanide	Gamma Spectroscopy	High Explosives	Isotopic Plutonium	Isotopic Uranium	Metals	Nitrate	PCBs	Perchlorate	Strontium-90	SVOCs	TPH-DRO	Tritium	VOCs
RE33-05-63007	33-25095	2.0–2.5	Qbt3	3714S	3713S	3714S	—	3714S	3714S	3713S	3713S	3712S	3713S	3714S	3712S	3712S	3714S	3712S
RE33-05-63008	33-25096	0.0–0.5	Fill	3701S	3700S	3701S	—	3701S	3701S	3700S	3700S	3699S	3700S	3701S	3699S	3699S	3701S	3699S
RE33-05-63009	33-25096	2.0–2.5	Qbt3	3714S	3713S	3714S	—	3714S	3714S	3713S	3713S	3712S	3713S	3714S	3712S	3712S	3714S	3712S
RE33-05-63227	33-25123	0.0–0.5	Qbt3	3895S	3895S	3895S	—	3895S	3895S	3895S	3895S	3895S	3895S	3895S	3895S	3895S	3895S	3895S
RE33-05-63228	33-25123	2.0–2.5	Qbt3	3877S	3877S	3877S	—	3877S	3877S	3877S	3877S	3877S	3877S	3877S	3877S	3877S	3877S	3877S
RE33-05-63229	33-25124	0.0–0.5	Qbt3	3895S	3895S	3895S	—	3895S	3895S	3895S	3895S	3895S	3895S	3895S	3895S	3895S	3895S	3895S
RE33-05-63230	33-25124	2.0–2.5	Qbt3	3877S	3877S	3877S	—	3877S	3877S	3877S	3877S	3877S	3877S	3877S	3877S	3877S	3877S	3877S
RE33-05-63231	33-25125	0.0–0.5	Qbt3	3895S	3895S	3895S	—	3895S	3895S	3895S	3895S	3895S	3895S	3895S	3895S	3895S	3895S	3895S
RE33-05-63232	33-25125	2.0–2.5	Qbt3	3877S	3877S	3877S	—	3877S	3877S	3877S	3877S	3877S	3877S	3877S	3877S	3877S	3877S	3877S
SWMU 33-002(c)																		
RE33-05-60765	33-24727	0.0–0.5	Qbt3	3422S	3424S	3422S	3423S	3422S	3422S	3424S	3424S	3423S	3424S	3422S	3423S	—	3422S	3423S
RE33-05-60766	33-24727	2.0–2.5	Qbt3	3422S	3424S	3422S	3423S	3422S	3422S	3424S	3424S	3423S	3424S	3422S	3423S	—	3422S	3423S
RE33-05-60767	33-24728	0.0–0.5	Qbt3	3422S	3424S	3422S	3423S	3422S	3422S	3424S	3424S	3423S	3424S	3422S	3423S	—	3422S	3423S
RE33-05-60768	33-24728	2.0–2.5	Qbt3	3422S	3424S	3422S	3423S	3422S	3422S	3424S	3424S	3423S	3424S	3422S	3423S	—	3422S	3423S
RE33-05-60769	33-24729	0.0–0.5	Qbt3	3422S	3424S	3422S	3423S	3422S	3422S	3424S	3424S	3423S	3424S	3422S	3423S	—	3422S	3423S
RE33-05-60770	33-24729	2.0–2.5	Qbt3	3422S	3424S	3422S	3423S	3422S	3422S	3424S	3424S	3423S	3424S	3422S	3423S	—	3422S	3423S
RE33-05-62983	33-25085	10.0–10.5	Qbt3	3972S	3971S	3972S	3970S	3972S	3972S	3971S	3971S	3970S	3971S	3972S	3970S	—	—	3970S
RE33-05-62984	33-25085	12.0–12.5	Qbt3	3972S	3971S	3972S	3970S	3972S	3972S	3971S	3971S	3970S	3971S	3972S	3970S	—	3971S	3970S
RE33-05-62985	33-25086	10.0–10.5	Qbt3	3972S	3971S	3972S	3970S	3972S	3972S	3971S	3971S	3970S	3971S	3972S	3970S	—	—	3970S
RE33-05-62986	33-25086	12.0–12.5	Qbt3	3972S	3971S	3972S	3970S	3972S	3972S	3971S	3971S	3970S	3971S	3972S	3970S	—	3971S	3970S
RE33-05-63217	33-25118	0.0–0.5	Qbt3	3818S	3817S	3818S	—	3818S	3818S	3817S	3817S	3816S	3817S	3818S	3816S	3816S	3818S	3816S
RE33-05-63218	33-25118	2.0–2.5	Qbt3	3818S	3817S	3818S	—	3818S	3818S	3817S	3817S	3816S	3817S	3818S	3816S	3816S	3818S	3816S
RE33-05-63219	33-25119	0.0–0.5	Qbt3	3818S	3817S	3818S	—	3818S	3818S	3817S	3817S	3816S	3817S	3818S	3816S	3816S	3818S	3816S
RE33-05-63220	33-25119	2.0–2.5	Qbt3	3818S	3817S	3818S	—	3818S	3818S	3817S	3817S	3816S	3817S	3818S	3816S	3816S	3818S	3816S
RE33-05-63221	33-25120	0.0–0.5	Qbt3	3818S	3817S	3818S	—	3818S	3818S	3817S	3817S	3816S	3817S	3818S	3816S	3816S	3818S	3816S
RE33-05-63222	33-25120	2.0–2.5	Qbt3	3818S	3817S	3818S	—	3818S	3818S	3817S	3817S	3816S	3817S	3818S	3816S	3816S	3818S	3816S
RE33-05-63223	33-25121	0.0–0.5	Qbt3	3818S	3817S	3818S	—	3818S	3818S	3817S	3817S	3816S	3817S	3818S	3816S	3816S	3818S	3816S
RE33-05-63224	33-25121	2.0–2.5	Qbt3	3818S	3817S	3818S	—	3818S	3818S	3817S	3817S	3816S	3817S	3818S	3816S	3816S	3818S	3816S
RE33-05-63225	33-25122	0.0–0.5	Qbt3	3818S	3817S	3818S	—	3818S	3818S	3817S	3817S	3816S	3817S	3818S	3816S	3816S	3818S	3816S
RE33-05-63226	33-25122	2.0–2.5	Qbt3	3818S	3817S	3818S	—	3818S	3818S	3817S	3817S	3816S	3817S	3818S	3816S	3816S	3818S	3816S

[a] Analytical request number.

[b] — = Analysis not requested.

Table 6.1-2
Inorganic Chemicals Detected above BVs in 2005 VCA Confirmation Samples at SWMUs 33-002(a–c)

Sample ID	Location ID	Depth (ft bgs)	Media	Aluminum	Arsenic	Barium	Cadmium	Calcium	Chromium	Cobalt	Copper	Cyanide (Total)	Lead
Soil BV[a]				**29200**	**8.17**	**295**	**0.4**	**6120**	**19.3**	**8.64**	**14.7**	**0.5**	**22.3**
Qbt 2, 3, 4 BV[a]				**7340**	**2.79**	**46**	**1.63**	**2200**	**7.14**	**3.14**	**4.66**	**0.5**	**11.2**
Industrial SSL[b]				**1130000**	**17.7**	**224000**	**1120**	**na**[c]	**2920**	**300**[d]	**45400**	**22700**	**800**
Residential SSL[b]				**78100**	**3.59**	**15600**	**77.9**	**na**	**219**	**23**[d]	**3130**	**1560**	**400**
SWMU 33-002(a)													
RE33-05-60743	33-24716	0.0–0.5	Qbt 3	—[e]	3.29	—	—	13300 (J)	—	—	5.33	—	44.5 (J-)
RE33-05-60747	33-24716	2.0–2.5	Qbt 3	—	—	—	—	3940 (J)	—	—	—	—	—
RE33-05-60745	33-24717	0.0–0.5	Qbt 3	—	2.95	—	—	13000 (J)	—	—	—	—	—
RE33-05-60749	33-24717	2.0–2.5	Qbt 3	—	2.91	—	—	12600 (J)	—	—	—	—	—
RE33-05-60744	33-24718	0.0–0.5	Qbt 3	—	—	—	—	4280 (J)	—	—	5.04	—	—
RE33-05-60748	33-24718	2.0–2.5	Qbt 3	—	3.06	—	—	12500 (J)	—	—	5.31	—	—
RE33-05-60746	33-24719	0.0–0.5	Qbt 3	—	—	79.7 (J-)	—	22200 (J)	—	—	6.83	—	—
RE33-05-60750	33-24719	2.0–2.5	Qbt 3	—	—	—	—	—	—	—	—	—	—
RE33-05-60751	33-24720	0.0–0.5	Qbt 3	—	—	46.8 (J-)	—	7670 (J)	—	—	5.22	—	—
RE33-05-60752	33-24720	2.0–2.5	Qbt 3	—	—	54.4 (J-)	—	8230 (J)	—	—	—	—	—
RE33-05-60753	33-24721	0.0–0.5	Qbt 3	12900	3.75	147 (J-)	—	17100 (J)	—	—	9.24	—	81.1 (J-)
RE33-05-60754	33-24721	2.0–2.5	Qbt 3	13800	3.74	156 (J-)	—	14900 (J)	—	—	5.56	—	88.8 (J-)
RE33-05-60755	33-24722	0.0–0.5	Qbt 3	13000	3.49	101 (J-)	—	8740 (J)	8.05	—	8.44	—	—
RE33-05-60756	33-24722	2.0–2.5	Qbt 3	13200	3.46	102 (J-)	—	7630 (J)	7.3	—	6.97	—	12.6 (J-)
RE33-05-60757	33-24723	0.0–0.5	Qbt 3	14300	3.77	112 (J-)	—	6720 (J)	8.22	—	37.3	—	—
RE33-05-60758	33-24723	2.0–2.5	Qbt 3	17000	4.13	131 (J-)	—	6500 (J)	10.5	—	20.9	—	—
RE33-05-60759	33-24724	0.0–0.5	Fill	—	—	339 (J)	0.569 (U)	10400 (J)	—	—	—	—	—
RE33-05-60760	33-24724	2.0–2.5	Qbt 3	9970 (J+)	—	75.4 (J)	—	4590 (J)	—	—	—	—	—
RE33-05-60761	33-24725	0.0–0.5	Fill	—	—	—	—	10900 (J)	—	—	35.4	—	—
RE33-05-60762	33-24725	2.0–2.5	Qbt 3	8630 (J+)	—	58.6 (J)	—	2880 (J)	—	—	5.85	—	—
RE33-05-60763	33-24726	0.0–0.5	Fill	—	—	—	—	8120 (J)	—	—	88	—	57.7
RE33-05-60764	33-24726	2.0–2.5	Qbt 3	10900 (J+)	3.19	81.9 (J)	—	17100 (J)	10.9	—	37.8	—	19.2
RE33-05-63010	33-25097	0.0–0.5	Fill	—	—	—	—	—	—	—	—	0.55 (U)	—
RE33-05-63011	33-25097	2.0–2.5	Fill	—	—	—	—	—	—	—	—	0.52 (U)	—
RE33-05-63012	33-25098	0.0–0.5	Fill	—	—	—	—	—	—	—	—	0.54 (U)	—
RE33-05-63013	33-25098	2.0–2.5	Fill	—	—	—	—	—	—	—	21.7	0.54 (U)	—
RE33-05-63195	33-25107	0.0–0.5	Fill	—	—	—	—	—	30.6	—	66.6 (J-)	0.53 (U)	—
RE33-05-63196	33-25107	2.0–2.5	Fill	—	—	—	—	—	—	—	—	0.51 (U)	—
RE33-05-63197	33-25108	0.0–0.5	Fill	—	—	—	—	—	—	—	—	0.53 (U)	—
RE33-05-63198	33-25108	2.0–2.5	Fill	—	—	—	—	—	—	—	—	0.53 (U)	—

