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Prepared by the Environmental Programs Directorate

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EXECUTIVE SUMMARY

This investigation report presents the results of field activities performed for sites discussed in the New Mexico Environment Department (NMED)-approved Delta Prime (DP) Site Aggregate Area investigation work plan plus one additional outfall requested by NMED. These sites are presented in three groups: (1) investigation sites; (2) facility-unimpacted corrective action sites where corrective actions have been completed; and (3) facility-impacted corrective action sites where corrective actions and sampling are ongoing.

Investigation site activities were conducted from June to August 2006 and February to May 2007 at three solid waste management units (SWMUs), one consolidated unit, one area of concern (AOC), and an outfall suspected of polychlorinated biphenyl (PCB) contamination. These sites include

- AOC 21-002(b), drum storage area
- Consolidated Unit 21-003-99, which consists of SWMUs 21-003 and 21-013(f), PCB storage area;
- SWMU 21-009, waste treatment laboratory;
- SWMU 21-013(c), surface disposal area;
- SWMU 21-024(c), septic system; and
- Suspected PCB-contaminated outfall [located below SWMU 21-024(m)].

For the first five sites, the objective of this investigation was to define the nature and extent of contamination in accordance with the NMED-approved work plan. Additionally, at SWMU 21-024(c), the septic tank and associated lines were removed.

Based on the characterization data from the 2006–2007 investigation and previous investigations, the extent of contamination of inorganic chemicals, organic chemicals, and/or radionuclides is not fully defined at AOC 21-002(b) and SWMUs 21-009 and 21-013(c). Limited additional characterization is warranted at these three sites. Additional investigation/remediation is required at Consolidated Unit 21-003-99 and SWMU 21-024(c), which are regulated under the Toxic Substances Control Act. At these two sites, PCB concentrations are above the cleanup level of 1 mg/kg as a result of past operations. Therefore, a work plan will be submitted to the U.S. Environmental Protection Agency and to NMED outlining planned corrective action activities.

For the suspected PCB-contaminated outfall, the objective was to determine the source of PCBs in surface water samples collected from an outfall, which drains to Los Alamos Canyon, to the south of DP Mesa below SWMU 21-024(m). Soil samples were collected in the outfall drainage. After review of the preliminary results, NMED requested additional samples be collected and analyzed for both SVOCs and dioxin/furans. All detected organic chemical concentrations in the additional samples were less than the original sample with the exception of bis(2-ethylhexyl)phthalate, which was previously not detected, and tetrachlorodibenzodioxin[2,3,7,8-], which was detected at approximately the same concentration.

Facility-unimpacted corrective action site activities and sample collection were conducted from November 2006 to July 2007 at six SWMUs and two consolidated units. These sites were accessible without major disruption to utility corridors or building occupants. They were not connected to the central

laboratory building corridor (buildings 21-001 through 21-005, DP West) or the Tritium System Test Assembly (TSTA) complex (DP East). These sites include the following:

- SWMU 21-012(b), dry well and pipelines
- SWMU 21-024(a), septic system
- SWMU 21-024(e), septic system
- SWMU 21-024(g), septic system
- Consolidated Unit 21-024(l)-99, consisting of SWMU 21-022(a), a sump and associated lines; SWMU 21-024(l), an outfall; and AOC 21-004(a), an aboveground storage tank and associated lines
- SWMU 21-024(o), pipeline and outfall
- Consolidated Unit 21-026(a)-99, a sewage treatment plant consisting of SWMUs 21-013(a), surface disposal area; 21-026(a), sewage treatment plant, and 21-026(b), four sludge drying/sand filter beds; and AOCs 21-026(c), a dosing siphon chamber, and 21-026(d), an outfall
- SWMU 21-027(c), pipeline and outfall

The objective of these corrective actions was to reduce or prevent the migration of contamination by removing infrastructure and environmental media suspected to contain contaminants at concentrations exceeding industrial screening action levels for radionuclides or industrial soil screening levels for chemicals in accordance with the NMED-approved work plan.

Based on the confirmation sample data from the 2006–2007 corrective action activities for these sites, the extent of contamination of inorganic chemicals, organic chemicals, and/or radionuclides has not been fully defined at any of these sites. Therefore, limited additional sampling is warranted.

Facility-impacted corrective action site activities and sample collection conducted from July 2007 onward are ongoing at nine SWMUs and three consolidated units. These sites were either connected to the central laboratory building corridor (buildings 21-001 through 21-005, DP West) or to the TSTA complex (DP East). Therefore, these sites were not immediately accessible and required isolating the utility corridor and/or relocating building occupants before field activities began. As stated in section 5 of the NMED-approved work plan, pipelines in use or near other active utilities will be removed at a later date, when they were no longer active. The health and safety hazard posed by working around and among live utilities added significant planning and execution time; however, corrective action activities and sample collection as outlined in the work plan are ongoing. These sites include the following:

- Consolidated Unit 21-006(c)-99, seepage pits, consisting of SWMUs 21-006(a), seepage pit; 21-006(b), seepage pit, drainline, and outfall; 21-006(c), seepage pit; and 21-006(d), seepage pit
- SWMU 21-022(f), sump and pipeline
- Consolidated Unit 21-022(h)-99, consisting of SWMUs 21-022(h) sump, drainline, and outfall; 21-022(i) sump; and 21-022(j), sump
- Consolidated Unit 21-023(a)-99, septic systems, consisting of SWMUs 21-023(a), septic system; 21-023(b), septic system; and 21-023(d), septic system
- SWMU 21-024(b), septic system
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- SWMU 21-024(n), septic system
- SWMU 21-027(a), surface drainage and outfall

The objective of these corrective actions is to reduce or prevent the migration of contamination by removing infrastructure and environmental media suspected to contain contaminants at concentrations exceeding industrial screening action levels for radionuclides or industrial soil screening levels for chemicals in accordance with the NMED-approved work plan.

Risk assessments will be completed for all the sites addressed in this report once nature and extent are defined and/or remediation has taken place.

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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 covers 40 mi^2 of the Pajarito Plateau, which consists of a series of fingerlike mesas separated by deep canyons containing perennial and intermittent streams running from west to east. Mesa tops range in elevation between 6200 and 7800 ft above mean sea level.

The Laboratory's Technical Area (TA) 21 Closure Project, under the 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 the EP Directorate is to ensure that DOE's past operations do not threaten human or environmental health and safety in and around Los Alamos County, New Mexico. To achieve this goal, the EP Directorate investigates sites potentially contaminated by past Laboratory operations. The sites under investigation are designated as solid waste management units (SWMUs) or areas of concern (AOCs). Individual SWMUs and AOCs may be grouped into consolidated units as a result of spatial proximity or function.

Corrective actions at the Laboratory are subject to the March 1, 2005, Compliance Order on Consent (the Consent Order), issued pursuant to the New Mexico Hazardous Waste Act, New Mexico Statutes Annotated (NMSA) 1978, § 74-4-10, and the New Mexico Solid Waste Act, NMSA 1978, § 74-9-36(D). Information on radioactive materials and radionuclides, including the results of sampling and analysis of radioactive constituents, is voluntarily provided to the New Mexico Environment Department (NMED) in accordance with DOE policy.

This report discusses the sites included in the approved investigation work plan plus one additional outfall requested by NMED (LANL 2004, 087461, p. 8-18–8-24; NMED 2005, 089314). These sites are presented as (1) investigation sites, (2) facility-unimpacted corrective action sites, and (3) facility-impacted corrective action sites.

Investigation sites were identified in the August 2004 work plan and include three inactive SWMUs [21-013(c), 21-024(c), and 21-009]; one inactive consolidated unit (Consolidated Unit 21-003-99); and one inactive AOC [21-002(b)] (LANL 2004, 087461; NMED 2005, 089314). Additionally, one outfall suspected of polychlorinated biphenyl (PCB) contamination [near SWMU 21-024(m)] was sampled and is included in the investigation sites. Consolidated Unit 21-003-99 and SWMU 21-024(c) are regulated under the Toxic Substances Control Act (TSCA) because PCBs were released from a source with greater than 50 mg/kg total PCBs after 1978.

Corrective action sites were identified in the July 2005 revised section 5 of the work plan and included 15 inactive SWMUs [21-012(b), 21-022(f), 21-024(a), 21-024(b), 21-024(d), 21-024(e), 21-024(g), 21-024(h), 21-024(i), 21-024(j), 21-024(k), 21-024(n), 21-024(o), 21-027(a) and 21-027(c)]; and five inactive consolidated units [21-006(c)-99, 21-022(h)-99, 21-023(a)-99, 21-024(l)-99, 21-026(a)-99] (LANL 2004, 087461; NMED 2005, 089314). As stated in section 5 of the NMED-approved work plan, pipelines in use or near other active utilities will be removed at a later date when they were no longer active, and portions of SWMUs located under structures will be addressed when these areas become accessible (LANL 2004, 087461; NMED 2005, 089314). Because utilities and structures are present and significant planning is needed to address the health and safety hazard they pose, the sites have been prioritized into facility-unimpacted sites that can be addressed immediately and facility-impacted sites that need to be addressed after utility location, isolation, and health and safety clearance.

Facility-unimpacted corrective action sites where corrective actions and sample collection have been completed include six SWMUs [21-012(b), 21-024(a), 21-024(e), 21-024(g), 21-024(o), and 21-027(c)] and two consolidated units [21-024(l)-99 and 21-026(a)-99]. These sites were accessible without major disruption to utility corridors or building occupants. They were not connected to the central laboratory building corridor (buildings 21-001 through 21-005, Delta Prime [DP] West) or the Tritium System Test Assembly (TSTA) complex (DP East).

Facility-impacted corrective action sites where corrective actions, sample collection, and reporting are ongoing include nine SWMUs [21-022(f), 21-024(b), 21-024(d), 21-024(h), 21-024(i), 21-024(j), 21-024(k), 21-024(n), and 21-027(a)] and three consolidated units [21-006(c)-99, 21-022(h)-99, and 21-023(a)-99]. These sites are either connected to the central laboratory building corridor (buildings 21-001 through 21-005, DP West) or to the TSTA complex (DP East). Therefore, these sites were not immediately accessible and required utility corridor shutoff and/or building occupant relocation before field activities began. As stated in section 5 of the NMED-approved work plan, “pipelines in use or near other active utilities will be removed at a later date, when they are no longer active” (LANL 2004, 087461; NMED 2005, 089314). The health and safety hazard posed by working around and among live utilities adds significant planning and execution time; however, the corrective action activities and sample collection, as outlined in the approved work plan, are ongoing.

Appendices are organized as follows: Appendix A contains the acronyms and abbreviations, a glossary, a metric conversion table, and data qualifier definitions. Appendix B contains the data review. Appendix C contains field methods and deviations from the work plan. Appendix D contains the surface water assessments. Appendix E contains the analytical program, and Appendix F contains the analytical suites and results, the chain-of-custody forms, and the sample-collection logs. Appendix G contains photographs of the site, and Appendix H presents waste management. A risk assessment appendix is not included because the investigations of nature and extent and/or remediation are not complete at any of the sites included in this investigation report.

1.1 General Site Information

The DP Site Aggregate Area addressed in this report is located on DP Mesa within TA-21 (Figure 1.1-1 and Table 1.1-1). DP Site Aggregate Area not addressed in this report and sites approved for no further action are listed in Tables 1.1-2 and 1.1-3, respectively. From 1945 to 1978, TA-21 was used primarily for plutonium research, metal production, and related activities. Since 1978, various administrative and research activities have been conducted at TA-21. Currently, the TA-21 Project offices are located on site. The current land use is industrial, and it will remain industrial for the reasonably foreseeable future.

1.2 Scope of the Field Investigation

1.2.1 Investigation Sites

The investigation sites are situated within the DP Site Aggregate Area (Figure 1.2-1). These sites include

- AOC 21-002(b), drum storage area (Figure 1.2-2);
- Consolidated Unit 21-003-99, which consists of SWMUs 21-003 and 21-013(f), PCB storage area (Figure 1.2-3);
- SWMU 21-009, waste treatment laboratory (Figure 1.2-4);
- SWMU 21-013(c), surface disposal area (Figure 1.2-5);

- SWMU 21-024(c), septic system (Figure 1.2-6); and
- Suspected PCB-contaminated outfall, below SWMU 21-024(m) (Figure 1.2-7).

The primary objective of the investigation at the first five sites [AOC 21-002(b), Consolidated Unit 21-003-99, SWMUs 21-009, SWMU 21-013(c), and SWMU 21-024(c)] was to finalize characterization and remove structures in accordance with the approved work plan (LANL 2004, 087461; NMED 2005, 089314).

The approved work plan identified several data needs:

- Existing site data did not define the extent of potential contamination at any of the five sites.
- No previously collected samples were analyzed for perchlorate, cyanide, or nitrates.
- No previously collected samples were analyzed for mercury at SWMU 21-024(c).
- The remaining portions of the septic system at SWMU 21-024(c) needed to be removed and disposed of at an appropriate waste disposal facility.
- Extended suite analyses (including explosive compounds, dioxin/furan, and/or PCB) were not conducted at any of the sites.

Site characterization and structure removal activities were conducted from June to August 2006 and February to May 2007 to gather the additional information needed to finalize the characterization of these sites. Borehole locations, sample collection, and laboratory analyses were conducted according to the approved work plan (LANL 2004, 087461; NMED 2005, 089314).

The primary objective of the suspected PCB-contaminated outfall investigation was to determine the source of the PCBs detected in stormwater samples collected by NMED in a drainage area located below SWMU 21-024(m) as requested by NMED (LANL 2005, 087836).

1.2.2 Facility-unimpacted Corrective Action Sites

The facility-unimpacted corrective action sites are situated within the DP Site Aggregate Area (Figure 1.2-1) and include

- SWMU 21-012(b), dry well and pipelines (Figure 1.2-8);
- SWMU 21-024(a), septic system (Figure 1.2-9);
- SWMU 21-024(e), septic system (Figure 1.2-10);
- SWMU 21-024(g), septic system (Figure 1.2-11);
- Consolidated Unit 21-024(l)-99, consisting of SWMUs 21-022(a), a sump and associated lines, and 21-024(l), an outfall; and AOC 21-004(a), an aboveground storage tank and associated lines (Figure 1.2-12);
- SWMU 21-024(o), outfall (Figure 1.2-13);
- Consolidated Unit 21-026(a)-99, a sewage treatment plant consisting of SWMUs 21-013(a), a surface disposal area; 21-026(a), sewage treatment plant; and 21-026(b), four sludge drying/sand filter beds; and AOCs 21-026(c), a dosing siphon chamber and 21-026(d), outfall (Figure 1.2-14);
- SWMU 21-027(c), pipeline and outfall (Figure 1.2-15).

The scope of activities for the facility-unimpacted corrective action sites incorporated a phased approach to determine the activities for each site, including site reconnaissance, characterization sampling, excavation, confirmation sampling, and evaluation of survey and sample data in accordance with the approved investigation work plan (LANL 2004, 087461; NMED 2005, 089314).

The objectives of the corrective actions were to conduct characterization sampling and analysis, assist in finalizing the implementation approach to the corrective action; remove and inspect the structure(s); remove contaminated material; and conduct confirmation sampling. Confirmation sampling was conducted to assess whether the nature and extent of any residual contamination was determined and if concentrations are less than industrial soil screening levels (SSLs)/screening action levels (SALs).

Site characterization and remediation activities were conducted from November 2006 to July 2007 to gather the additional information needed to characterize these sites. Sample locations, sample collection depths, and laboratory analyses conducted according to the approved work plan (LANL 2004, 087461; NMED 2005, 089314).

1.2.3 Facility-Impacted Corrective Action Sites

The facility-impacted corrective action sites are situated within the DP Site Aggregate Area (Figure 1.2-1) and include

- Consolidated Unit 21-006(c)-99, seepage pits;
- SWMU 21-022(f), sump and pipeline;
- Consolidated Unit 21-022(h)-99, sumps, pipeline, and outfall;
- Consolidated Unit 21-023(a)-99, septic systems;
- SWMU 21-024(b), septic system;
- SWMU 21-024(d), septic system;
- SWMU 21-024(h), septic system;
- SWMU 21-024(i), septic system inlet line;
- SWMU 21-024(j), septic system;
- SWMU 21-024(k), septic system;
- SWMU 21-024(n), septic system; and
- SWMU 21-027(a), surface drainage and outfall.

Plate 1 and Table 1.1-1 show the current status of these sites. The scope of activities for the facility-impacted corrective action sites incorporated a phased approach to determine the activities for each site, including site reconnaissance, locating and/or isolating utilities during the corrective action, worker health and safety planning and activities regarding utilities, characterization sampling, excavation, confirmation sampling, and evaluation of survey and sample data in accordance with the approved investigation work plan (LANL 2004, 087461; NMED 2005, 089314).

The objectives of the corrective actions are to conduct characterization sampling and analysis, finalize the approach to the corrective action; remove and inspect the structure(s); remove contaminated material; and conduct confirmation sampling. Confirmation sampling is being conducted to assess whether the

nature and extent of any residual contamination were determined and if concentrations are less than industrial SSLs/ SALs. Both characterization and remediation activities are ongoing.

2.0 BACKGROUND

2.1 Investigation Site Descriptions and Operational Histories

This section summarizes the site descriptions and operational histories since 1940 for each investigation site; further details are presented in the approved work plan (LANL 2004, 087461; NMED 2005, 089314).

2.1.1 AOC 21-002(b), Drum Storage Area

AOC 21-002(b) is a former drum storage structure (structure 21-38) that consisted of three tin-siding walls, a roof, and a concrete floor. The north side of the structure was open. Fifty-five-gal. drums were stored upright within the structure and on the ground immediately outside the building. The contents of the drums formerly stored in this structure are not known, and there are no documented spills or leaks from the drums.

Operational History

- 1945—Structure 21-038 was built southeast of a shop (building 21-031) to be used for drum storage (LANL 1991, 007529, p. 14-58). However, an engineering drawing shows structure 21-038 as a paint storage shed (LASL 1949, 096013).
- 1966—Structure 21-038 underwent decontamination and decommissioning (D&D) activities (LANL 1991, 007529, p. 14-58).

Summary of Previous Investigations

- 1994—Phase I Resource Conservation and Recovery Act (RCRA) facility investigation (RFI) activities included collecting surface soil samples (LANL 1996, 054838).

2.1.2 Consolidated Unit 21-003-99, PCB Container Storage Area

Consolidated Unit 21-003-99 consists of SWMUs 21-003 and 21-013(f). SWMU 21-003 was a PCB container storage area inside building 21-061, including the area immediately outside and east of the building. Based on a 1949 aerial photograph (LANL 1990, 007512), SWMU 21-013(f) was possibly a surface disposal area within the boundaries of SWMU 21-003.

Operational History

- 1950—Building 21-061 (a laboratory) was constructed (LANL 1991, 007529, p. 14-16) to support classified plutonium research.
- 1956—Building 21-061 was remodeled to coat reactor parts and fuel rods with niobium pentachloride.
- Early 1960s to late 1960s or early 1970s—Building 21-061 was not used.
- 1970 to 1972—Building 21-061 was a metal fabrication shop.

- 1978 to 1989—Building 21-061 and the unpaved area directly east of the building stored materials/drums containing PCBs. Kerosene and petroleum-based solvents were also used in the area (LANL 1991, 007529, p. 14-16).
- 1981—Part of unpaved area east of building 21-061 was paved with asphalt and bermed (LANL 1991, 007529, p. 14-16).
- 1989—PCB storage was moved to TA-54, and the interior of building 21-061 was decontaminated in accordance with the TSCA 40 CFR 761 (LANL 1991, 007529, pp. 14-16–14-17).
- 2002—Building 21-061 underwent D&D activities (LANL 2002, 085609).

Summary of Previous Investigations

- 1988—Initial contaminant information for Consolidated Unit 21-003-99 was obtained from samples gathered as part of Environmental Restoration (ER) Program reconnaissance sampling (LANL 1991, 007529).
- 1992–1993—TA-21 site-wide surface and near-surface sampling activities included collecting soil samples from Consolidated Unit 21-003-99 (LANL 1994, 026073).
- 1994—Phase I RFI activities were conducted and soil samples were collected (LANL 1996, 054320; LANL 1996, 054838).

2.1.3 SWMU 21-009, Waste Treatment Laboratory

SWMU 21-009 is a former waste treatment laboratory (building 21-33) that was a 16-ft by 48-ft wood-frame structure with a 12-ft ceiling and a wooden floor built on concrete pillars.

Operational History

- 1948—Building 21-033 (a waste treatment laboratory) was constructed (LANL 1991, 007529, p. 17-29). Research into methods of recovering additional plutonium from waste streams was conducted at building 21-033 (LANL 1991, 007529, p. 3-1).
- 1965—Building 21-033 underwent D&D activities (LANL 1991, 007529, p. 17-29).

Summary of Previous Investigations

SWMU 21-009 has not previously been investigated.

2.1.4 SWMU 21-013(c), Surface Disposal Area

SWMU 21-013(c) is a former surface disposal area located at the eastern end of DP Mesa. The site consisted of mounds of earth; an excavated trench; and an earthen berm that contained scattered concrete, asphalt, and metal debris. Four large concrete pylons and several piles of soil, asphalt, and concrete also were located at the site. Other surface debris included glass, scrap metal, wood, cans, paper, and plastic. The SWMU had been disturbed in the past and appeared to contain only building materials. It is not known when the materials were disposed of at this site.

Operational History

- The dates of operation are not known (LANL 1990, 007512).
- 1988—As a result of a site visit, this inactive surface disposal area was identified as a SWMU northeast of the high-temperature chemistry building (building 21-209). It was noted that the area was disturbed and appeared to contain building debris (LANL 1991, 007529, p. 14-65).

Summary of Previous Investigations

- 1992–1993—TA-21 sitewide surface and near-surface sampling activities included collecting soil samples from SWMU 21-013(c) (LANL 1994, 026073).
- 1994—Phase I RFI activities included collecting surface and near-surface soil samples (LANL 1996, 054320).
- 1995—Voluntary corrective action (VCA) activities included removing building materials and sampling soil at SWMU 21-013(c) (LANL 1996, 054320).

2.1.5 SWMU 21-024(c), Septic System

SWMU 21-024(c) is an inactive septic system that formerly routed sewage from two buildings (buildings 21-54 and 21-61) through a septic tank (structure 21-56).

Operational History

- 1945—Building 21-054 (a machine shop and warehouse) was constructed.
- Late 1940s—A septic system was installed to route sewage from buildings 21-054 and 21-061 (LANL 2004, 087461; NMED 2005, 089314). The reinforced concrete septic tank (structure 21-56) measured 4 ft long by 8 ft wide by approximately 5 ft deep and was located 6 ft below ground surface (bgs). The sewer lines were 4-in.-diameter vitrified clay pipe (VCP) (LANL 1991, 007529, p. 15-34).
- 1966—The septic system was no longer used and was left in place (LANL 1991, 007529, p. 15-34).
- 1969—Building 21-054 was demolished (LANL 1991, 007529, p. 15-34).
- 2002—Building 21-061, the PCB Container Storage Area described in Section 2.1.2, underwent D&D activities (LANL 2002, 085609).

Summary of Previous Investigations

- 1988—Initial contaminant information for SWMU 21-024(c) was obtained from samples gathered as part of ER Program reconnaissance sampling (LANL 1991, 007529, pp. 15-38–15-45).
- 1992—RFI activities included collecting outfall soil samples (LANL 1994, 031591, p. 8-18–8-24).
- 1993—RFI activities included drilling a 20-ft borehole in the vicinity of the reinforced concrete septic tank (structure 21-56) (LANL 1995, 052350, pp. 7-2–7-3).

2.1.6 Suspected PCB-contaminated Outfall

PCBs were detected in stormwater samples collected by NMED below SWMU 21-024(m). SWMU 21-024(m) was identified as an 8-in. VCP that exited building 21-209 (the high-temperature chemistry laboratory) and continued south toward Los Alamos Canyon. The pipe was removed during the construction of a storm drain. SWMU 21-024(m) was given “no further action” status in 1998 (NMED 1998, 063042). The PCB contamination is not thought to be from building 21-209. A possible source is the transformers that have been present in the area since the 1940s (McGehee and Garcia 1999, 087442, p. 32).

2.2 Investigation Sites Historical Nature and Extent of Contamination

The evaluation of historical investigation results indicated the nature of contamination was not defined at any of the sites and additional data were needed to define the extent of contamination. The supporting information for these conclusions and the analytical results of historical sampling are presented in the approved work plan (LANL 2004, 087461; NMED 2005, 089314).

2.3 Facility-unimpacted Corrective Action Site Description and Operational History

This section summarizes the site descriptions and operational histories since 1940 of the facility-unimpacted corrective action sites; further details regarding TA-21 are presented in the approved work plan (LANL 2004, 087461; NMED 2005, 089314).

2.3.1 SWMU 21-012(b), Dry Well and Pipelines

SWMU 21-012(b) consists of two concrete steam blowdown pits, a separate drainline that drained each pit toward the southern edge of DP Mesa, a seepage pit filled with river stones, a drywell, an outfall pipe associated with floor drains in building 21-009, and piping conveying effluent between structures.

Operational History

- 1945—Building 21-009 was built to serve as a steam plant.
- 1945–1971—Boiler blowdown was discharged through 3-in. steel drainlines into two concrete pits (structures 21-266 and 21-267, 10 ft square by unknown depth), each of which was drained by a 6-in. steel drainline that discharged effluent to the southern edge of DP Mesa. Floor drains from building 21-009 were directed into a 6-in. VCP that discharged on the mesa.
- 1971—Boiler blowdown was routed to an aboveground tank and overflow went through a 3-in. steel drainline into a 6-ft-square, 2-ft-deep seepage pit filled with river stones.
- 1980—A 4-ft-square by 54-ft-deep drywell constructed to replace seepage pit.
- 1985—Building 21-009 was removed and replaced with a new steam plant, building 21-357. The area was regraded (LANL 1991, 007529, p. 17-37 to 17-40).

Summary of Previous Investigations

SWMU 21-012(b) has not been previously sampled. However, radiological and geophysical surveys were completed in 2004. The geophysical survey located pipelines, structure 21-266 and the seepage pit but not the dry well, structure 21-267, or evidence of the aboveground tank (LANL 2004, 087461).

2.3.2 SWMU 21-024(a), Septic System

SWMU 21-024(a) is an inactive septic system that formerly routed sewage from the old steam plant (building 21-009) through a septic tank (structure 21-53), to the surface on the south rim of DP Mesa above Los Alamos Canyon (LASL 1946, 071281; LASL 1958, 001519).

Operational History

- 1945—A steam plant (building 21-009) was built and the septic system was constructed at the same time (LASL 1958, 001519). The reinforced concrete septic tank measured 9 by 5.75 by 7.25 ft deep (structure 21-053). The inlet line is a 6-in.-diameter VCP, and the outlet line is a 4- or 6-in.-diameter VCP.
- 1966—The septic system was no longer used and was left in place.
- 1985—Building 21-009 was removed and replaced with a new steam plant, building 21-357. The area was regraded, but documentation is not available indicating if the piping or tank were removed.

Summary of Previous Investigations

- 1992—A radiological survey was conducted and soil samples were collected in the area between the suspected outfall release point and the edge of the mesa (LANL 1995, 052350, p. 3-2).
- 1993—One borehole was advanced downslope from the septic tank outlet pipe and tuff samples collected.
- 2004—Radiological and geophysical surveys were completed. The geophysical survey located portions of the pipeline from former building 21-009, the tank, and the outlet pipe (LANL 2004, 087461). The exact location of the outfall was not identified.

2.3.3 SWMU 21-024(e), Septic System

SWMU 21-024(e) is an inactive septic system that routed sewage from the former TA-21 laundry (building 21-020) and a former diesel power plant and shop (building 21-014) through a septic tank (structure 21-123) to the surface on the south rim of DP Mesa above Los Alamos Canyon. The septic tank and outfall area are located east of Material Disposal Area (MDA) V.

Operational History

- 1945—Building 21-020 was constructed as a laundry facility. The sanitary sewer system routed sewage via 6-in. VCP drainlines (LASL 1946, 071281) or via 4-in. cast iron pipe for the first 5 ft from building 21-020 and then via 4-in. VCP (Francis 1995, 087271) through a 1000-gal. steel septic tank (structure 21-123, 11.33 by 6.33 by 8 ft deep), and to the outfall (LASL 1946, 071281). The outfall was located approximately 20 ft from the southern edge of DP Mesa above Los Alamos Canyon (LASL 1946, 024460).
- 1946–1947—Building 21-014 was constructed as a diesel power plant and shop (McGehee and Garcia 1999, 087442, p. 156). A 4-in. tile pipe exited the southeast corner of the building and connected to a septic tank (structure 21-123) as well as connected to the laundry building (LASL 1946, 087574). There was also an exterior grease trap connected to the pipeline exiting the building.

- 1947/1948—Building 21-046, a diesel power plant and warehouse, was constructed as an addition to the existing power plant (building 21-014) (McGehee and Garcia 1999, 087442, p. 174). No researched engineering drawings depict a pipeline connection from this building to the septic tank (structure 21-123). However, the geophysical survey conducted in 2004 indicates there may have been at one time (LANL 2004, 087461).
- 1965—The laundry facility (building 21-020) underwent D&D activities (LANL 1991, 007529, p. 15-38).
- 1996—The septic tank was emptied and filled with pea gravel, inlet and outlet lines were grouted with concrete, and the surrounding area was restored and reseeded (LANL 1996, 053788).
- 2006—Building 21-046 underwent D&D activities.

Summary of Previous Investigations

- 1992–1993—TA-21 site-wide surface and near-surface sampling activities included collecting soil samples (LANL 1994, 26073).
- 1993—A 20-ft borehole was advanced downslope of the septic tank and soil/fill samples were collected.
- 1995—A VCA was conducted and included sampling and removing the tank contents, grouting the inlet and outlet lines with concrete, leaving the septic tank in place filled with pea gravel, conducting a radiological field survey, and collecting confirmation soil samples from the outfall area (LANL 1996, 053788).
- 2004—Radiological and geophysical surveys were completed. The geophysical survey located the main pipeline connecting the septic tank to former building 21-020. In addition, two more pipes were identified, one tying into the pipeline and heading towards building 21-046, and one connected to the tank heading towards building 21-014. The septic tank was located, however, the outfall pipe was not found. The possible drainage ditches were not identified (LANL 2004, 087461).

2.3.4 SWMU 21-024(g), Septic System

SWMU 21-024(g) is an inactive septic system that formerly routed sewage from building 21-031 (cold work shop/electronics) through pipelines and septic tank (structure 21-125) into two drainage ditches (LASL 1947, 087576; LASL 1948, 087577). Engineering drawings from the 1950s (LASL 1953, 024437; LASL 1958, 000406) indicate sewage from building 21-007 (warehouse) being tied into the system. Subsequently, the drainage ditches were no longer used and the septic tank was moved further north outside of the fenced area to discharge on the surface of the north rim of DP Mesa. Additionally, a cut pipe visibly exits building 21-031 directing flow into the 2 by 2 by 1 ft concrete storm drain now present in the paved parking area.

Operational History

- 1948—Building 21-031 was constructed. The septic system consisted of a concrete 4 by 8.25 by 7.2 ft deep septic tank (structure 21-125; septic tank 1). It routed sewage via a 4-in. VCP line and another 2-in. pipeline, which converged from an electronics shop/cold workshop (building 21-031) to a 4-in. VCP line into two drainage ditches, each approximately 90 ft long, 9 ft wide, and 5 ft deep (LASL 1947, 087576; LASL 1948, 087577). The bottom four ft of the drainage ditches consisted of 2- to 8-in. rock with a 4-in. perforated fiber pipe running through the center. Also

present at the northeast end of building 21-031 was a 2-in. drainpipe ending with a splash block (LASL 1948, 087577). This was connected to a funnel type drain in the building for spot welder water.

- 1953—A new septic system, consisting of a 18 by 9.5 by 5 ft deep reinforced concrete septic tank (structure 21-125; septic tank 2) (LANL 1991, 007529, p. 15-18), replaced the former septic system described above. It routed sewage via 4-in. VCP lines from a warehouse (building 21-007) and the electronics shop/cold workshop (building 21-031) to the surface on the north rim of DP Mesa above DP Canyon (LASL 1956, 000406; LANL 1991, 007529, p. 15-18).
- 1966—Septic tank 2 was no longer used and left in place (LANL 1991, 007529, p. 15-18).

Summary of Previous Investigations

- 1992—RFI activities included a radiological field survey and collection of twelve soil samples from six locations in the outfall area (LANL 1994, 031591).
- 1993—RFI activities included a land survey to locate the septic tank (structure 21-125, septic tank 2) and installation of a 20-ft deep borehole (location 21-01667) on the downslope side adjacent to the outlet pipe of septic tank 2 and the collection of tuff samples (LANL 1994, 026073; LANL 1994, 031591).
- 2004—Radiological and geophysical surveys were completed. The geophysical survey was unable to locate septic tank 1. Associated piping and the splash block were also not found. A small amount of pipe was found coming out of the building that stopped where the retaining wall began (LANL 2004, 087461). Apparently, septic tank 1 was removed, a parking lot was constructed immediately north of the building, and a retaining wall placed in the area of the former piping exiting building 21-031. Septic tank 2 was located, but the inlet and outlet pipes could not be located. A storm drain and associated piping were identified in the parking area. The pipeline between former building 21-007 and building 21-031 was also found.

2.3.5 Consolidated Unit 21-024(l)-99, Sump, Aboveground Storage Tank, Associated Lines, and Outfall

Consolidated Unit 21-024(l)-99 consists of SWMU 21-022(a), a sump and associated lines, SWMU 21-024(l), an outfall, and AOC 21-004(a), an aboveground storage tank and associated lines.

Operational History

SWMU 21-022(a) consists of a 5-ft-diameter brick sump of unknown depth located north of building 21-021 with a 4-in. inlet line from the building, but documentation is not available indicating if an outlet line exists or the type of line.

- 1946—Building 21-021 and sump were constructed. Building 21-021 was used as a secure vault to store special fissile material including uranium and plutonium metal. The inside of the sump contains a metal catch basin approximately 5 ft in depth.

SWMU 21-024(l) consists of an outfall that received liquid waste from the floor drain of building 21-021 machine room via a 3-in. cast-iron pipeline (LASL 1960, 001611).

AOC 21-004(a) consists of a 6,000-gal. aboveground steel tank (structure 21-335), which is 8 ft in diameter and 16 ft long, and a 6-in. cast-iron pipeline from building 21-021.

- 1974—The tank was installed to receive liquid waste from floor drains in building 21-021.

Summary of Previous Investigations

- 1992—Geophysical and radiological field surveys were conducted and surface samples were collected from locations in the outfall area (LANL 1994, 031591, p. 8-85). Geophysical surveys identified the drainline, but not the precise location of the discharge point.
- 1994—A radiological field survey was conducted around the aboveground tank [AOC 21-004(a)], on the concrete pad, along the inlet line, and at the valve (LANL 1996, 054828, p. 28). Paper filter samples were collected from inside the dry and empty tank (LANL 1996, 054828 p. 32). It was determined that the tank did not receive any waste (LANL 1996, 054828, p. 23).
- 2004—Radiological and geophysical surveys were completed. The geophysical survey located the sump, one of the two inlet/outlet lines to the sump, and two pipelines leading to the north (LANL 2004, 087461).

2.3.6 SWMU 21-024(o), Pipeline and Outfall

SWMU 21-024(o) is thought to have been a 4-in. VCP drainline that served the old diesel plant (building 21-046) and associated outfall.

Operational History

- 1947–1948—Building 21-046, a diesel power plant and warehouse, was constructed as an addition to the existing power plant (building 21-014), and SWMU 21-024(o) was thought to have been a 4-in. VCP line serving it (LANL 1991, 007529, p. 15-56; McGehee and Garcia 1999, 087442, p. 174). The pipe discharged south into Los Alamos Canyon (LASL 1946, 071281).
- 1957—Building 21-046 was converted to a warehouse/maintenance shop (LANL 1991, 007529, p. 15-56).
- 1985—An engineering drawing depicts building 21-046 as a machine shop (LANL 1985, 087578).
- 2006—Building 21-046 was removed but the foundation was left in place.

Summary of Previous Investigations

- 1992—RFI activities included a radiological field survey and collection of three samples from two locations (LANL 1994, 031591).
- 2004—Radiological and geophysical surveys were completed. The geophysical survey did not locate the pipeline exiting building 21-046 (LANL 2004, 087461).

2.3.7 Consolidated Unit 21-026(a)-99, Sewage Treatment Plant

Consolidated Unit 21-026(a)-99 is a sewage treatment plant that consists of SWMUs 21-013(a), surface disposal area; 21-026(a), sewage treatment plant; and 21-026(b), four sludge drying/sand filter beds; and AOCs 21-026(c), dosing siphon chamber, and 21-026(d) (an outfall) that served the TA-21 facilities.

Operational History

SWMU 21-026(a) consists of an inactive sewage treatment plant housed in building 21-227. The plant is located at the eastern end of DP Mesa. The treatment plant replaced the original septic tank/filter fields and septic tank/surface discharge systems throughout TA-21. The treatment plant was an extended

aeration sanitary waste treatment plant with a grit chamber, comminuter, digester, aeration tank, and clarifier. The plant treated sanitary wastes and cooling water from TA-21 facilities and received water from decontamination activities, janitor's scrub water, and waste from other TA-21 operations. Originally, treated effluent leaving building 21-227 was released at a concrete spill pad located on the southern edge of DP Canyon [AOC 21-026(d)]. Later, effluent was discharged via a dosing siphon chamber to sand filter/sludge drying beds.

- 1966—Sewage treatment plant built.
- 1992—Traditional treatment operations ended.
- 1992 to present—All waste received is stored until pumped out by truck for transport to the TA-46 facility for treatment/disposal.

SWMU 21-026(b) consists of four sludge drying/sand filter beds; each is 14.5-ft by 23-ft with 4-ft deep concrete walls.

- 1966–1990—Sludge drying beds were operational.
- 1990—The tile drainlines were removed and connections were plugged with concrete.
- 1990 to ~1992—The two westernmost sand filters received effluent from the dosing siphon chamber. Effluent was piped to a gauging station then to the outfall at the edge of mesa.
- 1992—The beds were filled with clean sand when treatment operations ceased.

AOC 21-026(c) consists of a dosing siphon chamber that was a 5-ft-wide by 7-ft long by 8-ft-deep concrete tank (structure 21-348). The dosing siphon chamber received effluent until the chamber was full and then pumped to the two westernmost sand filter beds.

- 1996—A chlorine contact chamber was built with an outfall [AOC 21-026(d)] to mesa edge.
- 1990—The contact chamber was converted to a dosing siphon chamber; the manhole and outfall lines were plugged with concrete.
- 1990–1992—Effluent from the dosing siphon chamber was pumped to the sand filter beds.
- 1992—The chamber was left in place when treatment operations ceased.

AOC 21-026(d) consists of an outfall. Discharge from the sewage treatment plant flowed through an 8-in. VCP into a concrete channel on the north edge of DP Mesa and ran down a natural drainage to a tributary of DP Canyon.

- 1966–1992—The outfall received treated liquid wastes from building 21-227.
- 1998, March 10—The outfall (National Pollution Discharge Elimination System [NPDES] outfall 05S) was deleted from the Laboratory's NPDES permit.

SWMU 21-013(a) consists of a surface disposal area, approximately 45 ft^2.

- 1966–1992—Surface disposal area was used for the periodic disposal of the top layers of sand from the filter beds at SWMU 21-026(b).
- 1994—Sand pile no longer visible.

Summary of Previous Investigations

- 1992—RFI activities at AOC 21-026(d) included a radiological field survey and samples collected from four locations in the outfall area. Surveys of the effluent indicated the presence of gross-alpha, -beta, and -gamma radiation and tritium.
- 1994—RFI activities at SWMUs 21-013(a), 21-026(a), and 21-026(b) and AOC 21-026(c) included a radiological survey and collection of samples. At SWMU 21-013(a), samples were collected from four locations. At SWMUs 21-026(a) and 21-026(b) and at AOC 21-026(c), four boreholes were drilled; specifically, two angled holes were drilled beneath the sand filter beds, one angle hole was drilled beneath building 21-227, and one vertical hole was drilled near the dosing siphon chamber. Samples were collected to a maximum depth of 52 ft.
- 2004—Radiological and geophysical surveys were completed. The geophysical survey located the pipeline exiting the treatment plant and the associated outfall (LANL 2004, 087461).

2.3.8 SWMU 21-027(c), Pipeline and Outfall

SWMU 21-027(c) is a 4-in. VCP line that exited former building 21-006 (a cafeteria and machine shop removed in 1966) and discharged to the south on DP Mesa.

Operational History

- 1945—Building 21-006 was constructed as a cafeteria and machine shop (LASL 1945, 024459). A 4-in. VCP line exited the southeast corner of the building and discharged to the south on DP Mesa (LANL 1991, 007529, p. 15-18).
- 1966—Building 21-006 was removed and the pipe was left in place (LANL 1991, 007529, p. 15-18).

Summary of Previous Investigations

- 1992—A radiological field survey and six surface samples were collected (LANL 1994, 031591, p. 10-14).
- 2004—Radiological and geophysical surveys were completed. The geophysical survey located a portion of the outlet pipe. The outfall was not identified (LANL 2004, 087461).

2.4 Facility-unimpacted Corrective Action Sites Historical Nature and Extent of Contamination

The evaluation of historical investigation results indicated that the nature and extent of contamination was not defined and that corrective action was required. The supporting information for these conclusions and the analytical results of historical sampling are presented in the approved work plan (LANL 2004, 087461; NMED 2005, 089314).

2.5 Facility-impacted Corrective Action Site Descriptions and Operational Histories

This section summarizes the site description and operational history since 1940 for each facility-impacted corrective action site; further details regarding TA-21 are presented in the approved work plan (LANL 2004, 087461; NMED 2005, 089314). Plate 1 depicts the locations of these sites.

2.5.1 Consolidated Unit 21-006(c)-99, Seepage Pits

Consolidated Unit 21-006(c)-99 consists of SWMUs 21-006(a), 21-006(b), 21-006(c), and 21-006(d). These SWMUs are inactive underground seepage pits associated with buildings 21-002 and 21-003. In addition to a seepage pit, SWMU 21-006(b) also includes a drainline and outfall from the seepage pit.

Operational History

SWMU 21-006(a) consists of an unmarked underground seepage pit of approximately 0.1 acre, located between building 21-002 and former building 21-003.

- ~1945—The seepage pit was installed. According to the TA-21 RFI work plan (LANL 1991, 007529; p.18-14), the pit received Hanford container washwater, bomb electrolytic decontamination solution (ethylene glycol, phosphoric acid, and plutonium), and chemical makeup room wastewater. Approximately 12 gal. of the decontamination solution may have been emptied into the drain in room 322 each day.
- Documentation is not available indicating when use of the seepage pit ended.
- The pit was apparently backfilled and is not visible. Documentation is not available indicating whether the pit was located on the north or south side of the corridor that connected the buildings. If it was on the south side, it may be the same pit as SWMUs 21-006(c) and 21-006(d).

SWMU 21-006(b) consists of a brick manhole placed within a trench (structure 21-118), including a drainline and outfall (LANL 1991, 007529; p. 15-103). The drainline and pit were installed to receive ether waste from the ethyl ether extraction process as part of the original TA-21 plutonium purification process (Christensen and Maraman 1969, 004779, p. 8).

- 1945—The manhole and associated lines were installed during the construction of building 21-003 (LANL 1991, 007529; p. 15-103). A 3-in. cast iron drainline exited the southeast side of building 21-002, and extended approximately 160 ft. southward to structure 21-118. A 2-in. cast iron outlet line ran approximately 100 ft. southward from the pit to an outfall approximately 8 ft. above the surface of a bench below the mesa top.
- September 1945—The ether extraction process was discontinued (Christensen and Maraman 1969, 004779, p. 48).
- Documentation is not available indicating when use of the pit ended. The location of the pit and drainline has not been conclusively identified.

SWMUs 21-006(c) and 21-006(d) are thought to be the same site because descriptions place them in close proximity (LANL 1991, 007529, p. 18-10). SWMU 21-006(c) consists of a seepage pit located 15 ft outside the door to the bomb-cleaning room (room 322) at building 21-003. The pit reportedly received bomb electrolytic decontamination solution from a drain in room 322. The pit is thought to be partially or entirely beneath current building 21-313 and/or the remaining central corridor portion of building 21-003. As with SWMUs 21-006(a) and 21-006(b), the period of operation has not been found in any available documentation. SWMU 21-006(d) may have been associated with a concrete pad and French drain system called the 21-272 dock. Waste from a second-story chemical makeup room was reportedly dumped or pumped into a stone-filled seepage pit, most likely the pit identified as SWMU 21-006(c).

Summary of Previous Investigations

- 1992—A Phase I RFI was conducted at a portion of SWMU 21-006(b) and consisted of collecting six surface soil samples at six locations. The seepage pit was not located; therefore, boreholes were not drilled as required by the work plan (LANL 1994, 031591).
- 1999—A gamma radiological survey was conducted to identify the location(s) of the seepage pit(s) in the area between buildings 21-002 and 21-003. Trenching was also done on the south side of the building 21-002 to 21-003 corridor to locate underground lines between buildings 21-002 and 21-003. The lines were located, but the trenching failed to show any evidence of a seepage pit. The survey concluded that the likely location of a seepage pit was just south of the former building 21-003 footprint (Andrews and Eshleman 1999, 071295, p.38).
- 2004—Radiological and geophysical surveys were completed. The geophysical survey failed to locate any seepage pit. However, the manhole and a portion of the pipelines associated with SWMU 21-006(b) were identified (LANL 2004, 087461).

2.5.2 SWMU 21-022(f), Sump and Pipeline

SWMU 21-022(f) is an inactive sump (structure 21-173) and a pipeline. The sump received industrial waste from lab sinks in building 21-152 (a research laboratory) and from building TA-21-370 (a mechanical equipment building).

Operational History

- 1945—Building 21-152 was originally built to serve as a laboratory for polonium initiator research and production. A sump (structure 21-173) conveyed liquid effluent that originated from the building's laboratory sinks through a 6-in. diameter steel pipe to MDA U (LASL 1946, 024460; Francis 2001, 076211). The brick-lined sump was approximately 5 ft 4 in. in diameter and located approximately 13 ft from the northeast corner of building 21-152 (LASL 1945, 001093; LASL 1946, 024460). The depth of the sump is a minimum of 6 ft 10 in. bgs.
- 1965—The sump (structure 21-173) was connected to manhole 21-221, which connects to the Waste Disposal Plant (building 21-257) (Francis 2001, 076211).

Summary of Previous Investigations

SWMU 21-022(f) has not previously been sampled. However, in 2004, radiological and geophysical surveys were completed. The geophysical survey located the manhole and sump but did not locate any pipelines (LANL 2004, 087461).

2.5.3 Consolidated Unit 21-022(h)-99, Sumps, a Pipeline, and an Outfall

Consolidated Unit 21-022(h)-99 consists of SWMUs 21-022(h), a sump, drainline, and outfall, that received industrial wastewater and drainage from floor and roof drains of the plutonium fuel service building 21-150; 21-022(i), a sump, located in the equipment room of building 21-002; and 21-022(j), a sump, that received drainage from the equipment room of building 21-003.

Operational History

SWMU 21-022(h) consists of a sump (structure 21-202), its drainline, and an outfall.

- 1961–1962—Structure 21-202 was constructed of 36-in.-diameter corrugated metal pipe to receive industrial waste water and drainage from the building 21-150 basement floor and roof drains and route effluent through a 24-in.-diameter pipe that discharged to Los Alamos Canyon (LANL 1991, 007529, p. 18-55).
- 1991—The outfall discharged only treated cooling water from this time forward, and no documentation of removal of structures is available (LANL 1991, 007529, p. 15-53).