Table 6.1-2 (continued)

Sample ID	Location ID	Depth (ft bgs)	Media	Aluminum	Arsenic	Barium	Cadmium	Calcium	Chromium	Cobalt	Copper	Cyanide (Total)	Lead
Soil BV[a]				**29200**	**8.17**	**295**	**0.4**	**6120**	**19.3**	**8.64**	**14.7**	**0.5**	**22.3**
Qbt 2, 3, 4 BV[a]				**7340**	**2.79**	**46**	**1.63**	**2200**	**7.14**	**3.14**	**4.66**	**0.5**	**11.2**
Industrial SSL[b]				**1130000**	**17.7**	**224000**	**1120**	**na**[c]	**2920**	**300**[d]	**45400**	**22700**	**800**
Residential SSL[b]				**78100**	**3.59**	**15600**	**77.9**	**na**	**219**	**23**[d]	**3130**	**1560**	**400**
RE33-05-63199	33-25109	0.0–0.5	Fill	—	—	—	—	—	—	—	—	0.54 (U)	—
RE33-05-63200	33-25109	2.0–2.5	Fill	—	—	—	—	—	—	—	—	0.53 (U)	—
RE33-05-63201	33-25110	0.0–0.5	Fill	—	—	—	—	—	—	—	25.4	0.54 (U)	—
RE33-05-63202	33-25110	2.0–2.5	Fill	—	—	—	—	—	—	—	—	0.53 (U)	—
RE33-05-63203	33-25111	0.0–0.5	Fill	—	—	—	—	—	—	—	—	0.55 (U)	—
RE33-05-63204	33-25111	2.0–2.5	Fill	—	—	—	—	—	—	—	—	0.54 (U)	—
RE33-05-63205	33-25112	0.0–0.5	Fill	—	—	—	—	—	—	—	—	0.55 (U)	—
RE33-05-63206	33-25112	2.0–2.5	Fill	—	—	—	—	—	—	—	—	0.52 (U)	—
RE33-05-63207	33-25113	0.0–0.5	Fill	—	—	—	—	—	—	—	22.3	0.57 (U)	—
RE33-05-63208	33-25113	2.0–2.5	Fill	—	—	—	—	—	—	—	—	0.54 (U)	—
RE33-05-63209	33-25114	0.0–0.5	Fill	—	—	—	—	—	—	—	—	0.55 (U)	—
RE33-05-63210	33-25114	2.0–2.5	Fill	—	—	—	—	—	—	—	—	0.53 (UJ)	—
RE33-05-63211	33-25115	0.0–0.5	Fill	—	—	—	—	—	—	—	—	0.54 (UJ)	—
RE33-05-63212	33-25115	2.0–2.5	Fill	—	—	—	—	—	—	—	—	0.52 (UJ)	—
RE33-05-63213	33-25116	0.0–0.5	Fill	—	—	—	—	—	—	—	19.6	0.55 (UJ)	—
RE33-05-63214	33-25116	2.0–2.5	Fill	—	—	—	—	—	—	—	—	0.55 (UJ)	—
RE33-05-63215	33-25117	0.0–0.5	Fill	—	—	—	—	—	—	—	—	0.59 (UJ)	—
RE33-05-63216	33-25117	2.0–2.5	Fill	—	—	—	—	—	—	—	—	0.54 (UJ)	—
SWMU 33-002(b)													
RE33-05-62977	33-25082	0.0–0.5	Qbt 3	14300	2.87	153	—	8090	10.4	3.48	6.42	—	—
RE33-05-62978	33-25082	2.0–2.5	Qbt 3	—	—	—	—	—	—	—	—	—	—
RE33-05-62979	33-25083	0.0–0.5	Qbt 3	13800	3.19	118	—	5500	9.36	—	5.51	—	—
RE33-05-62980	33-25083	2.0–2.5	Qbt 3	—	—	—	—	—	—	—	—	—	—
RE33-05-62981	33-25084	0.0–0.5	Qbt 3	14600	3.09	119	—	6890	10.5	3.45	6.93	—	—
RE33-05-62982	33-25084	2.0–2.5	Qbt 3	7680	—	82.7	—	15500	—	—	—	—	—
RE33-05-62987	33-25087	10.0–10.5	Qbt 3	—	—	51	—	3250 (J+)	—	—	16.8	0.52 (U)	—
RE33-05-62988	33-25087	12.0–12.5	Qbt 3	—	—	—	—	3990 (J+)	—	—	—	—	—
RE33-05-62989	33-25088	10.0–10.5	Qbt 3	—	—	48.8	—	7860 (J+)	—	—	5.1	0.52 (U)	—
RE33-05-62990	33-25088	12.0–12.5	Qbt 3	—	—	67	—	3480 (J+)	—	—	4.8	0.52 (U)	—
RE33-05-63000	33-25092	0.0–0.5	Fill	—	—	—	—	—	—	—	25.5 (J-)	0.63 (U)	—
RE33-05-63001	33-25092	2.0–2.5	Qbt 3	—	—	—	—	—	—	—	6.6 (J-)	0.51 (U)	—
RE33-05-63002	33-25093	0.0–0.5	Qbt 3	—	—	—	—	—	—	—	8.3 (J-)	0.57 (U)	—
RE33-05-63003	33-25093	2.0–2.5	Qbt 3	—	—	—	—	—	—	—	—	0.51 (U)	—

Table 6.1-2 (continued)

Sample ID	Location ID	Depth (ft bgs)	Media	Aluminum	Arsenic	Barium	Cadmium	Calcium	Chromium	Cobalt	Copper	Cyanide (Total)	Lead
Soil BV[a]				**29200**	**8.17**	**295**	**0.4**	**6120**	**19.3**	**8.64**	**14.7**	**0.5**	**22.3**
Qbt 2, 3, 4 BV[a]				**7340**	**2.79**	**46**	**1.63**	**2200**	**7.14**	**3.14**	**4.66**	**0.5**	**11.2**
Industrial SSL[b]				**1130000**	**17.7**	**224000**	**1120**	**na**[c]	**2920**	**300**[d]	**45400**	**22700**	**800**
Residential SSL[b]				**78100**	**3.59**	**15600**	**77.9**	**na**	**219**	**23**[d]	**3130**	**1560**	**400**
RE33-05-63004	33-25094	0.0–0.5	Qbt 3	—	—	48.5	—	—	—	—	33.8 (J-)	0.61 (U)	—
RE33-05-63005	33-25094	2.0–2.5	Qbt 3	—	—	—	—	2340	—	—	—	0.53 (U)	—
RE33-05-63006	33-25095	0.0–0.5	Fill	—	—	—	—	—	—	—	—	0.58 (U)	—
RE33-05-63007	33-25095	2.0–2.5	Qbt 3	—	—	—	—	4520	—	—	5.6 (J-)	0.52 (U)	—
RE33-05-63008	33-25096	0.0–0.5	Fill	—	—	—	—	—	—	—	—	0.58 (U)	—
RE33-05-63009	33-25096	2.0–2.5	Qbt 3	—	—	—	—	—	—	—	—	0.52 (U)	—
RE33-05-63227	33-25123	0.0–0.5	Qbt 3	—	—	—	—	3830 (J-)	—	—	6.3	0.57 (UJ)	—
RE33-05-63228	33-25123	2.0–2.5	Qbt 3	—	—	—	—	2840	—	—	—	0.53 (U)	—
RE33-05-63229	33-25124	0.0–0.5	Qbt 3	—	—	—	—	—	—	—	5.2	0.54 (UJ)	—
RE33-05-63230	33-25124	2.0–2.5	Qbt 3	—	—	—	—	—	—	—	—	0.52 (U)	—
RE33-05-63231	33-25125	0.0–0.5	Qbt 3	—	—	—	—	—	—	—	—	0.54 (UJ)	—
RE33-05-63232	33-25125	2.0–2.5	Qbt 3	—	—	—	—	—	—	—	—	0.55 (U)	—
SWMU 33-002(c)													
RE33-05-60765	33-24727	0.0–0.5	Qbt 3	8860 (J+)	—	76.9	—	—	—	—	—	—	—
RE33-05-60766	33-24727	2.0–2.5	Qbt 3	8100 (J+)	—	63.1	—	—	35.9	—	10.6	—	27.6
RE33-05-60767	33-24728	0.0–0.5	Qbt 3	12200 (J+)	2.85	96.9	—	3610 (J+)	8.05	—	6.14	—	16.4
RE33-05-60768	33-24728	2.0–2.5	Qbt 3	—	—	—	—	2900 (J+)	—	—	—	—	—
RE33-05-60769	33-24729	0.0–0.5	Qbt 3	12300 (J+)	3.03	90	—	4310 (J+)	7.25	—	5.18	—	—
RE33-05-60770	33-24729	2.0–2.5	Qbt 3	—	—	—	—	2230 (J+)	—	—	—	—	—
RE33-05-62983	33-25085	10.0–10.5	Qbt 3	—	—	47.5	—	3210 (J+)	—	—	—	0.52 (U)	—
RE33-05-62984	33-25085	12.0–12.5	Qbt 3	—	—	47.2	—	3490 (J+)	—	—	—	0.52 (U)	—
RE33-05-62985	33-25086	10.0–10.5	Qbt 3	—	—	53.8	—	4600 (J+)	—	—	—	0.52 (U)	—
RE33-05-62986	33-25086	12.0–12.5	Qbt 3	—	—	—	—	2840 (J+)	—	—	—	0.52 (U)	—
RE33-05-63217	33-25118	0.0–0.5	Qbt 3	—	—	57.9	13.1	2690	23.1 (J-)	—	114	0.56 (U)	57.5
RE33-05-63218	33-25118	2.0–2.5	Qbt 3	—	—	—	—	—	—	—	6.1	0.52 (U)	—
RE33-05-63219	33-25119	0.0–0.5	Qbt 3	—	—	49.6	—	3170	—	—	—	0.56 (U)	—
RE33-05-63220	33-25119	2.0–2.5	Qbt 3	—	—	—	—	3300	—	—	—	—	—
RE33-05-63221	33-25120	0.0–0.5	Qbt 3	—	—	69	—	3840	—	—	—	0.55 (U)	—
RE33-05-63222	33-25120	2.0–2.5	Qbt 3	—	—	50.2	—	2870	—	—	—	0.51 (U)	—
RE33-05-63223	33-25121	0.0–0.5	Qbt 3	—	—	60.2	—	5090	—	—	—	0.54 (U)	—
RE33-05-63224	33-25121	2.0–2.5	Qbt 3	—	—	59.1	—	7400	—	—	—	0.51 (U)	—
RE33-05-63225	33-25122	0.0–0.5	Qbt 3	—	—	47.2	—	3570	—	—	—	0.82	—
RE33-05-63226	33-25122	2.0–2.5	Qbt 3	—	—	50.6	—	3320	24.9 (J-)	—	—	—	—

Table 6.1-2 (continued)

Sample ID	Location ID	Depth (ft bgs)	Media	Magnesium	Mercury	Nickel	Nitrate	Perchlorate	Selenium	Silver	Vanadium	Zinc
Soil BV[a]				**4610**	**0.1**	**15.4**	**na**	**na**	**1.52**	**1**	**39.6**	**48.8**
Qbt 2, 3, 4 BV[a]				**1690**	**0.1**	**6.58**	**na**	**na**	**0.3**	**1**	**17**	**63.5**
Industrial SSL[b]				**na**	**310[d]**	**22700**	**1820000**	**795**	**5680**	**5680**	**5680**	**341000**
Residential SSL[b]				**na**	**23[d]**	**1560**	**125000**	**54.8**	**391**	**391**	**391**	**23500**
SWMU 33-002(a)												
RE33-05-60743	33-24716	0.0–0.5	Qbt 3	—	—	—	2.05	—	1.65 (U)	—	—	—
RE33-05-60747	33-24716	2.0–2.5	Qbt 3	—	—	—	—	—	1.68 (U)	—	—	—
RE33-05-60745	33-24717	0.0–0.5	Qbt 3	—	—	—	—	—	1.66 (U)	—	—	—
RE33-05-60749	33-24717	2.0–2.5	Qbt 3	—	—	—	1.02 (J)	—	1.67 (U)	—	—	—
RE33-05-60744	33-24718	0.0–0.5	Qbt 3	—	—	—	—	0.00083 (J)	1.65 (U)	—	—	—
RE33-05-60748	33-24718	2.0–2.5	Qbt 3	—	—	—	—	—	1.68 (U)	1.51	—	—
RE33-05-60746	33-24719	0.0–0.5	Qbt 3	—	—	—	—	—	1.56 (U)	—	—	—
RE33-05-60750	33-24719	2.0–2.5	Qbt 3	—	—	—	—	—	1.69 (U)	—	—	—
RE33-05-60751	33-24720	0.0–0.5	Qbt 3	—	—	—	—	—	1.61 (U)	—	—	—
RE33-05-60752	33-24720	2.0–2.5	Qbt 3	—	—	—	—	—	1.64 (U)	—	—	—
RE33-05-60753	33-24721	0.0–0.5	Qbt 3	2690 (J-)	—	—	5.18	—	1.76 (U)	—	—	—
RE33-05-60754	33-24721	2.0–2.5	Qbt 3	2670 (J-)	—	—	4.75	—	1.76 (U)	—	—	—
RE33-05-60755	33-24722	0.0–0.5	Qbt 3	2170 (J-)	0.47	6.91	2.12	—	1.7 (U)	—	—	64.7
RE33-05-60756	33-24722	2.0–2.5	Qbt 3	2150 (J-)	0.187	8.83	1.51	—	1.66 (U)	—	—	—
RE33-05-60757	33-24723	0.0–0.5	Qbt 3	2480 (J-)	0.235	—	1.12 (J)	—	1.77 (U)	—	—	—
RE33-05-60758	33-24723	2.0–2.5	Qbt 3	2950 (J-)	0.182	—	1.9	—	1.73 (U)	5.49	19.3 (J)	—
RE33-05-60759	33-24724	0.0–0.5	Fill	—	—	—	—	0.00177 (J)	1.71 (U)	—	—	—
RE33-05-60760	33-24724	2.0–2.5	Qbt 3	1930	—	—	—	—	0.823 (J)	—	—	—
RE33-05-60761	33-24725	0.0–0.5	Fill	—	0.161	—	—	—	—	—	—	70.9
RE33-05-60762	33-24725	2.0–2.5	Qbt 3	—	—	—	—	—	1.61 (U)	—	—	—
RE33-05-60763	33-24726	0.0–0.5	Fill	—	0.361	—	0.964 (J)	—	—	—	—	176
RE33-05-60764	33-24726	2.0–2.5	Qbt 3	1920	0.193	7.27 (J-)	0.976 (J)	—	1.24 (J)	—	18.2	99.2
RE33-05-63010	33-25097	0.0–0.5	Fill	—	—	—	1.1	0.00016 (J)	—	—	—	—
RE33-05-63011	33-25097	2.0–2.5	Fill	—	—	—	0.62	0.0006 (J)	—	—	—	—
RE33-05-63012	33-25098	0.0–0.5	Fill	—	—	—	2	—	—	—	—	50.1
RE33-05-63013	33-25098	2.0–2.5	Fill	—	0.21	—	0.79	0.00038 (J)	—	—	—	—
RE33-05-63195	33-25107	0.0–0.5	Fill	—	0.65	—	5.5	—	—	—	—	83
RE33-05-63196	33-25107	2.0–2.5	Fill	—	—	—	0.54	0.0003 (J)	—	—	—	—
RE33-05-63197	33-25108	0.0–0.5	Fill	—	—	—	3.4	—	—	—	—	—
RE33-05-63198	33-25108	2.0–2.5	Fill	—	—	—	0.56	0.0004 (J)	—	—	—	—
RE33-05-63199	33-25109	0.0–0.5	Fill	—	—	—	1.7	—	—	—	—	—

Table 6.1-2 (continued)

Sample ID	Location ID	Depth (ft bgs)	Media	Magnesium	Mercury	Nickel	Nitrate	Perchlorate	Selenium	Silver	Vanadium	Zinc
Soil BV[a]				**4610**	**0.1**	**15.4**	**na**	**na**	**1.52**	**1**	**39.6**	**48.8**
Qbt 2, 3, 4 BV[a]				**1690**	**0.1**	**6.58**	**na**	**na**	**0.3**	**1**	**17**	**63.5**
Industrial SSL[b]				**na**	**310[d]**	**22700**	**1820000**	**795**	**5680**	**5680**	**5680**	**341000**
Residential SSL[b]				**na**	**23[d]**	**1560**	**125000**	**54.8**	**391**	**391**	**391**	**23500**
RE33-05-63200	33-25109	2.0–2.5	Fill	—	—	—	0.92	0.00065 (J)	—	—	—	—
RE33-05-63201	33-25110	0.0–0.5	Fill	—	0.15	—	2.8	—	—	—	—	67.8
RE33-05-63202	33-25110	2.0–2.5	Fill	—	—	—	1.9	0.00036 (J)	—	—	—	—
RE33-05-63203	33-25111	0.0–0.5	Fill	—	—	—	0.74	—	—	—	—	—
RE33-05-63204	33-25111	2.0–2.5	Fill	—	—	—	0.53	0.00027 (J)	—	—	—	—
RE33-05-63205	33-25112	0.0–0.5	Fill	—	—	—	1.6	0.00036 (J)	—	—	—	—
RE33-05-63206	33-25112	2.0–2.5	Fill	—	—	—	1.6	0.00025 (J)	—	—	—	—
RE33-05-63207	33-25113	0.0–0.5	Fill	—	0.13	—	2.2	0.00017 (J)	—	—	—	—
RE33-05-63208	33-25113	2.0–2.5	Fill	—	—	—	0.87	0.00037 (J)	—	—	—	—
RE33-05-63209	33-25114	0.0–0.5	Fill	—	—	—	0.51	0.00027 (J)	—	—	—	—
RE33-05-63210	33-25114	2.0–2.5	Fill	—	—	—	0.68	0.00016 (J)	—	—	—	—
RE33-05-63211	33-25115	0.0–0.5	Fill	—	—	—	0.34	0.00029 (J)	—	—	—	—
RE33-05-63212	33-25115	2.0–2.5	Fill	—	—	—	0.88	0.00034 (J)	—	—	—	—
RE33-05-63213	33-25116	0.0–0.5	Fill	—	0.13	—	0.92	—	—	—	—	—
RE33-05-63214	33-25116	2.0–2.5	Fill	—	—	—	0.42	0.00017 (J)	—	—	—	—
RE33-05-63215	33-25117	0.0–0.5	Fill	—	—	—	0.12 (J+)	—	—	—	—	—
RE33-05-63216	33-25117	2.0–2.5	Fill	—	—	—	1.2 (J+)	0.00022 (J)	—	—	—	—
SWMU 33-002(b)												
RE33-05-62977	33-25082	0.0–0.5	Qbt 3	3140	—	9.23	2.27	—	1.57 (U)	—	18.6	—
RE33-05-62978	33-25082	2.0–2.5	Qbt 3	—	—	—	1.13	—	1.51 (U)	—	—	—
RE33-05-62979	33-25083	0.0–0.5	Qbt 3	2590	—	7.57	1.36	0.00323	1.52 (U)	—	—	—
RE33-05-62980	33-25083	2.0–2.5	Qbt 3	—	—	—	1.45	—	1.55 (U)	—	—	—
RE33-05-62981	33-25084	0.0–0.5	Qbt 3	2590	0.837	7.87	1.78	0.00116 (J)	1.51 (U)	—	17.1	—
RE33-05-62982	33-25084	2.0–2.5	Qbt 3	1880	—	—	0.776 (J)	0.000919 (J)	1.53 (U)	—	—	—
RE33-05-62987	33-25087	10.0–10.5	Qbt 3	—	0.34	—	—	0.00059 (J)	—	—	—	—
RE33-05-62988	33-25087	12.0–12.5	Qbt 3	—	0.19	—	—	—	—	—	—	—
RE33-05-62989	33-25088	10.0–10.5	Qbt 3	—	0.21	—	—	0.00056 (J)	—	—	—	—
RE33-05-62990	33-25088	12.0–12.5	Qbt 3	—	0.28	—	—	0.00084 (J)	—	—	—	—
RE33-05-63000	33-25092	0.0–0.5	Fill	—	—	—	8.4	0.00039 (J)	—	—	—	—
RE33-05-63001	33-25092	2.0–2.5	Qbt 3	—	—	—	1.2	0.00051 (J)	0.66	—	—	—
RE33-05-63002	33-25093	0.0–0.5	Qbt 3	—	—	—	2.6	0.00026 (J)	0.75	—	—	—
RE33-05-63003	33-25093	2.0–2.5	Qbt 3	—	—	—	0.88	—	0.4 (U)	—	—	—

Table 6.1-2 (continued)