SWMU 21-022(i) consists of a sump in the equipment room at the southeast corner of building 21-002.

- 1945—Building 21-002 was constructed, but no documentation is available indicating if the sump was constructed at the same time (LANL 1991, 007529, p. 18-55).
- 1994/1995—Sump was removed during the D&D of building 21-003. The discharge point for the sump effluent is unclear since no drainlines were identified south of the equipment room.

SWMU 21-022(j) consists of a sump (18-in. by 18-in. by 8-ft deep) at the south end of building 21-003 that received drainage from the equipment room.

- 1945—Building 21-003 was constructed, but no documentation is available indicating if the sump was constructed at the same time (LANL 1991, 007529, pp. 18-55 and 18-58).
- 1994/1995—The sump was removed during D&D activities at building 21-003. The floor of the sump was located approximately 14 ft below ground level (LANL 1996, 053784, p. 1).

Summary of Previous Investigations

- 1992—RFI activities at the outfall portion of SWMU 21-022(h) included a radiological field survey and the collection of eight soil samples from three locations in the outfall channel (LANL 1994, 031591).
- 1995—VCA activities conducted at SWMU 21-022(j), in conjunction with D&D activities at building 21-003, included removal of the sump and collection of three samples in the center of the footprint of the removed sump to characterize potential contamination (LANL 1996, 053784).
- SWMU 21-022(i) has not been previously investigated.
- 2004—Radiological and geophysical surveys were completed. The geophysical survey located the sump, drainline, and outfall associated with SWMU 21-022(h). Evidence of previously removed sumps of SWMUs 21-022(i) and 21-022(j) was not found (LANL 2004, 087461).

2.5.4 Consolidated Unit 21-023(a)-99, Septic Systems

Consolidated Unit 21-023(a)-99 consists of SWMU 21-023(a), a septic tank and drainlines, that reportedly served a janitor's mop sink in building 21-003; SWMU 21-023(b), a septic tank and drainlines, received wastewater from the shower room in building 21-003; and SWMU 21-023(d), a septic tank and drainlines, received industrial waste and sewage from building 21-003.

Operational History

SWMU 21-023(a) consists of a steel-reinforced concrete septic tank, and 4-in.cast iron inlet and outlet lines connected to existing waste lines to the north and manhole 21-274 to the south (Andrews and Eshleman 1999, 071295).

- 1945—Building 21-003 was constructed. Documentation of the septic system construction date is not available.
- 1966—Septic tank (structure 21-225, 5 ft by 9 ft by 6 ft deep) and lines were removed when additions were made to building 21-003 and the new sewage treatment plant opened.

SWMU 21-023(b) consists of a septic tank (structure 21-142) and 4-in. cast iron inlet and outlet lines connected to structure 21-084, which connected to existing waste lines to the north and manhole 21-274 to the south (Andrews and Eshleman 1999, 071295).

- 1945—Building 21-003 and the septic system were constructed.
- 1966—Septic tank (500-gal., approximately 6.5-ft-diameter, circular) and lines may have been removed when the new sewage treatment plant opened.

SWMU 21-023(d) consists of a septic tank and 4-in. cast-iron inlet and outlet lines that were probably connected to the north to the 4-in. line leading to the treatment facilities (building 21-035) and to the south to manhole 21-273 (Andrews and Eshleman 1999, 071295).

- 1960—The 5 ft by 3 ft by 5.5 ft deep steel-reinforced concrete septic tank (structure 21-187) was installed under room 364 of building 21-003 and received industrial waste and sewage.
- ~1966—The septic tank was bypassed and the pipeline was connected to the new sewage treatment plant.
- 1966—The septic tank and lines were removed when additions were made to building 21-003 and the new sewage treatment plant opened.

Summary of Previous Investigations

- 1998/1999—D&D characterization included direct surveys of alpha and beta activity (using a pancake GM detector and a 75-cm^2 alpha scintillation detector). No beta or alpha activity was detected in the locations of any of the tanks.
- 1999—A geophysical investigation confirmed that the septic tanks had been removed. The inlet and outlet lines associated with SWMUs 21-023(a) and 21-023(b) were also confirmed as removed. The inlet and outlet lines associated with SWMU 21-023(d) were determined to have been left in place (Andrews and Eshleman 1999, 071295).
- 2004—Radiological and geophysical surveys were completed. The cleanout for the tank [SWMU 21-023(d)] was visible in the field. The line was not located because of interference from the reinforced concrete present near the pipeline. No evidence of the removed tank excavation area was found (LANL 2004, 087461).

2.5.5 SWMU 21-024(b), Septic System

SWMU 21-024(b) is a septic tank, pipelines, and associated outfall that formerly routed sewage from building 21-17 (a passageway connecting buildings 21-004 and 21-005).

Operational History

- 1945—Building 21-017 (a passageway) was constructed and the sanitary sewer system routed sewage through a reinforced concrete septic tank 9 ft by 5.75 ft by 7.25 ft deep (structure 21-055) to the surface soil south of building 21-005 (LASL 1946, 071281; LANL 1991, 007529, p. 15-34). The inlet and outlet pipelines are 6-in. and 4-in. VCP, respectively (LASL 1946, 071281).
- 1969—Building 21-017 underwent D&D activities (LANL 1991, 007529, p. 15-34).

Summary of Previous Investigations

- 1992—RFI activities included conducting a radiological field survey and collection of eight soil samples within the outfall drainage channel (LANL 1994, 031591, p. 8-10).
- 1993—A borehole was advanced near the septic tank, and four samples were collected.
- 2004—Radiological and geophysical surveys were completed. The geophysical survey identified the septic tank, the pipeline from former building 21-017 to the septic tank, but not the outfall (LANL 2004, 087461).

2.5.6 SWMU 21-024(d), Septic System

SWMU 21-024(d) is an inactive septic tank, pipelines, and associated outfall that routed sewage from an office building (building 21-001) to the south rim of the mesa above Loa Alamos Canyon.

Operational History

- 1945—Building 21-001 was constructed as an office building and the sanitary sewer system routed sewage via 6-in. VCP lines (LASL 1946, 071281) through a reinforced concrete 17.5 by 9.5 by 8.83 ft deep septic tank (structure 21-106), until the pipe surfaced on the south rim of DP Mesa above Los Alamos Canyon (LANL 1991, 007529, p. 15-34).
- Early 1960s—Building 21-001 was removed (McGehee and Garcia 1999, 087442, p. 76).
- 1995—The septic tank was filled with pea gravel and left in place. The inlet and outlet pipelines were grouted with concrete and left in place (LANL 1996, 053789, p. 2).

Summary of Previous Investigations

- 1992—Radiological survey was performed in the discharge area at the canyon rim and on the topographical bench immediately below the mesa top (LANL 1994, 031591, p. 8-28). Four soil samples were collected from the mesa top and the bench area.
- 1993—An 8-ft borehole was advanced next to the septic tank (structure 21-106), and four samples were collected (LANL 1995, 052350, p. 6-4).
- 1995—VCA activities included collecting samples from the tank interior and removing the contents of the septic tank, conducting a radiation survey in the drainage area below the tank, and collecting five samples (LANL 1996, 053789, p. 1-2).
- 2004—Radiological and geophysical surveys were completed. The geophysical survey identified two pipes running from former building 21-001 and converging in a manhole just north of the septic tank. A small fragment of pipe was also located just south of the current passageway. Both the septic tank and outfall were identified (LANL 2004, 087461).

2.5.7 SWMU 21-024(h), Septic System

SWMU 21-024(h) is a septic tank, pipelines, and associated outfall that originally received sewage from building 21-151, an administrative building and shop and then later, building 21-152, a polonium-processing and high temperature laboratory, was tied into the septic tank.

Operational History

- 1945—Building 21-151 was constructed as a plutonium processing facility and the sanitary sewer system routed sewage through a 6-in. VCP (LASL 1946, 071281) and a reinforced concrete 11.33 by 6.33 by 8.67-ft deep septic tank (structure 21-163) to the surface on the north rim of DP Mesa above DP Canyon (LASL 1945, 024459; LANL 1991, 007529, p. 15-94).
- 1945—Building 21-152 was constructed as a laboratory that worked on Project Rover serving as a polonium-processing and a high temperature laboratory (LASL 1946, 024460).
- Early 1960s—Building 21-151 was removed.
- 1965—Building 21-152 septic system was tied into the existing septic tank (structure 21-163).
- 1966—The septic tank was no longer used and left in place (LANL 1991, 007529, p. 15-94).

Previous Investigations

- 1992—RFI activities included conducting a radiological field survey and collecting eight samples downslope from the septic tank.
- 1993—A 20-ft borehole was advanced adjacent to the downslope side of the septic tank and four samples were collected.
- 1996—Septic tank contents were removed and the tank was filled with pea gravel. The inlet and outlet lines were grouted with concrete (LANL 1996, 054921, p. 2).
- 2004—Radiological and geophysical surveys were completed. The geophysical survey indicated that the septic tank was still present. Additionally, the two pipelines that had previously connected the tank to buildings 21-151 and 21-152 were identified. The outlet pipe and outfall were not identified (LANL 2004, 087461).

2.5.8 SWMU 21-024(i), Septic System Inlet Line

SWMU 21-024(i) is a septic tank, pipelines, and associated outfall. The only portion of the septic system remaining at the site is the inlet line from a high-temperature chemistry building (building 21-209) to the fence line. Building 21-209 currently overlays part of the pipeline that previously connected to a sump (structure 21-175). The portion of the inlet line from the fence to the septic tank, the septic tank, the outlet line and the outfall were removed in 2001 as part of an interim action (LANL 2003, 076053).

Operational History

- 1945—Building 21-152 was constructed to serve as a polonium-processing and a high temperature laboratory and the septic system that served building 21-152 was constructed at the same time. The septic system routed sewage from the laboratory via 6-in. VCP inlet line to the reinforced concrete 6 by 10 by 8-ft deep septic tank (structure 21-181) through a sump (structure 21-175) (LASL 1946, 024460). Blowdown pipelines from the cooling towers (structures 21-166 and 21-167) were also connected to this sump. Effluent was routed via 6-in. VCP outlet line to the surface in a broad open area with a gentle slope extending about 30 ft to

the south edge of DP Mesa above Los Alamos Canyon. The sump and portions of the pipe currently lie under building 21-209 (LASL 1946, 071281).

- 1964 to 1965—Building 21-209 was built to serve as a high-temperature chemistry building and was located on top of the existing inlet lines from building 21-152, structure 21-166, and structure 21-167 (LASL 1946, 071281). New blowdown pipelines from structures 21-166 and 21-167 were connected into the SWMU 21-024(k) septic system.
- 1965—Septic system was no longer used and left in place.

Previous Investigations

No previous sampling has been conducted on the inlet line from building 21-152 to the fence line. However, the septic tank and outlet line were removed and their previous locations sampled.

- 2001–2002—Interim action activities consisted of the removal of the septic tank, 15 ft of inlet line between the septic tank and the fence line, the outlet line, and contaminated mesa top soil in the outfall. Samples were collected to determine nature and extent from these areas, and then the area was reseeded (LANL 2003, 076053).
- 2004—Radiological and geophysical surveys were completed. The geophysical survey identified a portion of the inlet pipeline from the fence line to building 21-209. No pipeline could be located on the west side of building 21-209 connecting to building 21-152 (LANL 2004, 087461).

2.5.9 SWMU 21-024(j), Septic System

SWMU 21-024(j) is an inactive septic tank, pipelines, and associated outfall that received sewage from building 21-155, a warehouse and laboratory.

Operational History

- 1949—Building 21-155 (combined with buildings 21-206 and 21-207 from 1963 to 1965 to become building 21-155) was constructed for initiator research and production.
- 1961—A septic system was constructed to route sewage from a warehouse/laboratory (building 21-155) to a reinforced concrete 5 ft by 3 ft by 6 ft deep septic tank (structure 21-194) and associated 4-in. VCP lines (LANL 1991, 007529, p. 15-83). The tank is located off the southwest corner of building 21-155 near the south edge of the perimeter road (LANL 1991, 007529, p. 15-83).
- 1966—The septic tank was no longer used and left in place (LANL 1991, 007529, p. 15-83).

Summary of Previous Investigations

- 1966—Septic tank (structure 21-194) was no longer used and left in place by filling it with earth in 1966 (LANL 1991, 007529).
- 1993—RFI activities included geophysical and land surveys. A 20-ft borehole was advanced downslope of where the outlet pipe was presumed to exit the septic tank and samples were collected (LANL 1995, 052350).
- 2004—Radiological and geophysical surveys were completed. The geophysical survey did not locate the septic tank. However, new utility (water and electric) lines pass through the

approximate location. Pipelines from building 21-155 were located and the outlet line from the septic tank was located (LANL 2004, 087461).

2.5.10 SWMU 21-024(k), Septic System

SWMU 21-024(k) is an inactive septic tank, tile leach field, pipelines, and associated outfall that received sewage from building 21-209, a high-temperature chemistry building.

Operational History

- 1964–1965—Building 21-209 was built to serve as a high-temperature chemistry building and the septic system routed sewage through a 6-in. cast iron line to a manhole (structure 21-217), then through a 6-in. VCP to a second manhole (structure 21-218), and finally to a two-chamber, reinforced concrete 18.5 ft by 6.33 ft by 8.83 ft septic tank (structure 21-219) (LASL 1946, 071281). Blowdown lines from structures 21-166 and 21-167 were connected into the inlet line around the same time as the construction of building 21-209. Overflow from the tank went through a 4-in. cast-iron line into three 4-in. VCP lines to a tile leach field that was 30 ft by 20 ft by 5.5 ft (LASL 1946, 071281). Two 4-in. VCP lines extend from the downslope edge of the leach field (LASL 1946, 071281).
- 1966—The septic system was no longer used and left in place (LANL 1991, 007529, p. 15-83).

Summary of Previous Investigations

- 1966—Septic system was no longer used and was left in place by pumping out the tank contents and filling the tank with earth (LANL 1991, 007529, p. 15-83).
- 1993—RFI activities included the advancement of three 20-ft deep boreholes and samples were collected. One borehole was located near the septic tank and the other two boreholes were in the leach field area (LANL 1995, 052350, p. 3-20).
- 2004—Radiological and geophysical surveys were completed. The geophysical survey located the septic tank, tile field, and pipeline connecting the tank to building 21-209. The eastern outlet line from the tile field was located, but the western line was not identified (LANL 2004, 087461).

2.5.11 SWMU 21-024(n), Septic System

SWMU 21-024(n) originally consisted of a corrugated metal pipe that exited building 21-155 and an outfall. Three additional pipelines and outfalls were identified in the same vicinity during the 2004 geophysical survey and/or from as built engineering drawings (LANL 2004, 087461). Therefore, these structures have been included in this SWMU.

Operational History

- 1949—Building 21-155 was constructed as a warehouse and laboratory with a corrugated metal pipe that exited a concrete bulkhead and discharged onto a gravel road adjacent to MDA U [Consolidated Unit 21-017(a)-99] (LANL 1991, 007529, p. 15-56). The effluent flowed north to the ditch paralleling the north perimeter road. From there, it flowed east to a culvert that passes under the north perimeter road and into DP Canyon (LANL 1991, 007529, p. 15-56).

Engineering drawings (LASL 1968, 024612; LASL 1988, 087575) and field observations indicate three additional lines originating from building 21-155 (or next to building 21-155) that follow a parallel path to, and west of, the pipeline from SWMU 21-024(n). Each of these parallel pipelines has an outfall on the

same hillside as the SWMU 21-024(n) outfall. The effluent from all the outfalls flows downslope to the ditch on the south side of the perimeter road. From the ditch, the path of the effluent leads to one of two culverts (one to the east and one to the west) that cross under the perimeter road and empties onto surface that slopes toward DP Canyon.

Summary of Previous Investigations

- 1992—RFI activities consisted of a radiological field survey and the collection of nine samples from three locations at the discharge point and along the ditch that carries discharges into DP Canyon (LANL 1994, 031591, p. 8-98).
- 2004—Radiological and geophysical surveys were completed. The geophysical survey located a metal pipe exiting the northwest corner of building 21-155 (not clearly depicted on reviewed engineering drawings), and two pipelines exiting the northeast corner of building 21-155. A large cast-iron drain was also located that originates from a storm grate just north of building 21-155 (LANL 2004, 087461).

2.5.12 SWMU 21-027(a), Surface Drainage and Outfall

SWMU 21-027(a) consists of drainlines that received effluent from floor drains in building 21-003, a surface drainage system, and an outfall that discharges to the mesa edge and into Los Alamos Canyon.

Operational History

- 1945—Building 21-003 was built as part of original DP West plutonium facilities. A 4-in. VCP runs beneath a paved area south of the building for about 30 ft and emptied into a storm drain. A 12-in. culvert runs from the storm drain underground for about 50 ft, emptying onto the ground at a ponding area on the southwest corner of the footprint of former cooling tower (structure 21-143, which was designated as AOC C-21-027). From the cooling tower footprint, runoff flowed in an unlined ditch to a 24-in. corrugated metal pipe (CMP) culvert that carried runoff beneath the south perimeter road to the mesa edge. The CMP extends about 3 ft over the mesa edge (LANL 1991, 007529, p. 15-69).
- 1994—Outfall was permitted as outfall EPA03A031 under NPDES Permit No. NM0028355 (EPA 1994, 065280).
- 1994–1995—Building 21-003, its drains and the pipes beneath, and the cooling tower were removed during D&D activities. The 4-in. pipe beneath the paved area was left in place, as was the storm drain, which collects runoff from nearby parking lots.
- 1995—Outfall removed from Laboratory's NPDES permit, effective July 11, 1995.

Summary of Previous Investigations

- 1992—RFI activities included a radiological survey and the collection of surface samples at 12 locations (LANL 1994, 031591).
- 1993—Two 20-ft boreholes were advanced south of the cooling tower and samples were collected (LANL 1994, 031591, p. 10-1–10-15).
- 2004—Radiological and geophysical surveys were completed. The geophysical survey located a pipe beneath the paved area, corresponding to the expected path of the 12-in. storm drain (LANL 2004, 087461).

3.0 SCOPE OF ACTIVITIES

This section describes the scope of the investigation at the investigation and facility-unimpacted corrective action sites at TA-21 during 2006 and 2007. As specified in the approved DP Site investigation work plan (LANL 2004, 087461; NMED 2005, 089314), one sample from each site was selected for extended suite analyses including dioxins, furans, explosive compounds, and/or PCBs. Data were submitted to NMED to determine whether additional extended suite analyses were necessary.

The standard operating procedures (SOPs) used during the 2006–2007 sampling are summarized in Appendix C. The most current versions of all SOPs were used for implementing the approved work plan (LANL 2004, 087461; NMED 2005, 089314). Deviations from the approved work plan are also presented in Appendix C.

A total of 374 samples (including field duplicates, trip blanks, and rinsate blanks) were collected during the investigation site activities. Table 3.0-1 shows the number and types of samples collected at each of the investigation sites. Analytical results from samples collected at the sites are summarized in section 6.0 and provided on DVDs (Appendix F).

A total of 589 samples (including field duplicates, trip blanks, and rinsate blanks) were collected during the facility-unimpacted corrective action site activities. Table 3.0-2 shows the number and types of samples collected. Analytical results from samples collected at the sites are summarized in section 6.0 and provided on DVDs (Appendix F).

3.1 Investigation Sites—Surface Investigation

Surface samples were collected in 2006–2007 at a depth of 0- to 0.5-ft bgs at various sampling locations. These samples were immediately screened for radioactivity using an Eberline E-600 radiation meter held within 1 in. of the sample. Screening for radioactivity and organic vapors was performed to ensure worker safety and to identify locations for additional sampling (section 6.2). All samples were field screened for alpha and beta radiation as well as organic vapors. The field-screening results are presented in section 6.2 and the field-screening process is described in Appendix C. Additional surface samples were collected at SWMUs 21-013(c) and 21-024(c) for extended suite analyses (explosive compounds, PCBs, and dioxins/furans) based on field screening.

A stainless-steel scoop and bowl were used to homogenize each sample, which were then transferred to sterile sample collection jars (SOP-06.09, Rev. 2). Appendix C details the sampling procedure followed in collecting surface samples.

Surface samples were sent by the Sample Management Office (SMO) to an off-site analytical laboratory for analysis (SOP-01.03, Rev. 4). The laboratory analyses requested on the surface samples collected are presented in Tables 3.1-1 through 3.1-6. The following sections present the surface investigation information for each site. Rinsate blank, trip blank, and field duplicate samples are not included in the sample counts presented below.

3.1.1 AOC 21-002(b)

Eighteen surface samples were collected at AOC 21-002(b) (Table 3.1-1 and Figure 1.2-2). All surface samples were analyzed for target analyte list (TAL) metals, perchlorate, nitrate, cyanide, semivolatile organic chemicals (SVOCs), pH, americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, strontium-90, and tritium (Table 3.1-1).

3.1.2 Consolidated Unit 21-003-99

Nine surface samples were collected in 1994 and 38 surface samples were collected in 2006 at Consolidated Unit 21-003-99 (Table 3.1-2 and Figure 1.2-3). Surface samples collected in 1994 were analyzed for TAL metals, uranium, gamma-emitting radionuclides, tritium, isotopic plutonium, isotopic uranium, and strontium-90. Surface samples collected in 2006 were analyzed for TAL metals, perchlorate, nitrate, cyanide, SVOCs, pH, americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, tritium, strontium-90, and PCBs. Surface samples from five locations were analyzed for explosive compounds (Table 3.1-2).

3.1.3 SWMU 21-009

Eight surface samples were collected at SWMU 21-009 (Table 3.1-3 and Figure 1.2-4). All surface samples were analyzed for TAL metals, perchlorate, nitrate, cyanide, SVOCs, pH, americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, tritium, and strontium-90 (Table 3.1-3).

3.1.4 SWMU 21-013(c)

Ten surface samples were collected in 1994 and 23 surface samples were collected in 2006 at SWMU 21-013(c) (Table 3.1-4 and Figure 1.2-5). All 10 1994 surface samples were analyzed for TAL metals, uranium, SVOCs, volatile organic chemicals (VOCs), gamma-emitting radionuclides, tritium, isotopic plutonium, and strontium. Five of the ten samples were also analyzed for isotopic uranium.

In 2006, field-screening results were used to determine the locations to be analyzed for the extended suite analyses. Location 21-25651 had the highest alpha screening level (75.6 disintegrations per minute [dpm]) and the highest reading from the pre-sampling location walkover SPA-3 gamma probe survey. This location is situated near the center of the surface disposal area. The photoionization detector (PID) readings for the entire site were low.

These surface samples were analyzed for TAL metals, perchlorate, nitrate, cyanide, SVOCs, pH, americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, tritium, strontium-90, PCBs, and explosive compounds (Table 3.1-4). One surface sample (location 21-25651) was analyzed for dioxins/furans for the extended suite analyses.

Based on the extended suite analysis data provided to NMED from location 21-25651, additional PCB, dioxin/furan, or explosive compounds analysis were not required per NMED at this SWMU (Chamberlain 2006, 093678; Chamberlain 2006, 093680; Chamberlain 2006, 098708). However, all samples collected at SWMU 21-013(c) were analyzed for explosive compounds and PCBs.

3.1.5 SWMU 21-024(c)

Fifteen surface samples were collected at SWMU 21-024(c) (Table 3.1-5 and Figure 1.2-6). Field-screening results were used to determine the location to be analyzed for the extended suite analyses. Location 21-25760 had the highest beta reading (3730 disintegrations per minute [dpm]), and was selected for the extended suite analyses. This location is situated in the center of the outfall area near the mesa top edge.

These surface samples were analyzed for TAL metals, perchlorate, nitrate, cyanide, SVOCs, pH, americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, tritium, strontium-90,

and PCBs. One of these samples was also analyzed for explosive compounds and dioxin/furan analyses (Table 3.1-5).

Based on the extended suite analyses data provided to NMED from location 21-25760, additional dioxin/furan or explosive compounds analyses were not required at this SWMU (Chamberlain 2006, 093677; Chamberlain 2006, 093680).

3.1.6 Suspected PCB-contaminated Outfall

Eighteen surface soil samples were collected (Table 3.1-6 and Figure 1.2-7). Nine of these surface samples were analyzed for PCBs, five were analyzed for SVOCs only, one was analyzed for dioxin/furans only, and three were analyzed for dioxin/furans and SVOCs (Table 3.1-6).

3.2 Investigation Sites—Subsurface Investigation

For subsurface samples (greater than 0.5 ft bgs), hand-augering was used to collect samples from depth. At SWMU 21-024(c), for sampling locations under the septic tank, an auger was attached to a backhoe and drilled down to the required sampling depth. All samples were field screened for alpha and beta radiation, as well as organic vapors. Samples were immediately screened for radioactivity using an Eberline E-600 radiation meter held within 1 in. of the sample. Screening for radioactivity was performed to ensure worker safety and to identify locations for additional sampling. The field-screening results are presented in section 6.2 and the field-screening process is described in Appendix C. Field-screening results were used to determine the location to be sampled for the extended suite analyses at AOC 21-002(b), Consolidated Unit 21-003-99, SWMU 21-013(c), and the suspected PCB-contaminated outfall. Field-screening results were not conclusive at SWMU 21-009, and the rationale behind the location selected for extended suite analyses is discussed below.

Subsurface samples were sent by the SMO to an off-site analytical laboratory for analyses. The laboratory analyses conducted on the subsurface samples are presented in Tables 3.1-1 through 3.1-6. The following sections present the subsurface investigation information for each site. Rinsate blank, trip blank, and field-duplicate samples are not included in the sample counts presented below.

3.2.1 AOC 21-002(b)

Eighteen subsurface samples were collected at AOC 21-002(b) (Table 3.1-1 and Figure 1.2-2). All subsurface samples were analyzed for TAL metals, perchlorate, nitrate, cyanide, SVOCs, VOCs, pH, americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, strontium-90, and tritium (Table 3.1-1). Two of these samples were also analyzed for explosive compounds and PCBs and one for dioxin/furans (Table 3.1-1).

Field-screening results were used to determine the location to be sampled for the extended suite analyses (explosive compounds, PCBs, and dioxins/furans). Location 21-25679 was selected for the extended suite analyses due to the second highest field screening value for beta (2560 dpm; 2780 dpm was the highest at location 21-25680) and the highest PID reading at the site of 1.8 parts per million (ppm); all other PID values at the site were nondetect (ND). This location is along a swale downgradient of the AOC boundary. It was also proposed for extended suite analyses because historical data indicated radionuclide activity above background in this area (LANL 2004, 087461; NMED 2005, 089314). Based on the extended suite analyses data provided to NMED from location 21-25679, additional PCB, dioxin/furan or explosive compounds analyses were not required at this AOC (Chamberlain 2006, 095870).

3.2.2 Consolidated Unit 21-003-99

Four subsurface samples were collected in 1994 and 77 subsurface samples were collected in 2006 at Consolidated Unit 21-003-99 (Table 3.1-2 and Figure 1.2-3).

Subsurface samples collected in 1994 were analyzed for TAL metals, uranium, gamma-emitting radionuclides, tritium, isotopic plutonium, isotopic uranium, and strontium-90.

All 2006 subsurface samples (with the exception of one sample at location 21-25725) were analyzed for TAL metals, perchlorate, nitrate, cyanide, SVOCs, VOCs, pH, americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, tritium, strontium-90, and PCBs (Table 3.1-2). The one sample at location 21-25725 was analyzed for VOCs only at the 4.0- to 4.5-ft depth as a result of a high PID reading at the 3.0- to 3.5-ft-depth interval (see section 6.2). Ten subsurface samples collected from five locations were also analyzed for explosive compounds (Table 3.1-2).

Field-screening results were used to determine the location to be analyzed for the extended suite analyses. Sample location 21-25725 (3.0- to 3.5-ft-depth interval) was selected for the dioxin/furan and explosive compounds extended suite analyses based on the highest PID reading at the site (see section 6.2). The PID reading was approximately 10 times background. This location is situated south and downgradient of the storage area. Based on the analytical data provided to NMED from location 21-25725 additional dioxin/furan or explosive compounds analyses were not required at this consolidated unit (Chamberlain 2006, 093679; Chamberlain 2006, 093680).

3.2.3 SWMU 21-009

Eight subsurface samples were collected at SWMU 21-009 (Table 3.1-3 and Figure 1.2-4). All subsurface samples were analyzed for TAL metals, perchlorate, nitrate, cyanide, SVOCs, VOCs, pH, americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, tritium, strontium-90, and strontium-90 (Table 3.1-3).

Field screening was inconclusive. Therefore, location 21-25640 was selected for the extended suite analyses (dioxins/furans, PCBs, and explosive compounds) based on historical information, which showed bench-counting was performed at this location in the former laboratory (LASL 1948, 024369). Based on the extended suite analyses data provided to NMED from location 21-25640, additional PCB, dioxin/furan or explosive compounds analyses were not required at this SWMU (Chamberlain 2006, 095867; Chamberlain 2006, 095870).

3.2.4 SWMU 21-013(c)

Ten subsurface samples were collected in 1994 and 23 subsurface samples were collected in 2006 at SWMU 21-013(c) (Table 3.1-4 and Figure 1.2-5).

Subsurface samples collected in 1994 were analyzed for TAL metals, uranium, SVOCs, VOCs, gamma-emitting radionuclides, tritium, isotopic plutonium, and strontium-90. Four of the 10 samples were also analyzed for isotopic uranium.

All 2006 subsurface samples were analyzed for TAL metals, perchlorate, nitrate, cyanide, SVOCs, VOCs, pH, americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, tritium, strontium-90, PCBs, and explosive compounds (Table 3.1-4). One subsurface sample was analyzed for dioxin/furans.

3.2.5 SWMU 21-024(c)

Thirty-five subsurface samples were collected at SWMU 21-024(c) (Table 3.1-5 and Figure 1.2-6). The septic tank and associated piping were removed and disposed. Appendix H describes the management of the wastes associated with these removal activities.

All subsurface samples were analyzed for TAL metals, perchlorate, nitrate, cyanide, SVOCs, VOCs, pH, americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, tritium, strontium-90, and PCBs (with the exception two depths at location 21-25753 and one depth at 21-25752 not analyzed for PCBs) (Table 3.1-5).

3.2.6 Suspected PCB-contaminated Outfall

Six subsurface soil samples were collected at the suspected PCB-contaminated outfall (Table 3.1-6 and Figure 1.2-7). Four subsurface samples were analyzed for PCBs only, one was analyzed for dioxin/furans, nitrate, perchlorate, americium-241, TAL metals, cyanide, isotopic plutonium, isotopic uranium, tritium, gamma-emitting radionuclides, strontium-90, and SVOCs, and one was analyzed for explosive compounds only.

Field-screening results were used to determine the location to be sampled for the additional analyses (dioxin/furans, nitrate, perchlorate, americium-241, TAL metals, cyanide, isotopic plutonium, isotopic uranium, tritium, gamma-emitting radionuclides, strontium-90, and SVOCs) (Table 3.1-6) requested by NMED (Roberts 2007, 097391). Location 21-600093, in the area where PCBs were detected in stormwater, was selected for the additional analyses due to the highest PID reading at the site of 30.8 ppm (see section 6.2).

3.3 Facility-unimpacted Corrective Action Sites—2006–2007 Surface Activities

Surface samples were collected in 2006–2007 at a depth of 0- to 0.5-ft bgs at various sampling locations. These samples were immediately screened for radioactivity using an Eberline E-600 radiation meter held within 1 in. of the sample. Screening for radioactivity and organic vapors was performed to ensure worker safety and to identify locations for additional sampling (section 6.2). All samples were field-screened for alpha and beta radiation as well as organic vapors. At SWMU 21-027(c), one surface sample for extended suite was based on field-screening results. The field-screening results are presented in section 6.2 and the field-screening process is described in Appendix C.

A stainless-steel scoop and bowl were used to homogenize each sample, which was transferred to sterile sample collection jars (SOP-06.09, Rev. 2). Appendix C details the sampling procedure followed in collecting surface samples.

Surface samples were sent to by the SMO an off-site analytical laboratory for analysis (SOP-01.03, Rev. 4). The laboratory analyses conducted on the surface samples collected are presented in Tables 3.3-1 through 3.3-8. The following sections present the surface investigation information for each site. Rinsate blank, trip blank, and field duplicate samples are not included in the sample counts presented below.

3.3.1 SWMU 21-012(b)

Twenty-two surface samples were collected at SWMU 21-012(b) (Table 3.3-1 and Figure 1.2-8). All surface samples were analyzed for TAL metals, perchlorate, nitrate, cyanide, strontium, SVOCs, pH, americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, tritium, and

strontium-90 (Table 3.3-1). Eleven of these samples were also analyzed for lithium and molybdenum. Three of the 22 surface samples were analyzed for PCBs.

3.3.2 SWMU 21-024(a)

Fourteen surface samples were collected at SWMU 21-024(a) (Table 3.3-2 and Figure 1.2-9). All surface samples were analyzed for TAL metals, perchlorate, nitrate, cyanide, SVOCs, pH, americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, tritium, and strontium-90 (Table 3.3-2).

3.3.3 SWMU 21-024(e)

Fifteen surface samples were collected at SWMU 21-024(e) (Table 3.3-3 and Figure 1.2-10). All surface samples were analyzed for TAL metals, perchlorate, nitrate, cyanide, SVOCs, pH, americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, tritium, and strontium-90. Nine of the surface samples were also analyzed for molybdenum. Eight of the surface samples were also analyzed for VOCs (Table 3.3-3)

3.3.4 SWMU 21-024(g)

Twenty-five surface samples were collected at SWMU 21-024(g) (Table 3.3-4 and Figure 1.2-11). All surface samples were analyzed for TAL metals, perchlorate, nitrate, cyanide, SVOCs, pH, americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, tritium, and strontium-90 (Table 3.3-4).

3.3.5 Consolidated Unit 21-024(l)-99

Fourteen surface samples were collected at Consolidated Unit 21-024(l)-99 (Table 3.3-5 and Figure 1.2-12). All surface samples were analyzed for TAL metals, perchlorate, nitrate, lithium, cyanide, SVOCs, pH, americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, tritium, and strontium-90. One of the surface samples was also analyzed for VOCs. (Table 3.3-5).

3.3.6 SWMU 21-024(o)

Eleven surface samples were collected at SWMU 21-024(o) (Table 3.3-6 and Figure 1.2-13). All surface samples were analyzed for TAL metals, perchlorate, nitrate, cyanide, SVOCs, pH, americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, tritium, and strontium-90 (Table 3.3-6).

3.3.7 Consolidated Unit 21-026(a)-99

Twenty-four surface samples were collected at Consolidated Unit 21-026(a)-99 (Table 3.3-7 and Figure 1.2-14). All surface samples were analyzed for TAL metals, perchlorate, nitrate, cyanide, SVOCs, pH, americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, tritium, and strontium-90 (Table 3.3-7).

3.3.8 SWMU 21-027(c)

Fifteen surface samples were collected at SWMU 21-027(c) (Table 3.3-8 and Figure 1.2-15). Fourteen surface samples were analyzed for TAL metals, perchlorate, nitrate, cyanide, SVOCs, pH,

americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, tritium, and strontium-90. One sample was analyzed for the extended suite (explosive compounds, PCBs, and dioxins/furans) (Table 3.3-8).

Field-screening results were used to determine the location to be sampled for the extended suite analyses. Location 21-27411 had the highest PID reading at the site of 43.2 ppm and was selected for the extended suite analyses (see section 6.2). This location is in the center of the outfall, on the bench edge.

Based on the extended suite analysis data provided to NMED from location 21-27411, additional PCB, dioxin/furan or explosive compounds analyses were not required at this SWMU (Roberts 2007, 098470).

3.4 Facility-unimpacted Corrective Action Sites—2006–2007 Subsurface Activities

For subsurface samples, hand-augering was used to collect samples from depth. A drill-rig and/or auger attachment on a backhoe was used to sample deeper boreholes. All samples were field screened for alpha and beta radiation, as well as organic vapors. Samples were immediately screened for radioactivity using an Eberline E-600 radiation meter held within 1 in. of the sample. Screening for organic vapors and radioactivity was performed to ensure worker safety and to identify locations for additional sampling. The field-screening results are presented in section 6.2 and the field-screening process is described in Appendix C. Field-screening results were used to determine the location to be sampled for the extended suite analyses at SWMUs 21-012(b), 21-024(a), 21-024(e), 21-024(g), 21-024(o), and Consolidated Units 21-024(l)-99 and 21-026(a)-99. Findings from the 2004 geophysical survey were used to help locate structures and potential trenching areas (LANL 2004, 087461).

Subsurface samples (greater than 0.5 ft bgs) were sent by the SMO to an off-site analytical laboratory for analysis. The laboratory analyses conducted on the subsurface samples are presented in Tables 3.3-1 through 3.3-8. The following sections present the subsurface investigation information for each site. Rinsate blank, trip blank, and field duplicate samples are not included in the sample counts presented below.

3.4.1 SWMU 21-012(b)

Field activities at SWMU 21-012(b) included the removal of the blowdown pits (structures 21-266 and 21-267), the seepage pit, and the blowdown tank. Both pipelines extending from the blowdown pits to their respective outfalls and the middle pipeline (floor drain) were also removed. The remaining three pipelines exiting the blowdown pits were removed. Sections of these pipelines that lie beneath the road were left in place because the road is active and continues to service DP east. Appendix H describes the management of the wastes associated with these removal activities.

Eighty-four subsurface samples were collected at SWMU 21-012(b) (Table 3.3-1 and Figure 1.2-8). Seventy-nine samples were analyzed for TAL metals, perchlorate, nitrate, cyanide, strontium, SVOCs, VOCs, pH, americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, tritium, and strontium-90 (Table 3.3-1). One of the 79 subsurface samples was also analyzed for the extended suite (analyzed for explosive compounds, PCBs, and dioxins/furans). Five samples were analyzed for VOCs only. Sixty-seven of the 84 samples were also analyzed for lithium and molybdenum. Sixteen of the 84 were analyzed for PCBs.

Field-screening results were used to determine the location to be sampled for the extended suite analyses. Location 21-27671 in the 70- to 71-ft depth had the highest PID reading at the site of 79 ppm and was selected for the extended suite analyses (see section 6.2). This location is downgradient of the drywell.

Based on the extended suite analysis data provided to NMED from location 21-27671, additional PCB, dioxin/furan or explosive compounds analyses were not required at this SWMU (Roberts 2007, 098470).

3.4.2 SWMU 21-024(a)

Field activities at SWMU 21-024(a) included the removal of the septic tank (structure 21-053) and the pipeline from former building 21-009 to the outfall. The section of the pipeline that lies beneath the road was left in place because the road is active and continues to service DP east. Appendix H describes the management of the wastes associated with these removal activities.

Thirty-two subsurface samples were collected at SWMU 21-024(a) (Table 3.3-2 and Figure 1.2-9). Twenty-eight subsurface samples were analyzed for TAL metals, perchlorate, nitrate, cyanide, SVOCs, VOCs, pH, americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, tritium, and strontium-90 (Table 3.3-2). Three subsurface samples were analyzed for VOCs only, and one was analyzed for the extended suite (analyzed for explosive compounds, PCBs, and dioxins/furans).

Field-screening results were used to determine the location to be sampled for the extended suite analyses. Location 21-27340 in the 5.5- to 6.5-ft depth had the highest PID reading at the site of 1.3 ppm and was selected for the extended suite analyses (see section 6.2). This location is under the inlet line, halfway between the septic tank and the former building 21-009.

Based on the extended suite analysis data provided to NMED from location 21-27340, additional PCB, dioxin/furan or explosive compounds analyses were not required per NMED at this SWMU (Roberts 2007, 098470).

3.4.3 SWMU 21-024(e)

Field activities at SWMU 21-024(e) included the removal of the septic tank (structure 21-123) and the pipelines exiting former building 21-020 and building 21-014. Appendix H describes the management of the wastes associated with these removal activities.

Forty-two subsurface samples were collected at SWMU 21-024(e) (Table 3.3-3 and Figure 1.2-10). Forty-one subsurface samples were analyzed for TAL metals, perchlorate, nitrate, cyanide, molybdenum, SVOCs, VOCs, pH, americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, tritium, and strontium-90 (Table 3.3-3). One subsurface sample was analyzed for the extended suite (analyzed for explosive compounds, PCBs, and dioxins/furans).

Field-screening results were used to determine the location to be sampled for the extended suite analyses. Location 21-27253 in the 1.0- to 1.5-ft depth had the highest PID reading at the site of 20.4 ppm and was selected for the extended suite analyses (see section 6.2). This location is along the western side outfall drainage area, on the bench edge.

Based on the extended suite analysis data provided to NMED from location 21-27253, additional PCB, dioxin/furan or explosive compounds analyses were not required at this SWMU (Roberts 2007, 098470).

3.4.4 SWMU 21-024(g)

Field activities at SWMU 21-024(g) included the removal of the septic tank (structure 21-125), a portion the pipeline exiting the south side of building 21-031 at location 21-27622, the pipeline exiting the north side of building 21-031 at location 21-27617, and the pipeline between locations 21-27616 and 21-27615. The pipeline exiting the north side of building 21-031 at location 21-27615 was removed to the road. The

section of the pipeline that lies beneath the road was left in place because the road is active and continues to service DP east. The storm drain and associated piping for surface water drainage were not removed because they are still in use. Trenching in the vicinity of both drainage ditches did not yield evidence of the ditches; however, samples were collected to investigate the possibility of contamination assuming the ditches had once been present and were subsequently removed. Appendix H describes the management of the wastes associated with these removal activities.

Sixty-one subsurface samples were collected at SWMU 21-024(g) (Table 3.3-4 and Figure 1.2-11). Sixty subsurface samples were analyzed for TAL metals, perchlorate, nitrate, cyanide, SVOCs, VOCs, pH, americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, tritium, and strontium-90 (Table 3.3-4). One subsurface sample was analyzed for the extended suite (explosive compounds, PCBs, and dioxins/furans).

Field-screening results were used to determine the location to be sampled for the extended suite analyses. Location 21-27596 in the 2.0- to 3.0-ft depth had the highest PID reading at the site of 24.2 ppm and was selected for the extended suite analyses (see section 6.2). This location is along the eastern boundary of the septic tank outfall.

Based on the extended suite analysis data provided to NMED from location 21-27596, additional PCB, dioxin/furan or explosive compounds analyses were not required at this SWMU (Roberts 2007, 098470).

3.4.5 Consolidated Unit 21-024(l)-99

Field activities at Consolidated Unit 21-024(l)-99 included removal of the sump [SWMU 21-022(a)] and all pipelines within the consolidated unit boundary. The end of the main outfall pipe excavated from under approximately 3 ft of soil and removed. A discovered pipeline running east-west along the north side of building 21-021 was removed. The aboveground tank [structure 21-335, AOC 21-004(a)] was left in place to be disposed of at a later date. Appendix H describes the management of the wastes associated with these removal activities.

Fifty-eight subsurface samples were collected at Consolidated Unit 21-024(l)-99 (Table 3.3-5 and Figure 1.2-12). Fifty-seven subsurface samples were analyzed for TAL metals, perchlorate, nitrate, cyanide, lithium, SVOCs, VOCs, pH, americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, tritium, and strontium-90 (Table 3.3-5). One subsurface sample was analyzed for the extended suite (explosive compounds, PCBs, and dioxins/furans).

Field-screening results were used to determine the location to be sampled for the extended suite analyses. Location 21-27515 in the 15- to 16-ft depth had the highest beta screening level at the site of 1218 dpm and was selected for the extended suite analyses (see section 6.2). This location is downgradient of the sump.

Based on the extended suite analysis data provided to NMED from location 21-27515, additional PCB, dioxin/furan or explosive compounds analyses were not required at this SWMU (Roberts 2007, 098470).

3.4.6 SWMU 21-024(o)

Field activities at SWMU 21-024(o) consisted of trenching to locate the pipeline, however, no evidence of a pipe was found. Inspection of the remaining intact foundation and associated infrastructure did not reveal evidence of a pipe exiting to the south of building 21-046. Additionally, no engineering drawings have been located depicting a pipe exiting the south of building 21-046. The SWMU 21-024(o) outfall

area is determined to be an area where surface water runoff is channeled and not the outfall of a pipe. Therefore, no samples were collected as planned under the pipe.

Twelve subsurface samples were collected at SWMU 21-024(o) (Table 3.3-6 and Figure 1.2-13). Eleven subsurface samples were analyzed for TAL metals, perchlorate, nitrate, cyanide, SVOCs, VOCs, pH, americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, tritium, and strontium-90 (Table 3.3-6). One subsurface sample was analyzed for the extended suite (explosive compounds, PCBs, and dioxins/furans).

Field-screening results were used to determine the location to be sampled for the extended suite analyses. Location 21-27355 in the 2.0- to 2.5-ft depth had the highest PID reading at the site of 14.5 ppm and was selected for the extended suite analyses (see section 6.2). This location is in the center of the outfall, on the bench edge.

Based on the extended suite analysis data provided to NMED from location 21-27355, additional PCB, dioxin/furan or explosive compounds analyses were not required at this SWMU (Roberts 2007, 098470).

3.4.7 Consolidated Unit 21-026(a)-99

Field activities at Consolidated Unit 21-026(a)-99 included the removal of the dosing siphon chamber [AOC 21-026(c)] and the main pipeline extending to the outfall. Appendix H describes the management of the wastes associated with these removal activities.

Forty-seven subsurface samples were collected at Consolidated Unit 21-026(a)-99 (Table 3.3-7 and Figure 1.2-14). Forty-six subsurface samples were analyzed for TAL metals, perchlorate, nitrate, cyanide, SVOCs, VOCs, pH, americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, tritium, and strontium-90 (Table 3.3-7). One subsurface sample was analyzed for the extended suite (explosive compounds, PCBs, and dioxins/furans).

Field-screening results were used to determine the location to be sampled for the extended suite analyses. Location 21-27558 in the 2.0- to 3.0-ft depth had the highest PID reading at the site of 70.2 ppm and was selected for the extended suite analyses (see section 6.2). This location is downgradient of the surface disposal area.

Based on the extended suite analysis data provided to NMED from location 21-27558, additional PCB, dioxin/furan, or explosive compounds analyses were not required at this SWMU (Roberts 2007, 098470).

3.4.8 SWMU 21-027(c)

Field activities at SWMU 21-027(c) included the removal of the pipeline extending from former building 21-006 to the outfall. The end of the pipe was buried under approximately 3 ft of soil. Appendix H describes the management of the wastes associated with these removal activities.

Twenty-one subsurface samples were collected at SWMU 21-027(c) (Table 3.3-8 and Figure 1.2-15). All subsurface samples were analyzed for TAL metals, perchlorate, nitrate, cyanide, SVOCs, VOCs, pH, americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, tritium, and strontium-90 (Table 3.3-8).

4.0 FIELD-INVESTIGATION CONDITIONS

4.1 Surface Conditions—Investigation Sites

The following sections describe surface conditions at each site based on surface water assessments and 2007 site visits. The surface water assessments are included in Appendix D and photographs of the sites are presented in Appendix G.

4.1.1 AOC 21-002(b), Drum Storage Area

Ground cover at AOC 21-002(b) consists of native grasses, forbs, and immature ponderosa pines. The area slopes gently (10% to 15%) to the north (Photograph G-1).