Sample ID	Location ID	Depth (ft bgs)	Media	Magnesium	Mercury	Nickel	Nitrate	Perchlorate	Selenium	Silver	Vanadium	Zinc
Soil BV[a]				**4610**	**0.1**	**15.4**	**na**	**na**	**1.52**	**1**	**39.6**	**48.8**
Qbt 2, 3, 4 BV[a]				**1690**	**0.1**	**6.58**	**na**	**na**	**0.3**	**1**	**17**	**63.5**
Industrial SSL[b]				**na**	**310**[d]	**22700**	**1820000**	**795**	**5680**	**5680**	**5680**	**341000**
Residential SSL[b]				**na**	**23**[d]	**1560**	**125000**	**54.8**	**391**	**391**	**391**	**23500**
RE33-05-63004	33-25094	0.0–0.5	Qbt 3	—	—	—	2.6	0.00064 (J)	0.6 (U)	—	—	—
RE33-05-63005	33-25094	2.0–2.5	Qbt 3	—	—	—	1.7	0.0002 (J)	—	—	—	—
RE33-05-63006	33-25095	0.0–0.5	Fill	—	0.11	—	1.6	0.00031 (J)	—	—	—	—
RE33-05-63007	33-25095	2.0–2.5	Qbt 3	—	—	—	1.3	0.00028 (J)	—	—	—	—
RE33-05-63008	33-25096	0.0–0.5	Fill	—	—	—	1	0.00021 (J)	—	—	—	—
RE33-05-63009	33-25096	2.0–2.5	Qbt 3	—	—	—	0.66	—	—	—	—	—
RE33-05-63227	33-25123	0.0–0.5	Qbt 3	—	0.24	—	0.26	—	—	—	—	—
RE33-05-63228	33-25123	2.0–2.5	Qbt 3	—	—	—	1.9	0.00067 (J)	—	—	—	—
RE33-05-63229	33-25124	0.0–0.5	Qbt 3	—	—	—	—	—	—	—	—	—
RE33-05-63230	33-25124	2.0–2.5	Qbt 3	—	—	—	—	0.00046 (J)	—	—	—	—
RE33-05-63231	33-25125	0.0–0.5	Qbt 3	—	—	—	—	—	—	—	—	—
RE33-05-63232	33-25125	2.0–2.5	Qbt 3	—	—	—	—	0.00041 (J)	0.33	—	—	—
SWMU 33-002(c)												
RE33-05-60765	33-24727	0.0–0.5	Qbt 3	—	0.198 (J)	—	—	0.00498	1.02 (J)	—	—	—
RE33-05-60766	33-24727	2.0–2.5	Qbt 3	—	0.776 (J)	—	—	0.00192 (J)	1.52 (U)	—	—	—
RE33-05-60767	33-24728	0.0–0.5	Qbt 3	1950 (J+)	15.2 (J)	6.85	20.2	—	1.74 (U)	—	—	287
RE33-05-60768	33-24728	2.0–2.5	Qbt 3	—	0.205 (J)	—	0.967 (J)	—	0.681 (J)	—	—	—
RE33-05-60769	33-24729	0.0–0.5	Qbt 3	2260 (J+)	—	—	—	—	1.75 (U)	—	—	—
RE33-05-60770	33-24729	2.0–2.5	Qbt 3	—	—	—	—	—	0.884 (J)	—	—	—
RE33-05-62983	33-25085	10.0–10.5	Qbt 3	—	0.11	—	—	0.0012	—	—	—	—
RE33-05-62984	33-25085	12.0–12.5	Qbt 3	—	—	—	—	0.0013	—	—	—	—
RE33-05-62985	33-25086	10.0–10.5	Qbt 3	—	0.23	—	—	0.00091 (J)	—	—	—	—
RE33-05-62986	33-25086	12.0–12.5	Qbt 3	—	0.17	—	—	0.00078 (J)	—	—	—	—
RE33-05-63217	33-25118	0.0–0.5	Qbt 3	—	5.2	7.1	0.79	—	—	3.9	—	199
RE33-05-63218	33-25118	2.0–2.5	Qbt 3	—	0.57	—	0.34	—	0.49	—	—	—
RE33-05-63219	33-25119	0.0–0.5	Qbt 3	—	0.11	—	—	0.0025 (J)	—	—	—	—
RE33-05-63220	33-25119	2.0–2.5	Qbt 3	—	—	—	—	0.002 (J)	0.46	—	—	—
RE33-05-63221	33-25120	0.0–0.5	Qbt 3	—	0.26	—	6.7	—	0.56	—	—	—
RE33-05-63222	33-25120	2.0–2.5	Qbt 3	—	—	—	—	—	0.42	—	—	—
RE33-05-63223	33-25121	0.0–0.5	Qbt 3	—	—	—	0.55	—	—	—	—	—
RE33-05-63224	33-25121	2.0–2.5	Qbt 3	—	—	—	—	—	—	—	—	—
RE33-05-63225	33-25122	0.0–0.5	Qbt 3	—	0.16	—	0.66	—	0.81	—	—	—

Table 6.1-2 (continued)

Sample ID	Location ID	Depth (ft bgs)	Media	Magnesium	Mercury	Nickel	Nitrate	Perchlorate	Selenium	Silver	Vanadium	Zinc
Soil BV[a]				**4610**	**0.1**	**15.4**	**na**	**na**	**1.52**	**1**	**39.6**	**48.8**
Qbt 2, 3, 4 BV[a]				**1690**	**0.1**	**6.58**	**na**	**na**	**0.3**	**1**	**17**	**63.5**
Industrial SSL[b]				**na**	**310**[d]	**22700**	**1820000**	**795**	**5680**	**5680**	**5680**	**341000**
Residential SSL[b]				**na**	**23**[d]	**1560**	**125000**	**54.8**	**391**	**391**	**391**	**23500**
RE33-05-63226	33-25122	2.0–2.5	Qbt 3	—	—	—	0.17 (J)	0.0022 (J)	0.63	—	—	—

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

[a] BVs from LANL (1998, 059730).

[b] Soil screening levels (SSLs) from NMED (2009, 108070), unless otherwise noted.

[c] na = Not available.

[d] EPA regional screening level (http://www.epa.gov/earth1r6/6pd/rcra_pd/pd-n/screen.htm).

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

Table 6.1-3
Organic Chemicals Detected in 2005 VCA Confirmation Samples at SWMUs 33-002(a–c)

Sample ID	Location ID	Depth (ft)	Media	Acenaphthene	Acenaphthylene	Acetone	Anthracene	Aroclor-1242	Aroclor-1254	Aroclor-1260	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene
Industrial SSL[a]				**36700**	**18300[b]**	**851000**	**183000**	**8.26**	**8.26**	**8.26**	**23.4**	**2.34**	**23.4**	**18300[b]**
Residential SSL[a]				**3440**	**1720[b]**	**67500**	**17200**	**1.7**	**1.12**	**1.7**	**4.81**	**0.481**	**4.81**	**1720[b]**
SWMU 33-002(a)														
RE33-05-60743	33-24716	0.0–0.5	Qbt 3	0.0325 (J)	—[c]	—	0.078	—	—	—	—	0.264	0.37	0.231
RE33-05-60747	33-24716	2.0–2.5	Qbt 3	0.0197 (J)	—	—	0.0355 (J)	0.0182 (J)	—	—	—	0.19	0.247	0.172
RE33-05-60745	33-24717	0.0–0.5	Qbt 3	0.0545 (J)	—	—	0.12 (J)	—	0.0045 (J-)	—	—	0.633	0.783	0.615
RE33-05-60749	33-24717	2.0–2.5	Qbt 3	0.0842	—	—	0.176	—	—	—	0.303	0.345	0.534	0.272
RE33-05-60744	33-24718	0.0–0.5	Qbt 3	0.104	0.0131 (J)	—	0.221	—	0.0177 (J)	—	0.48	0.525	0.807	0.347
RE33-05-60748	33-24718	2.0–2.5	Qbt 3	0.304 (J)	—	—	0.537	—	0.0768	—	1.35	2.21	3	1.96
RE33-05-60746	33-24719	0.0–0.5	Qbt 3	0.528	0.0371	—	1.09	0.0583 (J)	0.0404 (J)	—	1.59	1.38	2.35	0.69
RE33-05-60750	33-24719	2.0–2.5	Qbt 3	—	—	—	0.155 (J)	—	—	—	—	1.28	1.47	—
RE33-05-60751	33-24720	0.0–0.5	Qbt 3	0.42	—	—	0.854	—	—	—	—	1.68	2.3	1.32
RE33-05-60752	33-24720	2.0–2.5	Qbt 3	0.0892 (J)	—	—	0.201	—	—	—	—	0.72	0.952	0.645
RE33-05-60753	33-24721	0.0–0.5	Qbt 3	0.236	—	—	0.417	—	—	0.0589	0.715	0.976	1.37	0.851
RE33-05-60754	33-24721	2.0–2.5	Qbt 3	0.0842	—	—	0.198	—	—	—	0.348	0.386	0.566	0.286
RE33-05-60755	33-24722	0.0–0.5	Qbt 3	0.106 (J)	—	—	0.199	—	—	—	—	0.741	0.956	0.729
RE33-05-60756	33-24722	2.0–2.5	Qbt 3	0.159	—	—	0.317	0.0693	0.0324 (J)	0.0206 (J)	—	0.909	1.26	0.779
RE33-05-60757	33-24723	0.0–0.5	Qbt 3	0.0524 (J-)	—	—	0.112 (J-)	—	0.0078 (J-)	0.0037 (J)	0.183 (J-)	0.267 (J-)	0.352 (J-)	—
RE33-05-60758	33-24723	2.0–2.5	Qbt 3	0.0342 (J)	—	—	0.089	—	0.0064	0.0035 (J)	0.162	0.228	0.314	0.199
RE33-05-60759	33-24724	0.0–0.5	Fill	0.0804	—	—	0.123	—	0.0987 (J)	0.0384 (J)	—	0.247	0.438	0.158
RE33-05-60760	33-24724	2.0–2.5	Qbt 3	—	—	—	—	—	—	—	—	—	—	—
RE33-05-60761	33-24725	0.0–0.5	Fill	0.0395 (J)	—	0.04	0.0954	—	—	—	—	0.201	0.367	0.135
RE33-05-60762	33-24725	2.0–2.5	Qbt 3	—	—	0.0064	—	—	—	—	—	—	—	—
RE33-05-60763	33-24726	0.0–0.5	Fill	—	—	0.0519	—	—	0.124 (J)	—	—	—	—	—
RE33-05-60764	33-24726	2.0–2.5	Qbt 3	0.0437	—	0.016	—	—	—	—	—	—	—	—
RE33-05-63011	33-25097	2.0–2.5	Fill	—	—	—	—	—	—	—	—	—	—	—
RE33-05-63012	33-25098	0.0–0.5	Fill	—	—	—	—	—	—	—	—	—	—	—
RE33-05-63013	33-25098	2.0–2.5	Fill	—	—	—	—	—	—	—	—	—	—	—
RE33-05-63195	33-25107	0.0–0.5	Fill	—	—	—	—	—	0.17 (J+)	—	—	—	—	—
RE33-05-63196	33-25107	2.0–2.5	Fill	—	—	—	—	—	—	—	—	—	—	—