4.1.2 Consolidated Unit 21-003-99

Ground cover at Consolidated Unit 21-003-99 consists of grassy and asphalt areas (Photograph G-2). The area is flat to the north and gradually slopes down (10% to 30%) toward the south boundary. At the eastern edge, a drainage swale has formed from the asphalt pad area, visibly indicating run-off discharging from the site, which terminates on a canyon bench. No visible erosion was observed during the assessment.

4.1.3 SWMU 21-009, Waste Treatment Laboratory

Ground cover at SWMU 21-009 is mainly gravel and dirt (Photograph G-3). This SWMU is located within the chained area around MDA V. As a result of remediation activities at adjacent MDA V, no vegetation is currently present. The site gently slopes south (10%) towards Los Alamos Canyon.

4.1.4 SWMU 21-013(c), Surface Disposal Area

Ground cover at SWMU 21-013(c) is heavily vegetated with native trees, shrubs, and weeds. The vegetation is dominated by chamisa (*Chrysothamnus nauseosus*) (Photograph G-4). No gravel was observed. The site is behind a chain link fence. The ground surface gently slopes (less than 10%) toward the canyon to the north and south. A “mound” like feature exists towards the center of the area, with a steep slope beyond it to the east.

4.1.5 SWMU 21-024(c), Septic System

Ground cover at the mesa top portion of SWMU 21-024(c) is sparse with some vegetation (Photographs G-5 and G-6). Ground cover in the outfall portion of the SWMU consists of large boulders. The area slopes steeply down (10% to 30%) to the south.

4.1.6 Suspected PCB-contaminated Outfall

This area coincides with SWMU 21-024(m), and therefore the following information comes from the SWMU 21-024(m) surface water assessment and site visits. Ground cover in the area is medium to heavy density vegetated with weeds and a paved road crosses the area (Photograph G-7). The area has a steep 30% slope down to the south. No visible evidence of run-off discharging from the site was found at the time of the assessment.

4.2 Surface Conditions—Facility-unimpacted Corrective Action Sites

4.2.1 SWMU 21-012(b), Dry Well and Pipelines

The ground cover at SWMU 21-012(b) is an asphalt parking lot, roadway, and unimproved land sparsely vegetated with weeds (Photograph G-8). The area where the steam plant was located is a flat parking lot with a gentle slope (less than 10%) to the east. The area of the pipes and outfall is adjacent to SWMU 21-024(a) and the surface water assessment for that SWMU indicates heavy ground cover and less than 10% slope to the south, toward the mesa edge. No visible erosion was observed during the assessment.

4.2.2 SWMU 21-024(a), Septic System

The ground cover at SWMU 21-024(a) is heavy, and the area is relatively flat with a slope less than 10% to the south toward the mesa edge (Photograph G-9). No visible erosion was observed during the assessment.

4.2.3 SWMU 21-024(e), Septic System

The ground cover at SWMU 21-024(e) is medium density, with some vegetation, some exposed tuff and a dirt road (Photograph G-10). The area of the septic tank and outfall are on the flat mesa top. Runoff from the SWMU has caused visible erosion. The runoff channel below the outfall has steep descent into BV Canyon, a bench/tributary of Los Alamos Canyon.

4.2.4 SWMU 21-024(g), Septic System

The ground cover at SWMU 21-024(g) is medium to heavy density, composed of grasses and weeds (Photograph G-11). The area gradually slopes down (10% to 30%) to the north toward the mesa edge. No visible erosion was observed during the assessment.

4.2.5 Consolidated Unit 21-024(l)-99, Consisting of SWMUs 21-022(a), a Sump and Associated Lines, and 21-024(l), an Outfall, and AOC 21-004(a), an Aboveground Storage Tank and Associated Lines

Ground cover at Consolidated Unit 21-024(l)-99 consists of thick grass and heavy vegetative cover of weeds (Photograph G-12). Around the sump, the ground cover is medium density and consists of native grasses and forbs. In the area of the sump, the ground is relatively flat and progresses to a gradual slope of 10% to 30% to the north. No visible erosion was observed during the assessment.

4.2.6 SWMU 21-024(o), Pipeline and Outfall

Ground cover on the mesa-top portion of SWMU 21-024(o) asphalt and gravel (Photograph G-13). Ground cover along the canyon edge portion of the SWMU is thick and consists of various types of grasses and canopy cover. The ground is flat with a less than 10% slope to the south. No visible erosion was observed during the assessment.

4.2.7 Consolidated Unit 21-026(a)-99, Sewage Treatment Plant

Ground cover on the mesa top portion of Consolidated Unit 21-026(a)-99 is a base coarse driveway, facility structures, and sparse vegetation (Photographs G-14 and G-15). Ground cover in the outfall

portion of the consolidated unit consists of thick vegetation of native grasses and forbs (Photograph G-15). The mesa-top site is relatively flat. No visible erosion was observed during the assessment.

4.2.8 SWMU 21-027(c), Pipeline and Outfall

Ground cover at SWMU 21-027(c) is medium density. The site is flat with a less than 10% slope. No visible erosion was observed during the assessment (Photographs G-16 and G-17).

4.3 Surface Conditions—Facility-impacted Corrective Action Sites

4.3.1 Consolidated Unit 21-006(c)-99, Consisting of SWMUs 21-006(a), Seepage Pit; 21-006(b), Seepage Pit, Drainline, and Outfall; 21-006(c), Seepage Pit; and 21-006(d), Seepage Pit

The surface water assessments are identical for SWMUs 21-006(a), 21-006(c), and 21-006(d) as a result of collocation. The ground cover consists of asphalt paving with some forbs coming through cracks in the asphalt. The area has a gentle slope of less than 10%. No visible erosion was observed during the assessment. The surface water assessment for SWMU 21-006(b) evaluates the outfall on a bench just below the mesa top on the north side of Los Alamos Canyon. The ground cover is sparse with rocks. The slope of the area is 10% to 30%. No visible erosion was observed during the assessment.

4.3.2 SWMU 21-022(f), Sump and Pipeline

Ground cover at SWMU 21-022(f) is asphalt. The site is flat with a less than 10% slope. No visible erosion was observed during the assessment.

4.3.3 Consolidated Unit 21-022(h)-99, Consisting of SWMUs 21-022(h), Sump, Drainline, and Outfall; 21-022(i), Sump; and 21-022(j), Sump

The surface water assessments are separate for each SWMU because they are not collocated. The surface water assessment for SWMU 21-022(h) evaluates the outfall portion of the SWMU. The outfall is located at the edge of the mesa top on the north side of Los Alamos Canyon and discharges to a bench within the canyon. The ground cover is heavy vegetation at the outfall and sparse vegetation along the bench. The slope is greater than 30%. No visible erosion was observed during the assessment.

Ground cover at SWMU 21-022(i) is asphalt. The site is relatively flat with a less than 10% slope. No visible erosion was observed during the assessment.

Ground cover at SWMU 21-022(j) is not applicable because the SWMU is enclosed within building and concrete. The area within the building is flat. No visible erosion was observed during the assessment.

4.3.4 Consolidated Unit 21-023(a)-99, Consisting of SWMUs 21-023(a), Septic System; 21-023(b), Septic System; and 21-023(d), Septic System

The surface water assessments are identical for SWMUs 21-023(a) and 21-023(b) as a result of collocation. The ground cover consists of rubble from building demolition (broken rock, brick, disturbed soil, and building materials). The slope is less than 10% and the topography is uneven. No visible erosion was observed during the assessment.

The ground cover at SWMU 21-023(d) consists of rubble from building demolition (concrete, disturbed soil, broken rock, brick, and building materials). The site is located near a mound of rubble 25 ft by 25 ft by 40 ft that has a slope greater than 30%. No visible erosion was observed during the assessment.

4.3.5 SWMU 21-024(b), Septic System

The ground cover around the septic tank and outfall is heavily vegetated. The slope is 10% to 30%. No visible erosion was observed during the assessment.

4.3.6 SWMU 21-024(d), Septic System

The ground cover at SWMU 21-024(d) consists of medium density grass and weeds. There is minimal canopy cover with scrub oak. The slope is 10% to 30%. No visible erosion was observed during the assessment.

4.3.7 SWMU 21-024(h), Septic System

SWMU 21-024(h) is within the rim and first slope of DP Canyon and within a tributary of a watercourse. Ground cover is medium density and consists of pine needles, shrubs, and grass. The canopy cover is ponderosa pine. The site is a flat area that drops into a tributary of DP Canyon. No visible erosion was observed during the assessment.

4.3.8 SWMU 21-024(i), Septic System Inlet Line

SWMU 21-024(i) is located on the northern rim of Los Alamos Canyon, and a portion may extend onto a bench located below the canyon rim The ground cover at the northern rim consists of 75% to 100% native and annual grasses and straw mulch. Ground cover on the bench is between 25% to 75% native grasses and forbs. The upper portion of the SWMU slopes to the south at 10% to 30%. The canyon rim and bench below it are sloped greater than 30%. No visible erosion was observed during the assessment.

4.3.9 SWMU 21-024(j), Septic System

The ground cover at SWMU 21-024(j) consists of thick density grass and weeds with sparse oak shrubs. The slope is less than 10%. No visible erosion was observed during the assessment.

4.3.10 SWMU 21-024(k), Septic System

The ground cover at SWMU 21-024(k) consists of thick density grass and weeds. The slope is less than 10% toward the canyon. No visible erosion was observed during the assessment.

4.3.11 SWMU 21-024(n), Septic System

The ground cover at SWMU 21-024(n) consists of medium density grass and weeds. The site is fairly flat with a slope less than 10%. No visible erosion was observed during the assessment.

4.3.12 SWMU 21-027(a), Surface Drainage and Outfall

The ground cover at SWMU 21-027(a) is medium density and there is minimal canopy cover of scrub oak. The site is located within the first slope, first bench, and second slope of Los Alamos Canyon and the slope is 10% to 30%. No visible erosion was observed during the assessment.

4.4 Surface Soils

Soil on the Pajarito Plateau was initially mapped and described by Nyhan et al. (1978, 005702). The Nyhan study included only Laboratory-controlled land and certain United States Forest Service land within Los Alamos County.

Soil formed in a semiarid climate and was derived from chemical, biological, and physical weathering of local bedrock units, fallout pumice deposits, eolian deposits, and sediment weathered from these geological materials (Nyhan et al. 1978, 005702). A large variety of soils have developed on the Pajarito Plateau as the result of interactions of the underlying bedrock, slope, and climate. The mineral components of the soil are in large part derived from the Bandelier Tuff, but dacitic lavas of the Tschicoma Formation, basalts of the Cerros del Rio volcanic field, and sedimentary rocks of the Puye Formation are locally important. Alluvium derived from the Pajarito Plateau and from the east side of the Jemez Mountains contributes to soil in the canyons and also to those on some mesa tops.

The soil on the slopes between the mesa tops and canyon floors has been mapped as mostly steep rock outcrops consisting of approximately 90% bedrock outcrop and patches of shallow, undeveloped colluvial soil. South-facing canyon walls are steep and usually have little or no soil material or vegetation; in contrast, the north-facing walls generally have areas of very shallow dark-colored soil and are more heavily vegetated. The canyon floors generally contain poorly developed, deep, well-drained soil (Nyhan et al. 1978, 005702).

Soil in the vicinity of TA-21 is typical of those across the Pajarito Plateau and is generally poorly developed, derived from Bandelier Tuff bedrock, and formed in a semiarid climate. Soil on the TA-21 mesa top is mainly shallow, well-drained sandy loams of the Hackroy series. The surface layer of the Hackroy soil is a brown sand loam, or a loam, about 10-cm thick. The subsoil is a reddish brown clay, gravelly clay, or clay loam, about 20-cm thick. The depth to bedrock and the effective rooting depth area is 20 to 50 cm. Hackroy soil is classified as Alfisols, in part reflecting the clayey subsurface horizons. Intermixed with the Hackroy soil on the mesa tops are small areas of deeper loams of the Nyjack series and patches of bedrock. The Nyjack soil is texturally similar to Hackroy soil and is distinguished by thicknesses of 7.9 in. (50 cm) to 40.2 in. (102 cm) and by the common presence of pumice fragments in the lower soil (Nyhan et al. 1978, 005702). Areas of exposed rock are predominant toward the east end of the mesa and TA-21 development (LANL 2004, 087461; NMED 2005, 089314).

4.5 Surface Water

No permanent surface water exists at TA-21. Surface water runoff occurs as a result of usually short, but often intense, seasonal thunderstorms producing large amounts of rain. Snowmelt is also a source of runoff. Surface water assessments are provided in Appendix D.

4.6 Subsurface Conditions

4.6.1 Stratigraphy

TA-21 is centrally located on the Pajarito Plateau, approximately midway between the flanks of the Jemez Mountains on the west and the Rio Grande to the east. The general stratigraphy beneath TA-21 has been defined from investigations conducted in recent years (Figure 4.2-1). Additional information on the geologic setting of the TA-21 area and information on the Pajarito Plateau can be found in the ER Project installation work plan (LANL 1998, 062060), the TA-21 operable unit work plan (LANL 1991, 007529)(LANL 1991, 007529), and the hydrogeologic work plan (LANL 1998, 059599). The following sections describe the geologic units encountered below TA-21.

Santa Fe Group

The Santa Fe Group consists of predominately fluvial, slightly consolidated sedimentary rock that crop out in the lower reaches of Los Alamos Canyon, along White Rock Canyon, and in extensive areas east of the Rio Grande (Galusha and Blick 1971, 021526). In the area of the Pajarito Plateau, the Santa Fe Group consists of the Tesuque Formation and the Chamita Formation. A trough of late Miocene coarse-grained sediment at the top of the Santa Fe Group that postdate the Chamita Formation and these deposits are called the Chaquehui Formation (Purtymun 1995, 045344). The trough is filled with 1500 ft of gravels, cobbles, and boulders derived from highlands to the north and east. Regional cross sections show that the Chaquehui Formation does exist beneath TA-21 (LANL 2004, 087461; NMED 2005, 089314).

Puye Formation

The Puye Formation is a fanglomerate deposit consisting of poorly sorted boulders, cobbles, and coarse sand made up of dacitic to latitic debris eroded from the contemporaneous Tschicoma Formation (Turbeville et al. 1989, 021587; Spell et al. 1990, 021586). The unit is 940 ft thick and may consist of interbedded basalt flows of the Cerros del Rio volcanic field and Tschicoma Formation (LANL 1991, 007529). Also included in the Puye Formation is the Totavi Lentil, a deposit of well-rounded cobbles and boulders of Precambrian quartzites and crystalline rocks (Griggs and Hem 1964, 092516).

The Bandelier Tuff

The Valles Caldera erupted between 1.61 and 1.22 million yr ago creating the Bandelier Tuff. The unit is divided into the Otowi (Qbo) and Tshirege (Qbt) Members, which are separated by the Cerro Toledo interval. The tuff is rhyolitic, with a strong consolidated matrix of crystals. Because the Bandelier Tuff is the most prominent rock type on the Pajarito Plateau, its detailed stratigraphy is of considerable importance and is discussed further below (Broxton and Reneau 1995, 049726).

The nature and extent of the Otowi Member are described by Griggs and Hem (1964, 092516), Smith and Bailey (1966, 021584), Bailey et al. (1969, 021498), and Smith et al. (1970, 009752). The Otowi Member consists of moderately consolidated (indurated), porous, and nonwelded vitric tuff (ignimbrite) that forms gentle colluvium-covered slopes along the base of canyon walls. The Otowi ignimbrites contain light gray to orange pumice supported in a white to tan ash matrix (Broxton and Eller 1995, 058207; Goff 1995, 049682). The ash matrix consists of glass shards, broken pumice and crystal fragments, and fragments of perlite.

The Guaje Pumice Bed occurs at the base of the Otowi Member, making a significant and extensive marker horizon. The Guaje Pumice Bed (Bailey et al. 1969, 021498; Self et al. 1986, 021579) contains well-sorted pumice fragments whose mean size varies between 0.8 and 1.6 in. Its thickness averages approximately 28 ft below most of the plateau with local areas of thickening and thinning. Its distinctive white color and texture make it easily identifiable in borehole cuttings and core, and it is an important marker bed for the base of the Bandelier Tuff.

Tephras and Volcaniclastic Sediment of the Cerro Toledo Interval

The Cerro Toledo interval is an informal name given to a sequence of volcaniclastic sediment and tephra of mixed provenance that separates the Otowi and Tshirege Members of the Bandelier Tuff (Broxton and Eller 1995, 058207; Broxton and Reneau 1995, 049726; Goff 1995, 049682). Although it is intercalated between the two members of the Bandelier Tuff, it is not considered part of that formation (Bailey et al. 1969, 021498). Outcrops of the Cerro Toledo interval generally occur wherever the top of the Otowi Member appears in Los Alamos Canyon and in canyons to the north; the interval outcrops in the TA-21 area. The unit contains primary volcanic deposits normally assigned to the Cerro Toledo rhyolite, as described by Smith et al. (1970, 009752), as well as intercalated and reworked volcaniclastic sediment not normally included in the Cerro Toledo rhyolite. The occurrence of the Cerro Toledo interval is widespread; however, its thickness is variable ranging between several feet and more than 100 ft.

The predominant rock types in the Cerro Toledo interval are rhyolitic tuffaceous sediment and tephra at TA-21 (Heiken et al. 1986, 048638; Stix et al. 1988, 049680; Broxton and Eller 1995, 058207; Goff 1995, 049682). The tuffaceous sediment is the reworked equivalent of Cerro Toledo rhyolite tephra that erupted from the Cerro Toledo and Rabbit Mountain rhyolite domes located in the Sierra de los Valles. At TA-21, oxidation and clay-rich horizons indicate that at least two periods of soil development occurred within the Cerro Toledo deposits. Because this soil is rich in clay, it may act as barriers to the movement of vadose zone groundwater. Some of the epiclastic tuffaceous deposits contain both crystal-poor and crystal-rich varieties of pumice. The ashy matrix of these deposits is commonly rich with crystals and contains subhedral sanadine and quartz. The mixed pumice and the crystal-rich nature of the matrix indicate this reworked tuff was derived from both the Cerro Toledo Rhyolite and the underlying Otowi Member. The pumice falls tend to form porous and permeable horizons within the Cerro Toledo interval, and locally, they may provide important pathways for moisture transport in the vadose zone. A subordinate lithology within the Cerro Toledo interval includes clast-supported gravel, cobble, and boulder deposits made up of porphyritic dacite derived from the Tschicoma Formation interbedded with the tuffaceous rock, and in some deposits, dacitic materials are volumetrically more important than rhyolitic detritus (Broxton and Eller 1995, 058207; Goff 1995, 049682; Broxton and Reneau 1996, 055429).

Tshirege Member

The Tshirege Member is the upper member of the Bandelier Tuff and is the most widely exposed bedrock unit of the Pajarito Plateau (Griggs and Hem 1964, 092516; Smith and Bailey 1966, 021584; Bailey et al. 1969, 021498; Smith et al. 1970, 009752). Emplacement of this unit occurred during eruptions of the Valles Caldera approximately 1.2 million yr ago (Izett and Obradovich 1994, 048817; Spell et al. 1996, 055542). The Tshirege Member is a multiple-flow, ash-and-pumice sheet that forms the prominent cliffs in most of the canyons on the Pajarito Plateau and at TA-21. It is a chemical cooling unit whose physical properties vary vertically and laterally. The consolidation in this member is largely from compaction and welding at high temperatures after the tuff was emplaced. Its light brown, orange brown, purplish, and white cliffs have numerous, mostly vertical fractures (called joints) that average between several feet and several tens of feet. The Tshirege Member includes thin but distinctive layers of bedded, sand-sized

particles called surge deposits that demark separate flow units within the tuff. The Tshirege Member is generally over 200 ft thick.

The Tshirege Member differs from the Otowi Member most notably in its generally greater degree of welding compaction. Time breaks between the successive emplacement of flow units caused the tuff to cool as several distinct units. For this reason, the Tshirege Member is a chemical cooling unit, consisting of at least four cooling subunits that display variable physical properties vertically and horizontally (Smith and Bailey 1966, 021584; Crowe et al. 1978, 005720; Broxton and Eller 1995, 058207). These variations in physical properties reflect zonal patterns of different degrees of welding and glass crystallization that accompanies welding (Smith 1960, 048820; Smith 1960, 048819). The welding and crystallization variability in the Tshirege Member produce recognizable vertical variations in its properties, such as density, porosity, hardness, composition, color, and surface weathering patterns. The subunits are mappable based on a combination of hydrologic properties and lithologic characteristics.

Extensive descriptions of the Tshirege Member cooling units (Broxton and Eller 1995, 058207), in ascending order, are provided below.

The Tsankawi Pumice Bed forms the base of the Tshirege Member. Where exposed, it is commonly 20 in. to 30 in. thick. This pumice-fall deposit contains moderately well-sorted pumice lapilli (diameters reaching about 2.5 in.) in a crystal-rich matrix. Several thin ash beds are interbedded with the pumice-fall deposits.

Qbt 1g is the lowermost subunit of the thick ignimbrite sheet overlying the Tsankawi Pumice Bed. It consists of porous, nonwelded, and poorly sorted ash-flow tuff. The g in this designation stands for glass because none of the glass in ash shards and pumices shows crystallization by devitrification or vapor-phase crystallization. This unit is poorly indurated but nonetheless forms steep cliffs because of a resistant bench near the top of the unit; the bench forms a harder, protective cap over the softer underlying tuff. A thin (4 in. to 10 in.), pumice-poor, surge deposit commonly occurs at the base of this unit.

Qbt 1v forms alternating cliff-like and sloping outcrops composed of porous, nonwelded, crystallized tuff. The v stands for vapor-phase crystallization which, together with in situ crystallization devitrification, has converted much of the glass in shards and pumices into microcrystalline aggregates. The base of this unit is a thin, horizontal zone of preferential weathering that marks the abrupt transition from glassy tuff below (in Unit 1g) to the crystallized tuff above. This feature forms a widespread marker horizon (locally termed the vapor-phase notch) throughout the Pajarito Plateau, which is readily visible in canyon walls at TA-21. The lower part of Qbt 1v is orange brown, resistant to weathering, and has distinctive columnar (vertical) joints; hence, the term colonnade tuff is appropriate for its description. A distinctive white band of alternating cliff- and slope-forming tuff overlies the colonnade tuff. The tuffs of Qbt 1v are commonly nonwelded (pumices and shards retain their initial equant shapes) and have an open, porous structure.

Qbt 2 forms a distinctive, medium-brown, vertical cliff that stands out in marked contrast to the slope-forming, lighter-colored tuffs above and below at TA-21. It displays the greatest degree of welding in the Tshirege Member. A series of surge beds commonly mark its base. It is typically nonporous and has low permeability relative to the other units of the Tshirege Member. Vapor-phase crystallization of flattened shards and pumice is extensive in this unit.

Qbt 3 is a nonwelded to partially welded, vapor-phase altered tuff, which forms many of the upper cliffs in the TA-21 area. Its base consists of a purple-gray, unconsolidated, porous, and crystal-rich nonwelded tuff that underlies a broad, gently sloping bench developed on top of Qbt 2. This basal, nonwelded portion forms relatively soft outcrops that weather into low rounded mounds with a white color, which contrast with the cliffs of partially welded tuff in the middle and upper portions of Qbt 3.

4.6.2 Groundwater

In the Los Alamos area, groundwater occurs as (1) water in shallow alluvium in some of the larger canyons, (2) intermediate perched groundwater, and (3) the regional aquifer of the Los Alamos area. Numerous wells have been installed over the past several decades at the Laboratory and in the surrounding area to investigate the presence of groundwater in these zones and to monitor groundwater quality.

No intermediate or alluvial groundwater was encountered at TA-21. The regional aquifer of the Los Alamos area is the only aquifer capable of supporting/supplying large-scale municipal water (Purtymun 1984, 006513). The surface of the regional aquifer rises westward from the Rio Grande within the Santa Fe Group into the lower part of the Puye Formation beneath the central and western part of the Pajarito Plateau. The depths to groundwater below the mesa tops range between about 1200 ft along the western margin of the plateau and about 600 ft at the eastern margin. Figure 4.2-2 shows the location of wells and generalized water-level contours on top of the regional aquifer. The regional aquifer is typically separated from the alluvial groundwater and intermediate perched zone groundwater by 350 ft to 620 ft of tuff, basalt, and sediment (LANL 1993, 023249).

The regional aquifer beneath TA-21 is at an elevation of approximately 5900 ft or approximately 1100 ft below the surface and is located chiefly within sediment of the Puye and Tesuque Formations (Broxton and Eller 1995, 058207). Thus, for mesa-top sites at TA-21, more than 1100 ft of tuff and volcaniclastic sediment separate the surface from the regional aquifer.

5.0 REGULATORY CRITERIA

Regulatory criteria identified in the Consent Order include cleanup standards, risk-based screening levels, and risk-based cleanup goals.

In accordance with the approved work plan (LANL 2004, 087461; NMED 2005, 089314), all relevant and qualified data collected from the investigation sites historically and during the 2006–2007 sampling activities were evaluated to determine chemicals of potential concern (COPCs) (Appendix B). “Relevant data” refers to all samples collected between the surface and the total depth sampled, and “qualified data” refers to data validated to current standards for data usability.

The cleanup goals specified in Section VIII of the Consent Order are a target risk level of 10^{-5} for carcinogens and a hazard index of 1.0 for noncarcinogens. For radionuclides, the target dose is 15 mrem/yr based on DOE guidance (DOE 2000, 067153). For PCBs, sites can be cleaned up under the Consent Order, which specifies PCB cleanup levels be either a default concentration of 1 mg/kg or a risk-based PCB concentration established through performing a health risk assessment. However, in the case of Consolidated Unit 21-003-99 and SWMU 21-024(c), these two sites are regulated under TSCA regulations since PCBs were released from a source with greater than 50 mg/kg total PCBs after 1978, with a cleanup level of 1 mg/kg.

6.0 SITE CONTAMINATION

The following sections summarize the results of fixed-laboratory analysis and field-screening performed during activities at the investigation and facility-unimpacted corrective action sites. Appendix B provides the data review for all these sites with the exception of the suspected PCB-contaminated outfall site. The sampling objective at the suspected PCB-contaminated outfall site was to determine the source of PCBs detected in stormwater samples collected by NMED. PCB concentrations are above the TSCA cleanup

level of 1 mg/kg at Consolidated Unit 21-003-99 and SWMU 21-024(c). Therefore, these two sites require a corrective action, which will be presented in a report to be submitted to the U.S. Environmental Protection Agency (EPA) and NMED for approval. After the remediation has been completed, an additional investigation report will be submitted to NMED that presents the nature and extent discussions as well as the risk screening assessments.

6.1 Sampling Summary

Sampling and analysis were conducted as specified in the approved work plan (LANL 2004, 087461; NMED 2005, 089314), with the few exceptions presented in Appendix C.

6.1.1 Soil and Rock Sampling

As described in section 3.0 and presented in Tables 3.0-1 and 3.0-2, 963 samples were collected for chemical and radiological analyses, including field duplicates, trip blanks, and rinsate blanks in 1994, 2006, and 2007. Tables 3.1-1 to 3.1-6 and 3.3-1 to 3.3-8 list the samples collected from each site and the analyses requested.

6.2 Field-screening Results

This section summarizes the results of all field screening conducted at the sites during the 2006 and 2007 characterization activities. Field-screening for radioactivity and organic vapors was performed on samples during characterization activities.

6.2.1 Field-Screening for Radioactivity

Field-screening of surface and subsurface material for radioactivity was performed throughout sampling activities, as described in section 3.0 and Appendix C. The field-screening results for radioactivity from 2006 and 2007 sampling are provided in Tables 6.2-1 to 6.2-14. No additional samples were collected based on elevated radioactivity at any of the sites; however, field screening results were used to guide sampling for extended suite analyses.

6.2.2 Field Screening for Organic Vapors

Field-screening for organic vapors was conducted on each sample throughout sampling activities, as described in section 3.2 and Appendix C. The results of field screening for organic vapors are presented in Tables 6.2-1 to 6.2-14.

6.3 Analytical Laboratory Results for Investigation Sites

Analytical results for soil and tuff samples collected at AOC 21-002(b), Consolidated Unit 21-003-99, SWMU 21-009, SWMU 21-013(c), SWMU 21-024(c), in 1994, 2006 and 2007, are summarized in Appendix B and also provided in Appendix F (on DVDs accompanying this report). Results for the consolidated unit are presented for the entire consolidated unit, not the individual SWMUs and/or AOCs. Appendix B presents an overview of the comparison of the analytical results to background values (BVs) and/or fallout values (FVs) for inorganic chemicals and radionuclides (LANL 1998, 059730), and determines the COPCs at each of the three sites. Numerous organic chemicals were detected in samples from the three sites. Organic chemicals were retained as COPCs according to their detection status. Table 6.3-1 presents the COPCs for the investigation sites.

Analytical results for soil and tuff samples collected at the suspected PCB-contaminated outfall are provided in Appendix F (on DVDs accompanying this report). COPCs were not determined for the suspected PCB-contaminated outfall since the objective of the sampling was to determine the source of PCBs detected in stormwater samples collected by NMED.

6.3.1 AOC 21-002(b)

The analytical results for which inorganic chemicals were above BVs are provided for soil (Table 6.3-2) and tuff (Table 6.3-3). The locations and analytical results of inorganic chemicals detected above BVs are shown in Figure 6.3-1.

The analytical results of samples for which organic chemicals were detected are provided for soil (Table 6.3-4) and tuff (Table 6.3-5). The locations and concentrations of detected organic chemicals are shown in Figure 6.3-2.

The analytical results of samples for which radionuclides were detected or detected above BVs or FVs are provided for soil (Table 6.3-6) and tuff (Table 6.3-7). The locations and analytical results of radionuclides detected or detected above BVs or FVs are shown in Figure 6.3-3.

6.3.2 Consolidated Unit 21-003-99

The analytical results for which inorganic chemicals were above BVs are provided for soil (Table 6.3-8) and tuff (Table 6.3-9). The locations and analytical results of inorganic chemicals detected above BVs are shown in Plate 2.

The analytical results of samples for which organic chemicals were detected are provided for soil (Table 6.3-10) and tuff (Table 6.3-11). The locations and concentrations of detected organic chemicals are shown in Plate 3.

The analytical results of samples for which radionuclides were above BVs or FVs are provided for soil (Table 6.3-12) and tuff (Table 6.3-13). The locations and analytical results of radionuclides detected or detected above BVs or FVs are shown in Plate 4.

6.3.3 SWMU 21-009

The analytical results for which inorganic chemicals were above BVs are provided for soil (Table 6.3-14) and tuff (Table 6.3-15). The locations and analytical results of inorganic chemicals detected above BVs are shown in Figure 6.3-4.

The analytical results of samples for which organic chemicals were detected are provided for soil (Table 6.3-16); no organic chemicals were detected in tuff. The locations and concentrations of detected organic chemicals are shown in Figure 6.3-5.

The analytical results of samples for which radionuclides were detected or detected above BVs or FVs are provided for soil (Table 6.3-17) and tuff (Table 6.3-18). The locations and analytical results of radionuclides detected or detected above BVs or FVs are shown in Figure 6.3-6.

6.3.4 SWMU 21-013(c)

The analytical results for which inorganic chemicals were above BVs are provided for soil (Table 6.3-19) and tuff (Table 6.3-20). The locations and analytical results of inorganic chemicals detected above BVs are shown in Figures 6.3-7 and 6.3-8 for 1994 and 2006 samples, respectively.

The analytical results of samples for which organic chemicals were detected are provided for soil (Table 6.3-21) and tuff (Table 6.3-22). The locations and concentrations of detected organic chemicals are shown in Figures 6.3-9 and 6.3-10 for 1994 and 2006 samples, respectively.

The analytical results of samples for which radionuclides were detected or detected above BVs or FVs are provided for soil (Table 6.3-23) and tuff (Table 6.3-24). The locations and analytical results of radionuclides detected or detected above BVs or FVs are shown in Figures 6.3-11 and 6.3-12 for 1994 and 2006 samples, respectively.

6.3.5 SWMU 21-024(c)

The analytical results of samples for which inorganic chemicals were above BVs are provided for soil (Table 6.3-25) and tuff (Table 6.3-26). The locations and analytical results of inorganic chemicals detected above BVs are shown in Figure 6.3-13.

The analytical results of samples for which organic chemicals were detected are provided for soil (Table 6.3-27) and tuff (Table 6.3-28). The locations and concentrations of detected organic chemicals are shown in Figure 6.3-14.

The analytical results of samples for which radionuclides were detected or detected above BVs or FVs are provided for soil (Table 6.3-29) and tuff (Table 6.3-30). The locations and analytical results of radionuclides detected above BVs or FVs are shown in Figure 6.3-15.

6.3.6 Suspected PCB-contaminated Outfall

The analytical results of samples for which inorganic chemicals were above BVs are provided for soil (Table 6.3-31). The locations and analytical results of inorganic chemicals detected above BVs, detected organic chemicals, and radionuclides detected above BVs or FVs are shown in Figure 6.3-16.

The analytical results of samples for which organic chemicals were detected are provided for soil (Table 6.3-32).

The analytical results of samples for which radionuclides were detected or detected above BVs or FVs are provided for soil (Table 6.3-33).

6.4 Analytical Laboratory Results for Facility-unimpacted Corrective Action Sites

Analytical results for soil and tuff samples collected at SWMUs 21-012(b), 21-024(a), 21-024(e), 21-024(g), Consolidated Unit 21-024(l)-99, SWMU 21-024(o), Consolidated Unit 21-026(a)-99, and SWMU 21-027(c) in 2006 and 2007 are summarized in Appendix B and also provided in Appendix F (on DVDs accompanying this report). Results for the consolidated units are presented for the entirety of each consolidated unit, not the individual SWMUs and/or AOCs. Appendix B presents an overview of the comparison of the analytical results to BVs and/or FVs for inorganic chemicals and radionuclides, and determines the COPCs at each of the three sites. Numerous organic chemicals were detected in samples from the eight sites. Organic chemicals were retained as COPCs according to their detection status. Table 6.4-1 presents the COPCs for each of the facility-unimpacted corrective action sites.

6.4.1 SWMU 21-012(b)

The analytical results of samples for which inorganic chemicals were above BVs are provided for soil (Table 6.4-2) and tuff (Table 6.4-3). The locations and analytical results of inorganic chemicals detected above BVs are shown in Plates 5 and 6.

The analytical results of samples for which organic chemicals were detected are provided for soil (Table 6.4-4) and tuff (Table 6.4-5). The locations and analytical results of detected organic chemicals are shown in Figure 6.4-1.

The analytical results of samples for which radionuclides were detected or detected above BVs or FVs are provided for soil (Table 6.4-6) and tuff (Table 6.4-7). The locations and analytical results of radionuclides detected or detected above BVs or FVs are shown in Figure 6.4-2

6.4.2 SWMU 21-024(a)

The analytical results of samples for which inorganic chemicals were above BVs are provided for soil (Table 6.4-8) and tuff (Table 6.4-9). The locations and analytical results of inorganic chemicals detected above BVs are shown in Figure 6.4-3.

The analytical results of samples for which organic chemicals were detected are provided for soil (Table 6.4-10) and tuff (Table 6.4-11). The locations and analytical results of detected organic chemicals are shown in Figure 6.4-4.

The analytical results of samples for which radionuclides were detected or detected above BVs or FVs are provided for soil (Table 6.4-12) and tuff (Table 6.4-13). The locations and analytical results of radionuclides detected or detected above BVs or FVs are shown in Figure 6.4-5.

6.4.3 SWMU 21-024(e)

The analytical results of samples for which inorganic chemicals were above BVs are provided for soil (Table 6.4-14) and tuff (Table 6.4-15). The locations and analytical results of inorganic chemicals detected above BVs are shown in Figure 6.4-6.

The analytical results of samples for which organic chemicals were detected are provided for soil (Table 6.4-16) and tuff (Table 6.4-17). The locations and analytical results of detected organic chemicals are shown in Figure 6.4-7.

The analytical results of samples for which radionuclides were detected or detected above BVs or FVs are provided for soil (Table 6.4-18) and tuff (Table 6.4-19). The locations and analytical results of radionuclides detected or detected above BVs or FVs are shown in Figure 6.4-8.

6.4.4 SWMU 21-024(g)

The analytical results of samples for which inorganic chemicals were above BVs are provided for soil (Table 6.4-20) and tuff (Table 6.4-21). The locations and analytical results of inorganic chemicals detected above BVs are shown in Figure 6.4-9.

The analytical results of samples for which organic chemicals were detected are provided for soil (Table 6.4-22) and tuff (Table 6.4-23). The locations and analytical results of detected organic chemicals are shown in Figure 6.4-10.

The analytical results of samples for which radionuclides were detected or detected above BVs or FVs are provided for soil (Table 6.4-24) and tuff (Table 6.4-25). The locations and analytical results of radionuclides detected above BVs or FVs are shown in Figure 6.4-11.

6.4.5 Consolidated Unit 21-024(l)-99

The analytical results of samples for which inorganic chemicals were above BVs are provided for soil (Table 6.4-26) and tuff (Table 6.4-27). The locations and analytical results of inorganic chemicals detected above BVs are shown in Figure 6.4-12.

The analytical results of samples for which organic chemicals were detected are provided for soil (Table 6.4-28) and tuff (Table 6.4-29). The locations and analytical results of detected organic chemicals are shown in Plate 7.

The analytical results of samples for which radionuclides were detected or detected above BVs or FVs are provided for soil (Table 6.4-30) and tuff (Table 6.4-31). The locations and analytical results of radionuclides detected or detected above BVs or FVs are shown in Figure 6.4-13.

6.4.6 SWMU 21-024(o)

The analytical results of samples for which inorganic chemicals were above BVs are provided for soil (Table 6.4-32) and tuff (Table 6.4-33). The locations and analytical results of inorganic chemicals detected above BVs are shown in Figure 6.4-14.

The analytical results of samples for which organic chemicals were detected are provided for soil (Table 6.4-34) and tuff (Table 6.4-35). The locations and analytical results of detected organic chemicals are shown in Figure 6.4-15.

The analytical results of samples for which radionuclides were detected or detected above BVs or FVs are provided for soil (Table 6.4-36) and tuff (Table 6.4-37). The locations and analytical results of radionuclides detected or detected above BVs or FVs are shown in Figure 6.4-16.

6.4.7 Consolidated Unit 21-026(a)-99

The analytical results of samples for which inorganic chemicals were above BVs are provided for soil (Table 6.4-38) and tuff (Table 6.4-39). The locations and analytical results of inorganic chemicals detected above BVs are shown in Figure 6.4-17.

The analytical results of samples for which organic chemicals were detected are provided for soil (Table 6.4-40) and tuff (Table 6.4-41). The locations and analytical results of detected organic chemicals are shown in Figure 6.4-18.

The analytical results of samples for which radionuclides were detected or detected above BVs or FVs are provided for soil (Table 6.4-42) and tuff (Table 6.4-43). The locations and analytical results of radionuclides detected or detected above BVs or FVs are shown in Figure 6.4-19.

6.4.8 SWMU 21-027(c)

The analytical results of samples for which inorganic chemicals were above BVs are provided for soil (Table 6.4-44) and tuff (Table 6.4-45). The locations and analytical results of inorganic chemicals detected above BVs are shown in Figure 6.4-20.

The analytical results of samples for which organic chemicals were detected are provided for soil (Table 6.4-46) and tuff (Table 6.4-47). The locations and analytical results of detected organic chemicals are shown in Figure 6.4-21.

The analytical results of samples for which radionuclides were detected or detected above BVs or FVs are provided for soil (Table 6.4-48) and tuff (Table 6.4-49). The locations and analytical results of radionuclides detected or detected above BVs or FVs are shown in Figure 6.4-22.

7.0 CONCLUSIONS

7.1 Summary of the Investigation Activities

The primary objective of this investigation was to finalize characterization of the nature and extent of contamination at the investigation and facility-unimpacted corrective action sites. The sampling activities were performed in accordance with the approved work plan (LANL 2004, 087461; NMED 2005, 089314), with the exceptions outlined in Appendix C.

During sampling activities, surface and subsurface samples were collected for analyses. Field-screening for radioactivity and organic vapors was conducted continuously to monitor health and safety and to determine whether collecting additional samples for laboratory analyses including the extended suite was warranted.

Sampling was conducted to characterize the nature and extent of contamination. At the investigation sites AOC 21-002(b), SWMU 21-009, and SWMU 21-013(c), the analytical results indicate the vertical and lateral extent of contamination of inorganic chemicals, radionuclides, and/or organic chemicals are not fully defined (Appendix B). At all of the facility-unimpacted corrective action sites, the analytical results indicate the vertical and lateral extent of contamination of inorganic chemicals, radionuclides, and/or organic chemicals are not fully defined (Appendix B).

The usable historical data collected during RFI activities in 1994 and the data collected during this investigation in 2006–2007 for Consolidated Unit 21-003-99, SWMU 21-024(c), and the suspected PCB-contaminated outfall are presented in this report. PCB concentrations are above the TSCA cleanup level of 1 mg/kg at Consolidated Unit 21-003-99 and SWMU 21-024(c), therefore, these sites require corrective action and a plan to do so will be submitted to EPA and NMED that addresses these sites. Data collected at the suspected PCB-contaminated outfall is provided to determine the source of PCBs in stormwater.

7.2 Comparisons to Screening Levels and Applicable Cleanup Levels

The usable historical data collected during RFI activities in 1994, and the additional data collected during the 2006–2007 characterization activities were used to determine the COPCs in soil and tuff at AOC 21-002(b), Consolidated Unit 21-003-99, SWMU 21-009, SWMU 21-013(c), and SWMU 21-024(c). Data collected during 2006–2007 characterization activities were used to determine COPCs in soil and tuff at the facility-unimpacted corrective action sites. The COPCs identified for each site are presented in Appendix B and Tables 6.3-1 and 6.4-1. Screening-level comparisons for determining potential risks to human health and terrestrial ecological receptors were not conducted because the data revealed the extent of contamination was not fully determined. Collecting additional data at these sites is warranted.

The data collected at Consolidated Unit 21-003-99 and SWMU 21-024(c) during 2006–2007 characterization activities show PCB concentrations above the TSCA cleanup level of 1 mg/kg

(Tables 6.3-10, 6.3-11, 6.3-27, and 6.3-28; Plate 3 and Figure 6.3-14). Remediation, along with confirmatory sampling, will be performed at Consolidated Unit 21-003-99 and SWMU 21-024(c).

7.3 Risk Assessment Summary

The results of the data review identified a number of inorganic, organic, and radionuclide COPCs. However, the data review revealed that extent of contamination was not fully determined; therefore, human health risk and the ecological risk screening assessments were not conducted.

7.4 Additional Data Requirements

Existing data indicate that AOC 21-002(b), SWMU 21-009, and SWMU 21-013(c) require limited additional sampling to determine the vertical and lateral extent of contamination. All facility-unimpacted corrective action sites require limited additional sampling to determine the vertical and lateral extent of contamination.

8.0 RECOMMENDATIONS

8.1 Investigation Sites

The results of investigation activities conducted at AOC 21-002(b), SWMU 21-009, and SWMU 21-013(c), in accordance with the approved work plan, revealed that limited additional sampling is necessary to determine extent of contamination at these sites (LANL 2004, 087461; NMED 2005, 089314). A letter work plan outlining the additional sampling needed will be submitted to NMED.

It is recommended that a PCB remediation under TSCA and confirmatory sampling be conducted at Consolidated Unit 21-003-99 and SWMU 21-024(c). A corrective action plan will be submitted to EPA and NMED.

8.2 Facility-unimpacted Corrective Action Sites

The results of investigation activities conducted at SWMUs 21-012(b), 21-024(a), 21-024(e), 21-024(g), Consolidated Unit 21-024(l)-99, SWMU 21-024(o), Consolidated Unit 21-026(a)-99, and SWMU 21-027(c) in accordance with the approved work plan, revealed that limited additional sampling is necessary to determine extent of contamination at these sites (LANL 2004, 087461; NMED 2005, 089314). A letter work plan outlining the additional sampling needed will be submitted to NMED.

8.3 Facility-impacted Corrective Action Sites

Facility-impacted corrective action field activities will be reported as soon as the data become available.

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 identification (ID) number. This information is also included in text citations. ER ID numbers are assigned by the EP Directorate Records Processing

Facility (RPF) and are used to locate the document at the RPF and, where applicable, in the master reference set.

Copies of the master reference set are maintained at the NMED Hazardous Waste Bureau; the DOE–Los Alamos Site Office; the EPA, Region 6; and the EP 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.