Table 6.1-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Acenaphthene	Acenaphthylene	Acetone	Anthracene	Aroclor-1242	Aroclor-1254	Aroclor-1260	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene
Industrial SSL[a]				**36700**	**18300[b]**	**851000**	**183000**	**8.26**	**8.26**	**8.26**	**23.4**	**2.34**	**23.4**	**18300[b]**
Residential SSL[a]				**3440**	**1720[b]**	**67500**	**17200**	**1.7**	**1.12**	**1.7**	**4.81**	**0.481**	**4.81**	**1720[b]**
RE33-05-63201	33-25110	0.0–0.5	Fill	—	—	—	—	—	0.055	—	—	—	—	—
RE33-05-63205	33-25112	0.0–0.5	Fill	—	—	—	—	—	—	—	—	—	—	—
RE33-05-63207	33-25113	0.0–0.5	Fill	—	—	—	—	—	0.055	—	—	—	—	—
RE33-05-63211	33-25115	0.0–0.5	Fill	—	—	—	—	—	—	—	—	—	—	—
RE33-05-63213	33-25116	0.0–0.5	Fill	—	—	—	—	—	—	—	—	—	—	—
SWMU 33-002(b)														
RE33-05-62977	33-25082	0.0–0.5	Qbt 3	—	—	0.0102	—	—	—	—	—	0.00035 (J)	0.00039 (J)	—
RE33-05-62978	33-25082	2.0–2.5	Qbt 3	—	—	—	—	—	—	—	—	—	—	—
RE33-05-62979	33-25083	0.0–0.5	Qbt 3	—	—	0.0111	—	—	—	—	—	—	—	—
RE33-05-62980	33-25083	2.0–2.5	Qbt 3	—	—	—	—	—	0.0022 (J)	—	—	—	—	—
RE33-05-62981	33-25084	0.0–0.5	Qbt 3	0.003	—	0.0081	0.004	—	—	—	0.0059	0.0057	0.0067	0.0042 (J)
RE33-05-62982	33-25084	2.0–2.5	Qbt 3	—	—	—	0.0003 (J)	—	—	—	—	—	—	—
RE33-05-62987	33-25087	10.0–10.5	Qbt 3	—	—	—	—	—	0.085 (J-)	—	—	—	—	—
RE33-05-62989	33-25088	10.0–10.5	Qbt 3	—	—	—	—	—	—	—	—	—	—	—
RE33-05-62990	33-25088	12.0–12.5	Qbt 3	—	—	—	—	—	0.065 (J-)	—	—	—	—	—
RE33-05-63000	33-25092	0.0–0.5	Fill	0.097 (J)	—	—	—	—	—	—	—	—	—	—
RE33-05-63004	33-25094	0.0–0.5	Qbt 3	—	—	—	—	—	—	—	—	—	—	—
RE33-05-63007	33-25095	2.0–2.5	Qbt 3	—	—	—	—	—	—	—	0.13 (J)	0.14 (J)	0.088 (J)	0.11 (J)
RE33-05-63009	33-25096	2.0–2.5	Qbt 3	—	—	—	—	—	—	—	—	—	—	—
RE33-05-63227	33-25123	0.0–0.5	Qbt 3	—	—	0.0037 (J-)	—	—	—	—	—	—	—	—
RE33-05-63228	33-25123	2.0–2.5	Qbt 3	—	—	0.0053 (J)	—	—	—	—	—	—	—	—
RE33-05-63229	33-25124	0.0–0.5	Qbt 3	—	—	0.0029 (J-)	—	—	—	—	—	—	—	—
RE33-05-63230	33-25124	2.0–2.5	Qbt 3	—	—	0.0027 (J)	—	—	—	—	—	—	—	—
RE33-05-63231	33-25125	0.0–0.5	Qbt 3	—	—	—	—	—	—	—	—	—	—	—
RE33-05-63232	33-25125	2.0–2.5	Qbt 3	—	—	0.0066 (J)	—	—	—	—	—	—	—	—
SWMU 33-002(c)														
RE33-05-60765	33-24727	0.0–0.5	Qbt 3	—	—	—	—	—	—	—	—	—	—	—
RE33-05-60766	33-24727	2.0–2.5	Qbt 3	—	—	—	—	—	0.0013 (J)	0.0013 (J+)	—	0.0114 (J)	0.0144 (J)	0.0211 (J)
RE33-05-60767	33-24728	0.0–0.5	Qbt 3	—	—	—	0.0193 (J)	—	0.0048	0.0035 (J+)	—	0.079	0.128	0.0548
RE33-05-60769	33-24729	0.0–0.5	Qbt 3	0.029 (J)	—	—	0.0619	—	0.003 (J-)	0.002 (J-)	—	0.108	0.158	0.0715
RE33-05-60770	33-24729	2.0–2.5	Qbt 3	0.0275 (J)	—	—	0.0561	—	0.00088 (J)	—	—	0.101	0.157	0.0588

Table 6.1-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Acenaphthene	Acenaphthylene	Acetone	Anthracene	Aroclor-1242	Aroclor-1254	Aroclor-1260	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene
Industrial SSL[a]				**36700**	**18300[b]**	**851000**	**183000**	**8.26**	**8.26**	**8.26**	**23.4**	**2.34**	**23.4**	**18300[b]**
Residential SSL[a]				**3440**	**1720[b]**	**67500**	**17200**	**1.7**	**1.12**	**1.7**	**4.81**	**0.481**	**4.81**	**1720[b]**
RE33-05-62985	33-25086	10.0–10.5	Qbt 3	—	—	—	—	—	—	—	—	—	—	—
RE33-05-62986	33-25086	12.0–12.5	Qbt 3	—	—	—	—	—	—	—	0.082 (J)	0.081 (J)	—	—
RE33-05-63217	33-25118	0.0–0.5	Qbt 3	—	—	—	—	—	—	—	—	—	—	—
RE33-05-63221	33-25120	0.0–0.5	Qbt 3	—	—	—	—	—	—	—	—	—	—	—
RE33-05-63223	33-25121	0.0–0.5	Qbt 3	—	—	—	—	—	—	—	0.093 (J)	0.094 (J)	0.075 (J)	—
RE33-05-63225	33-25122	0.0–0.5	Qbt 3	—	—	—	—	—	—	—	0.12 (J)	0.12 (J)	0.093 (J)	—
RE33-05-63226	33-25122	2.0–2.5	Qbt 3	—	—	—	—	—	—	—	—	—	—	—

Table 6.1-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Benzo(k)fluoranthene	Benzoic Acid	Bis(2-ethylhexyl)phthalate	Bromobenzene	Butanone[2-]	Chloroaniline[4-]	Chrysene	Di-n-butylphthalate	Dibenzofuran	Fluoranthene	Fluorene
Industrial SSL[a]				**234**	**2500000[d]**	**1370**	**1800[d]**	**369000**	**86[d]**	**2340**	**68400**	**1000[d]**	**24400**	**24400**
Residential SSL[a]				**48.1**	**240000[d]**	**280**	**300[d]**	**39600**	**24[d]**	**481**	**6110**	**78[d]**	**2290**	**2290**
SWMU 33-002(a)														
RE33-05-60743	33-24716	0.0–0.5	Qbt 3	—	—	0.179 (J)	—	—	—	0.18	—	—	0.365	0.0268 (J)
RE33-05-60747	33-24716	2.0–2.5	Qbt 3	—	—	0.196 (J)	—	—	—	0.0965	—	—	0.17	0.0158 (J)
RE33-05-60745	33-24717	0.0–0.5	Qbt 3	—	—	0.677 (J)	—	—	—	0.257	—	—	0.496	0.0472 (J)
RE33-05-60749	33-24717	2.0–2.5	Qbt 3	—	—	0.208 (J)	—	—	—	0.292	—	—	0.629	0.0716
RE33-05-60744	33-24718	0.0–0.5	Qbt 3	—	—	0.194 (J)	—	—	—	0.508	—	—	0.984	0.105
RE33-05-60748	33-24718	2.0–2.5	Qbt 3	—	—	1.52 (J)	—	—	—	1.41	—	—	2.39	0.242 (J)
RE33-05-60746	33-24719	0.0–0.5	Qbt 3	—	—	0.184 (J)	—	—	—	1.46	—	0.464	3.83	0.498
RE33-05-60750	33-24719	2.0–2.5	Qbt 3	—	—	1.54 (J)	—	—	—	0.288 (J)	—	—	0.51	—
RE33-05-60751	33-24720	0.0–0.5	Qbt 3	—	—	0.677 (J)	—	—	—	1.56	—	—	2.9	0.381
RE33-05-60752	33-24720	2.0–2.5	Qbt 3	—	—	0.677 (J)	—	—	—	0.368	—	—	0.762	0.0716 (J)
RE33-05-60753	33-24721	0.0–0.5	Qbt 3	—	—	0.678 (J)	—	—	—	0.719	—	—	1.44	0.21
RE33-05-60754	33-24721	2.0–2.5	Qbt 3	—	—	0.44	—	—	—	0.344	—	—	0.683	0.0737
RE33-05-60755	33-24722	0.0–0.5	Qbt 3	—	—	0.658 (J)	—	—	—	0.398	—	—	0.7	0.0816 (J)
RE33-05-60756	33-24722	2.0–2.5	Qbt 3	—	—	0.708 (J)	—	—	—	0.575	—	—	1.17	0.123 (J)
RE33-05-60757	33-24723	0.0–0.5	Qbt 3	—	—	0.182 (J-)	—	—	—	0.19 (J-)	—	—	0.36 (J-)	0.0458 (J-)
RE33-05-60758	33-24723	2.0–2.5	Qbt 3	—	—	0.173 (J)	—	—	—	0.157	—	—	0.328	0.0314 (J)
RE33-05-60759	33-24724	0.0–0.5	Fill	—	—	—	—	—	—	0.251	—	—	0.594	0.0613
RE33-05-60760	33-24724	2.0–2.5	Qbt 3	—	—	—	—	—	—	—	—	—	0.0169 (J)	—
RE33-05-60761	33-24725	0.0–0.5	Fill	—	—	—	—	0.0049 (J)	—	0.2	—	—	0.431	0.0387 (J)
RE33-05-60762	33-24725	2.0–2.5	Qbt 3	—	—	—	—	—	—	—	—	—	—	—
RE33-05-60763	33-24726	0.0–0.5	Fill	—	—	0.728	—	—	0.174 (J)	—	—	—	—	—
RE33-05-60764	33-24726	2.0–2.5	Qbt 3	—	—	0.11 (J)	—	—	—	—	—	—	—	—
RE33-05-63011	33-25097	2.0–2.5	Fill	—	—	—	—	0.0043 (J)	—	—	—	—	—	—
RE33-05-63012	33-25098	0.0–0.5	Fill	—	—	—	—	—	—	—	—	—	—	—
RE33-05-63013	33-25098	2.0–2.5	Fill	—	—	—	—	—	—	—	0.094 (J)	—	—	—
RE33-05-63195	33-25107	0.0–0.5	Fill	—	—	0.15 (J)	—	—	—	—	0.25 (J)	—	—	—
RE33-05-63196	33-25107	2.0–2.5	Fill	—	—	—	—	—	—	—	0.12 (J)	—	—	—
RE33-05-63201	33-25110	0.0–0.5	Fill	—	—	—	—	—	—	—	—	—	—	—
RE33-05-63205	33-25112	0.0–0.5	Fill	—	—	—	—	—	—	—	—	—	—	—
RE33-05-63207	33-25113	0.0–0.5	Fill	—	—	—	—	—	—	—	—	—	—	—

Table 6.1-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Benzo(k)fluoranthene	Benzoic Acid	Bis(2-ethylhexyl)phthalate	Bromobenzene	Butanone[2-]	Chloroaniline[4-]	Chrysene	Di-n-butylphthalate	Dibenzofuran	Fluoranthene	Fluorene
Industrial SSL[a]				**234**	**2500000[d]**	**1370**	**1800[d]**	**369000**	**86[d]**	**2340**	**68400**	**1000[d]**	**24400**	**24400**
Residential SSL[a]				**48.1**	**240000[d]**	**280**	**300[d]**	**39600**	**24[d]**	**481**	**6110**	**78[d]**	**2290**	**2290**
RE33-05-63211	33-25115	0.0–0.5	Fill	—	—	0.31 (J)	—	—	—	—	0.079 (J)	—	—	—
RE33-05-63213	33-25116	0.0–0.5	Fill	—	—	—	0.00023 (J)	—	—	—	—	—	—	—
SWMU 33-002(b)														
RE33-05-62977	33-25082	0.0–0.5	Qbt 3	—	0.0117 (J)	—	—	—	—	0.00036 (J)	—	—	0.00073 (J)	—
RE33-05-62978	33-25082	2.0–2.5	Qbt 3	—	0.0115 (J)	—	—	—	—	—	—	—	—	—
RE33-05-62979	33-25083	0.0–0.5	Qbt 3	—	—	—	—	—	—	—	—	—	0.00048 (J)	—
RE33-05-62980	33-25083	2.0–2.5	Qbt 3	—	—	—	—	—	—	—	—	—	—	—
RE33-05-62981	33-25084	0.0–0.5	Qbt 3	0.0029	—	—	—	—	—	0.0062	—	—	0.0147	0.0024
RE33-05-62982	33-25084	2.0–2.5	Qbt 3	—	—	—	—	—	—	—	—	—	—	—
RE33-05-62987	33-25087	10.0–10.5	Qbt 3	—	—	—	—	—	—	—	—	—	0.12 (J)	—
RE33-05-62989	33-25088	10.0–10.5	Qbt 3	—	—	—	—	—	—	—	—	—	0.069 (J)	—
RE33-05-62990	33-25088	12.0–12.5	Qbt 3	—	—	—	—	—	—	—	—	—	—	—
RE33-05-63000	33-25092	0.0–0.5	Fill	—	—	—	—	—	—	—	—	—	—	—
RE33-05-63004	33-25094	0.0–0.5	Qbt 3	—	—	—	—	—	—	—	0.083 (J)	—	—	—
RE33-05-63007	33-25095	2.0–2.5	Qbt 3	0.13 (J-)	—	—	—	—	—	0.14 (J)	—	—	0.26 (J)	—
RE33-05-63009	33-25096	2.0–2.5	Qbt 3	—	—	—	—	—	—	—	—	—	—	—
RE33-05-63227	33-25123	0.0–0.5	Qbt 3	—	—	—	—	—	—	—	—	—	—	—
RE33-05-63228	33-25123	2.0–2.5	Qbt 3	—	—	—	—	—	—	—	—	—	—	—
RE33-05-63229	33-25124	0.0–0.5	Qbt 3	—	—	—	—	—	—	—	—	—	—	—
RE33-05-63230	33-25124	2.0–2.5	Qbt 3	—	—	—	—	—	—	—	—	—	—	—
RE33-05-63231	33-25125	0.0–0.5	Qbt 3	—	—	—	—	—	—	—	—	—	—	—
RE33-05-63232	33-25125	2.0–2.5	Qbt 3	—	—	—	—	—	—	—	—	—	—	—
SWMU 33-002(c)														
RE33-05-60765	33-24727	0.0–0.5	Qbt 3	—	—	—	—	—	—	—	—	—	0.018 (J)	—
RE33-05-60766	33-24727	2.0–2.5	Qbt 3	—	—	—	—	—	—	—	—	—	0.0181 (J)	—
RE33-05-60767	33-24728	0.0–0.5	Qbt 3	—	—	—	—	—	—	0.0825	—	—	0.16	—
RE33-05-60769	33-24729	0.0–0.5	Qbt 3	—	—	—	—	—	—	0.114	—	—	0.254	0.0302 (J)
RE33-05-60770	33-24729	2.0–2.5	Qbt 3	—	—	—	—	—	—	0.109	—	—	0.242	0.0307 (J)
RE33-05-62985	33-25086	10.0–10.5	Qbt 3	—	—	—	—	—	—	—	—	—	0.13 (J)	—
RE33-05-62986	33-25086	12.0–12.5	Qbt 3	0.072 (J)	—	—	—	—	—	0.085 (J)	—	—	0.18 (J)	—
RE33-05-63217	33-25118	0.0–0.5	Qbt 3	—	—	—	—	—	—	—	—	—	—	—

Table 6.1-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Benzo(k)fluoranthene	Benzoic Acid	Bis(2-ethylhexyl)phthalate	Bromobenzene	Butanone[2-]	Chloroaniline[4-]	Chrysene	Di-n-butylphthalate	Dibenzofuran	Fluoranthene	Fluorene
Industrial SSL[a]				**234**	**2500000[d]**	**1370**	**1800[d]**	**369000**	**86[d]**	**2340**	**68400**	**1000[d]**	**24400**	**24400**
Residential SSL[a]				**48.1**	**240000[d]**	**280**	**300[d]**	**39600**	**24[d]**	**481**	**6110**	**78[d]**	**2290**	**2290**
RE33-05-63221	33-25120	0.0–0.5	Qbt 3	—	—	—	—	—	—	—	—	—	0.089 (J)	—
RE33-05-63223	33-25121	0.0–0.5	Qbt 3	0.072 (J)	—	—	—	—	—	0.098 (J)	—	—	0.23 (J)	—
RE33-05-63225	33-25122	0.0–0.5	Qbt 3	0.11 (J)	—	—	—	—	—	0.14 (J)	—	—	0.27 (J)	—
RE33-05-63226	33-25122	2.0–2.5	Qbt 3	—	—	—	—	—	—	—	—	—	0.099 (J)	—

Table 6.1-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Indeno(1,2,3-cd)pyrene	Methylene Chloride	Methylnaphthalene[2-]	Naphthalene	Phenanthrene	Pyrene	Tetrachloroethene	Toluene	TPH-DRO	Trichloroethane[1,1,1-]	Trichloroethene
Industrial SSL[a]				**23.4**	**1090**	**4100[d]**	**252**	**20500**	**18300**	**36.4**	**57900**	**1120[e]**	**77100**	**253**
Residential SSL[a]				**4.81**	**199**	**310[d]**	**45**	**1830**	**1720**	**6.99**	**5570**	**520[e]**	**21800**	**45.7**
SWMU 33-002(a)														
RE33-05-60743	33-24716	0.0–0.5	Qbt 3	0.252	—	—	—	0.299	0.353	—	—	NA[f]	—	—
RE33-05-60747	33-24716	2.0–2.5	Qbt 3	0.199	—	—	0.0116 (J)	0.141	0.156	—	—	NA	—	—
RE33-05-60745	33-24717	0.0–0.5	Qbt 3	—	—	—	—	0.43	0.494	—	—	NA	—	—
RE33-05-60749	33-24717	2.0–2.5	Qbt 3	0.285	—	0.0309 (J)	0.0455	0.0455	0.615	—	—	NA	—	—
RE33-05-60744	33-24718	0.0–0.5	Qbt 3	0.378	—	0.0276 (J)	0.0511	0.0511	0.916	—	—	NA	—	—
RE33-05-60748	33-24718	2.0–2.5	Qbt 3	2.2	—	—	0.178 (J)	2.24	2.9	—	—	NA	—	—
RE33-05-60746	33-24719	0.0–0.5	Qbt 3	0.7	—	0.288	0.58	3.84	3.51	—	—	NA	—	—
RE33-05-60750	33-24719	2.0–2.5	Qbt 3	1.68	—	—	—	0.544	0.564	—	—	NA	—	—
RE33-05-60751	33-24720	0.0–0.5	Qbt 3	1.31	—	—	0.251	3.25	3.3	—	—	NA	—	—
RE33-05-60752	33-24720	2.0–2.5	Qbt 3	0.753	—	—	0.0633 (J)	0.746	0.681	—	—	NA	—	—
RE33-05-60753	33-24721	0.0–0.5	Qbt 3	0.907	—	0.0967 (J)	0.251	1.58	1.6	—	—	NA	—	—
RE33-05-60754	33-24721	2.0–2.5	Qbt 3	0.306	—	0.023 (J)	0.0553	0.679	0.736	—	—	NA	—	—
RE33-05-60755	33-24722	0.0–0.5	Qbt 3	0.832	—	0.0405 (J)	0.102 (J)	0.773	0.832	—	—	NA	—	—
RE33-05-60756	33-24722	2.0–2.5	Qbt 3	0.863	—	0.0619 (J)	0.118 (J)	1.25	1.13	—	—	NA	—	—
RE33-05-60757	33-24723	0.0–0.5	Qbt 3	0.245 (J-)	—	0.0136 (J-)	0.0339 (J-)	0.39 (J-)	0.417 (J-)	—	—	NA	—	—
RE33-05-60758	33-24723	2.0–2.5	Qbt 3	0.216	—	0.0093 (J)	0.0184 (J)	0.346	0.3	—	—	NA	—	—
RE33-05-60759	33-24724	0.0–0.5	Fill	0.169	—	0.016 (J)	0.0346 (J)	0.457	0.536	—	0.00038 (J)	NA	—	—
RE33-05-60760	33-24724	2.0–2.5	Qbt 3	—	—	—	—	—	0.013 (J)	—	0.00044 (J)	NA	—	—
RE33-05-60761	33-24725	0.0–0.5	Fill	—	—	—	—	0.324	0.427	—	0.001 (J)	NA	—	—
RE33-05-60762	33-24725	2.0–2.5	Qbt 3	—	—	—	—	—	—	—	0.00052 (J)	NA	—	—
RE33-05-60763	33-24726	0.0–0.5	Fill	—	—	—	—	—	—	—	0.0015	NA	—	—
RE33-05-60764	33-24726	2.0–2.5	Qbt 3	—	—	—	—	—	—	—	0.00058 (J)	NA	—	—
RE33-05-63011	33-25097	2.0–2.5	Fill	—	—	—	—	—	—	0.001 (J)	—	—	—	—
RE33-05-63012	33-25098	0.0–0.5	Fill	—	—	—	—	—	—	0.0015 (J)	—	—	—	—
RE33-05-63013	33-25098	2.0–2.5	Fill	—	—	—	—	—	—	—	—	—	—	—
RE33-05-63195	33-25107	0.0–0.5	Fill	—	—	—	—	—	—	0.0034 (J+)	—	27	—	—
RE33-05-63196	33-25107	2.0–2.5	Fill	—	—	—	—	—	—	—	—	—	—	—
RE33-05-63201	33-25110	0.0–0.5	Fill	—	—	—	—	—	—	0.004 (J)	—	30	—	—
RE33-05-63205	33-25112	0.0–0.5	Fill	—	—	—	—	—	—	0.0011 (J)	—	—	—	—
RE33-05-63207	33-25113	0.0–0.5	Fill	—	—	—	—	—	—	—	—	—	—	—