Andrews, J.P., and T. Eshleman, October 1999. "Report on TA-21 Surveys for SWMU 21-006, Underground Seepage Pits between Buildings 2 and 3; SWMU 21-023, Decommissioned Septic Systems in Building 3; and SWMU 21-028(b), Active Container Storage Areas in Building 150," report prepared for Los Alamos National Laboratory by GTS Duratek, Los Alamos, New Mexico. (Andrews and Eshleman 1999, 071295)

Bailey, R.A., R.L. Smith, and C.S. Ross, 1969. "Stratigraphic Nomenclature of Volcanic Rocks in the Jemez Mountains, New Mexico," in *Contributions to Stratigraphy*, U.S. Geological Survey Bulletin 1274-P, Washington, D.C. (Bailey at el. 1969, 021498)

Broxton, D.E., and P.G. Eller (Eds.), June 1995. "Earth Science Investigations for Environmental Restoration—Los Alamos National Laboratory, Technical Area 21," Los Alamos National Laboratory report LA-12934-MS, Los Alamos, New Mexico. (Broxton and Eller 1995, 058207)

Broxton, D.E., and S.L. Reneau, August 1995. "Stratigraphic Nomenclature of the Bandelier Tuff for the Environmental Restoration Project at Los Alamos National Laboratory," Los Alamos National Laboratory report LA-13010-MS, Los Alamos, New Mexico. (Broxton and Reneau 1995, 049726)

Broxton, D.E., and S.L. Reneau, 1996. "Buried Early Pleistocene Landscapes Beneath the Pajarito Plateau, Northern New Mexico," New Mexico Geological Society Guidebook: 47th Field Conference, Jemez Mountains Region, New Mexico, pp. 325-334. (Broxton and Reneau 1996, 055429)

Chamberlain, K., August 14, 2006. RE: [21-003-99]. E-mail message to M.S. Thacker (LANL) from K. Chamberlain (NMED), Santa Fe, New Mexico. (Chamberlain 2006, 093679)

Chamberlain, K., August 17, 2006. RE: 21-013(c). E-mail message to M.S. Thacker (LANL) from K. Chamberlain (NMED), Santa Fe, New Mexico. (Chamberlain 2006, 093678)

Chamberlain, K., August 22, 2006. RE: Dioxin/Furan for sample RE 21-06-68643. E-mail message to R. Bohn (LANL) from K. Chamberlain (NMED), Santa Fe, New Mexico. (Chamberlain 2006, 093677)

Chamberlain, K., August 29, 2006. RE: Results (HE) attached for Request #s 5642S, 5636S and 5598S. E-mail message to R. Bohn (LANL) from K. Chamberlain (NMED), Santa Fe, New Mexico. (Chamberlain 2006, 093680)

Chamberlain, K., September 5, 2006. RE: Preliminary data attached for Request#5716S. E-mail message to R. Bohn (LANL) from K. Chamberlain (NMED), Santa Fe, New Mexico. (Chamberlain 2006, 095870)

Chamberlain, K., September 25, 2006. RE: HE Data for SWMU 21-009. E-mail message to R. Bohn (LANL) from K. Chamberlain (NMED), Santa Fe, New Mexico. (Chamberlain 2006, 095867)

Chamberlain, K., October 2, 2006. RE: PCB data for 21-013(c). E-mail message to R. Bohn (LANL) from K. Chamberlain (NMED), Santa Fe, New Mexico. (Chamberlain 2006, 098708)

Christensen, E.L., and W.J. Maraman, April 1969. "Plutonium Processing at the Los Alamos Scientific Laboratory," Los Alamos Scientific Laboratory report LA-3542, Los Alamos, New Mexico. (Christensen and Maraman 1969, 004779)

Crowe, B.M., G.W. Linn, G. Heiken, and M.L. Bevier, April 1978. "Stratigraphy of the Bandelier Tuff in the Pajarito Plateau, Applications to Waste Management," Los Alamos Scientific Laboratory report LA-7225-MS, Los Alamos, New Mexico. (Crowe et al. 1978, 005720)

DOE (U.S. Department of Energy), June 13, 2000. "Procedure for the Release of Real Property Containing Residual Radioactive Material," U.S. Department of Energy memorandum to D. Glenn, I.R. Triay, M. Zamorski, E. Sellers, D. Gurule, and D. Bergman-Tabbert from C.L. Soden (Environment, Safety and Health Division, LANL), Albuquerque, New Mexico. (DOE 2000, 067153)

EPA (U.S. Environmental Protection Agency), August 1, 1994. "NPDES Permit No. NM0028355, Authorization to Discharge under the National Pollutant Discharge Elimination System," U.S. Environmental Protection Agency Region VI, Dallas, Texas. (EPA 1994, 065280)

EPA (U.S. Environmental Protection Agency), August 16, 2004. "EPA's Prior Decisions on SWMU/AOC Sites at Los Alamos National Laboratory (LANL)," U.S. Environmental Protection Agency letter to J. Bearzi (NMED-HRMB) from L.F. King (EPA Federal Facilities Section Chief), Dallas, Texas. (EPA 2004, 087296)

EPA (U.S. Environmental Protection Agency), May 4, 2007. "EPA Region 6 Human Health Medium-Specific Screening Levels," U.S. EPA Region 6, Dallas, Texas. (EPA 2007, 095866)

Francis, W., 1995. "TA-21-20, DP Laundry, Reconstruction of the Site of TA-21-20 (Demolished 1968)," Engineering Drawing, sheet number TA-21-ER-10, Los Alamos, New Mexico. (Francis 1995, 087271)

Francis, W., August 21, 2001. "TA-21 East Acid Waste System," Los Alamos National Laboratory memorandum to J. Hopkins (ER Project) from W. Francis (EW/ER), Los Alamos, New Mexico. (Francis 2001, 076211)

Galusha, T., and J.C. Blick, April 1971. "Stratigraphy of the Santa Fe Group, New Mexico," *Bulletin of the American Museum of Natural History,* Vol. 144, No. 1, pp. 1–128. (Galusha and Blick 1971, 021526)

Goff, F., June 1995. "Geologic Map of Technical Area 21," in *Earth Science Investigations for Environmental Restoration—Los Alamos National Laboratory, Technical Area 21*, Los Alamos National Laboratory report LA-12934-MS, Los Alamos, New Mexico, pp. 7–18. (Goff 1995, 049682)

Griggs, R.L., and J.D. Hem, 1964. "Geology and Ground-Water Resources of the Los Alamos Area, New Mexico," U.S. Geological Survey Water Supply Paper 1753, Washington, D.C. (Griggs and Hem 1964, 092516)

Heiken, G., F.E. Goff, J. Stix, S. Tamanyu, M. Shafiqullah, S.R. Garcia, and R.C. Hagan, February 10, 1986. "Intracaldera Volcanic Activity, Toledo Caldera and Embayment, Jemez Mountains, New Mexico," *Journal of Geophysical Research,* Vol. 91, No. B2, pp. 1799-1816. (Heiken et al. 1986, 048638)

Izett, G.A., and J.D. Obradovich, February 10, 1994. "$^{40}Ar/^{39}Ar$ Age Constraints for the Jaramillo Normal Subchron and the Matuyama-Brunhes Geomagnetic Boundary," *Journal of Geophysical Research,* Vol. 99, No. B2, pp. 2925-2934. (Izett and Obradovich 1994, 048817)

LANL (Los Alamos National Laboratory), February 14, 1985. "D.P. Zia Shops, Floor Plans, Bldg. 14, 46, TA-21," Engineering Drawing ENG-R5371, Los Alamos, New Mexico. (LANL 1985, 087578)

LANL (Los Alamos National Laboratory), November 1990. "Solid Waste Management Units Report," Vol. II of IV (TA-10 through TA-25), Los Alamos National Laboratory document LA-UR-90-3400, Los Alamos, New Mexico. (LANL 1990, 007512)

LANL (Los Alamos National Laboratory), May 1991. "TA-21 Operable Unit RFI Work Plan for Environmental Restoration," Vol. II (Chapters 14 to 16), Los Alamos National Laboratory document LA-UR-91-962, Los Alamos, New Mexico. (LANL 1991, 007529)

LANL (Los Alamos National Laboratory), August 1993. "Environmental Surveillance at Los Alamos During 1991," Los Alamos National Laboratory report LA-12572-ENV, Los Alamos, New Mexico. (LANL 1993, 023249)

LANL (Los Alamos National Laboratory), February 28, 1994. "Phase Report 1C, TA-21 Operable Unit RCRA Facility Investigation, Outfalls Investigation," Los Alamos National Laboratory document LA-UR-94-228, Los Alamos, New Mexico. (LANL 1994, 031591)

LANL (Los Alamos National Laboratory), January 28, 1994. "Phase Report 1B, TA-21 Operable Unit RCRA Facility Investigation, Operable Unit-Wide Surface Soil, Deposition Layer and Filter Building Investigation," Los Alamos National Laboratory document LA-UR-93-4390, Los Alamos, New Mexico. (LANL 1994, 026073)

LANL (Los Alamos National Laboratory), January 1995. "Phase Report Addendum 1B and 1C Operable Unit 1106 RCRA Facility Investigation," Los Alamos National Laboratory document LA-UR-94-4360, Los Alamos, New Mexico. (LANL 1995, 052350)

LANL (Los Alamos National Laboratory), June 1996. "RFI Report for Potential Release Sites 21-004(a-c), 21-028(d,e), Field Unit 1," Los Alamos National Laboratory document LA-UR-96-2041, Environmental Restoration Project, Los Alamos, New Mexico. (LANL 1996, 054828)

LANL (Los Alamos National Laboratory), February 1996. "Voluntary Corrective Action Completion Report for Potential Release Site 21-024(e), TA-21 Septic Tank, Revision 1," Los Alamos National Laboratory document LA-UR-96-257, Los Alamos, New Mexico. (LANL 1996, 053788)

LANL (Los Alamos National Laboratory), February 1996. "Voluntary Corrective Action Completion Report for Potential Release Site 21-022(j), TA-21 Sump, Revision 1," Los Alamos National Laboratory document LA-UR-96-248, Los Alamos, New Mexico. (LANL 1996, 053784)

LANL (Los Alamos National Laboratory), February 1996. "Voluntary Corrective Action Completion Report for Potential Release Site 21-024(h), TA-21 Septic Tank, Revision 1," Los Alamos National Laboratory document LA-UR-96-256, Los Alamos, New Mexico. (LANL 1996, 054921)

LANL (Los Alamos National Laboratory), February 1996. “Voluntary Corrective Action Completion Report for Potential Release Site 21-024(d), TA-21 Septic Tank, Revision 1,” Los Alamos National Laboratory document LA-UR-96-258, Los Alamos, New Mexico. (LANL 1996, 053789)

LANL (Los Alamos National Laboratory), February 26, 1996. “Voluntary Corrective Action Completion Report for Potential Release Sites 21-013(c), 21-013(d), 21-013(e), 31-001,” Rev. 1, Los Alamos National Laboratory document LA-UR-96-259, Los Alamos, New Mexico. (LANL 1996, 054320)

LANL (Los Alamos National Laboratory), July 1996. “RFI Report for Potential Release Site in TA-21, 21-002(b),” Los Alamos National Laboratory document LA-UR-96-2260, Los Alamos, New Mexico. (LANL 1996, 054838)

LANL (Los Alamos National Laboratory), November 1998. “Installation Work Plan for Environmental Restoration Program,” Rev. 7, Los Alamos National Laboratory document LA-UR-98-4652, Los Alamos, New Mexico. (LANL 1998, 062060)

LANL (Los Alamos National Laboratory), May 22, 1998. “Hydrogeologic Workplan,” Los Alamos National Laboratory document LA-UR-01-6511, Los Alamos, New Mexico. (LANL 1998, 059599)

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

LANL (Los Alamos National Laboratory), August 23, 2002. “Cerro Grande Rehabilitation Project Decontamination and Decommissioning Task Highlights for the Week Ending August 23, 2002,” Los Alamos National Laboratory, Los Alamos, New Mexico. (LANL 2002, 085609)

LANL (Los Alamos National Laboratory), March 2003. “Interim Action Completion Report for Solid Waste Management Unit 21-024(i) at Technical Area 21,” Los Alamos National Laboratory document LA-UR-03-1546, Los Alamos, New Mexico. (LANL 2003, 076053)

LANL (Los Alamos National Laboratory), August 2004. “Investigation Work Plan for Delta Prime Site Aggregate Area at Technical Area 21,” Los Alamos National Laboratory document LA-UR-04-5009, Los Alamos, New Mexico. (LANL 2004, 087461)

LANL (Los Alamos National Laboratory), March 11, 2005. “Response to the Notice of Disapproval for the Investigation Work Plan for Delta Prime Site Aggregate Area, at Technical Area 21,” Los Alamos National Laboratory document LA-UR-05-1696, Los Alamos, New Mexico. (LANL 2005, 087836)

LANL (Los Alamos National Laboratory), May 2005. “Derivation and Use of Radionuclide Screening Action Levels, Revision 1,” Los Alamos National Laboratory document LA-UR-05-1849, Los Alamos, New Mexico. (LANL 2005, 088493)

LASL (Los Alamos Scientific Laboratory), June 6, 1945. “Waste Disposal Facilities Bldgs. 52 & 53 'DP' Site Construction Plan,” Engineering Drawing ENG-C-2216, Los Alamos, New Mexico. (LASL 1945, 001093)

LASL (Los Alamos Scientific Laboratory), May 30, 1945. “Sanitary Sewers and Drains, 'DP' Site Construction,” Engineering Drawing ENG-C-2213, Los Alamos, New Mexico. (LASL 1945, 024459)

LASL (Los Alamos Scientific Laboratory), March 19, 1946. “Septic Tanks, 'DP' Site Construction,” Engineering Drawing ENG-C-2214, sheet number U6, Los Alamos, New Mexico. (LASL 1946, 071281)

LASL (Los Alamos Scientific Laboratory), May 16, 1946. “Laboratory Sump - DPW-81, 84, 87, 89, and 173,” Engineering Drawing ENG-C-2215, Los Alamos, New Mexico. (LASL 1946, 024460)

LASL (Los Alamos Scientific Laboratory), November 13, 1946. “Power Plant - D.P. Site Heating, Plumbing, and Plot Plan,” Engineering Drawing ENG-C-2372, sheet number 9 of 16, Los Alamos, New Mexico. (LASL 1946, 087574)

LASL (Los Alamos Scientific Laboratory), October 31, 1947. “Cold Work Shop, TA-21, DPW-31, Heating and Plumbing Electrical Plan and Details,” Engineering Drawing ENG-C-2396, Los Alamos, New Mexico. (LASL 1947, 087576)

LASL (Los Alamos Scientific Laboratory), June 30, 1948. “Building DPW-33, Industrial Waste Studies Lab, TA 21 Plan & Arch. Details,” Engineering Drawing A5-CI57, Los Alamos, New Mexico. (LASL 1948, 024369)

LASL (Los Alamos Scientific Laboratory), January 8, 1948. “Cold Work Shop, TA-21, DPW-31, Heating and Plumbing Electrical Plans and Details,” Engineering Drawing ENG-C-2397, Los Alamos, New Mexico. (LASL 1948, 087577)

LASL (Los Alamos Scientific Laboratory), April 12, 1949. “Building DPW-33, TA-21, Grading & Paving,” Engineering Drawing ENG4-C334, Los Alamos, New Mexico. (LASL 1949, 096013)

LASL (Los Alamos Scientific Laboratory), January 22, 1953. “Toilet Facilities, Warehouse DPW-7, TA-21, Revised,” Engineering Drawing ENG4-C805, Los Alamos, New Mexico. (LASL 1953, 024437)

LASL (Los Alamos Scientific Laboratory), August 22, 1958. “Utility Location Plan, TA-21, DP-Site, Sewer System, Revised,” Engineering Drawing ENG-R1191, sheet number 3 of 8, Los Alamos, New Mexico. (LASL 1958, 000406)

LASL (Los Alamos Scientific Laboratory), August 22, 1958. “Utility Location Plan, TA-21, DP-Site, Sewer System, Revised,” Engineering Drawing ENG-R1195, sheet number 7 of 8, Los Alamos, New Mexico. (LASL 1958, 001519)

LASL (Los Alamos Scientific Laboratory), February 3, 1960. “Storage Vault Addition (for SF Material), Mechanical Plans and Details, Bldg. DPW-21, TA-21,” Engineering Drawing ENG-C23358, Los Alamos, New Mexico. (LASL 1960, 001611)

LASL (Los Alamos Scientific Laboratory), May 20, 1968. “DP-155, Furnace Facility Building 207, TA-21, Site Location Plan, Plot, Grading, and Utility Plan, Revised,” Engineering Drawing ENG-C-27024, Los Alamos, New Mexico. (LASL 1968, 024612)

LASL (Los Alamos Scientific Laboratory), October 4, 1988. “Building Mods, Mechanical Utility and Site Plan, Bldg. DP-155, TA-21, Revised,” Engineering Drawing ENG-C43335, Los Alamos, New Mexico. (LASL 1988, 087575)

McGehee, E.D., and K.L.M. Garcia, December 23, 1999. “Historic Building Assessment for the Department of Energy Conveyance and Transfer Project,” Vol. 1, Los Alamos National Laboratory document LA-UR-00-1003, Los Alamos, New Mexico. (McGehee and Garcia 1999, 087442)

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

NMED (New Mexico Environment Department), October 10, 2001. "Approval of Class III Permit Modification," New Mexico Environment Department letter from J. Young (Corrective Action Project Leader/Permits Management Program), Santa Fe, New Mexico. (NMED 2001, 070236)

NMED (New Mexico Environment Department), August 6, 2003. "Approval of Class III Permit Modification to Remove Seven (7) Solid Waste Management Units from the Department of Energy/ Los Alamos National Laboratory RCRA Permit NM0890010515," New Mexico Environment Department letter to R. Erickson (DOE-OLASO) and G.P. Nanos (LANL Director) from C. Lundstrom (NMED-HWB), Santa Fe, New Mexico. (NMED 2003, 078138)

NMED (New Mexico Environment Department), April 13, 2005. "Approval with Modifications for the Investigation Work Plan for Delta Prime Site Aggregate Area at Technical Area 21," New Mexico Environment Department letter to D. Gregory (DOE LASO) and G.P. Nanos (LANL Director) from J.P. Bearzi (NMED-HWB), Los Alamos, New Mexico. (NMED 2005, 089314)

NMED (New Mexico Environment Department), June 2006. "Technical Background Document for Development of Soil Screening Levels, Revision 4.0, Volume 1, Tier 1: Soil Screening Guidance Technical Background Document," New Mexico Environment Department, Hazardous Waste Bureau and Ground Water Quality Bureau Voluntary Remediation Program, Santa Fe, New Mexico. (NMED 2006, 092513)

Nyhan, J.W., L.W. Hacker, T.E. Calhoun, and D.L. Young, June 1978. "Soil Survey of Los Alamos County, New Mexico," Los Alamos Scientific Laboratory report LA-6779-MS, Los Alamos, New Mexico. (Nyhan et al. 1978, 005702)

Purtymun, W.D., January 1984. "Hydrologic Characteristics of the Main Aquifer in the Los Alamos Area: Development of Ground Water Supplies," Los Alamos National Laboratory report LA-9957-MS, Los Alamos, New Mexico. (Purtymun 1984, 006513)

Purtymun, W.D., January 1995. "Geologic and Hydrologic Records of Observation Wells, Test Holes, Test Wells, Supply Wells, Springs, and Surface Water Stations in the Los Alamos Area," Los Alamos National Laboratory report LA-12883-MS, Los Alamos, New Mexico. (Purtymun 1995, 045344)

Roberts, K., July 13, 2007. RE: SWMU 21-024(m) - Additional Sampling. E-mail message to M.S. Thacker (LANL) from K. Roberts (NMED), Santa Fe, New Mexico. (Roberts 2007, 097391)

Roberts, K., September 20, 2007. RE: DP Site Aggregate Area Extended Suite Analysis. E-mail message to M.S. Thacker (LANL) from K. Roberts (NMED), Santa Fe, New Mexico. (Roberts 2007, 098470)

Self, S., F.E. Goff, J.N. Gardner, J.V. Wright, and W.M. Kite, February 10, 1986. "Explosive Rhyolitic Volcanism in the Jemez Mountains: Vent Locations, Caldera Development, and Relation to Regional Structure," *Journal of Geophysical Research,* Vol. 91, No. B2, pp. 1779-1798. (Self et al. 1986, 021579)

Smith, R., June 1960. “Ash Flows,” *Bulletin of the Geological Society of America,* Vol. 71, pp. 795-842. (Smith 1960, 048820)

Smith, R.L., 1960. “Zones and Zonal Variations in Welded Ash Flows,” Professional Paper 354-F, U.S. Geological Survey, Washington, D.C., pp. 149-159. (Smith 1960, 048819)

Smith, R.L., and R.A. Bailey, 1966. “The Bandelier Tuff: A Study of Ash-Flow Eruption Cycles from Zoned Magma Chambers,” *Bulletin Volcanologique,* Vol. 29, pp. 83-103. (Smith and Bailey 1966, 021584)

Smith, R.L., R.A. Bailey, and C.S. Ross, 1970. “Geologic Map of the Jemez Mountains, New Mexico,” U.S. Geological Survey Miscellaneous Investigations Series, Map I-571, Washington, D.C. (Smith et al. 1970, 009752)

Spell, T.L., T.M. Harrison, and J.A. Wolff, January 18, 1990. “$^{40}Ar/^{39}Ar$ Dating of the Bandelier Tuff and San Diego Canyon Ignimbrites, Jemez Mountains, New Mexico: Temporal Constraints on Magmatic Evolution,” *Journal of Volcanology and Geothermal Research,* Vol. 43, pp. 175-193. (Spell et al. 1990, 021586)

Spell, T.L., I. McDougall, and A.P. Doulgeris, December 1996. “Cerro Toledo Rhyolite, Jemez Volcanic Field, New Mexico: $^{40}Ar/^{39}Ar$ Geochronology of Eruptions between Two Caldera-Forming Events,” *Geological Society of America Bulletin,* Vol. 108, No. 12, pp. 1549-1566. (Spell et al. 1996, 055542)

Stix, J., F.E. Goff, M.P. Gorton, G. Heiken, and S.R. Garcia, June 10, 1988. “Restoration of Compositional Zonation in the Bandelier Silicic Magma Chamber Between Two Caldera-Forming Eruptions: Geochemistry and Origin of the Cerro Toledo Rhyolite, Jemez Mountains, New Mexico,” *Journal of Geophysical Research,* Vol. 93, No. B6, pp. 6129-6147. (Stix et al. 1988, 049680)

Turbeville, B.N., D.B. Waresback, and S. Self, February 1989. “Lava-Dome Growth and Explosive Volcanism in the Jemez Mountains, New Mexico: Evidence from the Pilo-Pliestocene Puye Alluvial Fan,” *Journal of Volcanology and Geothermal Research,* Vol. 36, pp. 267-291. (Turbeville et al. 1989, 021587)

9.2 Map Data Sources

Data Source	Figures/Plates
A. Kron 12/2/96; modified for F3.3-1/DP IWP/080303/rlm	4.2-1
Dirt Road Arcs; Los Alamos National Laboratory, KSL Site Support Services, Planning, Locating and Mapping Section; 06 January 2004; as published 27 April 2007.	1.2-3; 1.2-6; 6.3-1–6.3-3; 6.3-7–6.3-12
Dirt Road Arcs; Los Alamos National Laboratory, KSL Site Support Services, Planning, Locating and Mapping Section; 06 January 2004; as published 10 September 2007	1.2-8–1.2-9; 1.2-14; 6.4-1–6.4-8; 6.4-10–6.4-13; 6.4-17–6.4-19; Plates 5 and 7;
FIMAD, G104997 8/9/96; Rev. for F1.1-1, DP IWP, 083004, ptm	1.1-1

Data Source	Figures/Plates
Former Pipes: DP site aggregate area investigation work plan, revision 1, Draft. Los Alamos National Laboratory July 2005 ER2005-0192. \\GIS Files\Projects\07-Projects\07-0102\DATA\07-0102FormerstructureandPipelines.mdb	1.2-8–1.2-9; 1.2-12; 1.2-14–1.2-15; 6.4-1–6.4-13; 6.4-17–6.4-22; Plates 5–7
Former Structure: DP site aggregate area investigation work plan, revision 1, DRAFT. Los Alamos National Laboratory July 2005 ER2005-0192. \\GIS Files\Projects\07-Projects\07-0102\DATA\07-0102FormerstructureandPipelines.mdb	1.2-8–1.2-15; 6.4-1–6.4-13; 6.4-17–6.4-22; Plates 5 and 7;
Former Structures of the Los Alamos Site; Los Alamos National Laboratory, Environment and Remediation Support Services Division, EP2007-0124; 1:2,500 Scale Data; 22 February 2007.	1.2-3; 1.2-4; 1.2-5; 1.2-7; 6.3-1–6.3-6; 6.3-13–6.3-15; Plates 2–4
Former Structures of the Los Alamos Site; Los Alamos National Laboratory, Environment and Remediation Support Services Division, EP2007-0587; 1:2,500 Scale Data; 17 September 2007.	1.2-2–1.2-4; 1.2-9; 6.3-1–6.3-6; 6.4-3–6.4-5; Plate 2–4
Hypsography, 2 Foot Contour Interval; Los Alamos National Laboratory, ENV Environmental Remediation and Surveillance Program; 1991.	1.2-3; 1.2-5; 6.3-1–6.3-6
Hypsography, 10 Foot Contour Interval; Los Alamos National Laboratory, ENV Environmental Remediation and Surveillance Program; 1991.	1.2-4; 1.2-6–1.2-15; 6.3-7–6.3-16; 6.4-1–6.4-22; Plates 2–7
Hypsography, 20 Foot Contour Interval; Los Alamos National Laboratory, ENV Environmental Remediation and Surveillance Program; 1991.	1.2-2
Hypsography, 100 Foot Contour Interval; Los Alamos National Laboratory, ENV Environmental Remediation and Surveillance Program; 1991.	1.2-2; 1.2-6; 1.2-8–1.2-15; 6.3-7–6.3-12; 6.4-1–6.4-11; 6.4-14–6.4-22; Plates 5 and 6;
Paved Road Arcs; Los Alamos National Laboratory, KSL Site Support Services, Planning, Locating and Mapping Section; 06 January 2004; as published 27 April 2007.	1.2-2–1.2-4; 1.2-6–1.2-8; 6.3-1–6.3-3; 6.3-7–6.3-16; Plates 2–4
Paved Road Arcs; Los Alamos National Laboratory, KSL Site Support Services, Planning, Locating and Mapping Section; 06 January 2004; as published 10 September 2007.	1.2-8–1.2-13; 12.15; 6.4-1–6.4-16; 6.4-20–6.4-22; Plates 5 and 7;
Pipelines: DP site aggregate area investigation work plan, revision 1, DRAFT. Los Alamos National Labor oratory July 2005-0192. \\GIS Files\Projects\07-Projects\07-0102\DATA\07-0102FormerstructureandPipelines.mdb	1.2-8–1.2-15; 6.4-1–6.4-22; Plates 5–7

Data Source	Figures/Plates
Point Feature Locations of the Environmental Restoration Project Database; Los Alamos National Laboratory, Environment and Remediation Support Services Division, EP2007-0255; 13 April 2007.	1.2-2–1.2-8; 6.3-1–6.3-16; Plates 2–4
Point Feature Locations of the Environmental Restoration Project Database; Los Alamos National Laboratory, Environment and Remediation Support Services Division, EP2007-0613; 27 September 2007	1.2-8–1.2-15; 6.4-1–6.4-22; Plates 5–7
Potential Release Sites; Los Alamos National Laboratory, Environment and Remediation Support Services Division, GIS/Geotechnical Services Group, EP2006-0616; 1:2,500 Scale Data; 26 March 2007.	1.2-2–1.2-8; 6.3-1–6.3-16; Plates 2–4
Primary Electric Grid; Los Alamos National Laboratory, KSL Site Support Services, Planning, Locating and Mapping Section; 06 January 2004; as published 10 September 2007.	1.2-8–1.2-13; 1.2-14 and 1.2-15
Primary Gas Distribution Lines; Los Alamos National Laboratory, KSL Site Support Services, Planning, Locating and Mapping Section; 06 January 2004; as published 10 September 2007.	1.2-8 and 1.2-9
PRS boundary: DP site aggregate area investigation work plan, revision 1, DRAFT. Los Alamos National Laboratory July 2005 ER2005-0192. \\GIS Files\Projects\07-Projects\07-0102\DATA\07-0102FormerstructureandPipelines.mdb	1.2-8–1.2-15; 6.4-1–6.4-22; Plates 5–7
Purtymun 1984, 6513; modified for F3.3-4/DP IWP/080304/rlm	4.2-2
Security and Industrial Fences and Gates; Los Alamos National Laboratory, KSL Site Support Services, Planning, Locating and Mapping Section; 06 January 2004; as published 27 April 2007.	1.2-4–1.2-8; 6.3-4–6.3-16; Plates 2–4
Security and Industrial Fences and Gates; Los Alamos National Laboratory, KSL Site Support Services, Planning, Locating and Mapping Section; 06 January 2004; as published 10 September 2007.	1.2-8–1.2-15; 6.4-1–6.4-22; Plates 5–7
Sewer Line System; Los Alamos National Laboratory, KSL Site Support Services, Planning, Locating and Mapping Section; 06 January 2004; as published 27 April 2007.	1.2-4; 1.2-7; 6.3-13–6.3-15; Plates 2–4
Sewer Line System; Los Alamos National Laboratory, KSL Site Support Services, Planning, Locating and Mapping Section; 06 January 2004; as published 10 September 2007.	1.2-8–1.2-11; 1.2-13–1.2-15
Structures; Los Alamos National Laboratory, KSL Site Support Services, Planning, Locating and Mapping Section; 06 January 2004; as published 10 September 2007.	1.2-8–1.2-15; 6.4-1–6.4-22; Plates 5 and 7
Water Lines; Los Alamos National Laboratory, KSL Site Support Services, Planning, Locating and Mapping Section; 06 January 2004; as published 10 September 2007.	1.2-8–1.2-15
This map was created for work processes associated with the Environment and Remediation Support Services. All other uses for this map should be confirmed with LANL EP-ERSS staff. Note: This statement was removed from all map legends with permission from Winters Red Star.	

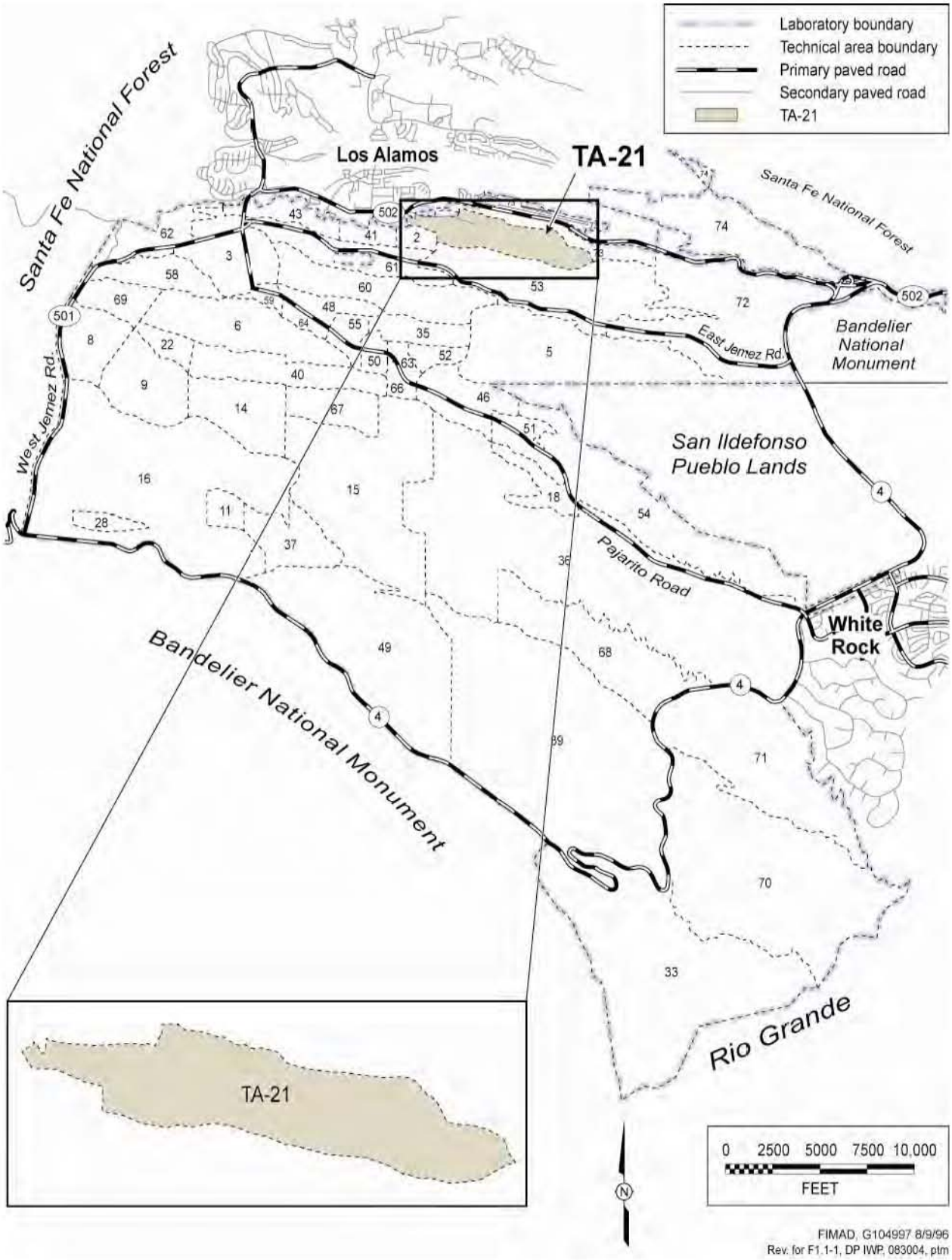

Figure 1.1-1 Location of DP Mesa and TA-21 with respect to surrounding land holdings

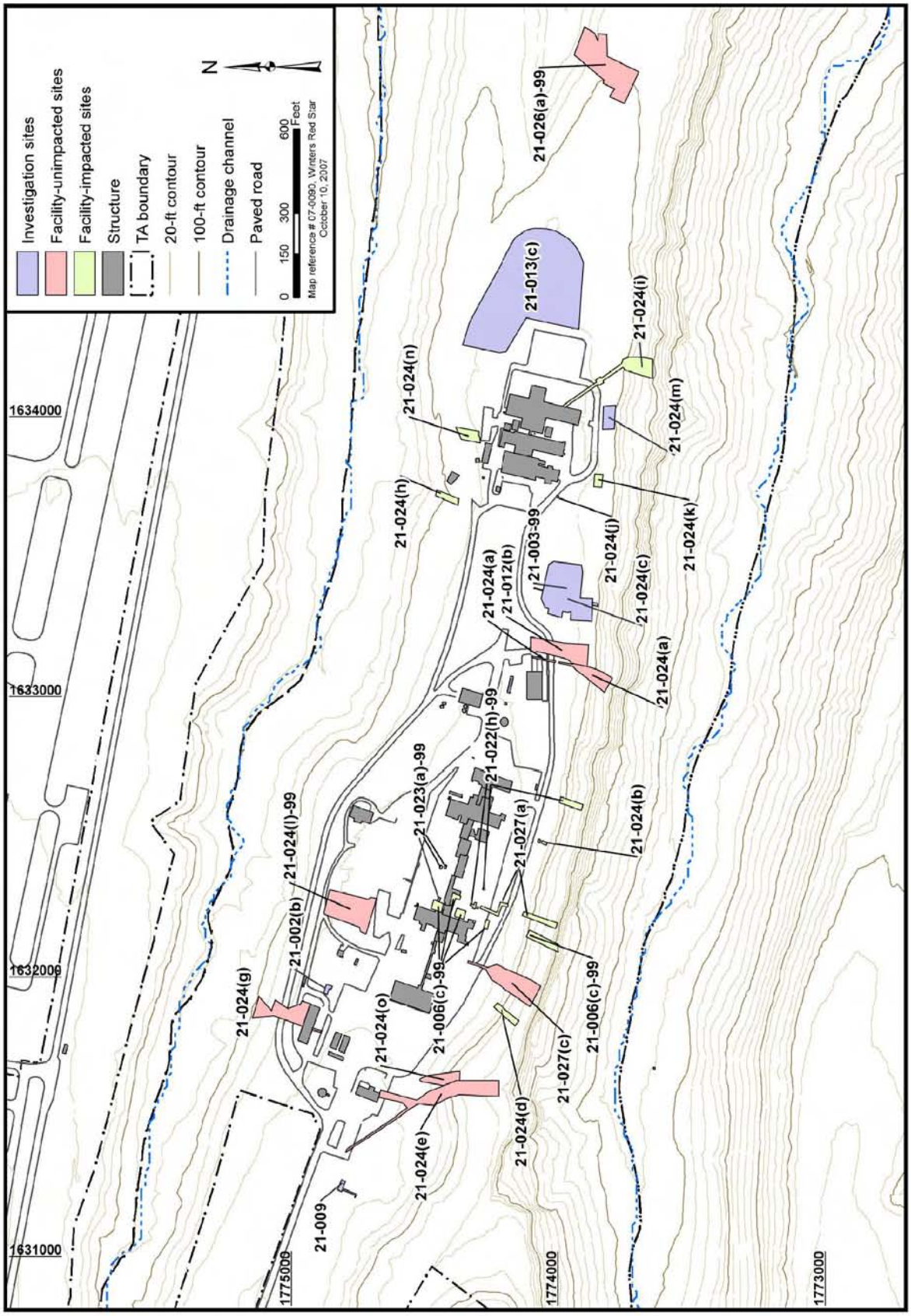

Figure 1.2-1 DP Site Aggregate Area sites addressed in this report

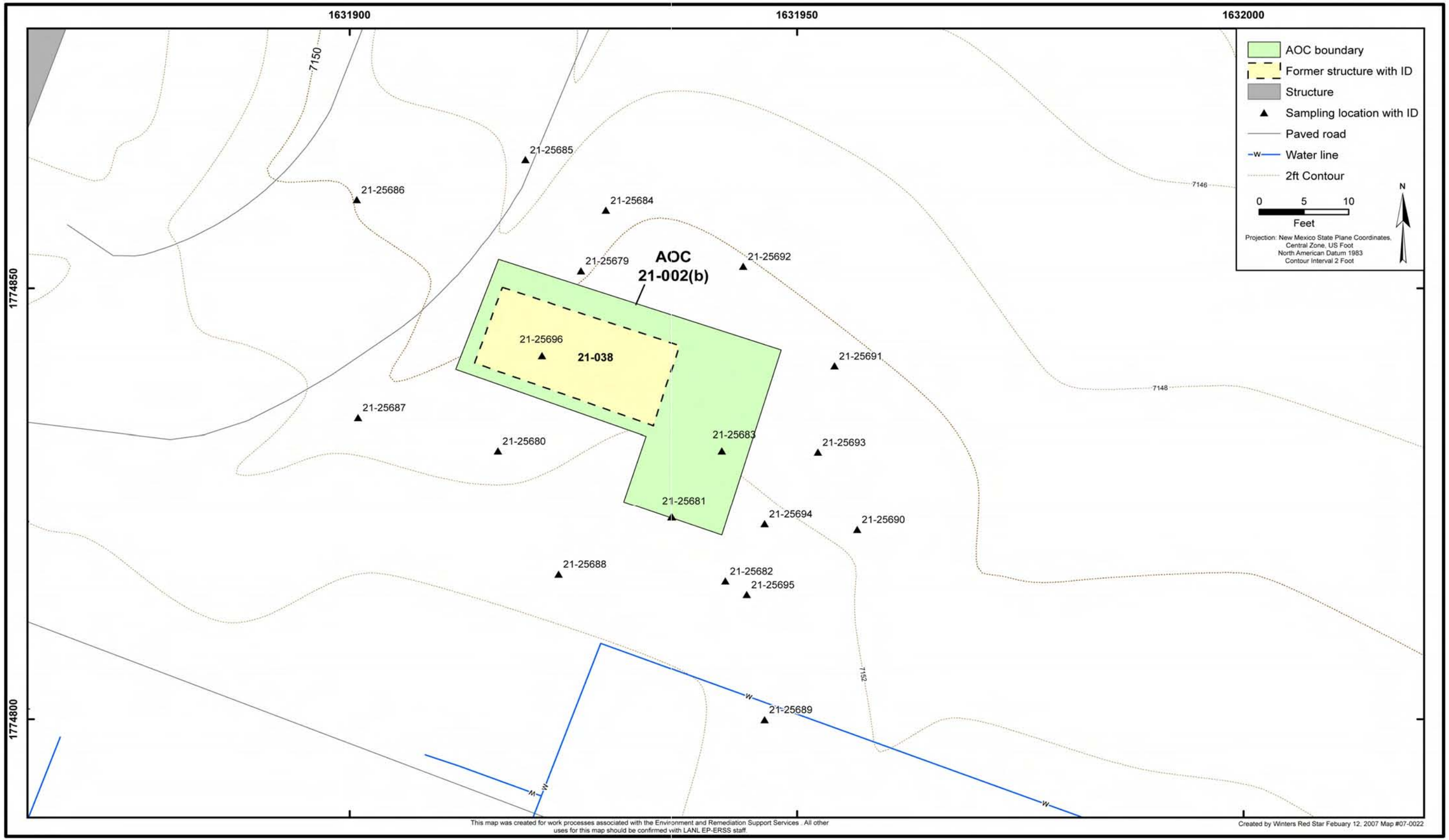

Figure 1.2-2 AOC 21-002(b), drum storage area and sampling locations

Figure 1.2-3 Consolidated Unit 21-003-99, PCB storage area and sampling locations

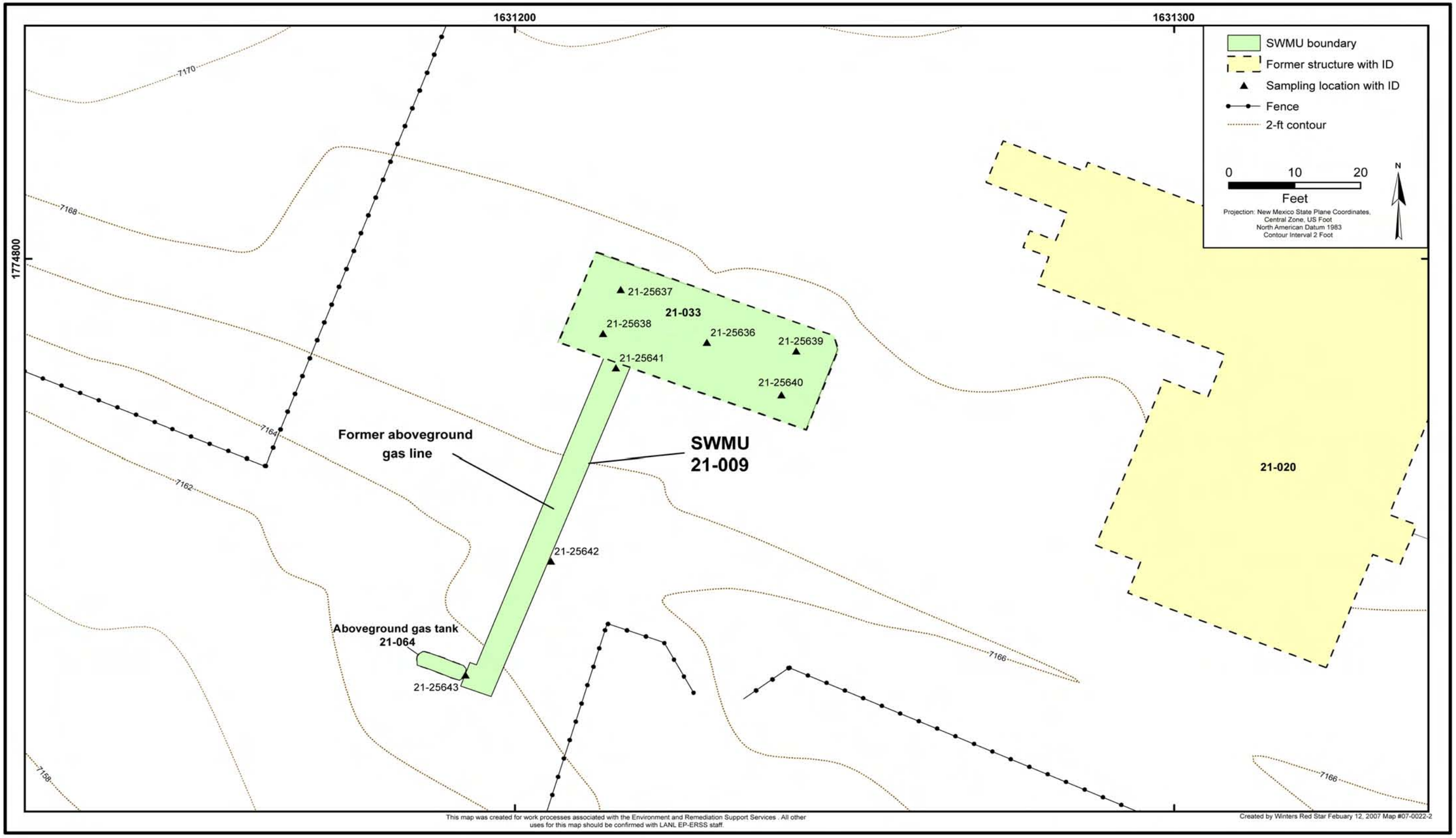

Figure 1.2-4 SWMU 21-009, waste treatment laboratory and sampling locations

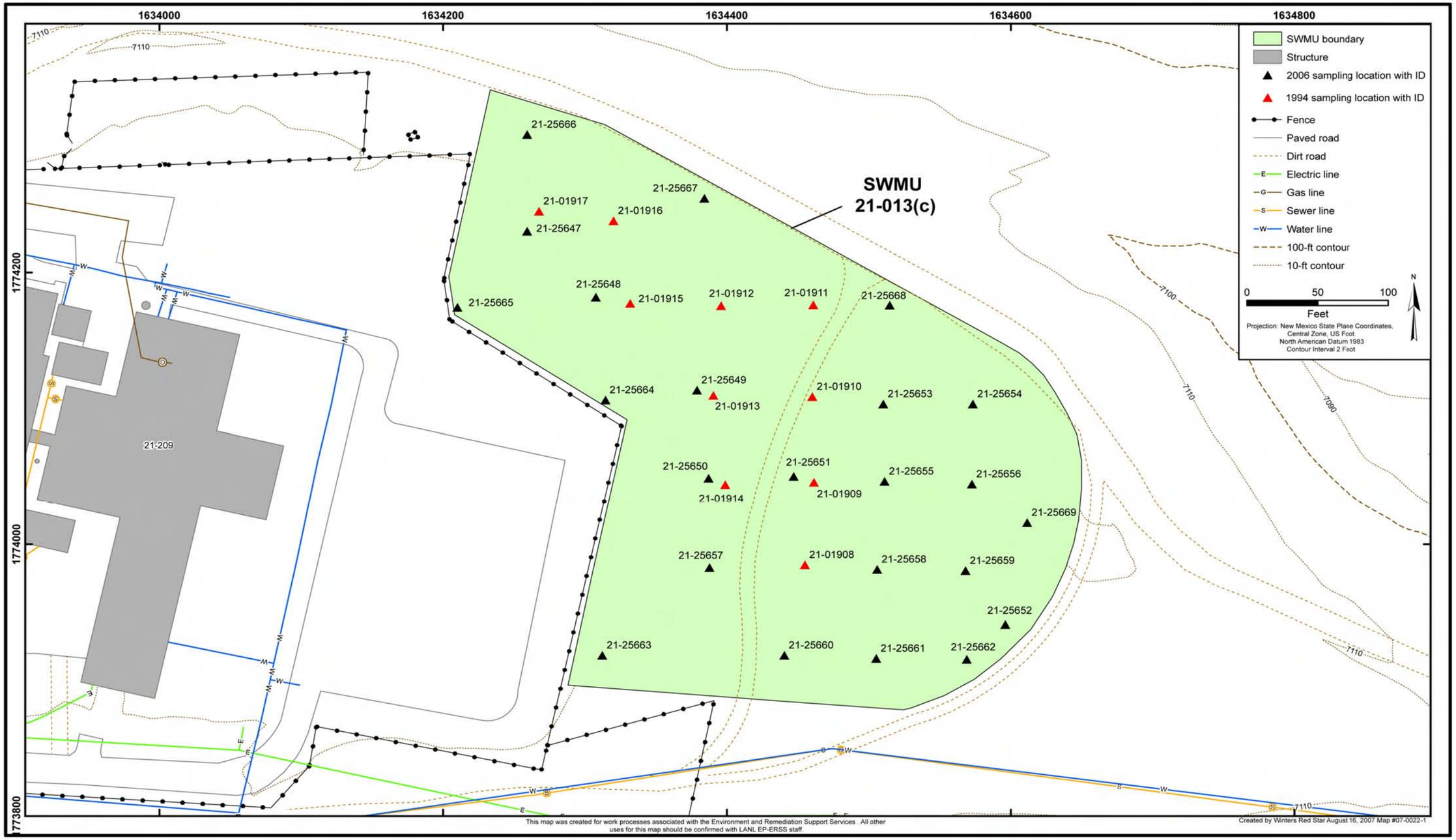

Figure 1.2-5 SWMU 21-013(c), surface disposal area and sampling locations

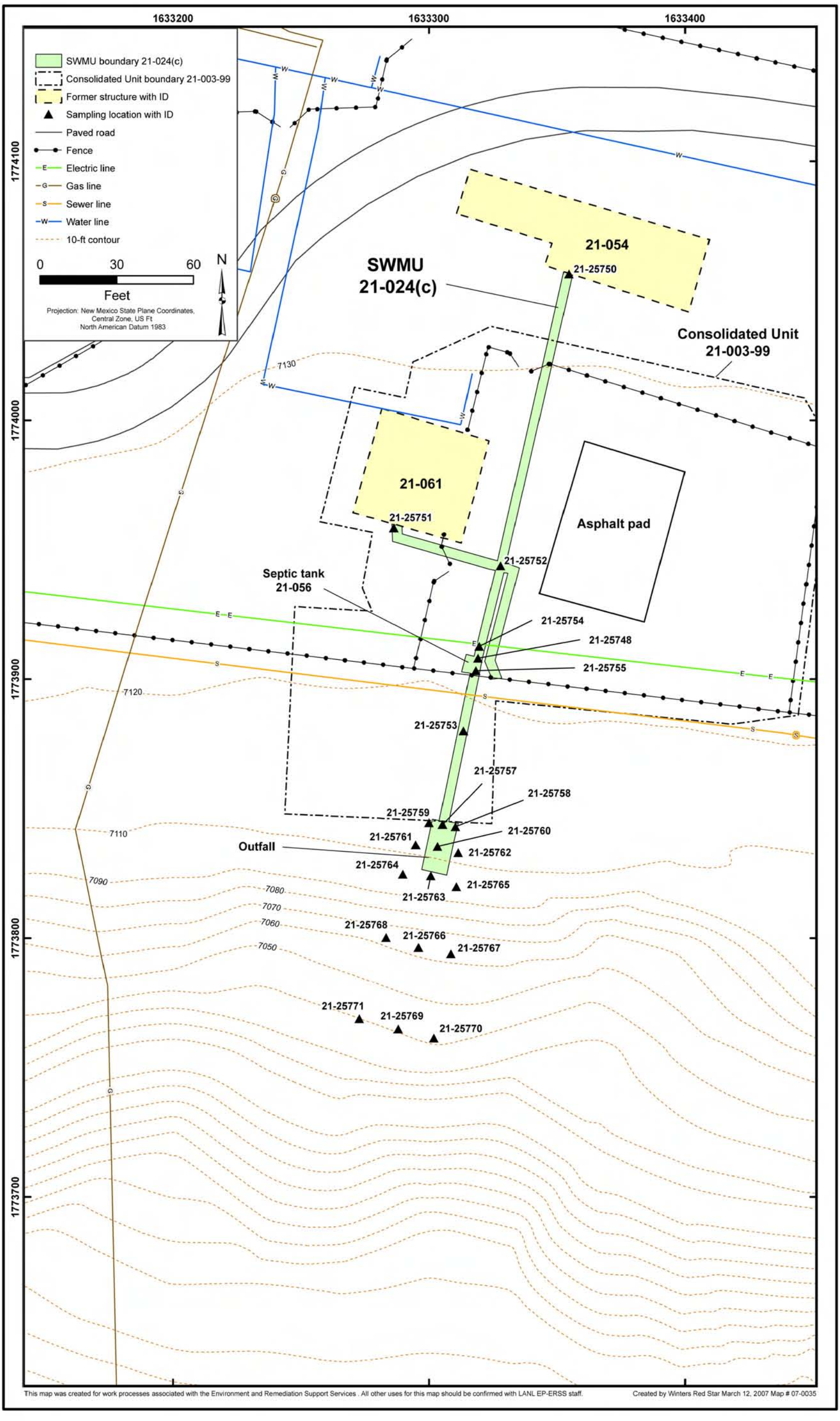

Figure 1.2-6 SWMU 21-024(c), septic system and sampling locations

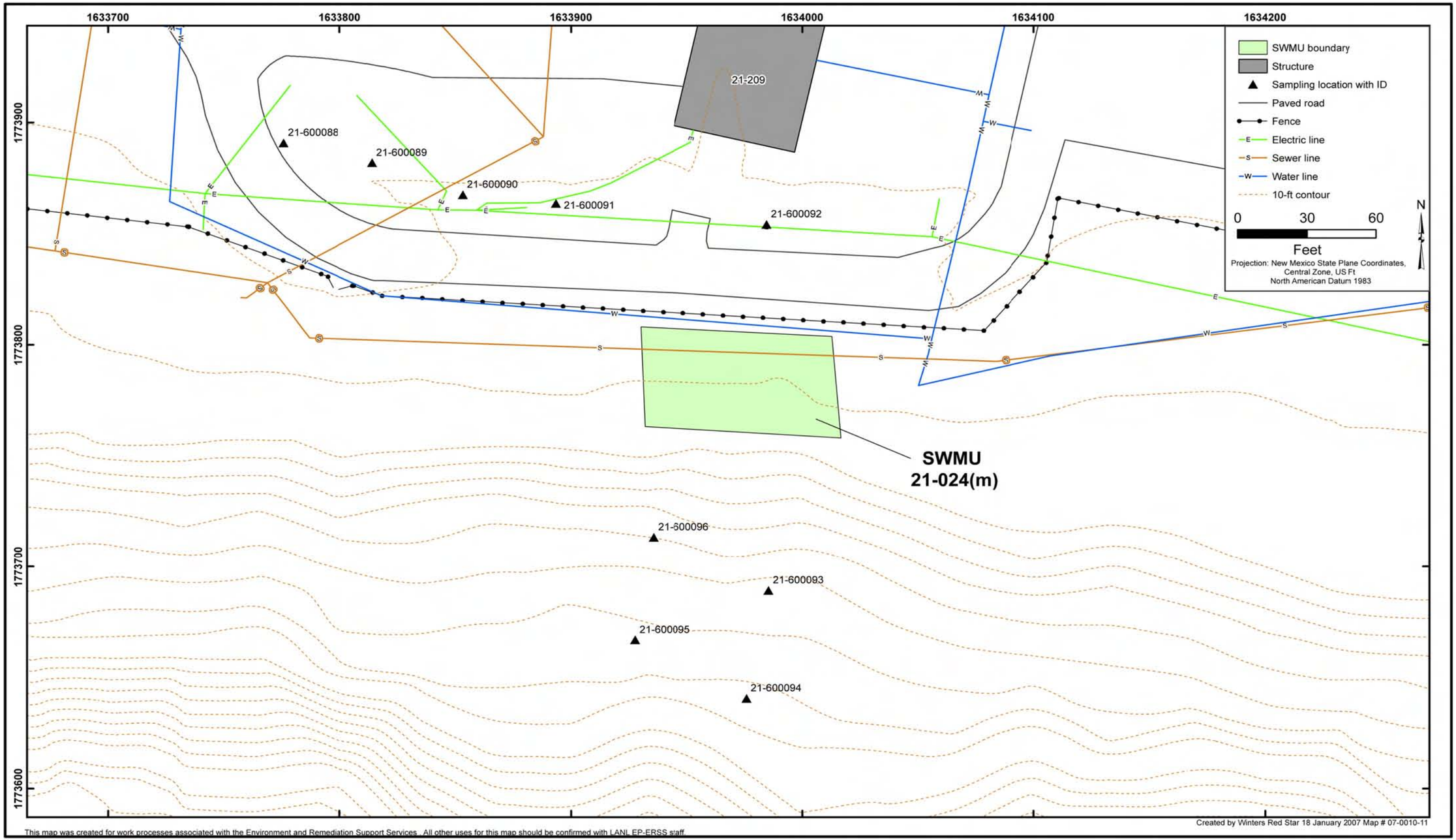

Figure 1.2-7 Suspected PCB-contaminated outfall and sampling locations below SWMU 21-024(m)