Table 6.1-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Indeno(1,2,3-cd)pyrene	Methylene Chloride	Methylnaphthalene[2-]	Naphthalene	Phenanthrene	Pyrene	Tetrachloroethene	Toluene	TPH-DRO	Trichloroethane[1,1,1-]	Trichloroethene
Industrial SSL[a]				**23.4**	**1090**	**4100**[d]	**252**	**20500**	**18300**	**36.4**	**57900**	**1120**[e]	**77100**	**253**
Residential SSL[a]				**4.81**	**199**	**310**[d]	**45**	**1830**	**1720**	**6.99**	**5570**	**520**[e]	**21800**	**45.7**
RE33-05-63211	33-25115	0.0–0.5	Fill	—	—	—	—	—	—	—	—	—	—	—
RE33-05-63213	33-25116	0.0–0.5	Fill	—	—	—	—	—	—	—	—	—	—	—
SWMU 33-002(b)														
RE33-05-62977	33-25082	0.0–0.5	Qbt 3	—	0.0029 (J)	—	—	0.00057 (J)	0.00057 (J)	—	—	NA	—	—
RE33-05-62978	33-25082	2.0–2.5	Qbt 3	—	—	—	—	—	—	—	—	NA	—	—
RE33-05-62979	33-25083	0.0–0.5	Qbt 3	—	0.0022 (J)	—	—	0.00041 (J)	0.00039 (J)	—	—	NA	—	—
RE33-05-62980	33-25083	2.0–2.5	Qbt 3	—	0.0027 (J)	—	—	—	—	—	—	NA	—	—
RE33-05-62981	33-25084	0.0–0.5	Qbt 3	0.0042	0.0029 (J)	0.00072 (J)	0.002	0.0138	0.0125	—	—	NA	—	—
RE33-05-62982	33-25084	2.0–2.5	Qbt 3	—	0.0026 (J)	—	—	—	—	—	—	NA	—	—
RE33-05-62987	33-25087	10.0–10.5	Qbt 3	—	—	—	—	0.1 (J)	0.11 (J)	—	—	NA	—	—
RE33-05-62989	33-25088	10.0–10.5	Qbt 3	—	—	—	—	—	—	—	—	NA	—	—
RE33-05-62990	33-25088	12.0–12.5	Qbt 3	—	—	—	—	—	—	—	—	NA	—	—
RE33-05-63000	33-25092	0.0–0.5	Fill	—	—	—	—	—	—	—	—	37	—	—
RE33-05-63004	33-25094	0.0–0.5	Qbt 3	—	—	—	—	—	—	—	—	—	—	—
RE33-05-63007	33-25095	2.0–2.5	Qbt 3	0.1 (J)	—	—	—	0.16 (J)	0.22 (J)	—	—	—	—	—
RE33-05-63009	33-25096	2.0–2.5	Qbt 3	—	—	—	—	—	—	0.00091 (J)	—	—	—	—
RE33-05-63227	33-25123	0.0–0.5	Qbt 3	—	—	—	—	—	—	0.022 (J-)	0.00081 (J-)	—	0.00075 (J-)	0.013 (J-)
RE33-05-63228	33-25123	2.0–2.5	Qbt 3	—	—	—	—	—	—	0.011	—	—	—	0.0079
RE33-05-63229	33-25124	0.0–0.5	Qbt 3	—	—	—	—	—	—	0.0087 (J-)	—	—	—	0.005 (J-)
RE33-05-63230	33-25124	2.0–2.5	Qbt 3	—	—	—	—	—	—	0.0091	0.00068 (J)	—	—	0.006
RE33-05-63231	33-25125	0.0–0.5	Qbt 3	—	—	—	—	—	—	0.001 (J-)	—	—	—	0.00058 (J-)
RE33-05-63232	33-25125	2.0–2.5	Qbt 3	—	—	—	—	—	—	0.01	0.0011 (J)	—	—	—
SWMU 33-002(c)														
RE33-05-60765	33-24727	0.0–0.5	Qbt 3	—	—	—	—	0.012 (J)	0.0183 (J)	—	—	NA	—	—
RE33-05-60766	33-24727	2.0–2.5	Qbt 3	0.0178 (J)	—	—	—	0.0123 (J)	0.0176 (J)	—	—	NA	—	—
RE33-05-60767	33-24728	0.0–0.5	Qbt 3	0.0492	—	—	—	0.0966	0.17	—	—	NA	—	—
RE33-05-60769	33-24729	0.0–0.5	Qbt 3	0.066	—	0.0114 (J)	0.0332 (J)	0.212	0.244	—	—	NA	—	—
RE33-05-60770	33-24729	2.0–2.5	Qbt 3	0.0517	—	0.0116 (J)	0.0323 (J)	0.207	0.222	—	—	NA	—	—
RE33-05-62985	33-25086	10.0–10.5	Qbt 3	—	—	—	—	0.089 (J)	0.12 (J)	—	—	NA	—	—
RE33-05-62986	33-25086	12.0–12.5	Qbt 3	—	—	—	—	0.14 (J)	0.16 (J)	—	—	NA	—	—
RE33-05-63217	33-25118	0.0–0.5	Qbt 3	—	—	—	—	—	—	—	—	75	—	—

Table 6.1-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Indeno(1,2,3-cd)pyrene	Methylene Chloride	Methylnaphthalene[2-]	Naphthalene	Phenanthrene	Pyrene	Tetrachloroethene	Toluene	TPH-DRO	Trichloroethane[1,1,1-]	Trichloroethene
Industrial SSL[a]				**23.4**	**1090**	**4100**[d]	**252**	**20500**	**18300**	**36.4**	**57900**	**1120**[e]	**77100**	**253**
Residential SSL[a]				**4.81**	**199**	**310**[d]	**45**	**1830**	**1720**	**6.99**	**5570**	**520**[e]	**21800**	**45.7**
RE33-05-63221	33-25120	0.0–0.5	Qbt 3	—	—	—	—	—	—	—	—	—	—	—
RE33-05-63223	33-25121	0.0–0.5	Qbt 3	—	—	—	—	0.18 (J)	0.17 (J)	—	—	—	—	—
RE33-05-63225	33-25122	0.0–0.5	Qbt 3	0.081 (J)	—	—	—	0.18 (J)	0.21 (J)	—	—	—	—	—
RE33-05-63226	33-25122	2.0–2.5	Qbt 3	—	—	—	—	0.076 (J)	0.078 (J)	—	—	—	—	—

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

[a] Soil screening levels (SSLs) from NMED (2009, 108070), unless otherwise noted.

[b] Pyrene used as surrogate based on structural similarity.

[c] — = Result was not detected.

[d] EPA regional screening level (http://www.epa.gov/earth1r6/6pd/rcra_pd/pd-n/screen.htm).

[e] Screening guidelines from NMED (2006, 094614).

[f] NA = Not analyzed.

Table 6.1-4
Radionuclides Detected or Detected above BVs/FVs in 2005 VCA Confirmation Samples at SWMUs 33-002(a–c)

Sample ID	Location ID	Depth (ft bgs)	Media	Americium-241	Cesium-137	Plutonium-238	Plutonium-239/240	Strontium-90	Tritium	Uranium-235/236	Uranium-238
Soil BV/FV[a]				**0.013**	**1.65**	**0.023**	**0.054**	**1.31**	**na[b]**	**0.2**	**2.29**
Qbt 2, 3, 4 BV/FV[a]				**na**	**na**	**na**	**na**	**na**	**na**	**0.09**	**1.93**
Industrial SAL[c]				**180**	**23**	**240**	**210**	**1900**	**440000**	**87**	**430**
Residential SAL[c]				**30**	**5.6**	**37**	**33**	**5.7**	**750**	**17**	**87**
SWMU 33-002(a)											
RE33-05-60743	33-24716	0.0–0.5	Qbt 3	—[d]	—	—	—	—	74.13	0.2453	—
RE33-05-60747	33-24716	2.0–2.5	Qbt 3	—	—	—	—	—	43.4	—	—
RE33-05-60745	33-24717	0.0–0.5	Qbt 3	—	—	—	—	—	42.97	—	—
RE33-05-60749	33-24717	2.0–2.5	Qbt 3	—	—	0.1484	—	—	84.68	—	—
RE33-05-60744	33-24718	0.0–0.5	Qbt 3	—	—	—	—	—	60.78	—	—
RE33-05-60748	33-24718	2.0–2.5	Qbt 3	—	—	—	—	—	236.2	—	—
RE33-05-60746	33-24719	0.0–0.5	Qbt 3	—	—	—	—	—	229.1	—	—
RE33-05-60750	33-24719	2.0–2.5	Qbt 3	—	—	—	—	—	57.54	—	—
RE33-05-60751	33-24720	0.0–0.5	Qbt 3	—	—	—	—	—	102.1	—	—
RE33-05-60752	33-24720	2.0–2.5	Qbt 3	—	—	—	—	—	49.2	—	—
RE33-05-60753	33-24721	0.0–0.5	Qbt 3	—	—	—	—	—	116.2	—	—
RE33-05-60755	33-24722	0.0–0.5	Qbt 3	—	—	—	—	—	4249	—	—
RE33-05-60756	33-24722	2.0–2.5	Qbt 3	—	—	—	—	—	765.2	—	1.96176 (J-)
RE33-05-60757	33-24723	0.0–0.5	Qbt 3	—	—	—	—	—	306	—	—
RE33-05-60758	33-24723	2.0–2.5	Qbt 3	—	—	—	—	—	217.4	—	—
RE33-05-60759	33-24724	0.0–0.5	Fill	—	—	—	—	—	12.6	—	—
RE33-05-60760	33-24724	2.0–2.5	Qbt 3	—	—	—	—	—	33	—	—

Table 6.1.4 (continued)

Sample ID	Location ID	Depth (ft bgs)	Media	Americium-241	Cesium-137	Plutonium-238	Plutonium-239/240	Strontium-90	Tritium	Uranium-235/236	Uranium-238
Soil BV/FV[a]				**0.013**	**1.65**	**0.023**	**0.054**	**1.31**	**na[b]**	**0.2**	**2.29**
Qbt 2, 3, 4 BV/FV[a]				**na**	**na**	**na**	**na**	**na**	**na**	**0.09**	**1.93**
Industrial SAL[c]				**180**	**23**	**240**	**210**	**1900**	**440000**	**87**	**430**
Residential SAL[c]				**30**	**5.6**	**37**	**33**	**5.7**	**750**	**17**	**87**
RE33-05-60761	33-24725	0.0–0.5	Fill	—	—	—	—	—	199	—	—
RE33-05-60762	33-24725	2.0–2.5	Qbt 3	—	—	—	—	—	42.5	—	—
RE33-05-60763	33-24726	0.0–0.5	Fill	—	—	—	—	—	204	—	—
RE33-05-60764	33-24726	2.0–2.5	Qbt 3	—	—	—	—	—	177	—	—
RE33-05-63010	33-25097	0.0–0.5	Fill	—	—	—	—	—	547.488	—	—
RE33-05-63011	33-25097	2.0–2.5	Fill	—	—	—	—	—	385.926	—	—
RE33-05-63012	33-25098	0.0–0.5	Fill	0.1967 (J-)	—	—	0.13849 (J+)	—	963.725	—	—
RE33-05-63013	33-25098	2.0–2.5	Fill	—	—	—	—	—	1010.44	—	—
RE33-05-63195	33-25107	0.0–0.5	Fill	—	—	—	—	—	1874.71	—	—
RE33-05-63196	33-25107	2.0–2.5	Fill	—	—	—	—	—	500.205	—	—
RE33-05-63197	33-25108	0.0–0.5	Fill	—	—	—	—	—	6120.08	—	—
RE33-05-63198	33-25108	2.0–2.5	Fill	—	—	—	—	—	278.045	—	—
RE33-05-63199	33-25109	0.0–0.5	Fill	—	—	—	—	—	1279.12	—	—
RE33-05-63200	33-25109	2.0–2.5	Fill	—	—	—	—	—	337.442	—	—
RE33-05-63201	33-25110	0.0–0.5	Fill	—	—	—	—	—	2207.25	—	—
RE33-05-63202	33-25110	2.0–2.5	Fill	—	—	—	—	—	1389.63	—	—
RE33-05-63203	33-25111	0.0–0.5	Fill	—	—	—	—	—	725.477	—	—
RE33-05-63204	33-25111	2.0–2.5	Fill	—	—	—	—	—	283.174	—	—
RE33-05-63205	33-25112	0.0–0.5	Fill	—	—	0.40388 (J+)	—	—	330.88	—	—

Table 6.1.4 (continued)