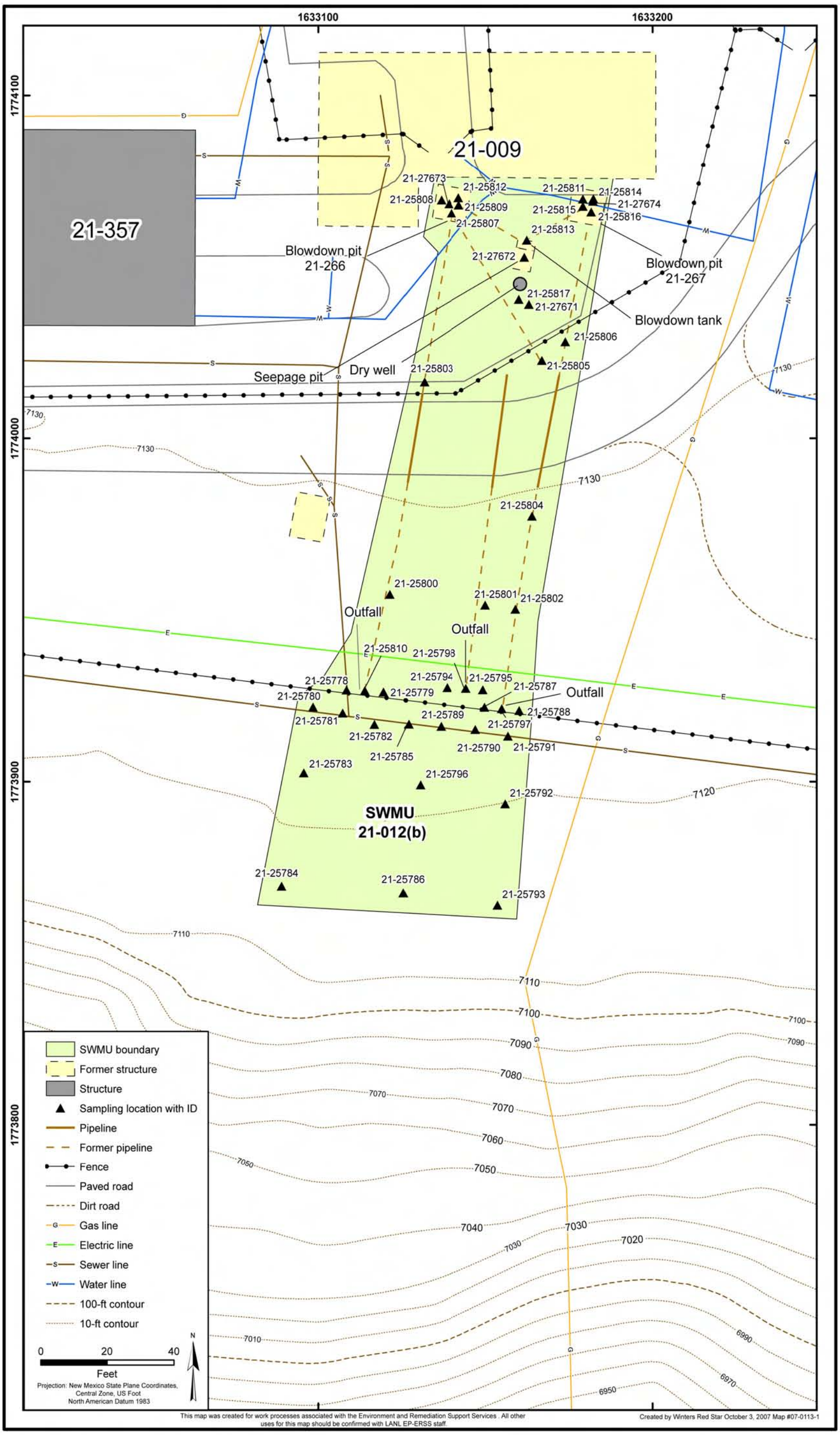

Figure 1.2-8 SWMU 21-012(b), dry well and pipelines and sampling locations

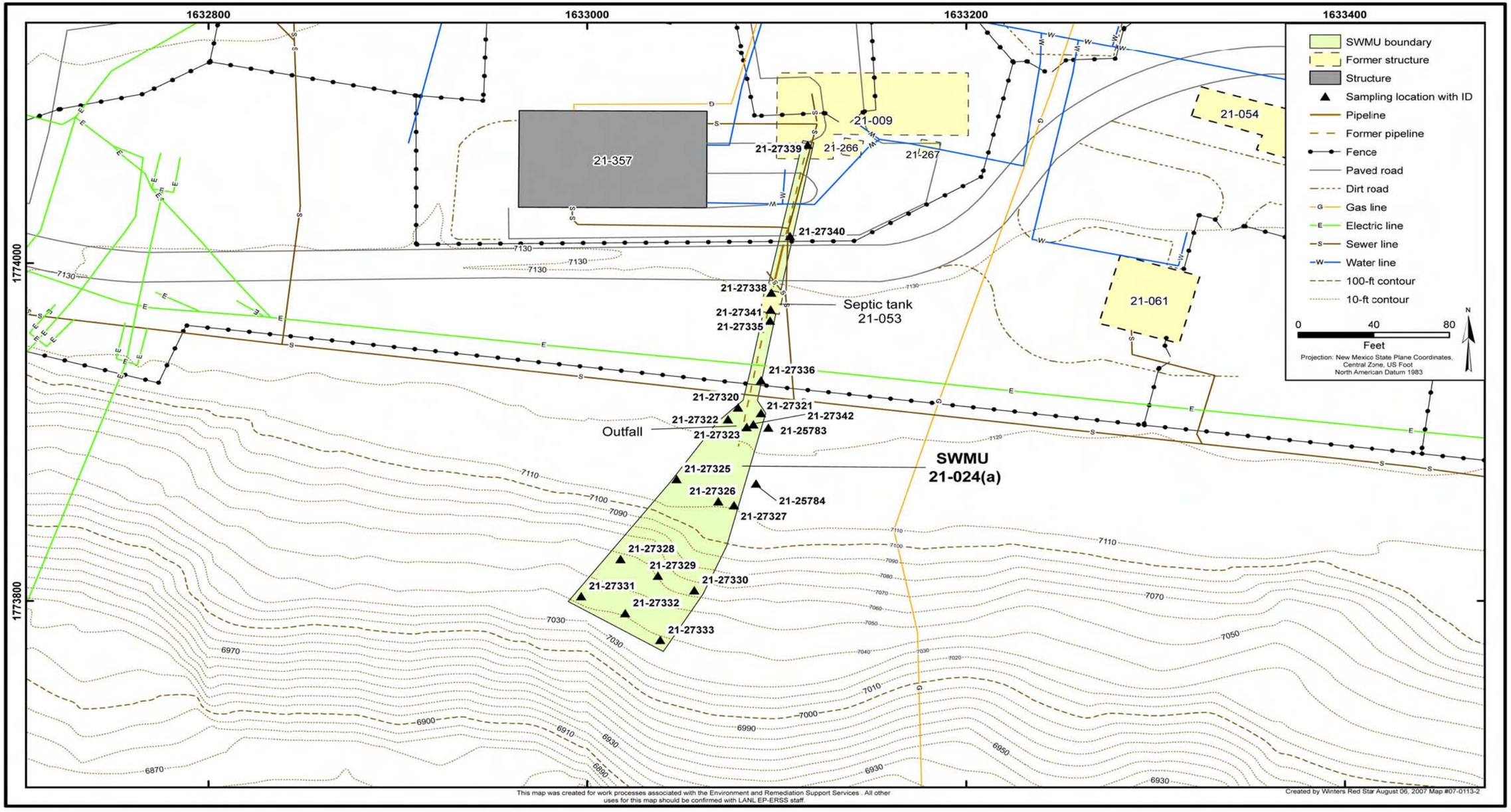

Figure 1.2-9 SWMU 21-024(a), septic system and sampling locations

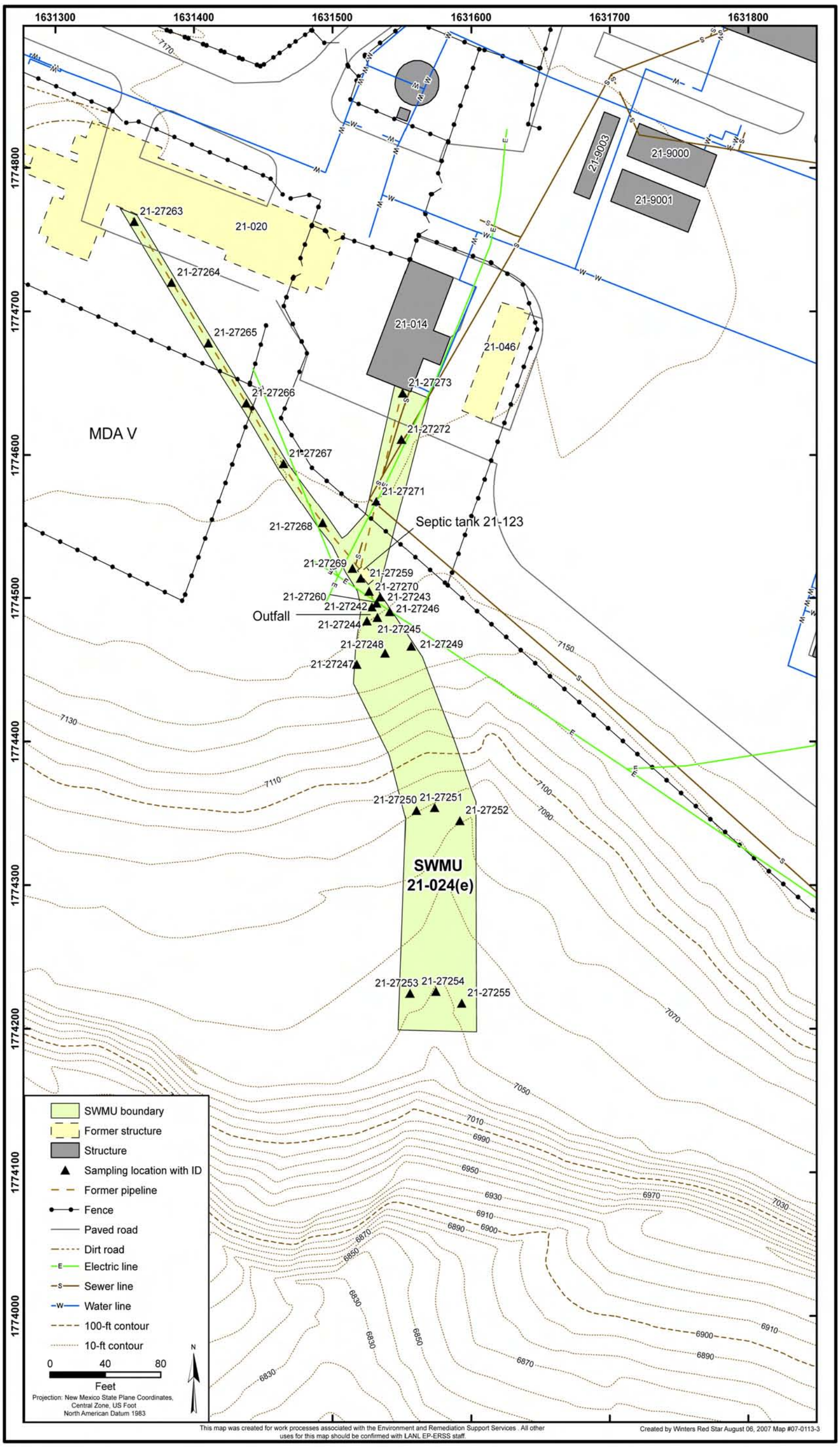

Figure 1.2-10 SWMU 21-024(e), septic system and sampling locations

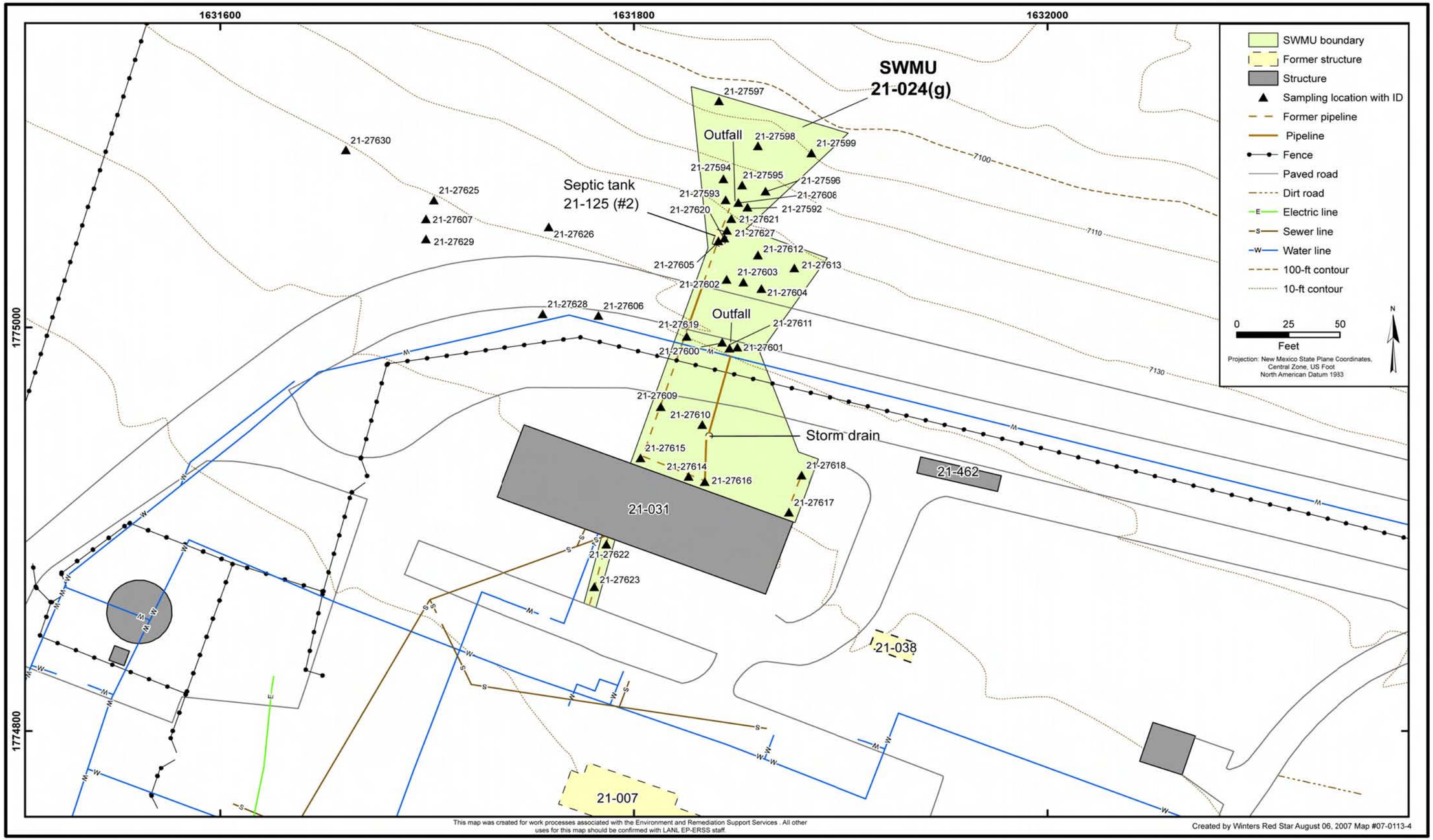

Figure 1.2-11 SWMU 21-024(g), septic system and sampling locations

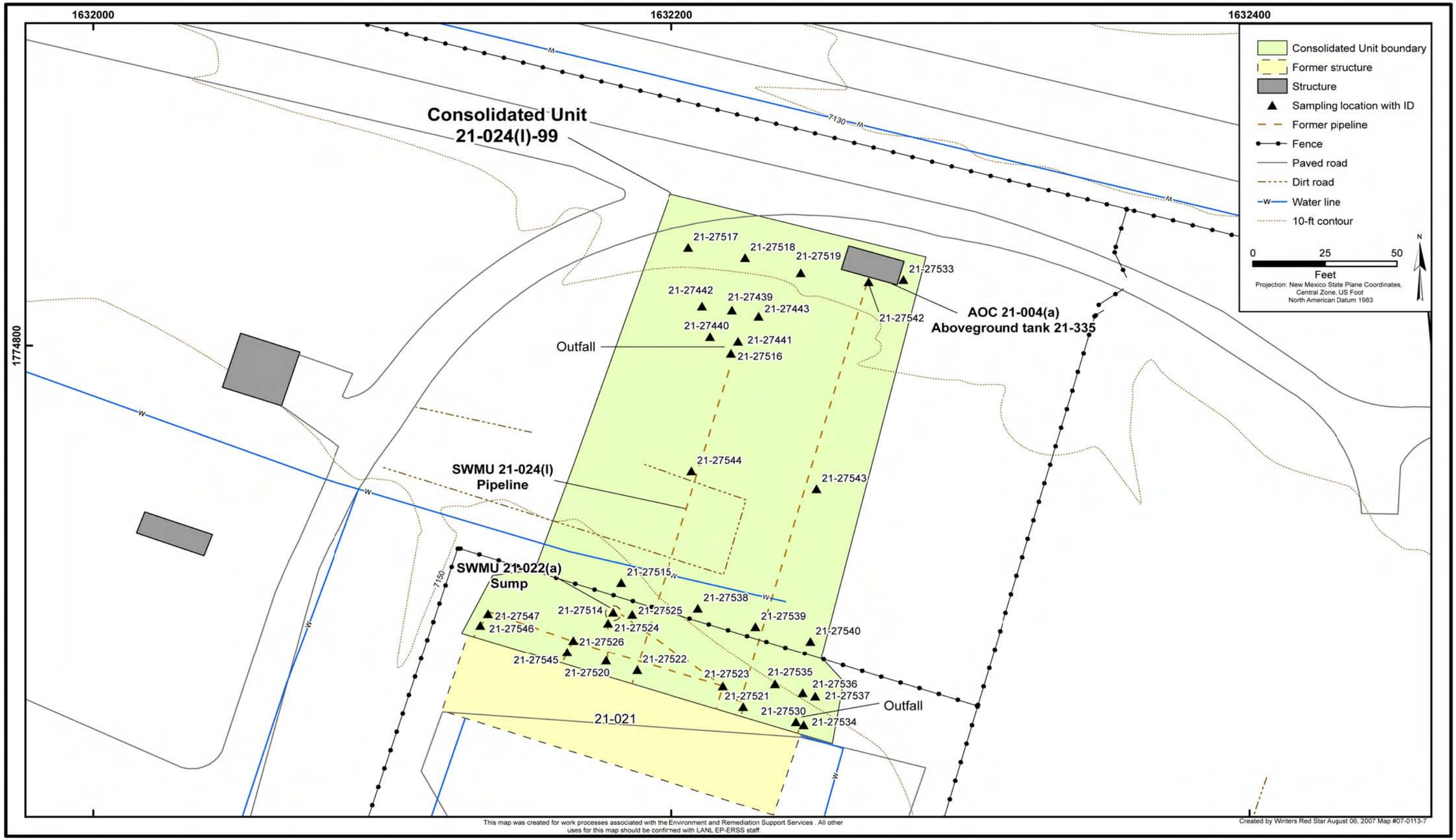

Figure 1.2-12 Consolidated Unit 21-024(l)-99, sump, aboveground storage tank, associated lines and outfall, and sampling locations

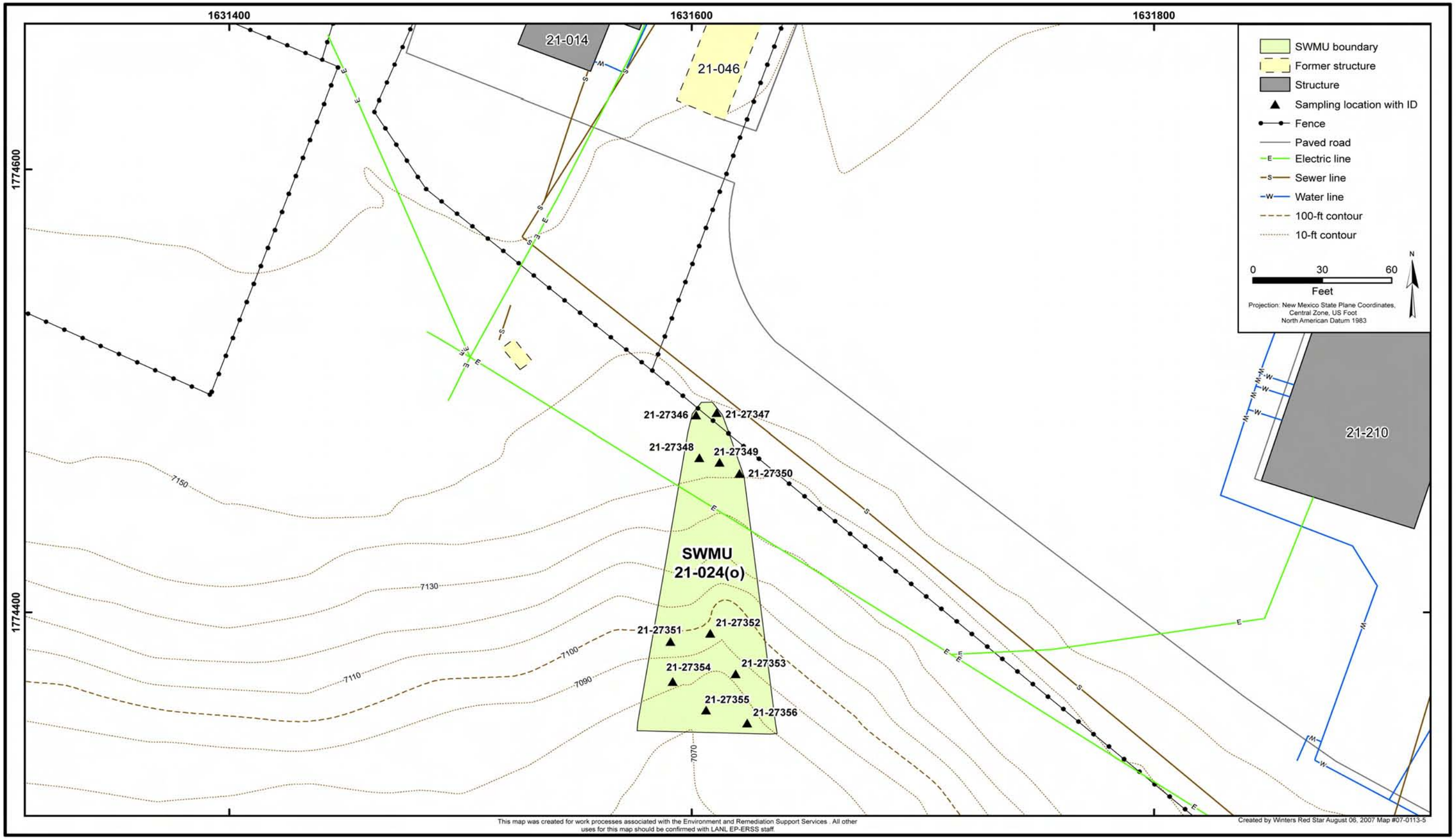

Figure 1.2-13 SWMU 21-024(o), outfall and sampling locations

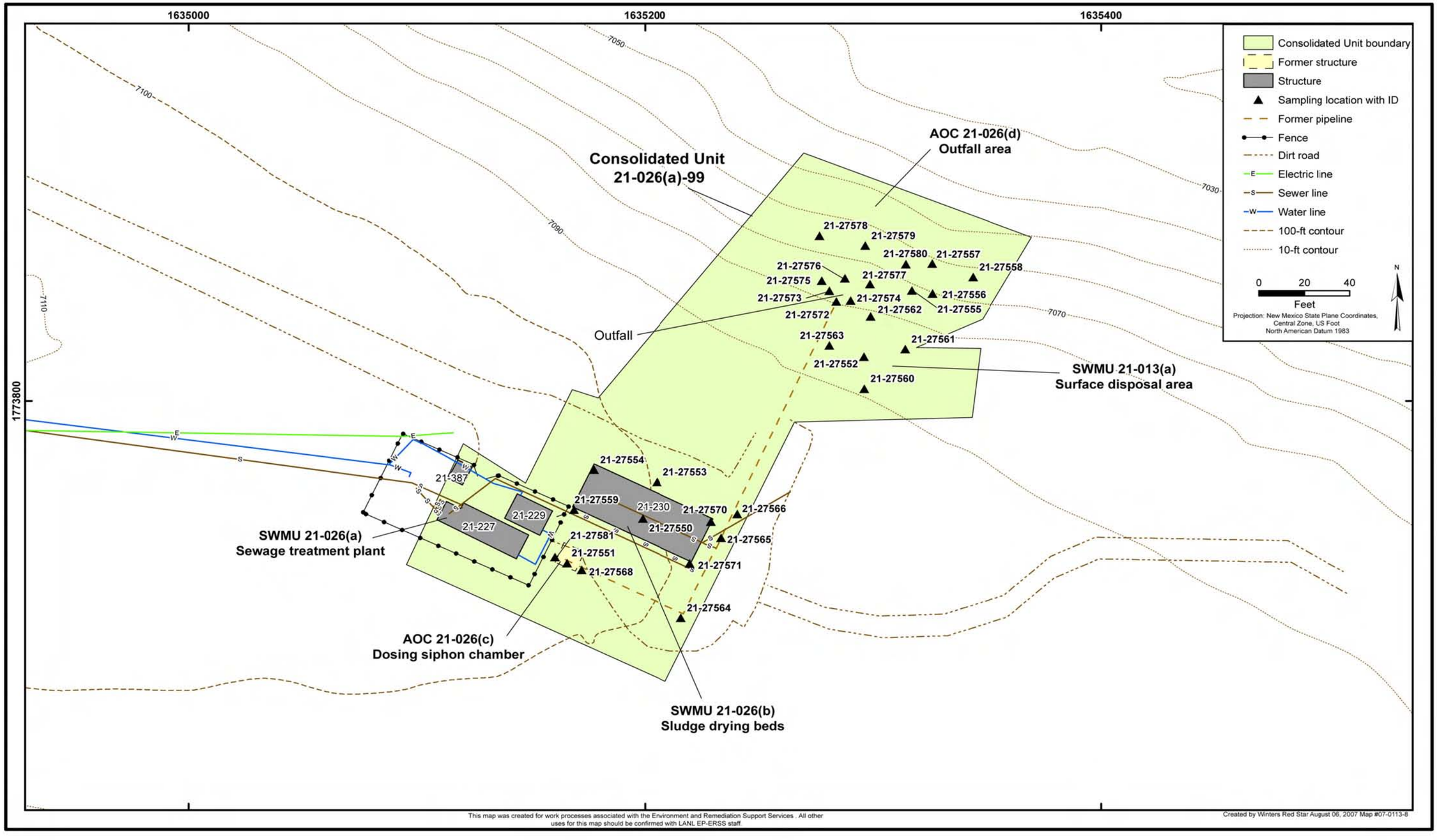

Figure 1.2-14 Consolidated Unit 21-026(a)-99, sewage treatment plant and sampling locations

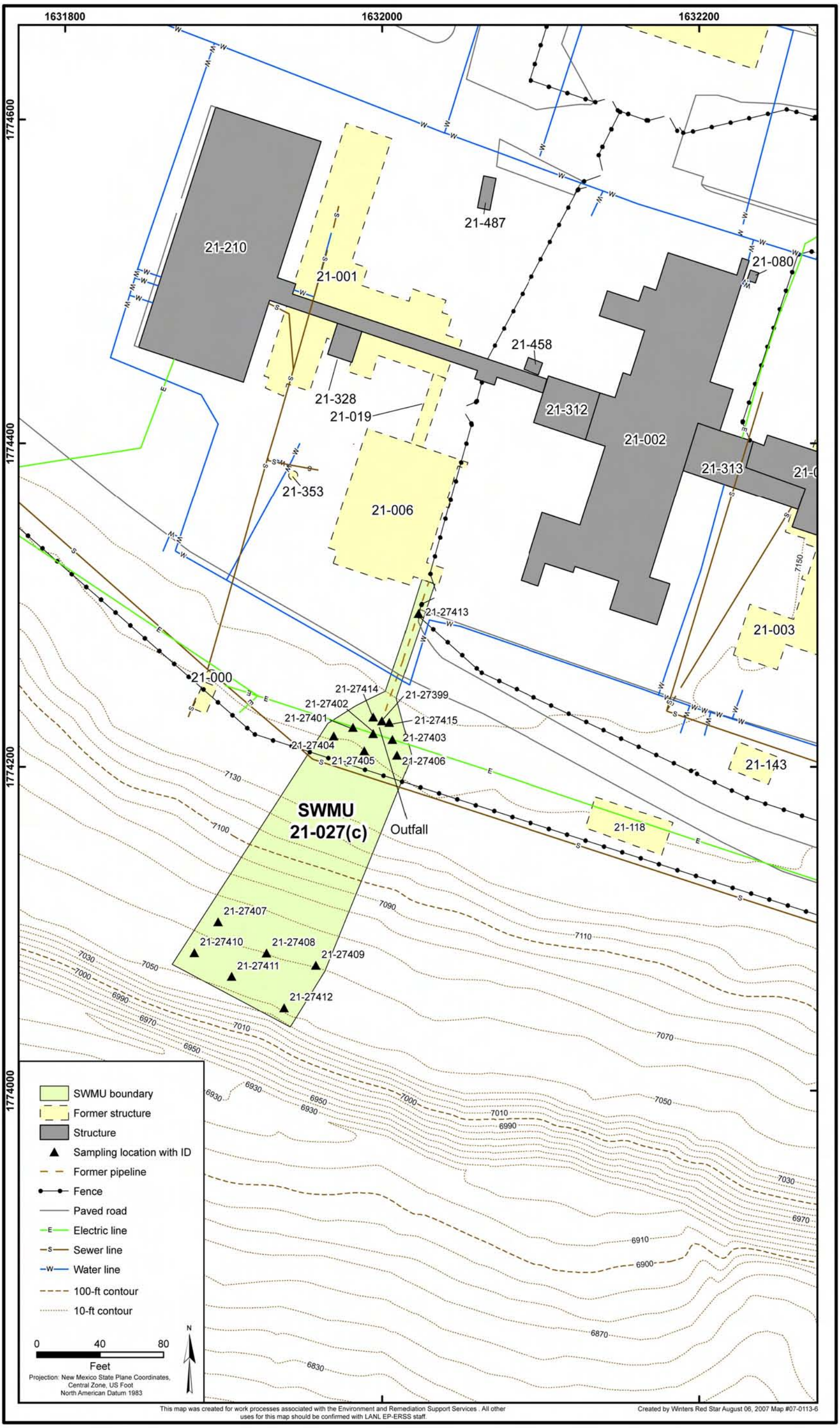

Figure 1.2-15 SWMU 21-027(c), pipeline and outfall and sampling locations

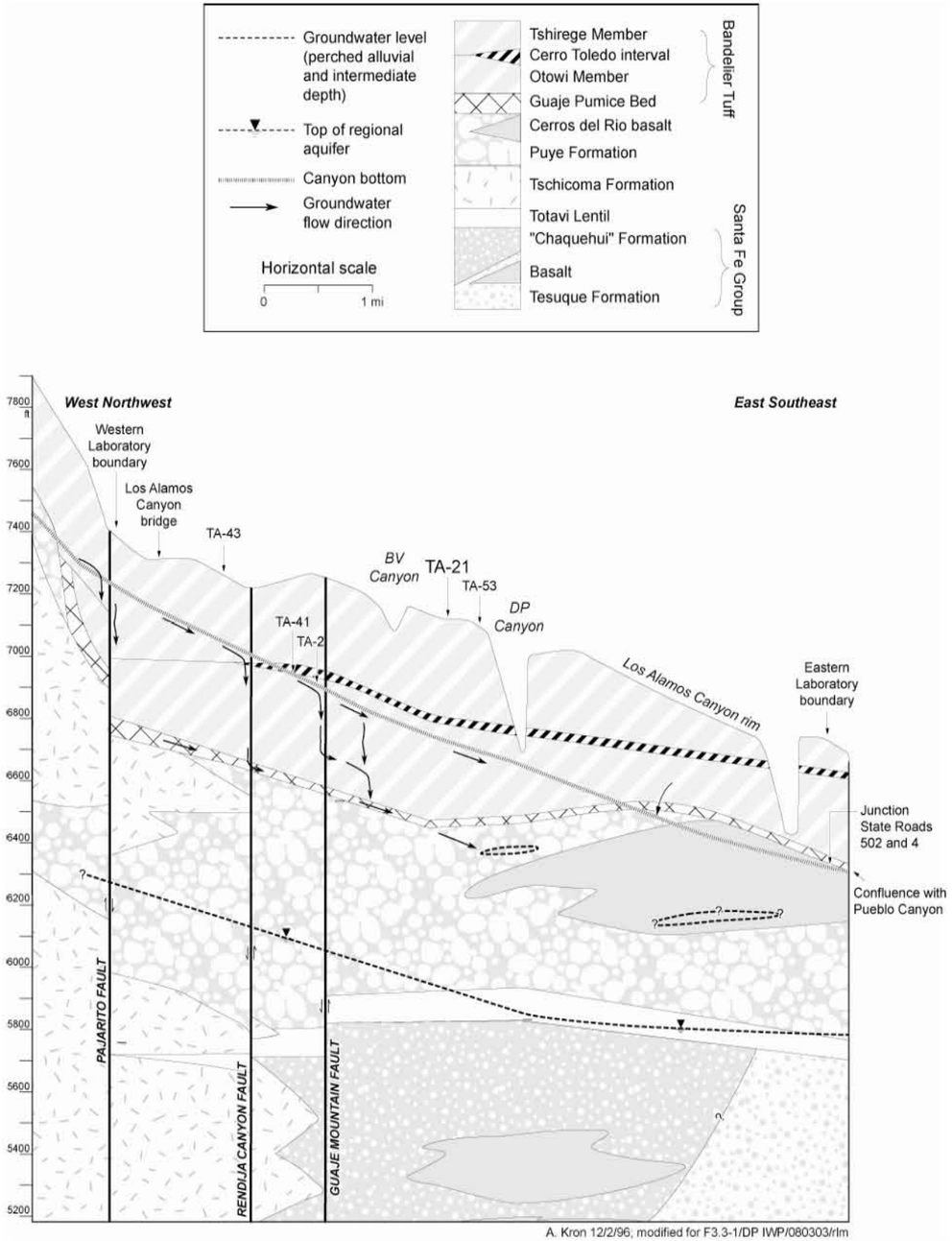

Figure 4.2-1 General stratigraphy beneath TA-21

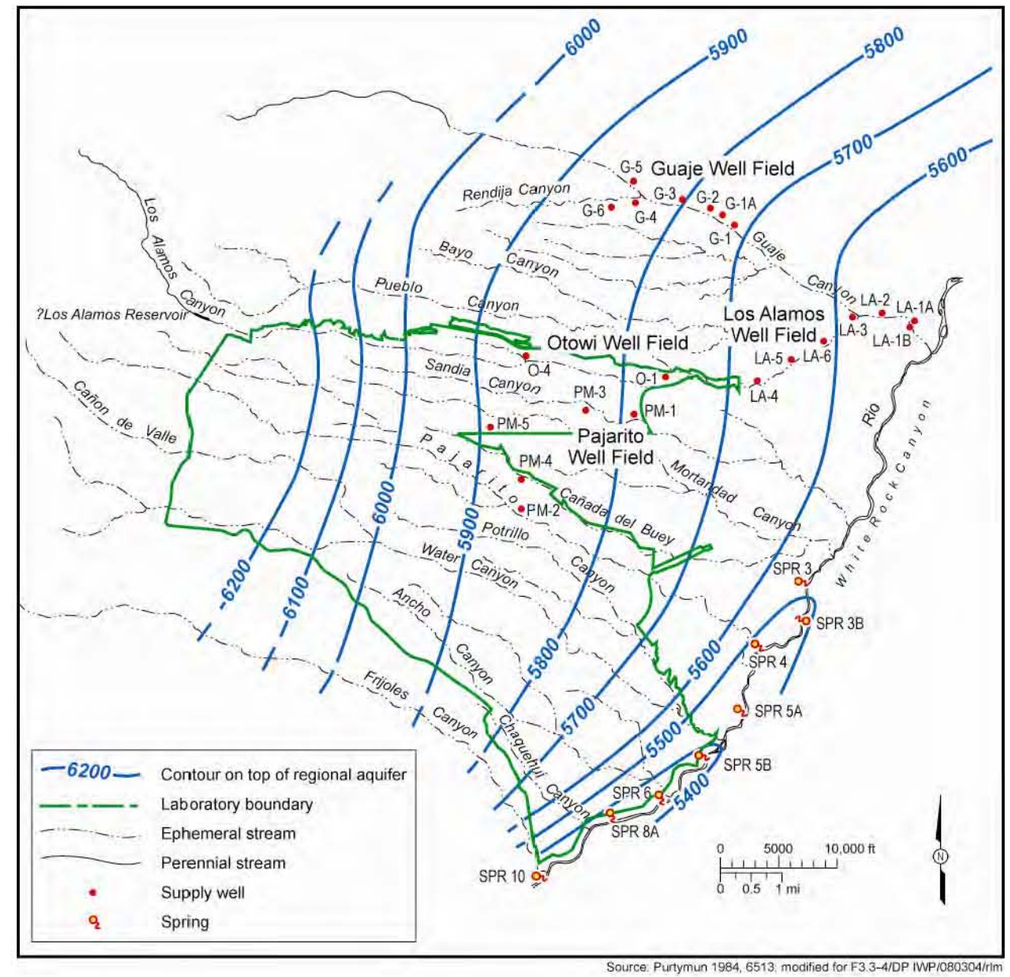

Figure 4.2-2 Monitoring wells in the vicinity of TA-21

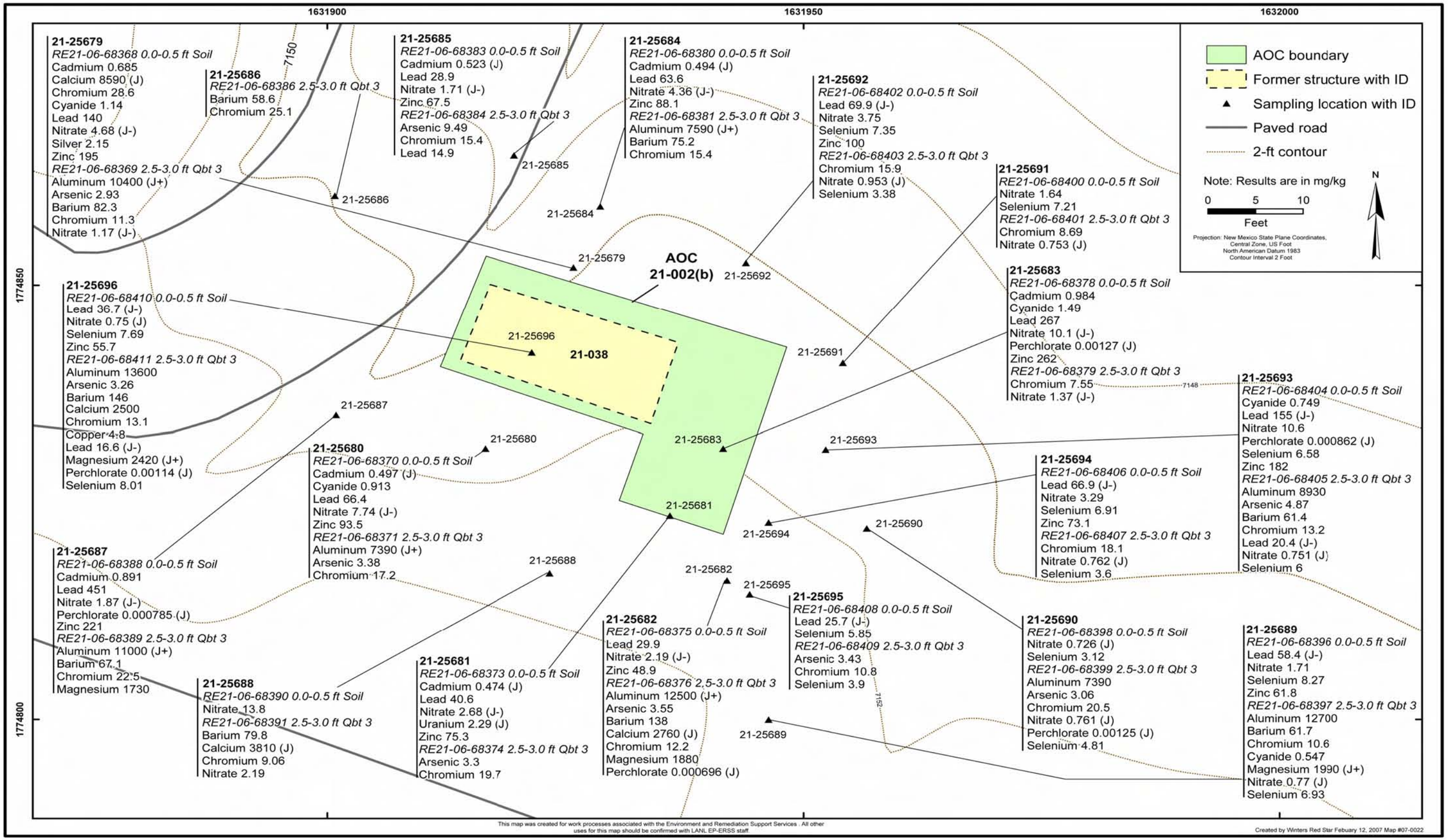

Figure 6.3-1 Inorganic chemicals detected above BVs at AOC 21-002(b)