Sample ID	Location ID	Depth (ft bgs)	Media	Americium-241	Cesium-137	Plutonium-238	Plutonium-239/240	Strontium-90	Tritium	Uranium-235/236	Uranium-238
Soil BV/FV[a]				**0.013**	**1.65**	**0.023**	**0.054**	**1.31**	**na**[b]	**0.2**	**2.29**
Qbt 2, 3, 4 BV/FV[a]				**na**	**na**	**na**	**na**	**na**	**na**	**0.09**	**1.93**
Industrial SAL[c]				**180**	**23**	**240**	**210**	**1900**	**440000**	**87**	**430**
Residential SAL[c]				**30**	**5.6**	**37**	**33**	**5.7**	**750**	**17**	**87**
RE33-05-63206	33-25112	2.0–2.5	Fill	—	—	—	—	—	344.783	—	—
RE33-05-63207	33-25113	0.0–0.5	Fill	—	—	—	—	—	992.573	—	—
RE33-05-63208	33-25113	2.0–2.5	Fill	—	—	—	—	—	350.082	—	—
RE33-05-63209	33-25114	0.0–0.5	Fill	—	—	—	—	—	520.774	—	—
RE33-05-63210	33-25114	2.0–2.5	Fill	—	—	—	—	—	542.635	—	—
RE33-05-63211	33-25115	0.0–0.5	Fill	—	—	—	—	—	354.12	—	—
RE33-05-63212	33-25115	2.0–2.5	Fill	—	—	—	—	—	232.03	—	—
RE33-05-63213	33-25116	0.0–0.5	Fill	—	—	—	—	—	1605.49	—	—
RE33-05-63214	33-25116	2.0–2.5	Fill	—	—	—	—	—	363.769	—	—
RE33-05-63215	33-25117	0.0–0.5	Fill	—	—	—	—	—	392.076	—	—
RE33-05-63216	33-25117	2.0–2.5	Fill	—	—	—	—	—	814.007	—	—
SWMU 33-002(b)											
RE33-05-62977	33-25082	0.0–0.5	Qbt 3	—	—	—	—	0.23	177	0.119	—
RE33-05-62978	33-25082	2.0–2.5	Qbt 3	—	—	—	—	—	262	—	—
RE33-05-62979	33-25083	0.0–0.5	Qbt 3	—	—	—	—	—	71.2	—	—
RE33-05-62980	33-25083	2.0–2.5	Qbt 3	—	—	—	—	—	314	—	—
RE33-05-62981	33-25084	0.0–0.5	Qbt 3	—	—	—	—	—	1060	—	—
RE33-05-62982	33-25084	2.0–2.5	Qbt 3	—	—	—	—	—	1170	—	—
RE33-05-62987	33-25087	10.0–10.5	Qbt 3	—	—	—	—	—	3000	—	—

Table 6.1.4 (continued)

Sample ID	Location ID	Depth (ft bgs)	Media	Americium-241	Cesium-137	Plutonium-238	Plutonium-239/240	Strontium-90	Tritium	Uranium-235/236	Uranium-238
Soil BV/FV[a]				**0.013**	**1.65**	**0.023**	**0.054**	**1.31**	**na[b]**	**0.2**	**2.29**
Qbt 2, 3, 4 BV/FV[a]				**na**	**na**	**na**	**na**	**na**	**na**	**0.09**	**1.93**
Industrial SAL[c]				**180**	**23**	**240**	**210**	**1900**	**440000**	**87**	**430**
Residential SAL[c]				**30**	**5.6**	**37**	**33**	**5.7**	**750**	**17**	**87**
RE33-05-62988	33-25087	12.0–12.5	Qbt 3	—	—	—	—	—	1560	—	—
RE33-05-62989	33-25088	10.0–10.5	Qbt 3	—	—	—	—	—	3030	—	—
RE33-05-63000	33-25092	0.0–0.5	Fill	—	—	—	—	—	657.61	—	—
RE33-05-63001	33-25092	2.0–2.5	Qbt 3	—	—	—	—	0.21	3298.81	—	—
RE33-05-63002	33-25093	0.0–0.5	Qbt 3	—	—	—	—	—	317.74	—	—
RE33-05-63003	33-25093	2.0–2.5	Qbt 3	—	—	—	—	0.33	2873.28	—	—
RE33-05-63004	33-25094	0.0–0.5	Qbt 3	0.2345 (J-)	—	—	—	—	393.62	—	—
RE33-05-63005	33-25094	2.0–2.5	Qbt 3	—	—	—	—	0.49	2894.5	—	—
RE33-05-63006	33-25095	0.0–0.5	Fill	—	—	—	—	—	712.28	—	—
RE33-05-63007	33-25095	2.0–2.5	Qbt 3	0.17945 (J-)	—	—	—	—	3550.7	—	—
RE33-05-63008	33-25096	0.0–0.5	Fill	—	—	—	—	—	488.996	—	—
RE33-05-63009	33-25096	2.0–2.5	Qbt 3	—	—	—	—	—	411.072	—	—
RE33-05-63227	33-25123	0.0–0.5	Qbt 3	—	—	—	—	—	3.93 (J-)	—	—
RE33-05-63228	33-25123	2.0–2.5	Qbt 3	—	—	—	—	—	1.29	—	—
RE33-05-63229	33-25124	0.0–0.5	Qbt 3	—	—	—	—	—	0.766 (J-)	—	—
RE33-05-63230	33-25124	2.0–2.5	Qbt 3	—	—	—	—	—	0.548	—	—
RE33-05-63231	33-25125	0.0–0.5	Qbt 3	—	—	—	—	—	1.49 (J-)	0.17	—
RE33-05-63232	33-25125	2.0–2.5	Qbt 3	—	—	—	—	—	0.739	—	—

Table 6.1.4 (continued)

Sample ID	Location ID	Depth (ft bgs)	Media	Americium-241	Cesium-137	Plutonium-238	Plutonium-239/240	Strontium-90	Tritium	Uranium-235/236	Uranium-238
Soil BV/FV[a]				**0.013**	**1.65**	**0.023**	**0.054**	**1.31**	**na[b]**	**0.2**	**2.29**
Qbt 2, 3, 4 BV/FV[a]				**na**	**na**	**na**	**na**	**na**	**na**	**0.09**	**1.93**
Industrial SAL[c]				**180**	**23**	**240**	**210**	**1900**	**440000**	**87**	**430**
Residential SAL[c]				**30**	**5.6**	**37**	**33**	**5.7**	**750**	**17**	**87**
SWMU 33-002(c)											
RE33-05-60765	33-24727	0.0–0.5	Qbt 3	0.6379 (J-)	—	—	—	—	313.7	—	—
RE33-05-60766	33-24727	2.0–2.5	Qbt 3	—	—	—	—	1.28 (J-)	342.2	—	—
RE33-05-60767	33-24728	0.0–0.5	Qbt 3	—	—	—	—	0.82 (J-)	24960	—	—
RE33-05-60768	33-24728	2.0–2.5	Qbt 3	—	—	0.1864 (J-)	—	—	883.1	—	—
RE33-05-60769	33-24729	0.0–0.5	Qbt 3	—	—	—	—	—	1618	—	—
RE33-05-60770	33-24729	2.0–2.5	Qbt 3	—	—	—	—	—	85.08	—	—
RE33-05-62984	33-25085	12.0–12.5	Qbt 3	—	—	—	—	—	30.8	—	—
RE33-05-62985	33-25086	10.0–10.5	Qbt 3	—	0.048	—	—	—	NA	—	—
RE33-05-62986	33-25086	12.0–12.5	Qbt 3	—	—	0.1263	—	—	29.4	—	—
RE33-05-63217	33-25118	0.0–0.5	Qbt 3	—	—	—	—	0.38 (J+)	8468.51	—	—
RE33-05-63218	33-25118	2.0–2.5	Qbt 3	—	—	—	—	—	1588.43	—	—
RE33-05-63219	33-25119	0.0–0.5	Qbt 3	—	—	—	0.0972 (J+)	—	143.93	—	—
RE33-05-63220	33-25119	2.0–2.5	Qbt 3	—	—	0.082	—	—	201.492	—	—
RE33-05-63221	33-25120	0.0–0.5	Qbt 3	—	—	—	—	—	416.672	—	—
RE33-05-63222	33-25120	2.0–2.5	Qbt 3	—	—	—	—	—	79.6216	—	—
RE33-05-63223	33-25121	0.0–0.5	Qbt 3	—	—	—	—	—	132.639	—	—
RE33-05-63224	33-25121	2.0–2.5	Qbt 3	—	—	—	—	—	150.907	—	—
RE33-05-63225	33-25122	0.0–0.5	Qbt 3	—	—	—	—	—	1681.4	—	—

Table 6.1.4 (continued)

Sample ID	Location ID	Depth (ft bgs)	Media	Americium-241	Cesium-137	Plutonium-238	Plutonium-239/240	Strontium-90	Tritium	Uranium-235/236	Uranium-238
Soil BV/FV[a]				**0.013**	**1.65**	**0.023**	**0.054**	**1.31**	**na**[b]	**0.2**	**2.29**
Qbt 2, 3, 4 BV/FV[a]				**na**	**na**	**na**	**na**	**na**	**na**	**0.09**	**1.93**
Industrial SAL[c]				**180**	**23**	**240**	**210**	**1900**	**440000**	**87**	**430**
Residential SAL[c]				**30**	**5.6**	**37**	**33**	**5.7**	**750**	**17**	**87**
RE33-05-63226	33-25122	2.0–2.5	Qbt 3	—	—	—	—	—	184.57	—	—

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

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

[b] na = Not available.

[c] Screening action levels (SALs) from LANL (2009, 107655).

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

Appendix A

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

A-1.0 ACRONYMS AND ABBREVIATIONS

ACA	accelerated corrective action
amsl	above mean sea level
AOC	area of concern
bgs	below ground surface
BV	background value
COC	chain of custody
COPC	chemical of potential concern
DL	detection limit
DOE	Department of Energy (U.S.)
DRO	diesel range organics
eV	electron volt
EP	Environmental Programs Directorate
EPA	Environmental Protection Agency (U.S.)
EQL	estimated quantitation limit
FV	fallout value
GPS	global-positioning system
HIR	historical investigation report
IDW	investigation-derived waste
LANL	Los Alamos National Laboratory
LLW	low-level waste
MDA	material disposal area
MLLW	mixed low-level waste
NMED	New Mexico Environment Department
NFA	no further action
PCB	polychlorinated biphenyl
PID	photoionization detector
RCRA	Resource Conservation and Recovery Act
RCT	radiation control technician
RFI	RCRA facility investigation
RPF	Records Processing Facility
SAL	screening action level
SCL	sample collection log

SMO	Sample Management Office
SOP	standard operating procedure
SSL	soil screening level
SVOC	semivolatile organic compound
SWMU	solid waste management unit
TA	technical area
TAL	target analyte list
TCE	trichloroethene
TPH	total petroleum hydrocarbon
VCA	voluntary corrective action
VOC	volatile organic compound
WCSF	waste characterization strategy form

A-2.0 METRIC CONVERSION TABLE

Multiply SI (Metric) Unit	by	To Obtain U.S. Customary Unit
kilometers (km)	0.622	miles (mi)
kilometers (km)	3281	feet (ft)
meters (m)	3.281	feet (ft)
meters (m)	39.37	inches (in.)
centimeters (cm)	0.03281	feet (ft)
centimeters (cm)	0.394	inches (in.)
millimeters (mm)	0.0394	inches (in.)
micrometers or microns (µm)	0.0000394	inches (in.)
square kilometers (km^2)	0.3861	square miles (mi^2)
hectares (ha)	2.5	acres
square meters (m^2)	10.764	square feet (ft^2)
cubic meters (m^3)	35.31	cubic feet (ft^3)
kilograms (kg)	2.2046	pounds (lb)
grams (g)	0.0353	ounces (oz)
grams per cubic centimeter (g/cm^3)	62.422	pounds per cubic foot (lb/ft^3)
milligrams per kilogram (mg/kg)	1	parts per million (ppm)
micrograms per gram (µg/g)	1	parts per million (ppm)
liters (L)	0.26	gallons (gal.)
milligrams per liter (mg/L)	1	parts per million (ppm)
degrees Celsius (°C)	9/5 + 32	degrees Fahrenheit (°F)

A-3.0 DATA QUALIFIER DEFINITIONS

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

Appendix B

Field Forms
(on CD included with this document)

Appendix C

Analytical Suites and Results and Analytical Reports
(on DVD included with this document)

Appendix D

Site Photographs
(on CD included with this document)