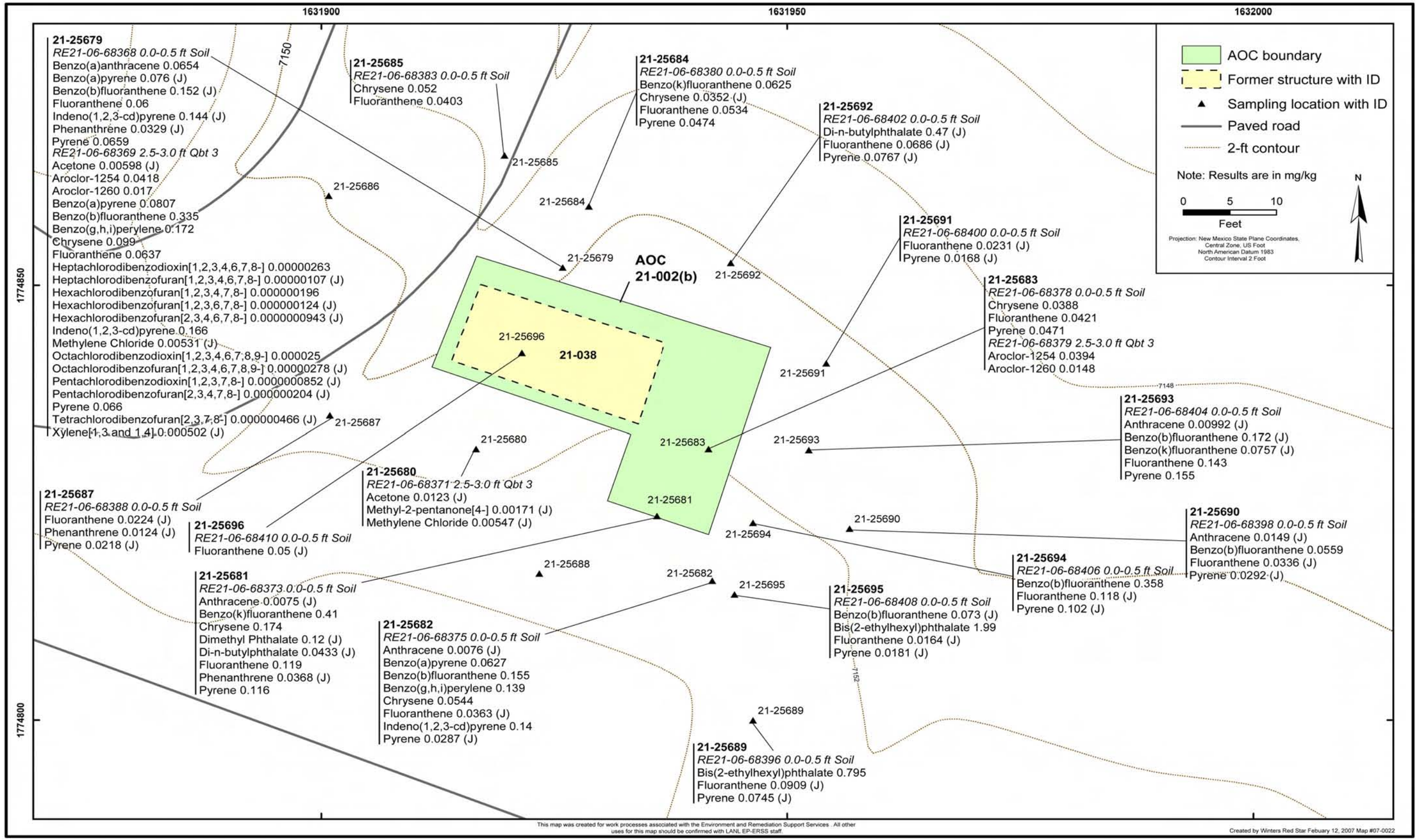

Figure 6.3-2 Organic chemicals detected at AOC 21-002(b)

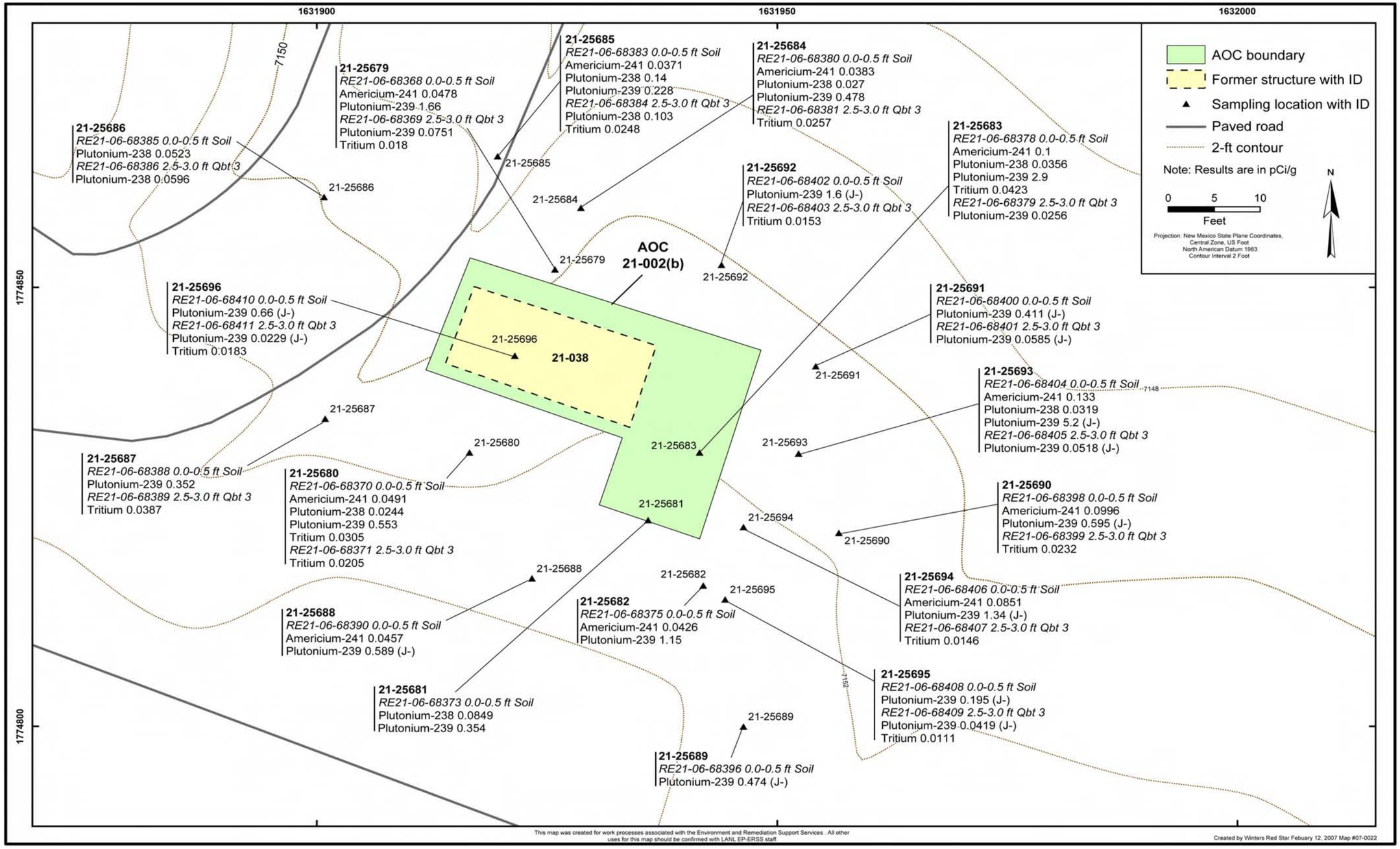

Figure 6.3-3 Radionuclides detected or detected above FVs at AOC 21-002(b)

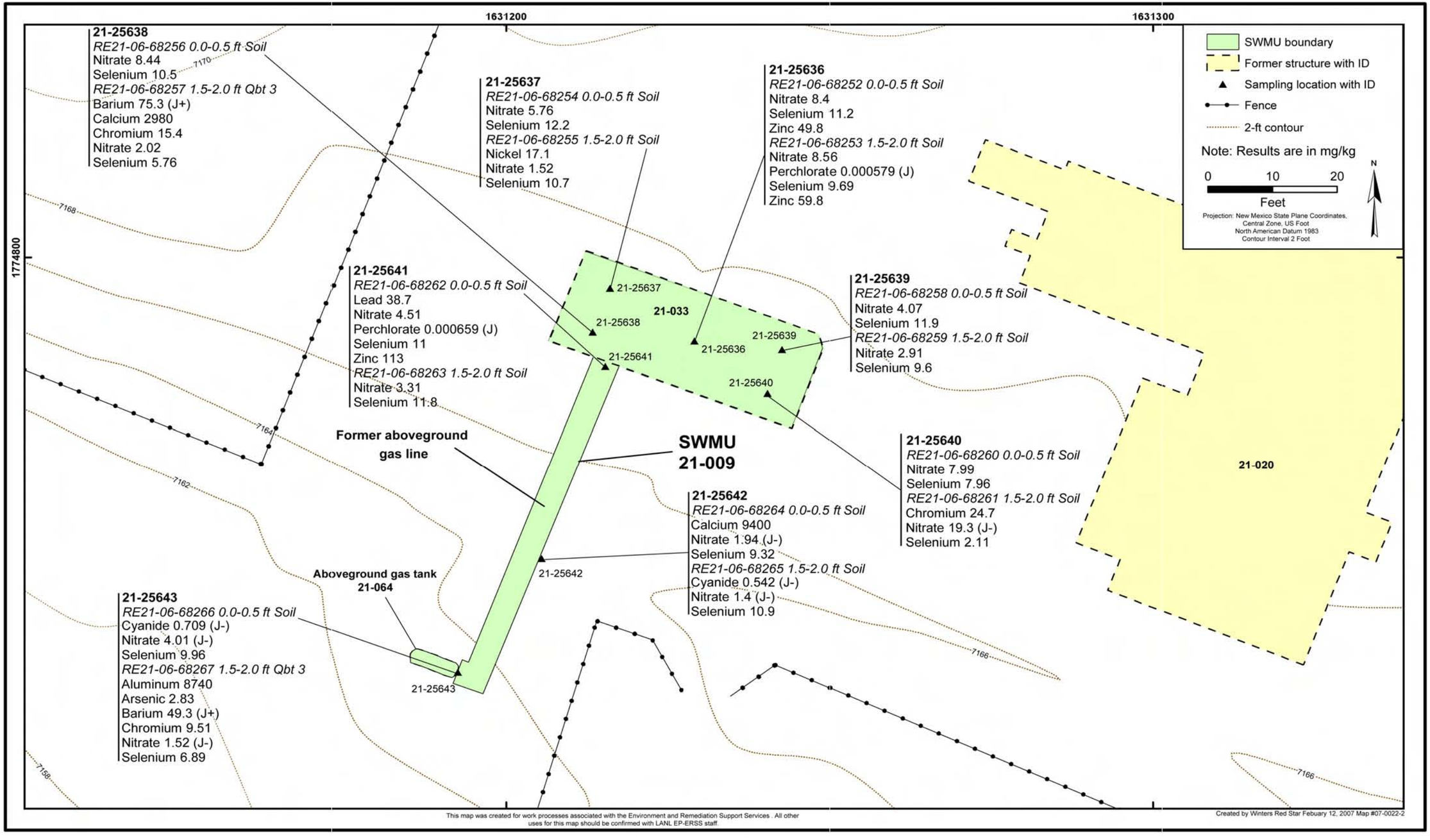

Figure 6.3-4 Inorganic chemicals detected above BVs at SWMU 21-009

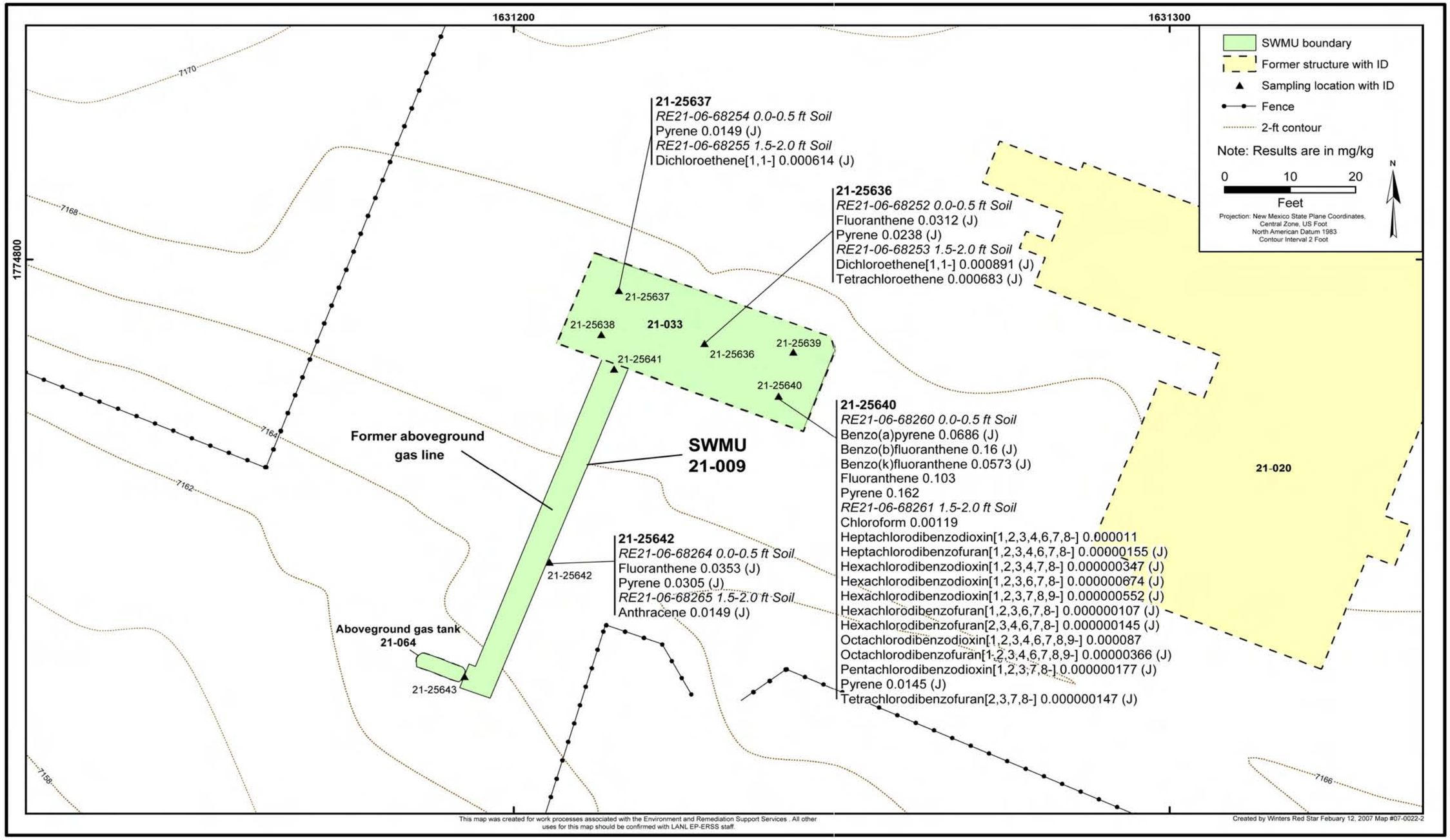

Figure 6.3-5 Organic chemicals detected at SWMU 21-009

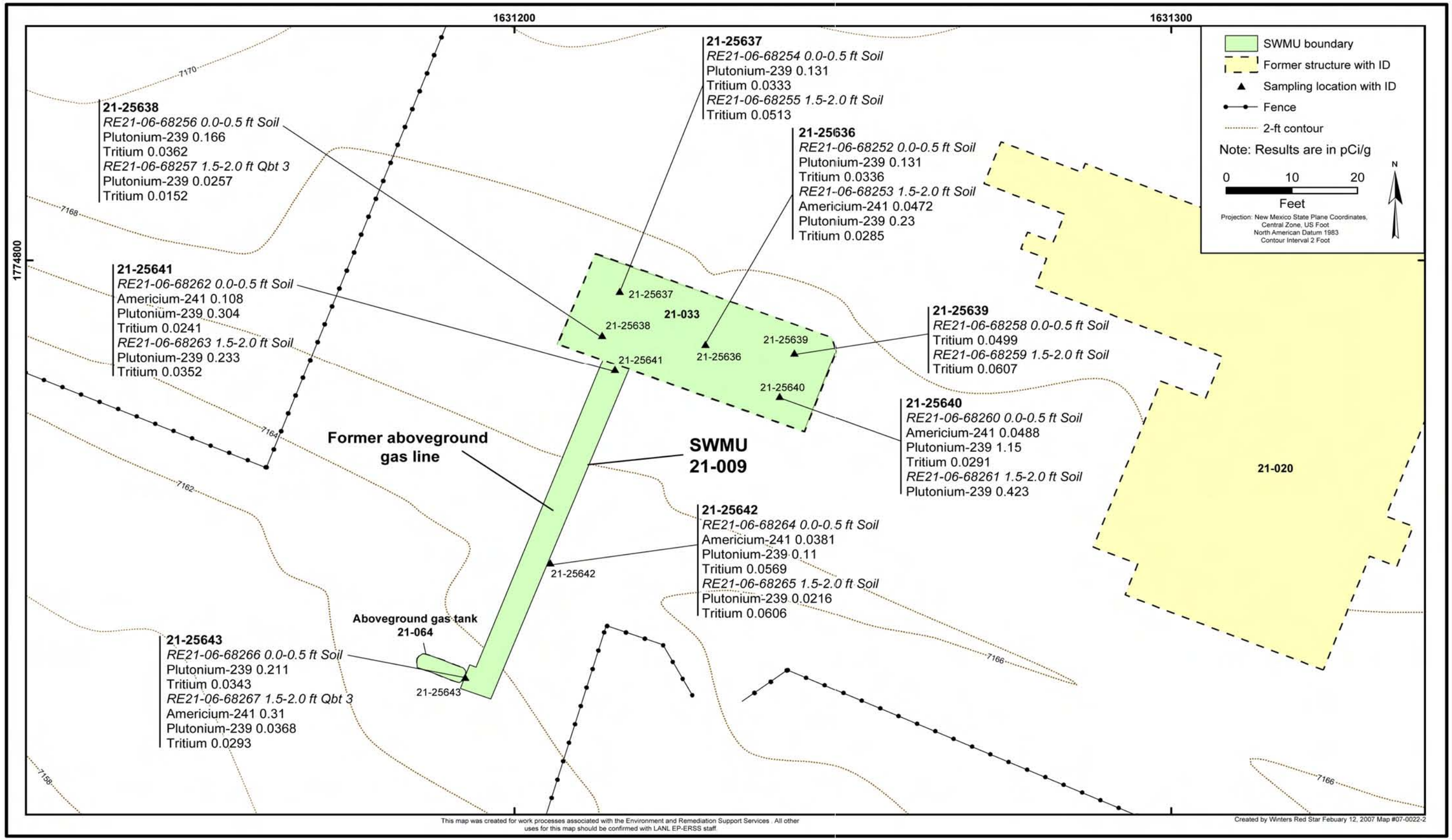

Figure 6.3-6 Radionuclides detected or detected above FVs at SWMU 21-009

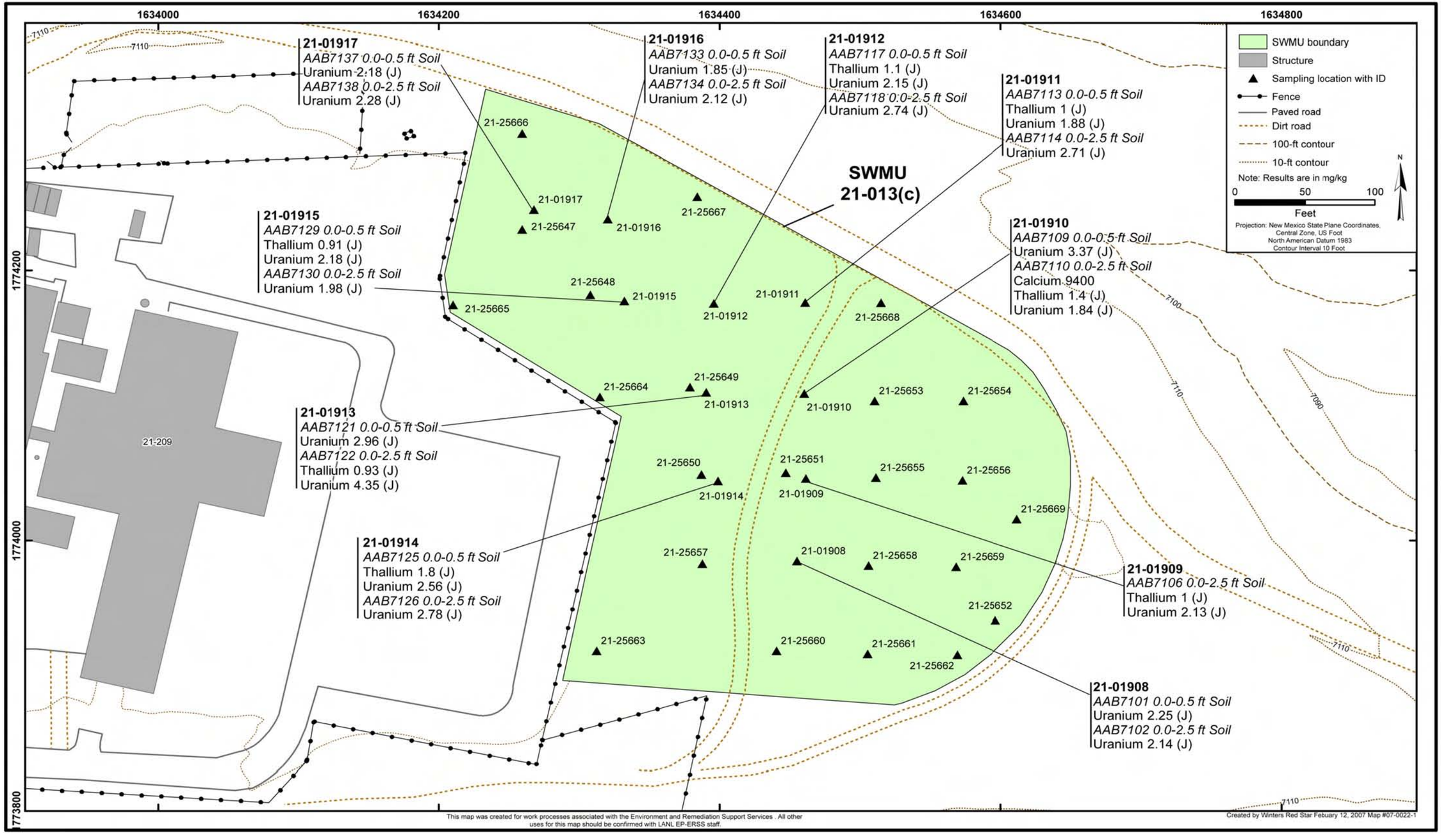

Figure 6.3-7 Inorganic chemicals detected above BVs at SWMU 21-013(c) for 1994 samples

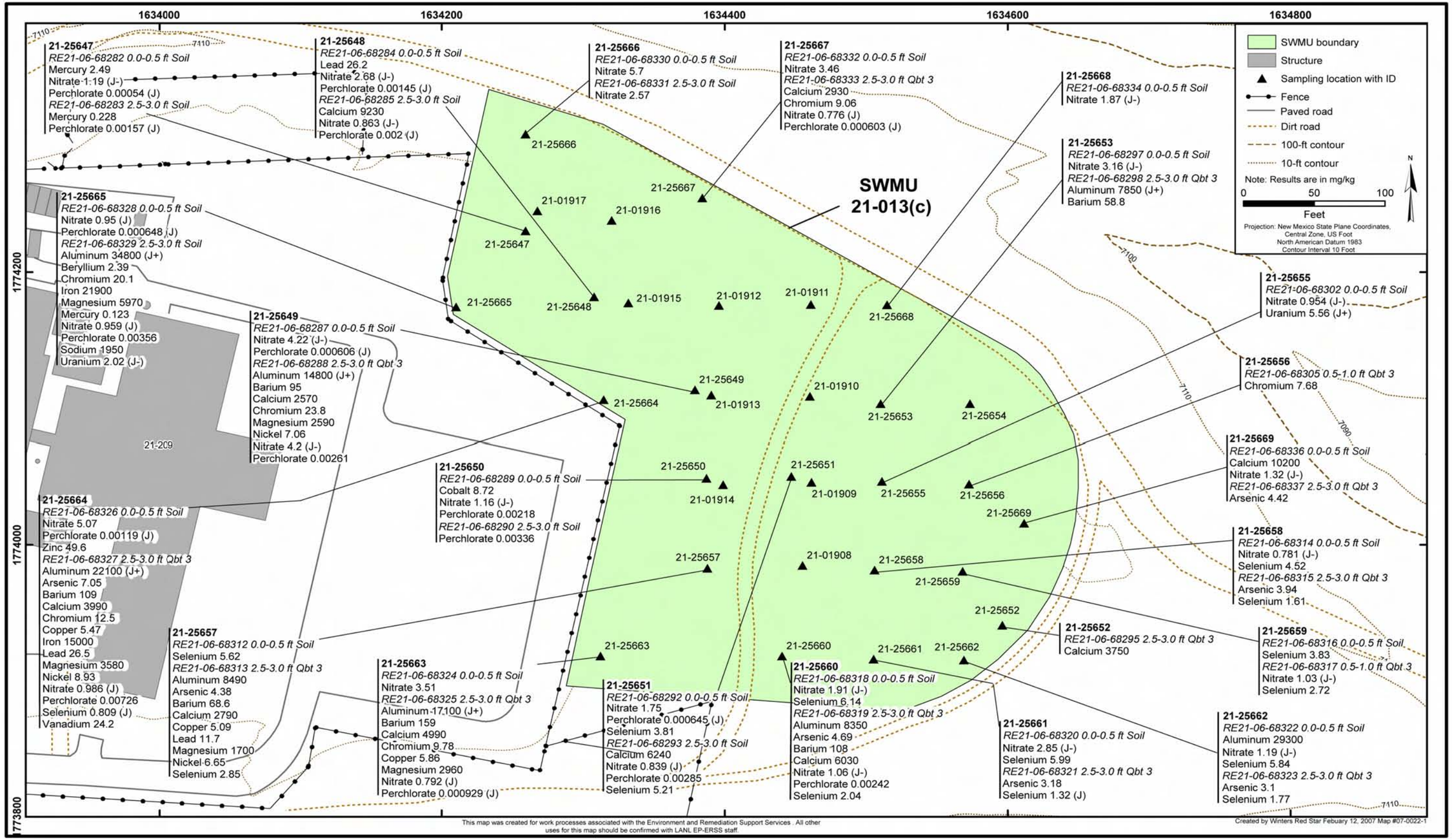

Figure 6.3-8 Inorganic chemicals detected above BVs at SWMU 21-013(c) for 2006 samples

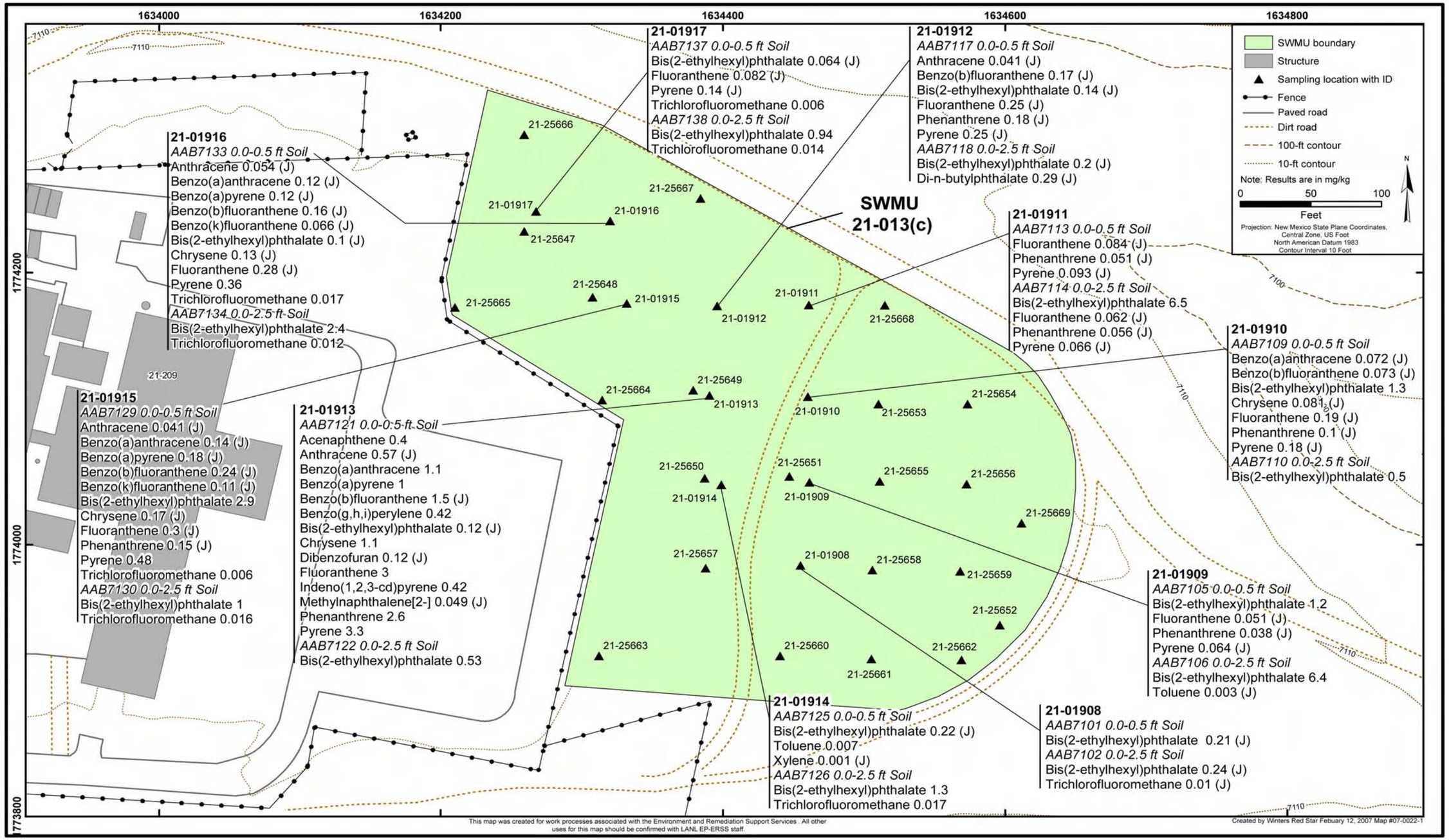

Figure 6.3-9 Organic chemicals detected at SWMU 21-013(c) for 1994 samples

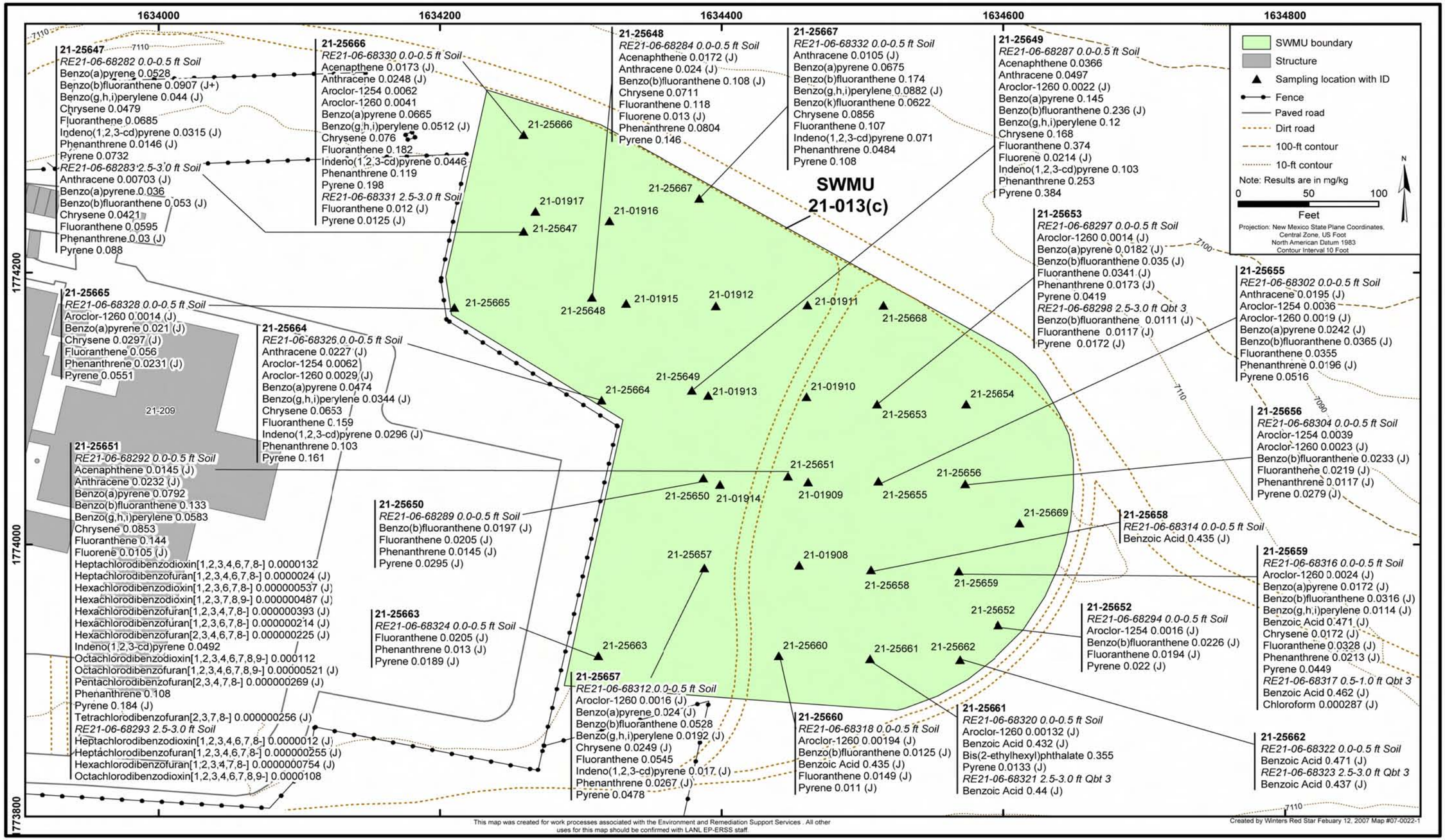

Figure 6.3-10 Organic chemicals detected at SWMU 21-013(c) for 2006 samples

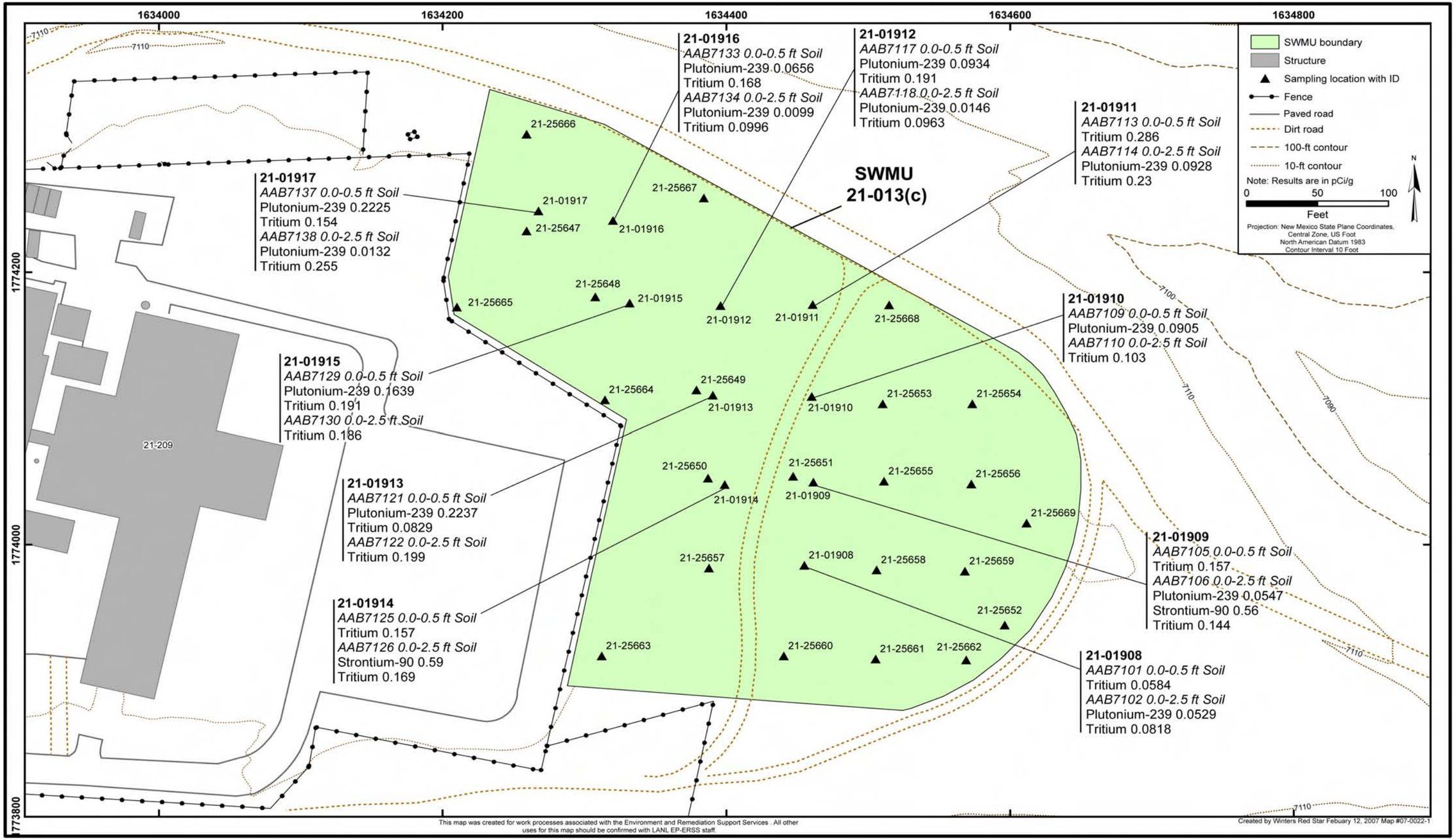

Figure 6.3-11 Radionuclides detected or detected above FVs at SWMU 21-013(c) for 1994 samples

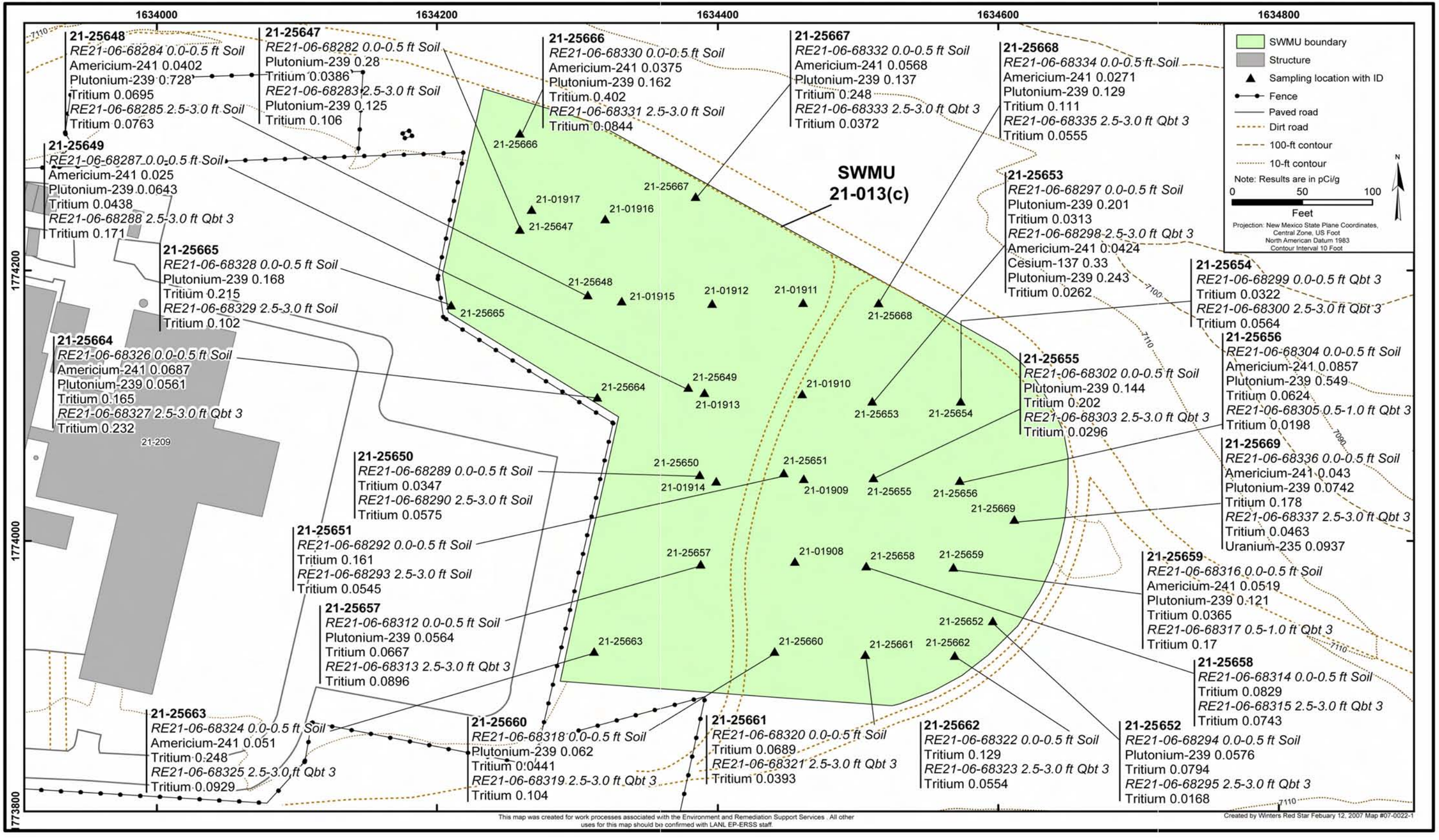

Figure 6.3-12 Radionuclides detected or detected above BVs or FVs at SWMU 21-013(c) for 2006 samples

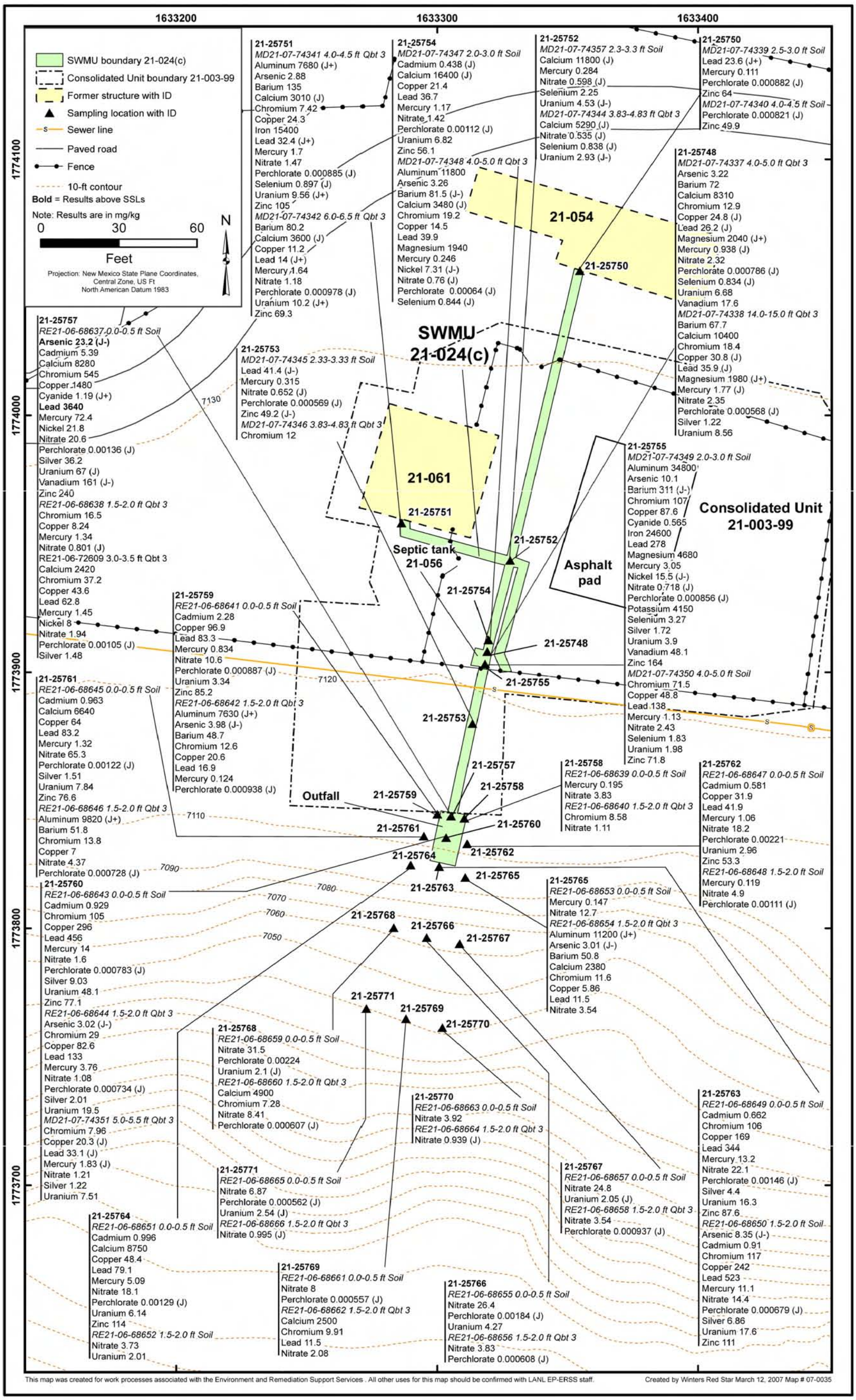

Figure 6.3-13 Inorganic chemicals detected above BVs at SWMU 21-024(c)

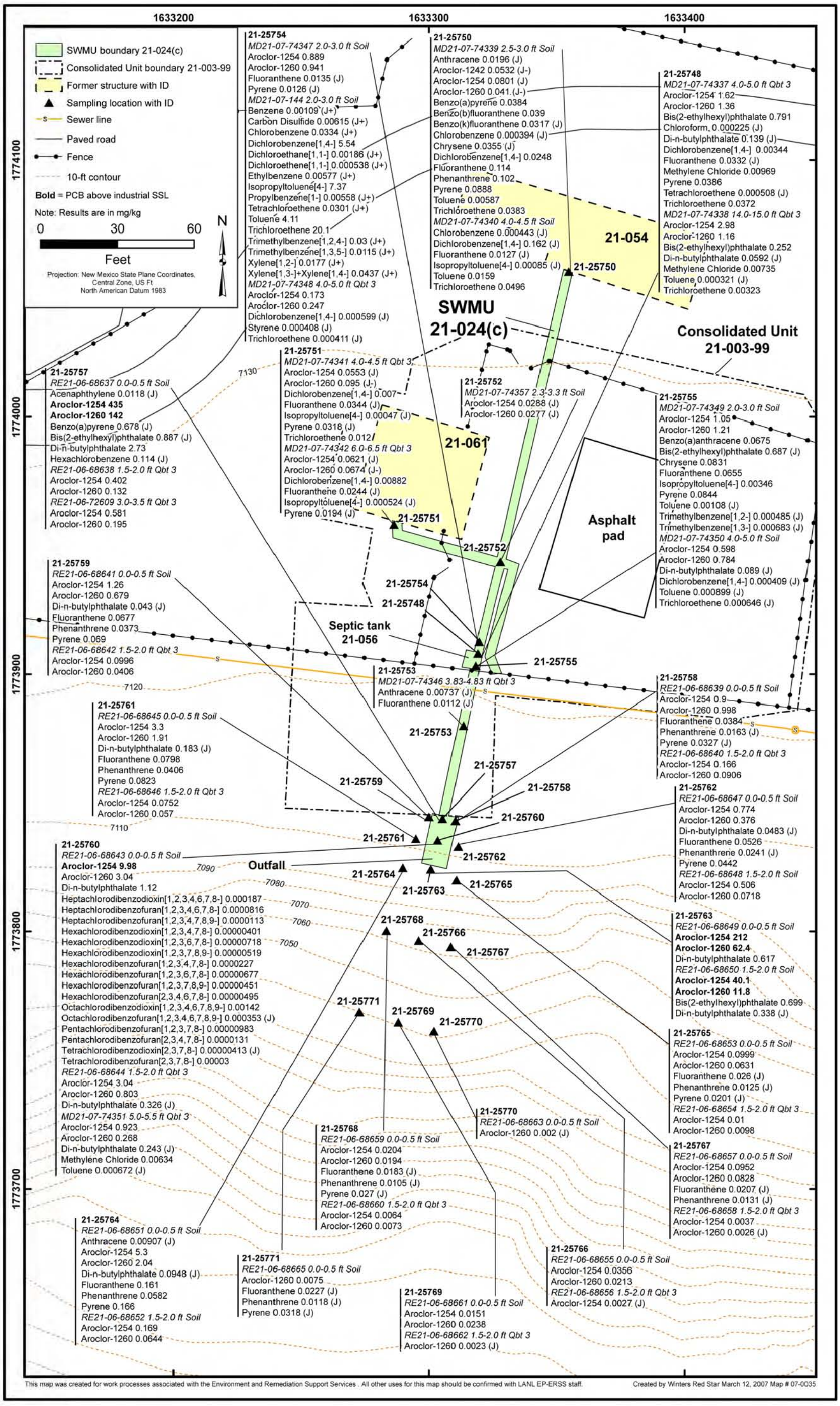

Figure 6.3-14 Organic chemicals detected at SWMU 21-024(c)

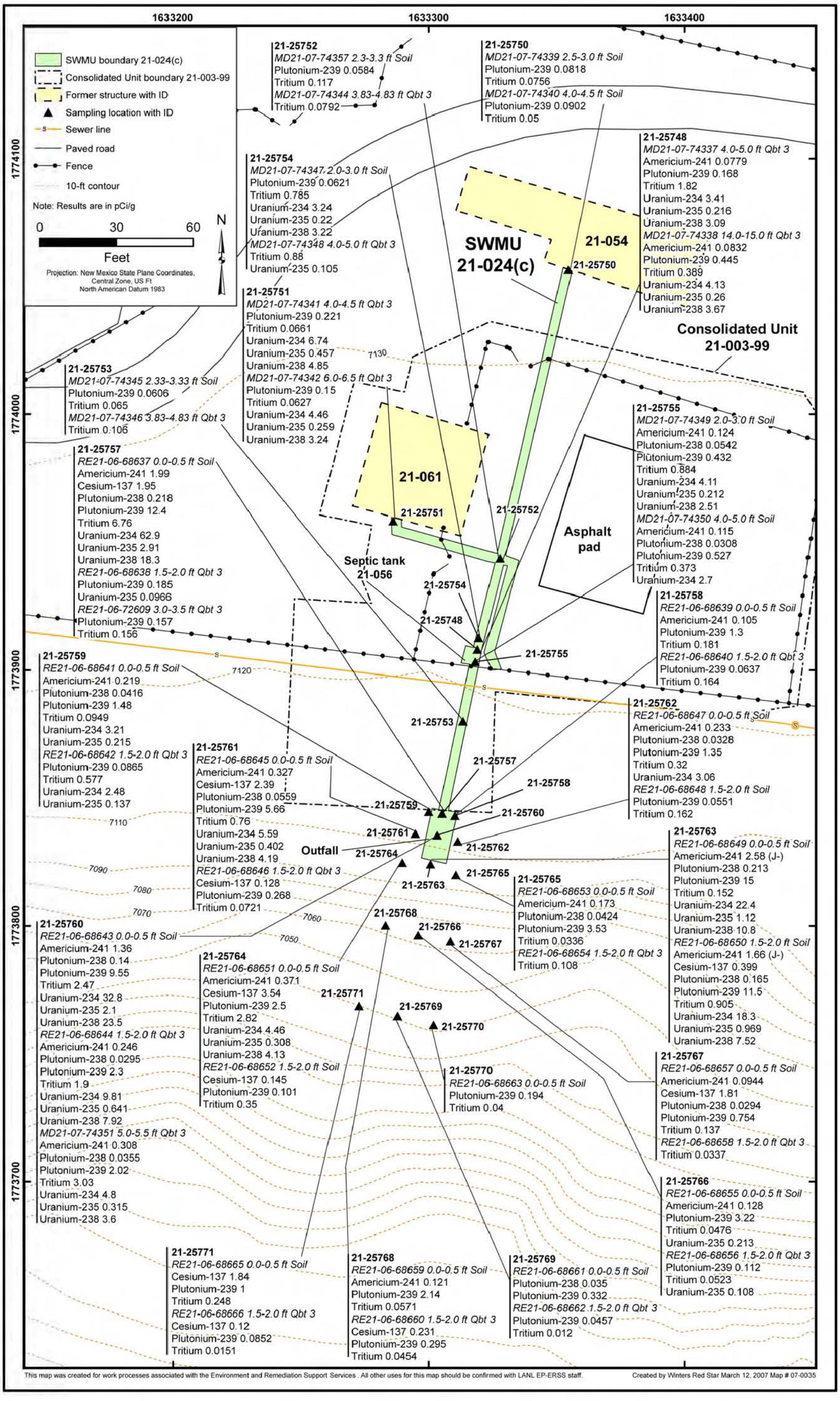

Figure 6.3-15 Radionuclides detected or detected above BVs or FVs at SWMU 21-024(c)

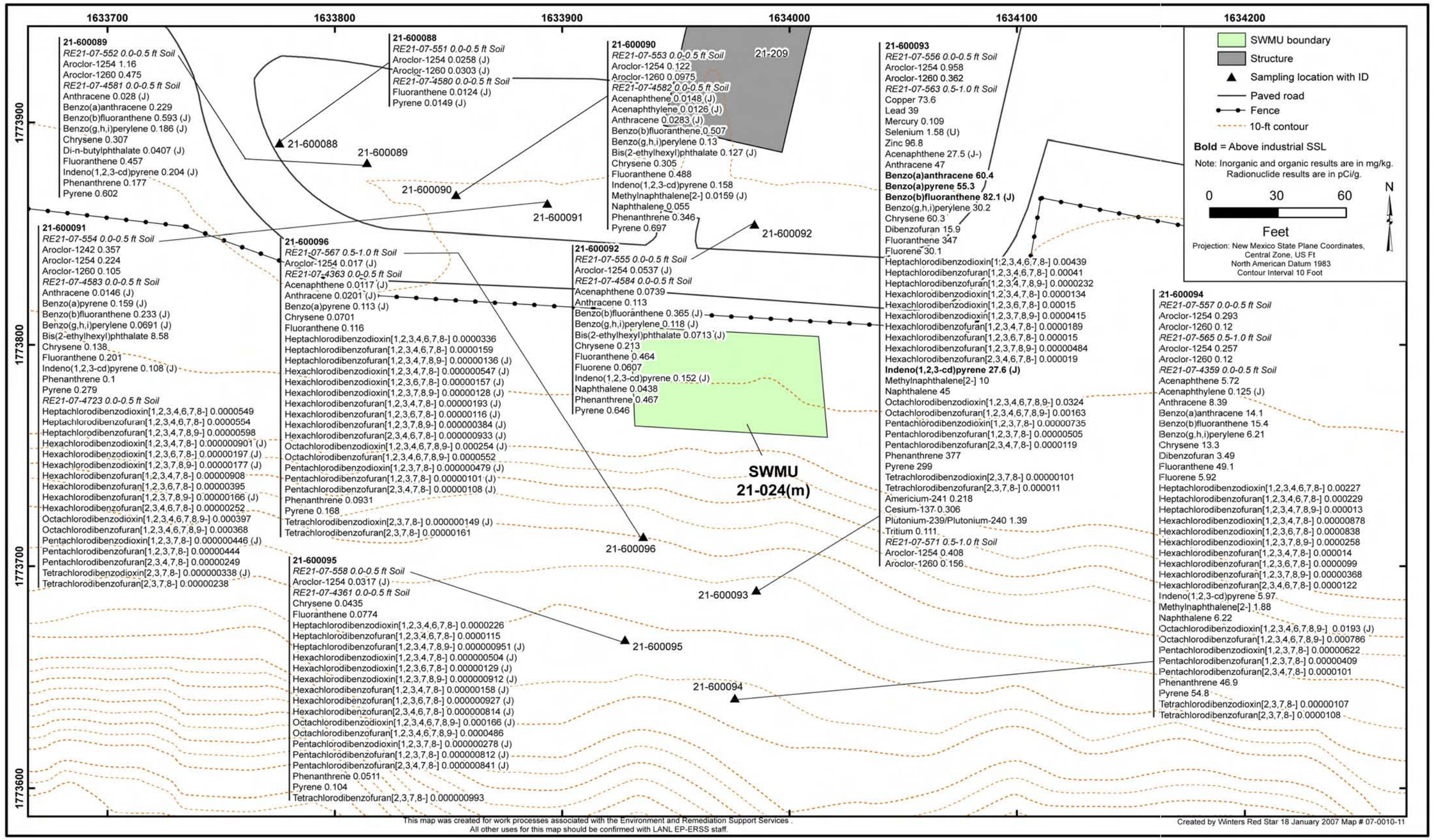

Figure 6.3-16 Suspected PCB-contaminated outfall sampling results (inorganic chemicals, organic chemicals, and radionuclides) below SWMU 21-024(m)

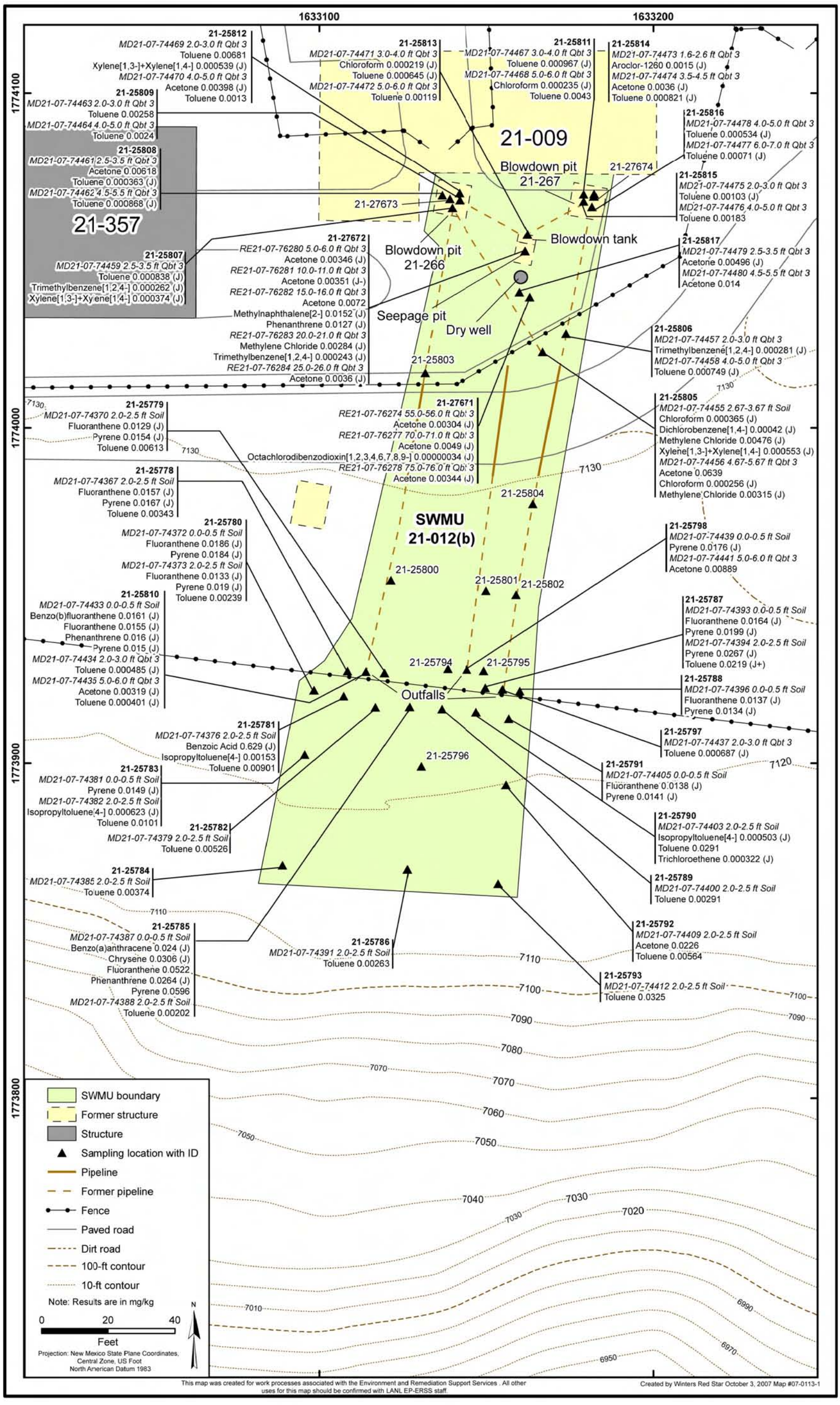

Figure 6.4-1 Organic chemicals detected at SWMU 21-012(b)

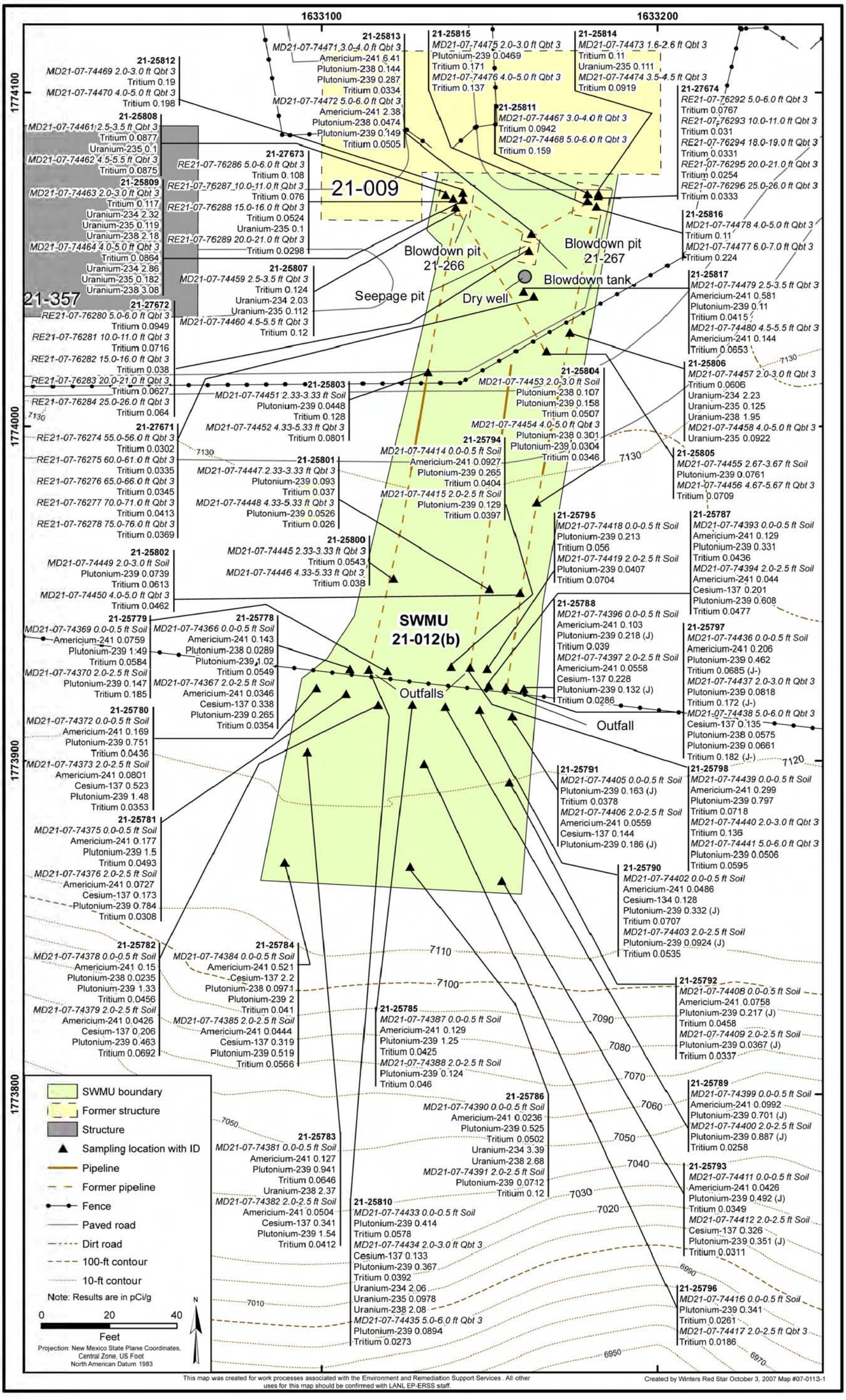

Figure 6.4-2 Radionuclides detected or detected above BVs or FVs at SWMU 21-012(b)

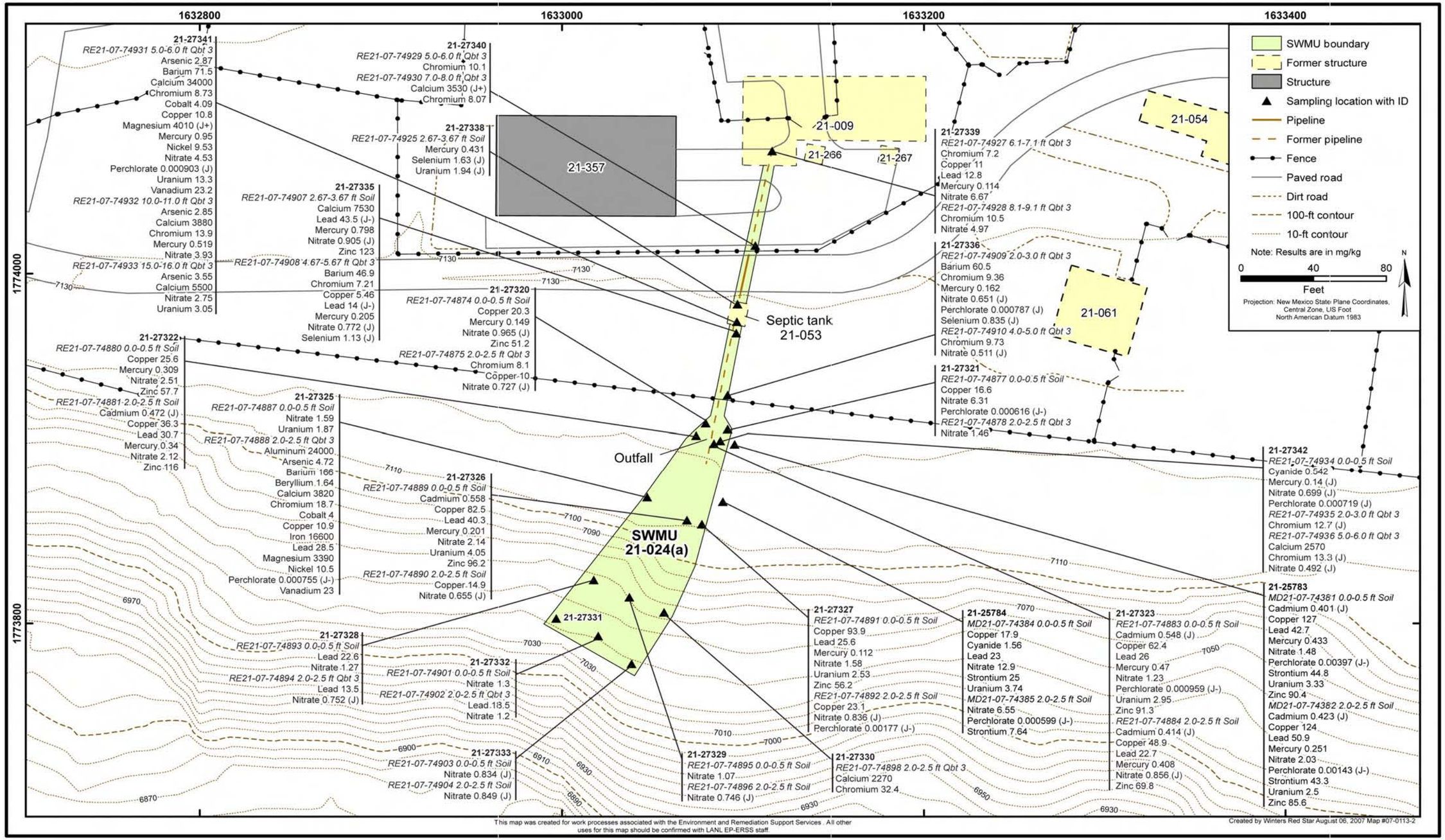

Figure 6.4-3 Inorganic chemicals detected above BVs at SWMU 21-024(a)

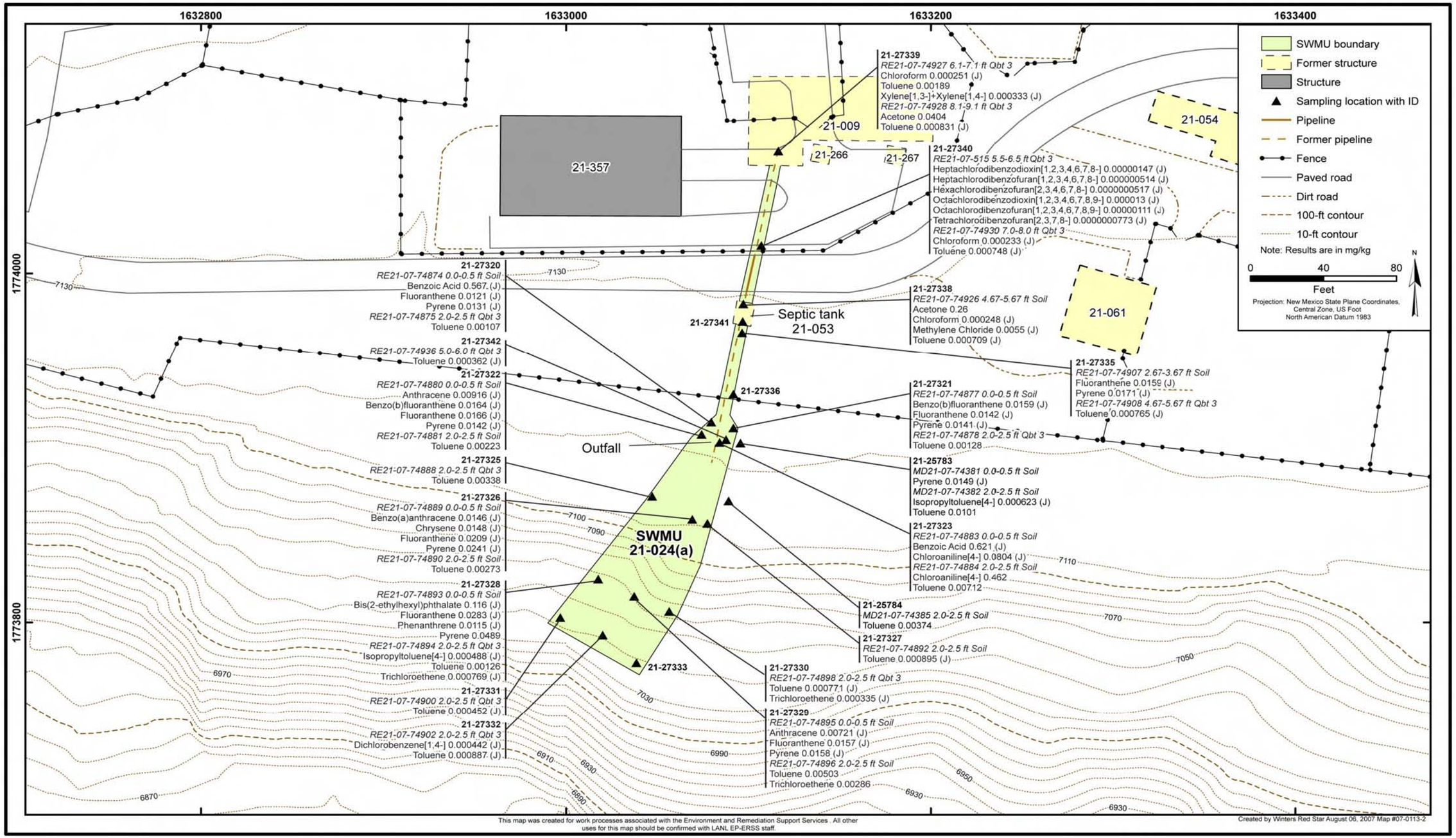

Figure 6.4-4 Organic chemicals detected at SWMU 21-024(a)

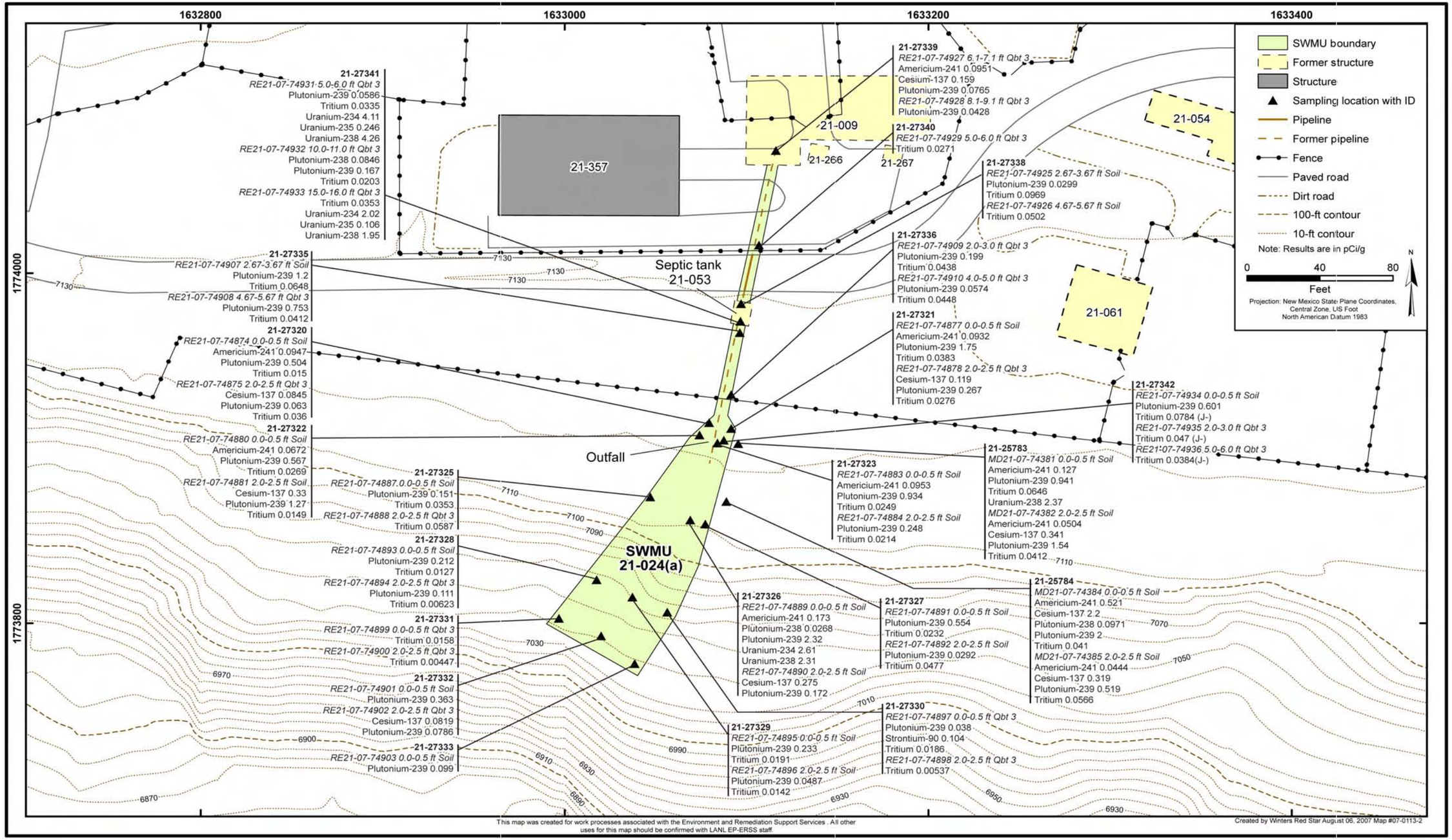

Figure 6.4-5 Radionuclides detected or detected above BVs or FVs at SWMU 21-024(a)

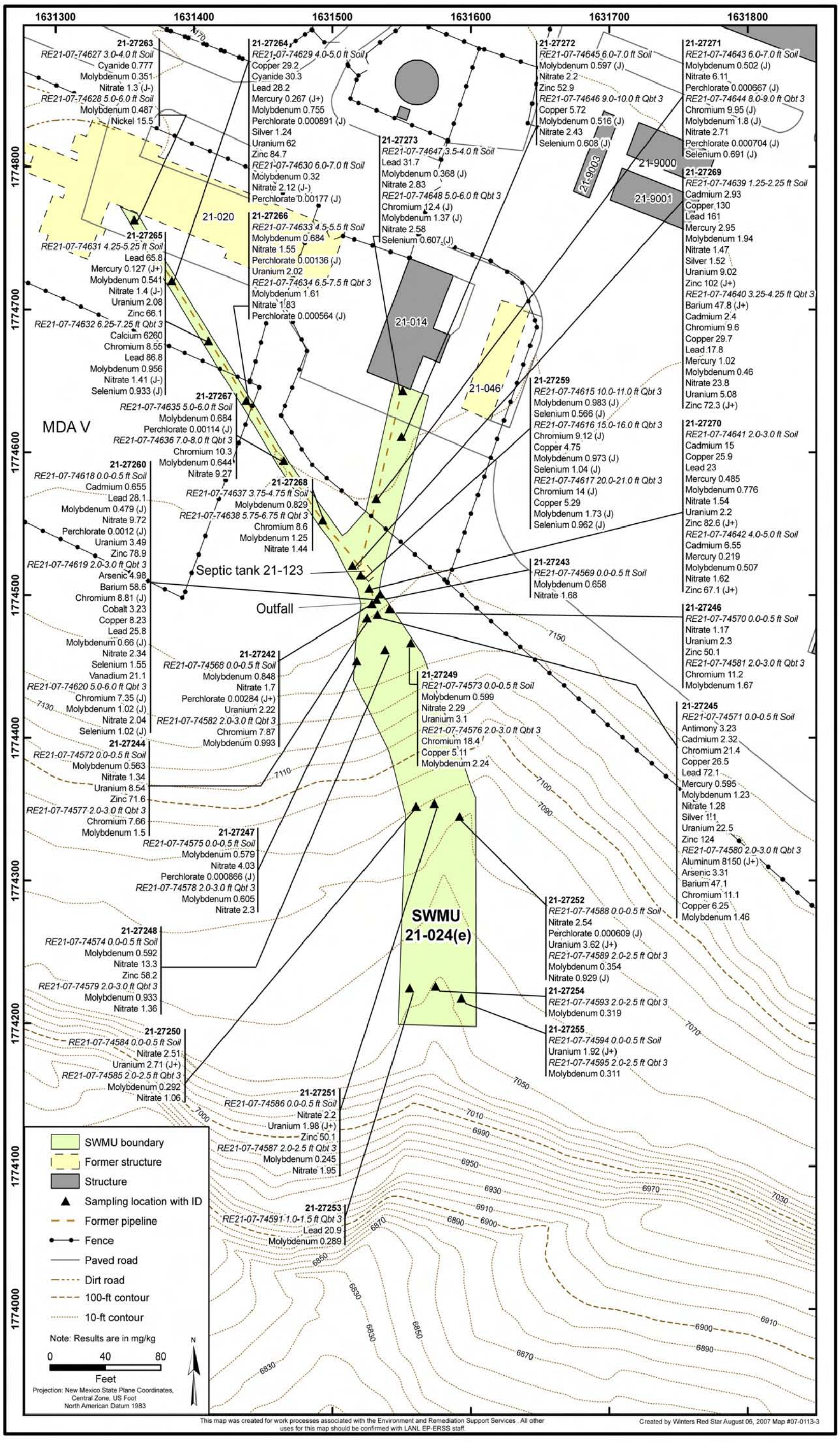

Figure 6.4-6 Inorganic chemicals detected above BVs at SWMU 21-024(e)

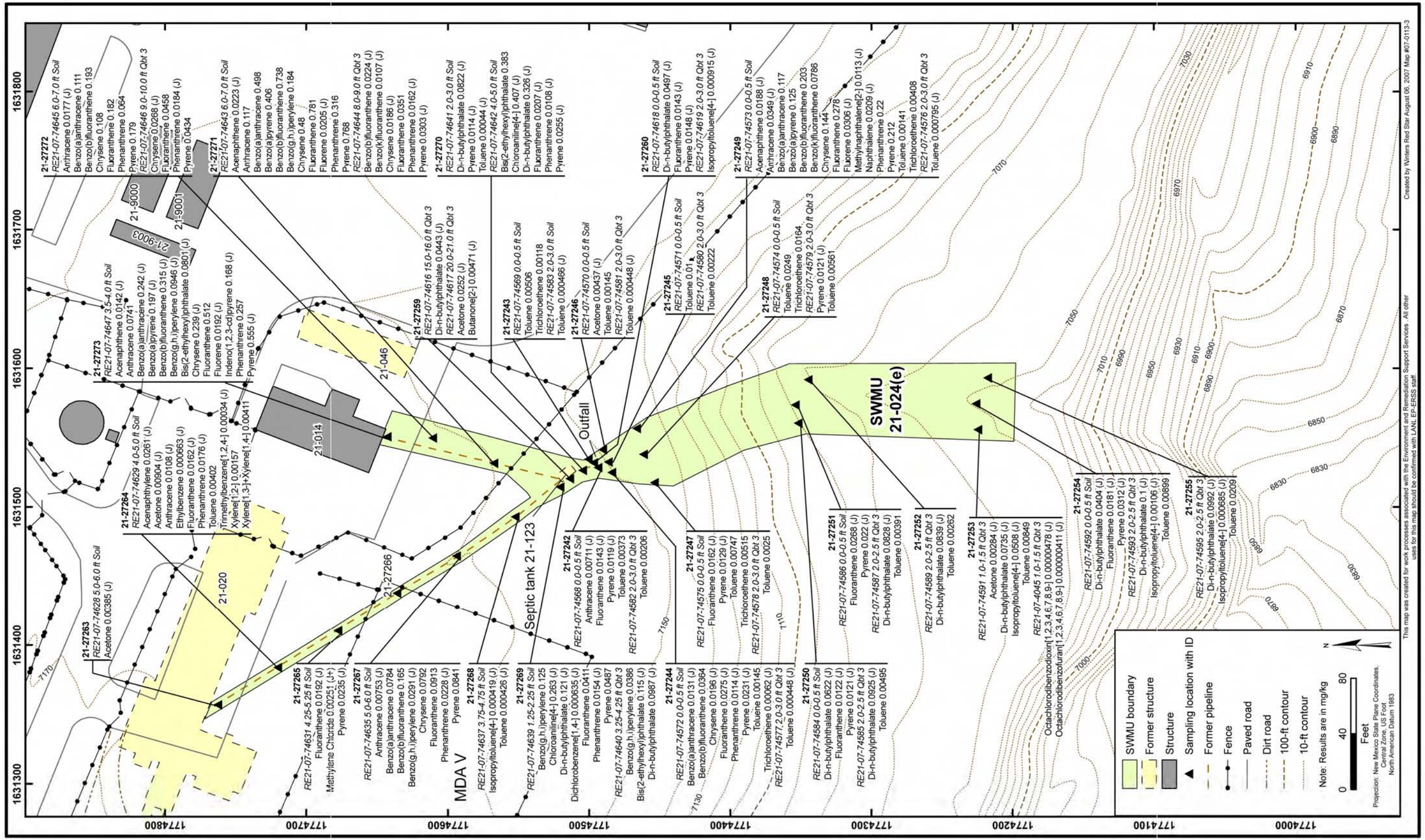

Figure 6.4-7 Organic chemicals detected at SWMU 21-024(e)

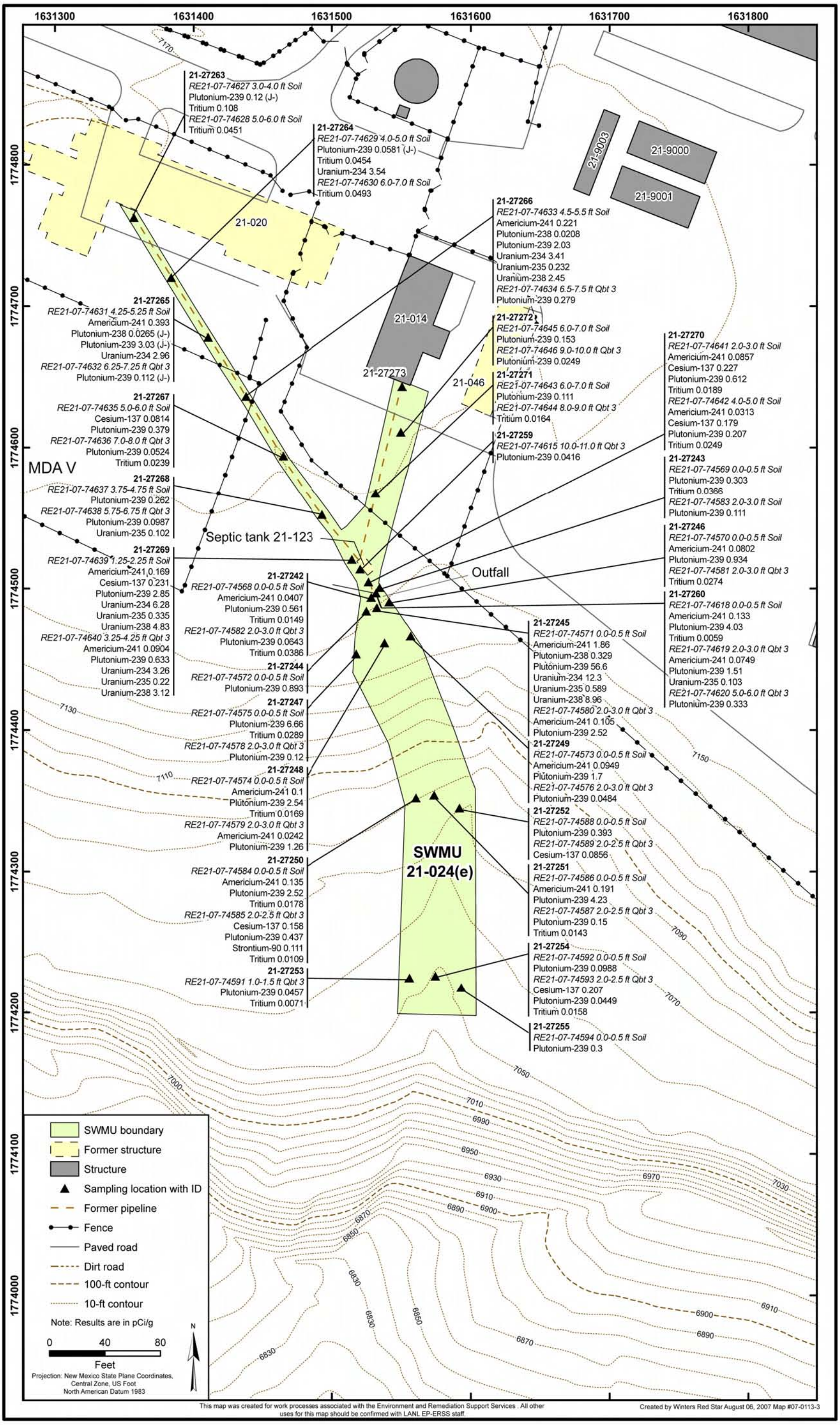

Figure 6.4-8 Radionuclides detected or detected above BVs or FVs at SWMU 21-024(e)

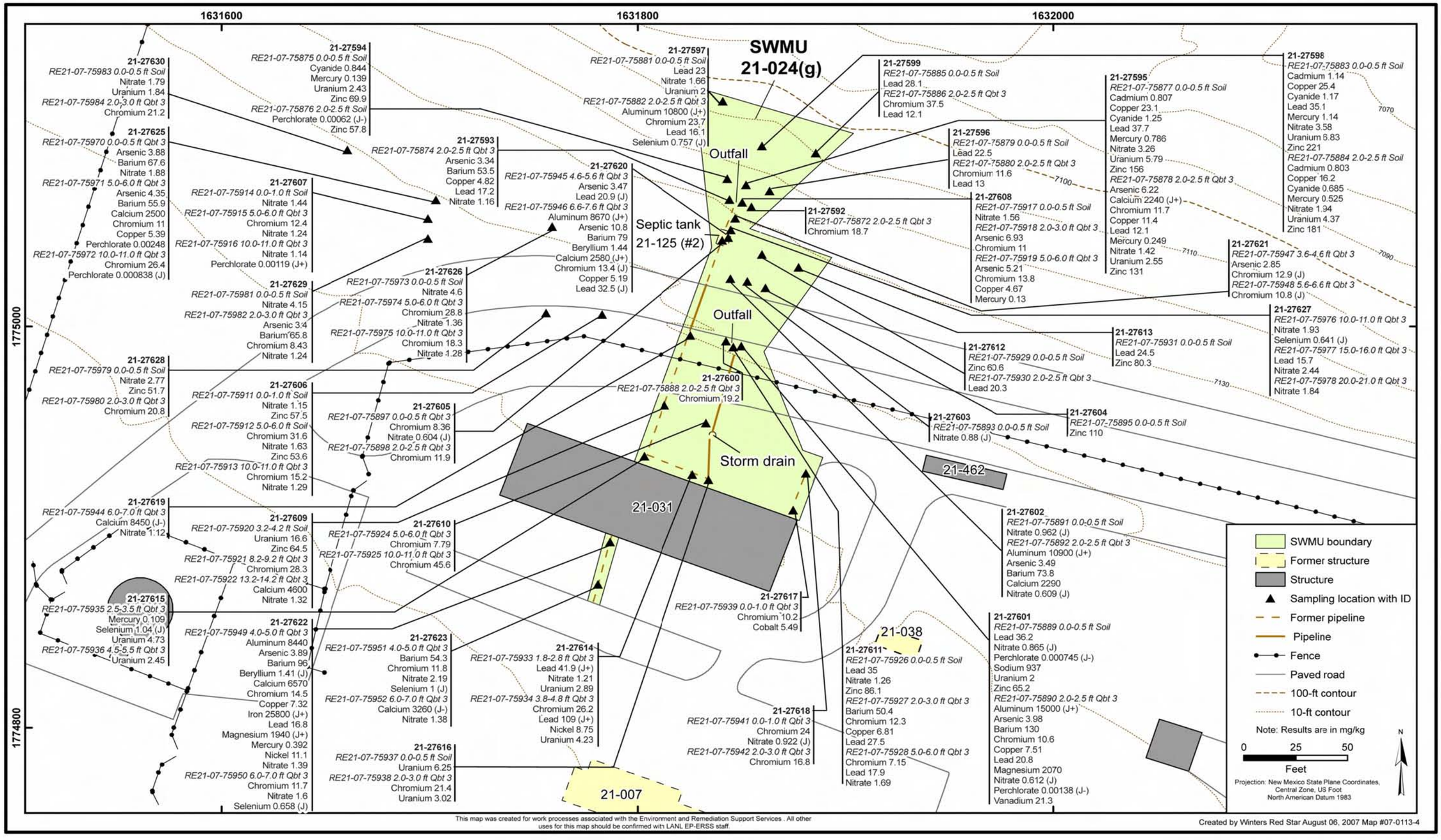

Figure 6.4-9 Inorganic chemicals detected above BVs at SWMU 21-024(g)

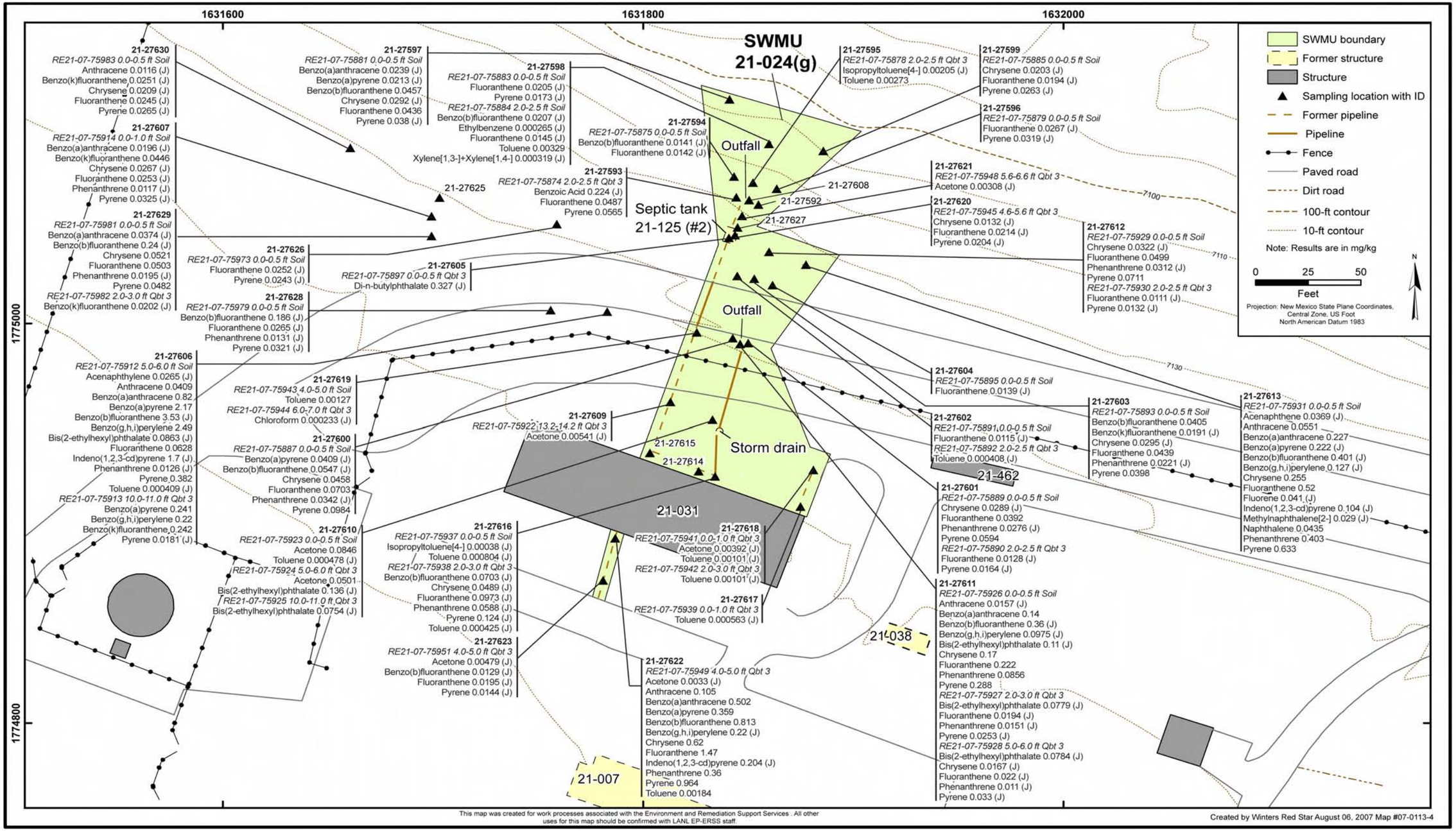

Figure 6.4-10 Organic chemicals detected at SWMU 21-024(g)

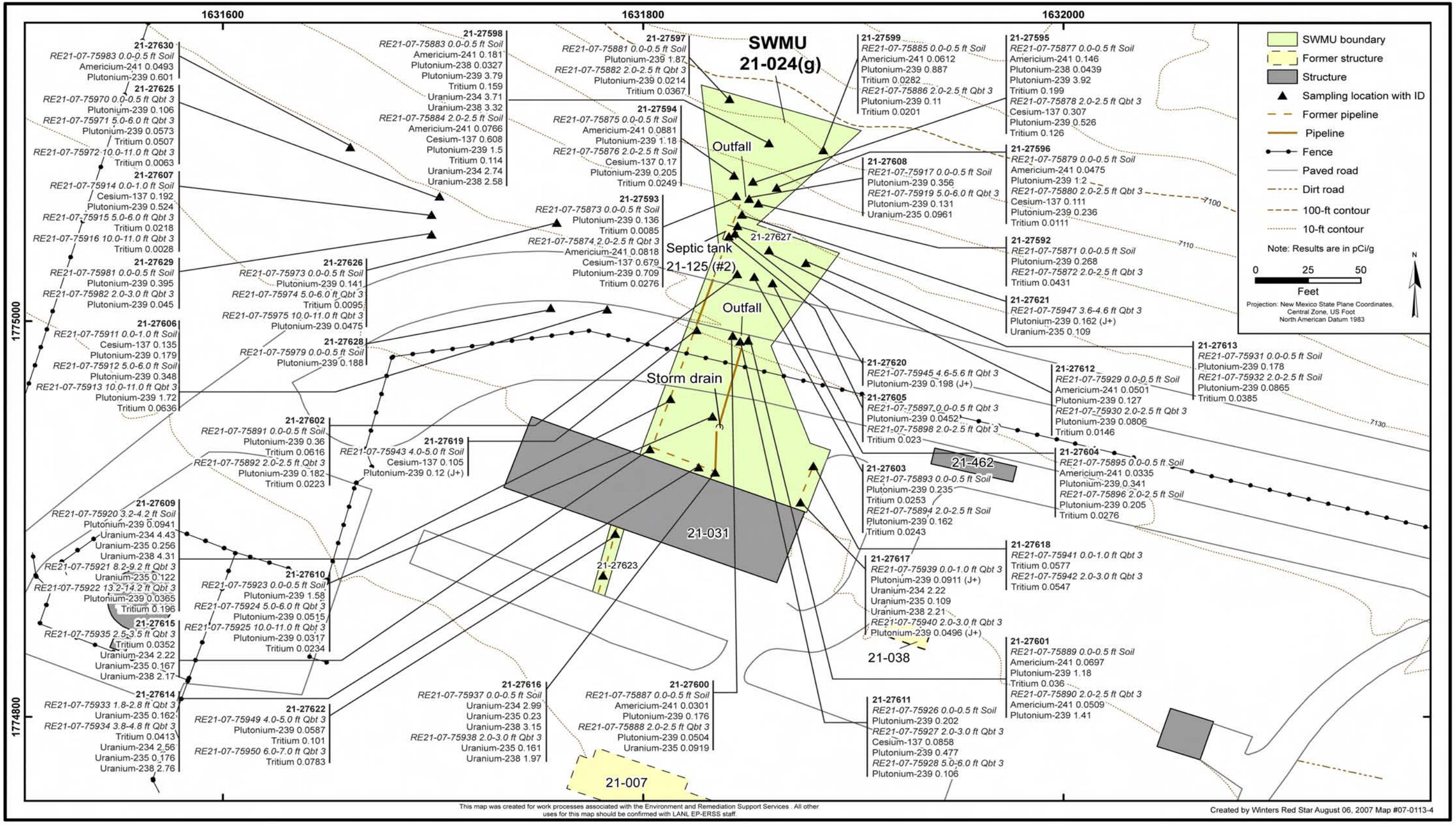

Figure 6.4-11 Radionuclides detected or detected above BVs or FVs at SWMU 21-024(g)

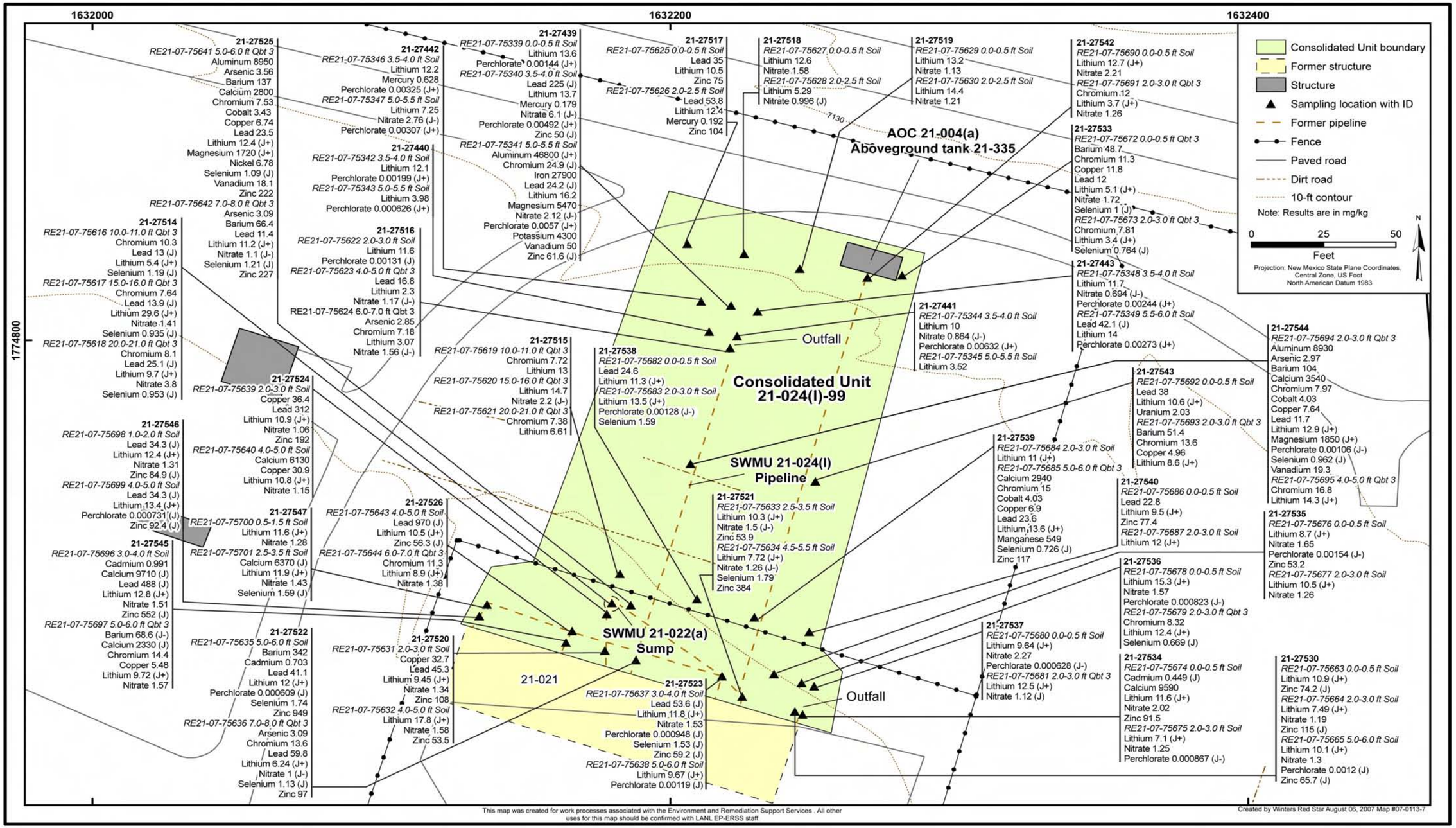

Figure 6.4-12 Inorganic chemicals detected above BVs at Consolidated Unit 21-024(I)-99

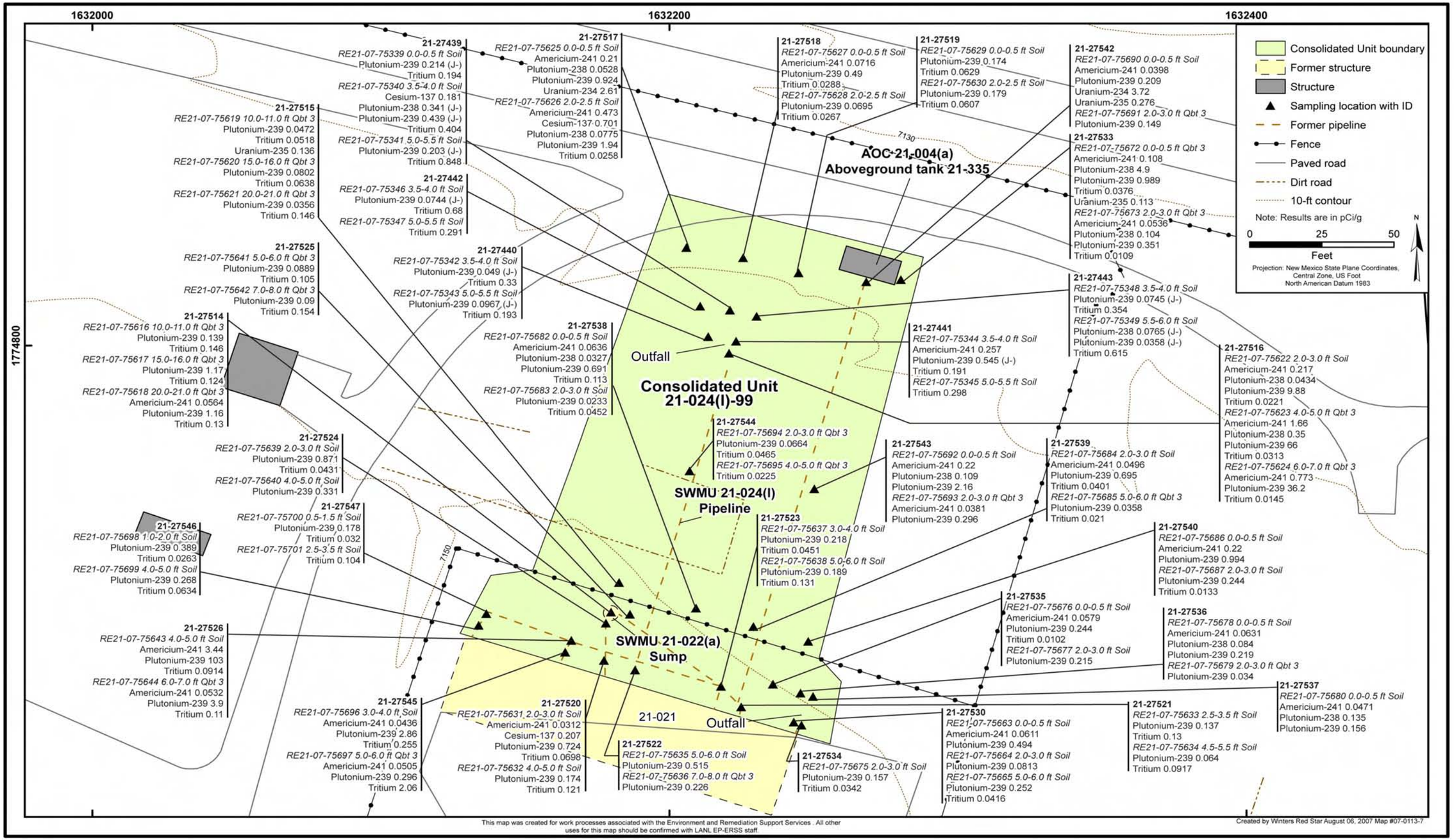

Figure 6.4-13 Radionuclides detected or detected above BVs or FVs at Consolidated Unit 21-024(l)-99

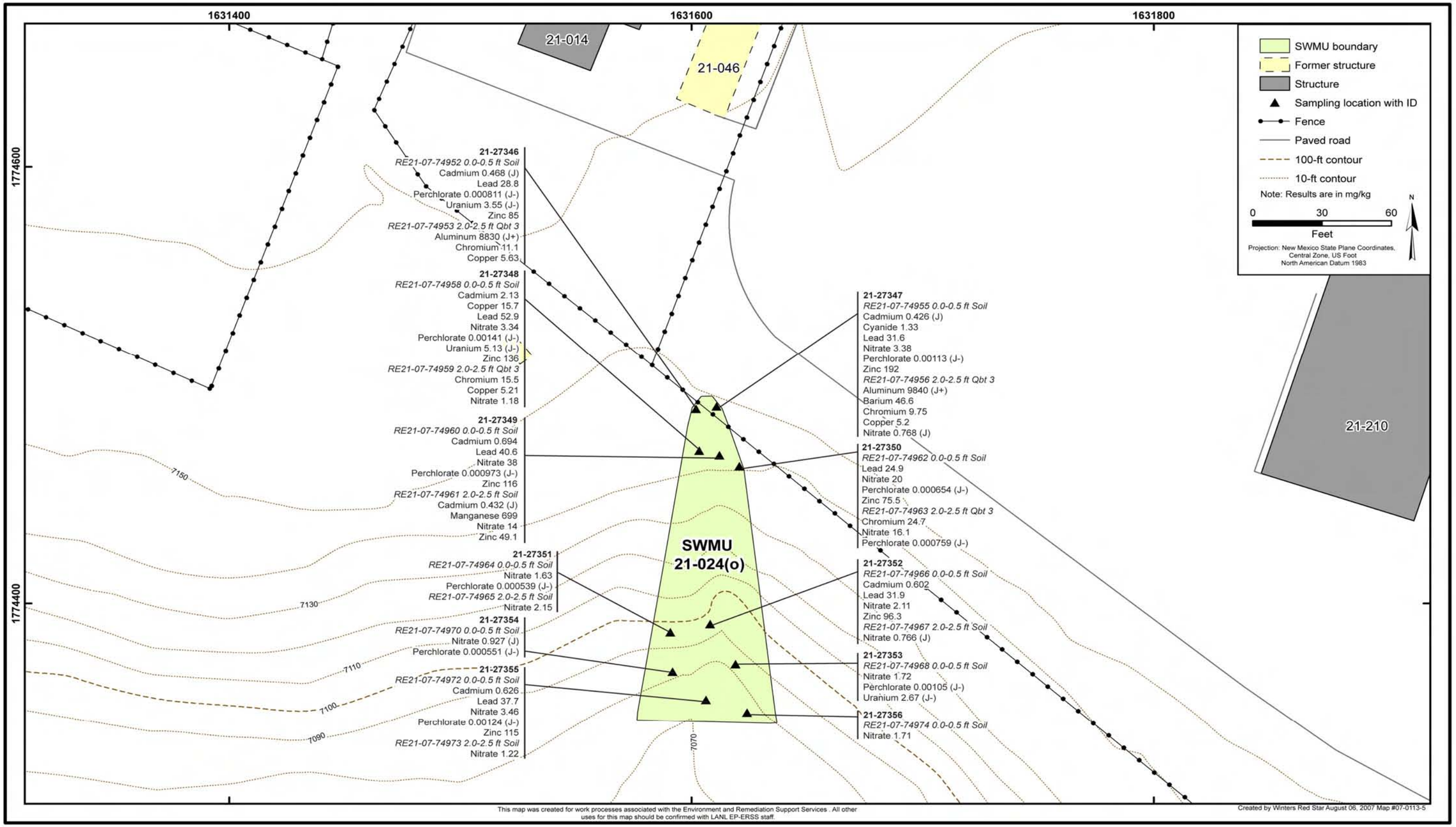

Figure 6.4-14 Inorganic chemicals detected above BVs at SWMU 21-024(o)

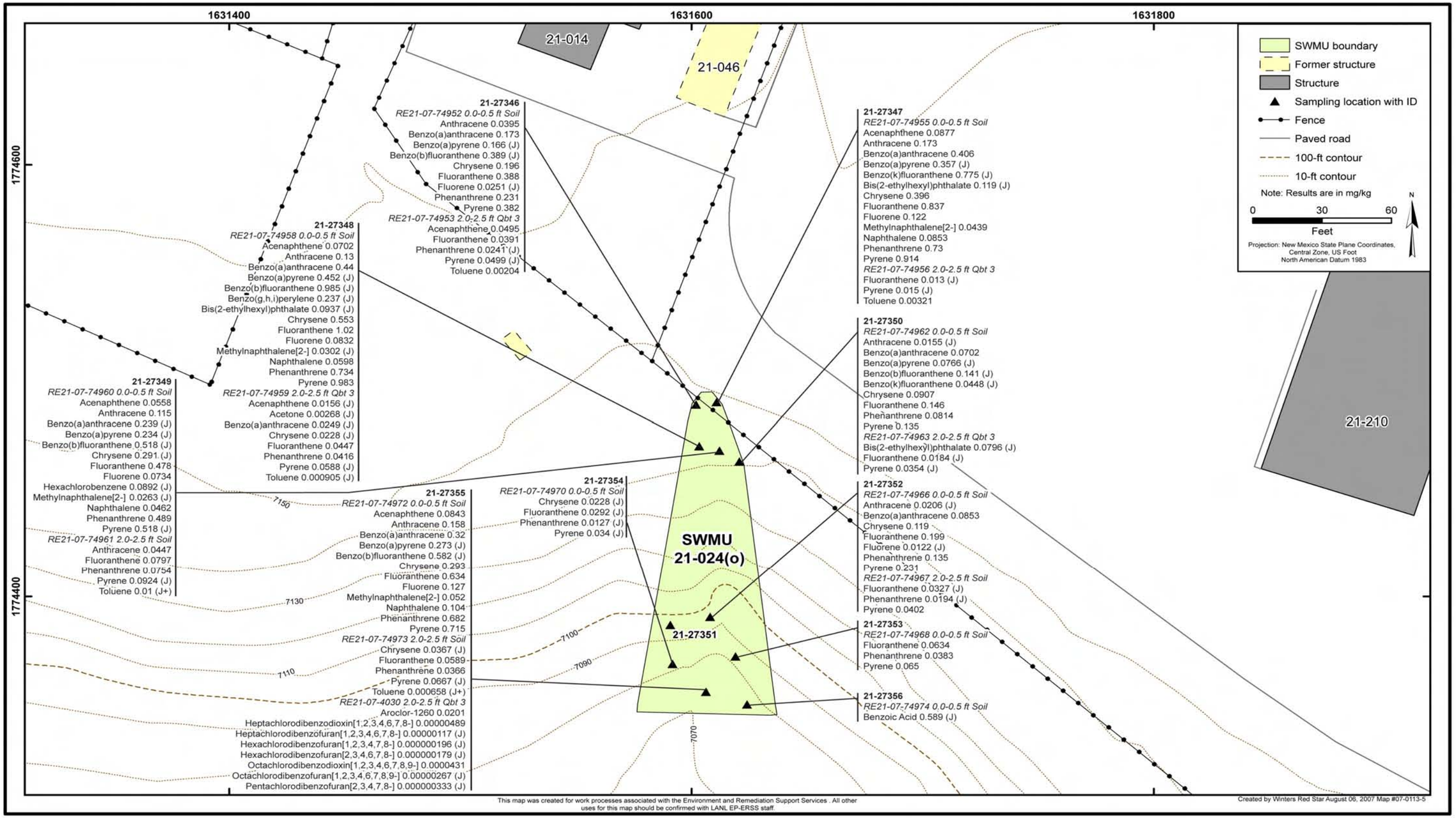

Figure 6.4-15 Organic chemicals detected at SWMU 21-024(o)

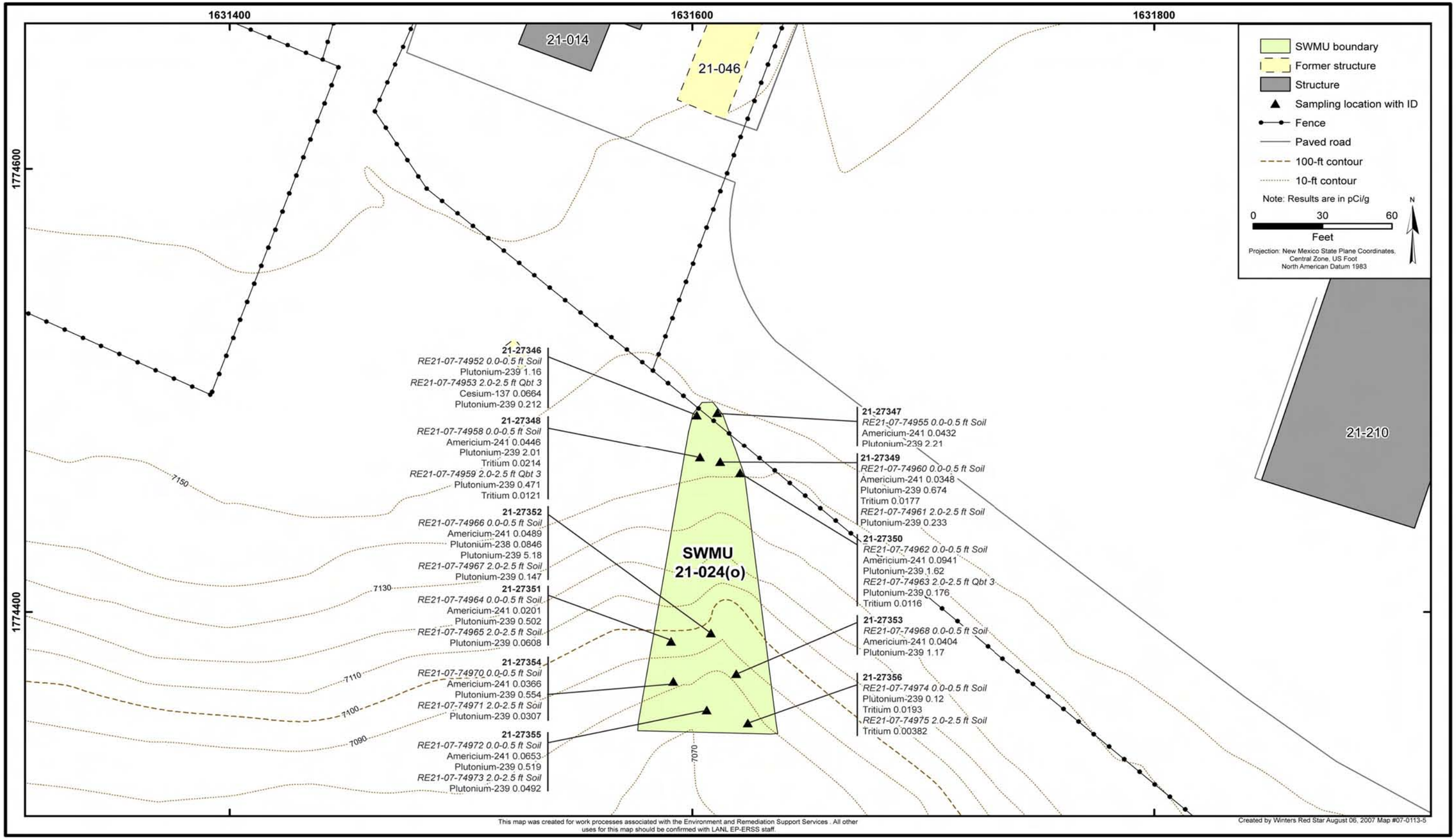

Figure 6.4-16 Radionuclides detected or detected above FVs at SWMU 21-024(o)

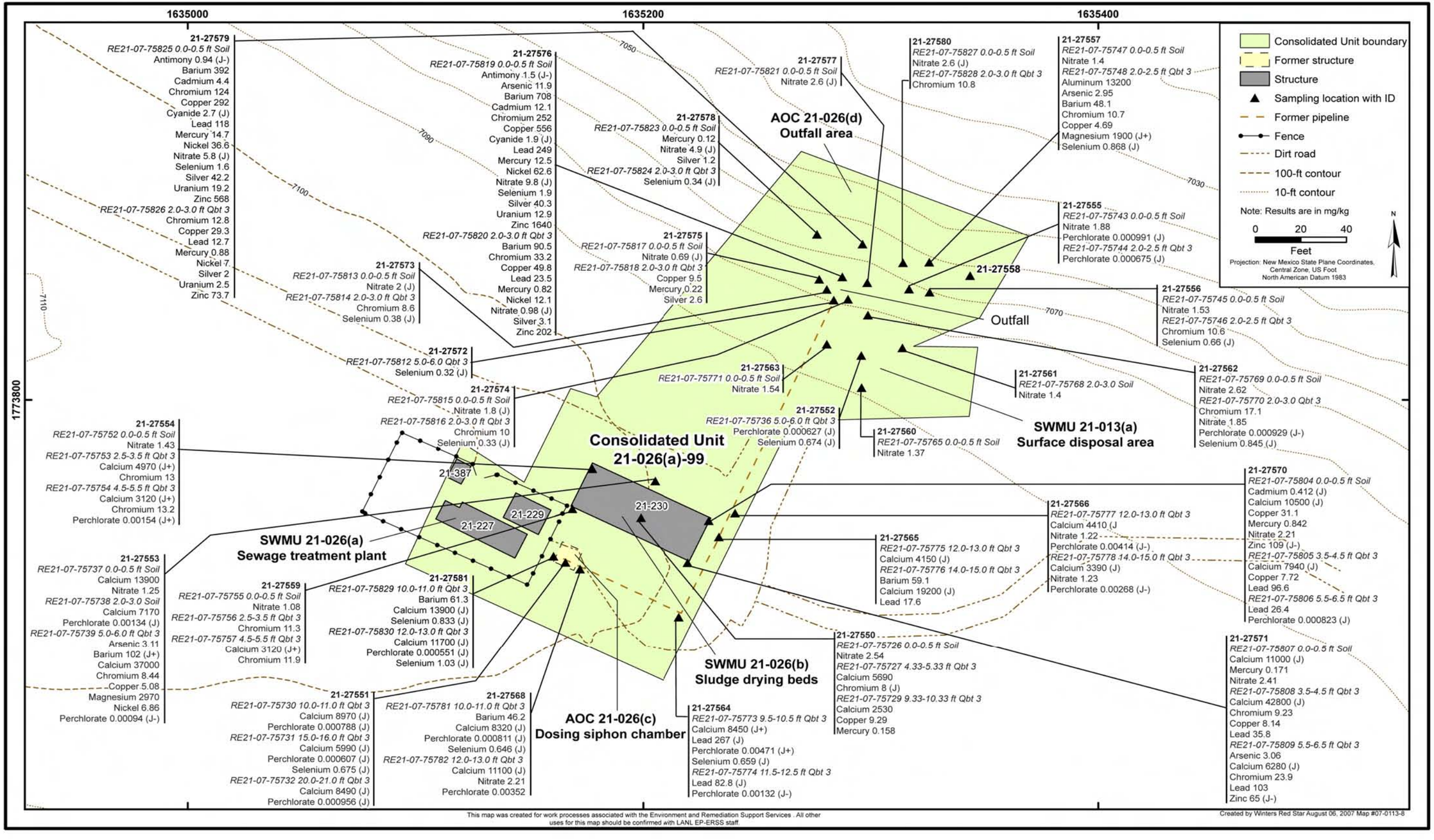

Figure 6.4-17 Inorganic chemicals detected above BVs at Consolidated Unit 21-026(a)-99

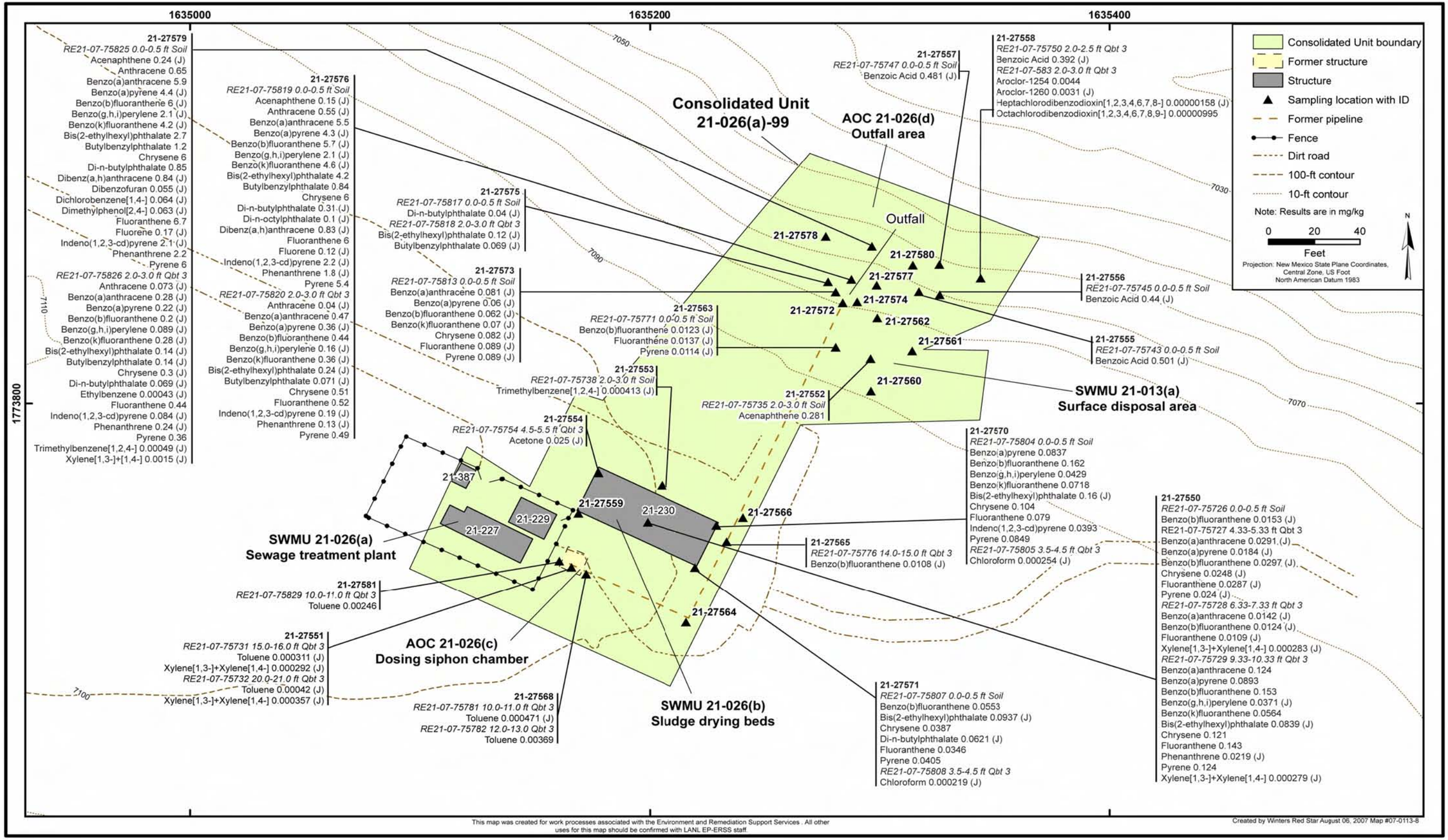

Figure 6.4-18 Organic chemicals detected at Consolidated Unit 21-026(a)-99

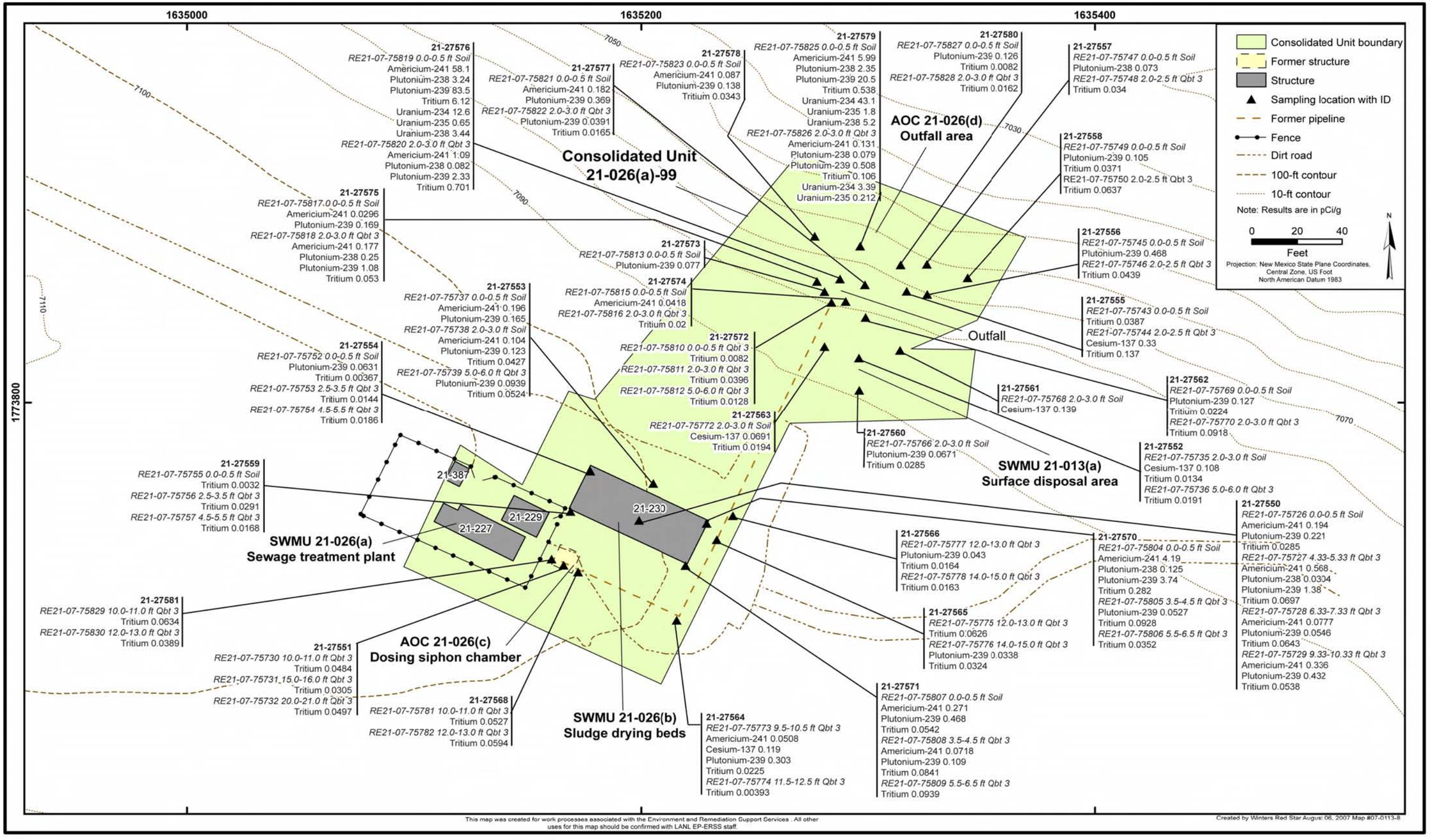

Figure 6.4-19 Radionuclides detected or detected above BVs or FVs at Consolidated Unit 21-026(a)-99

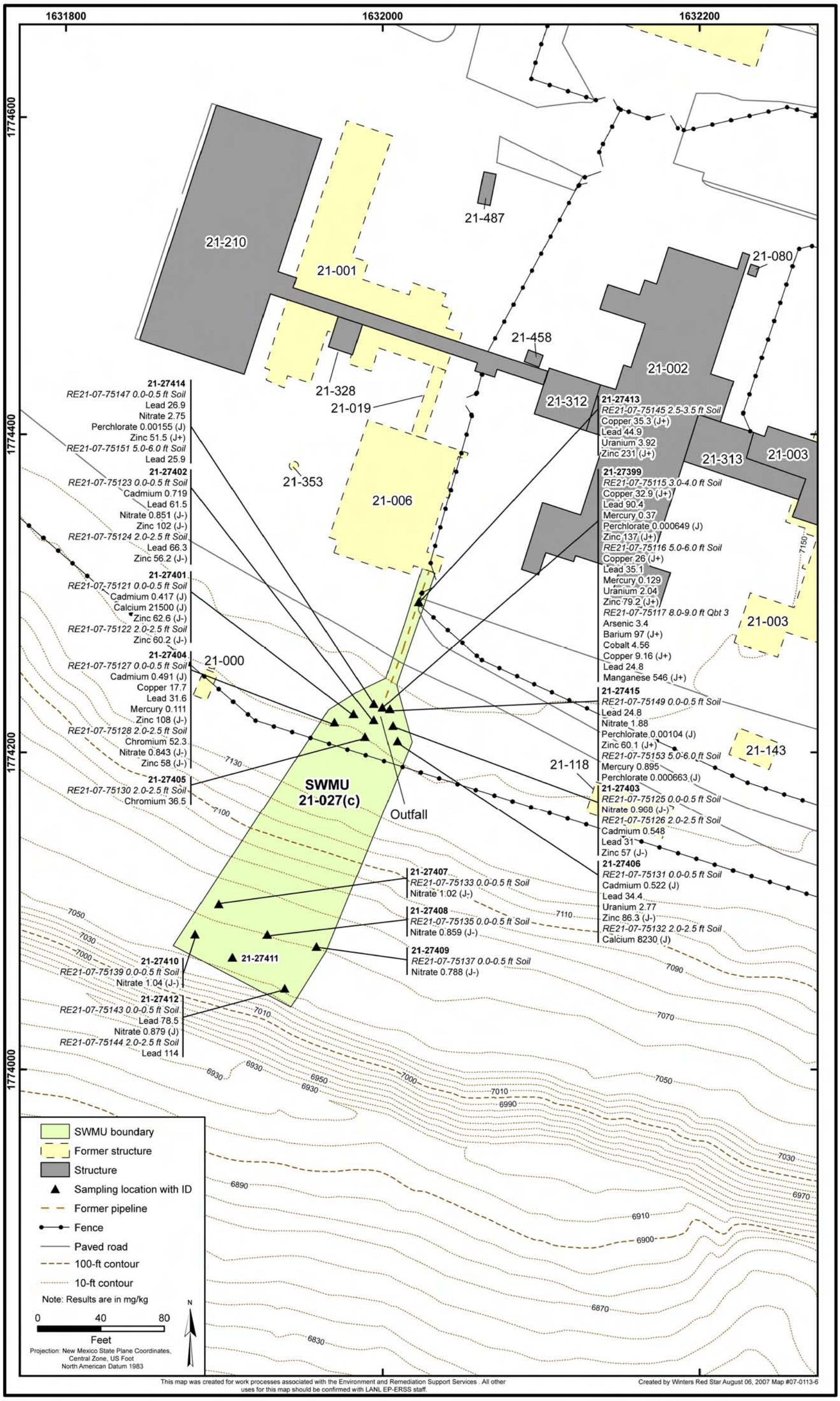

Figure 6.4-20 Inorganic chemicals detected above BVs at SWMU 21-027(c)

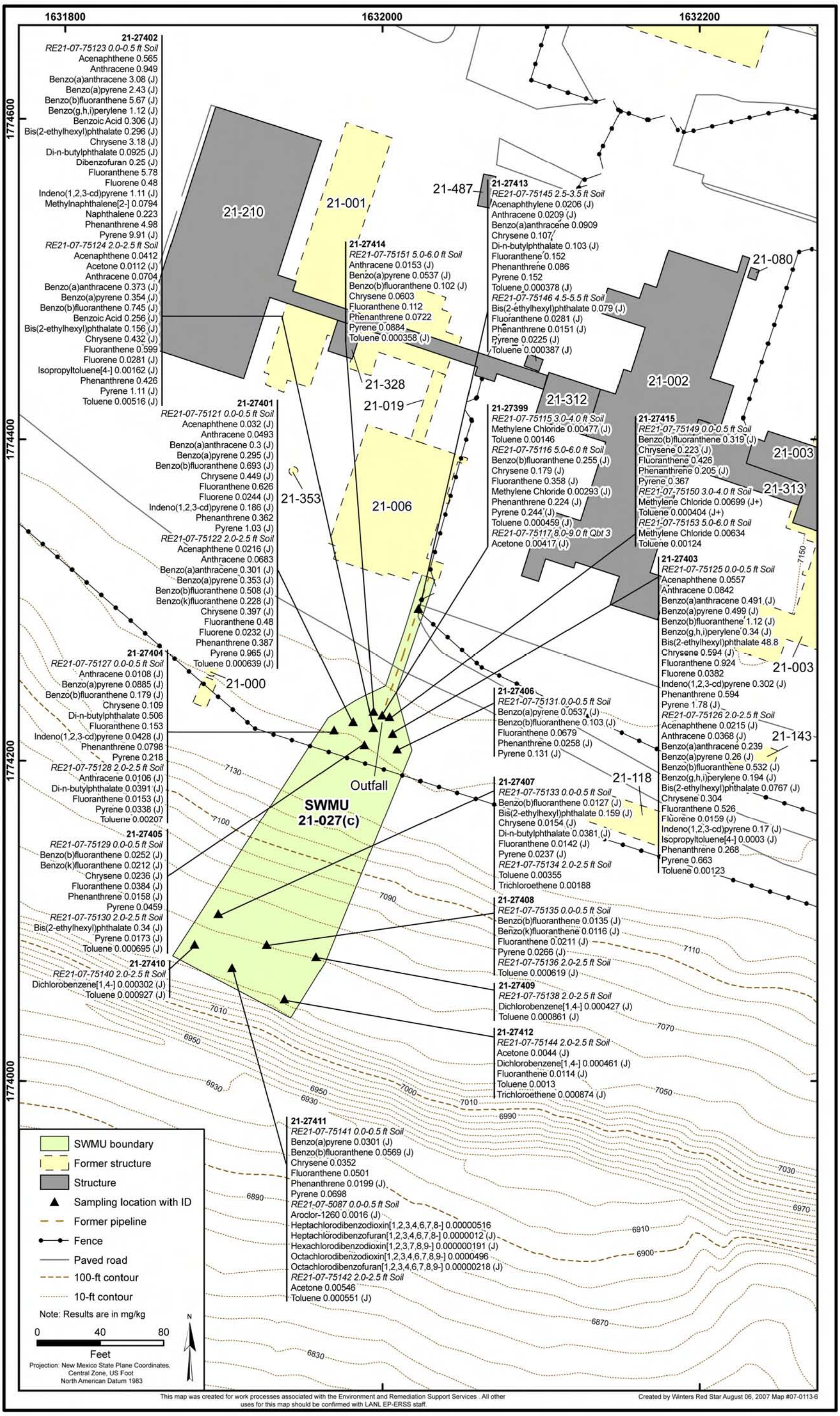

Figure 6.4-21 Organic chemicals detected at SWMU 21-027(c)

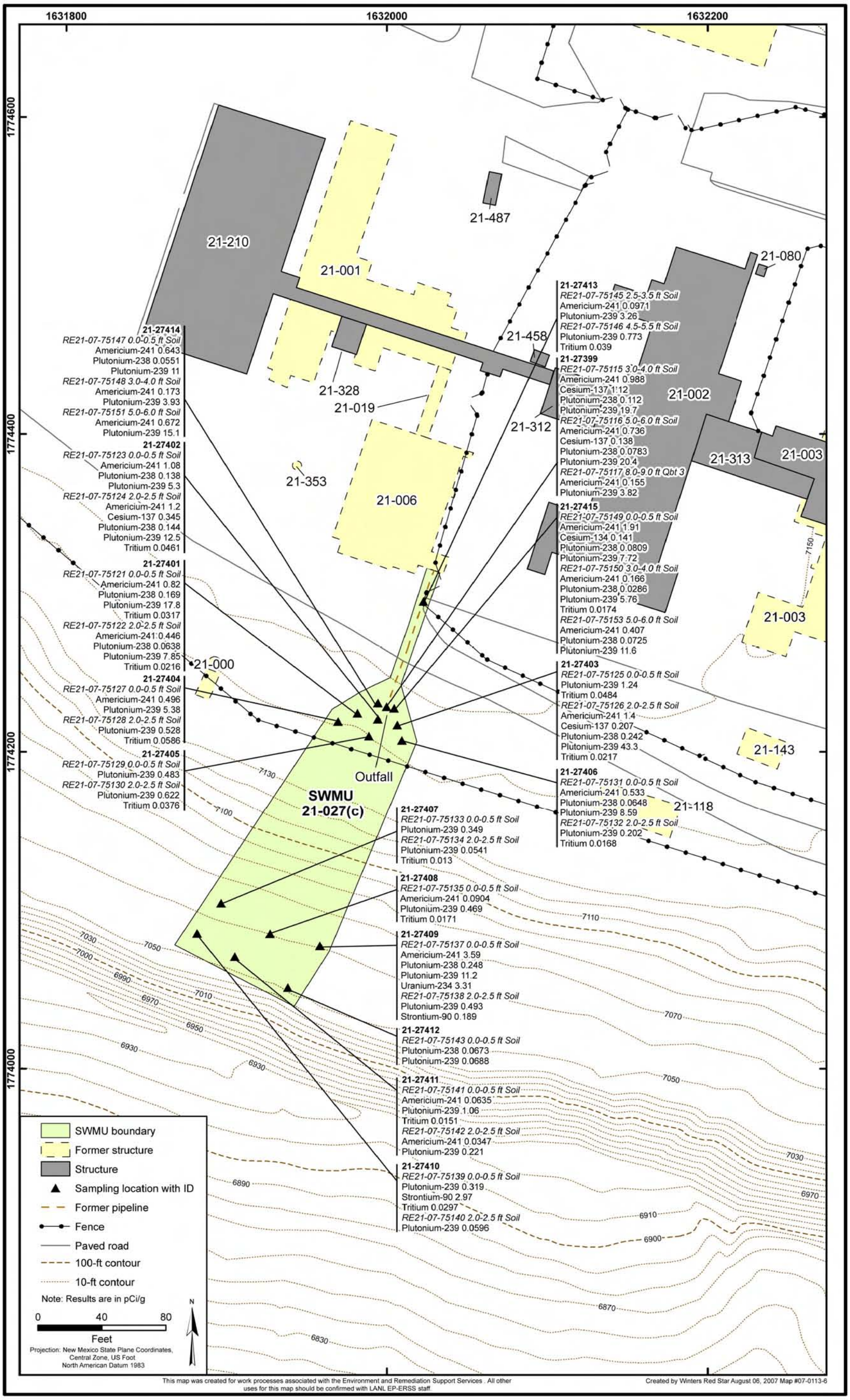

Figure 6.4-22 Radionuclides detected or detected above BVs or FVs at SWMU 21-027(c)

Table 1.1-1
SWMUs and AOCs Addressed in This Report

Consolidated Unit	SWMU/AOC Number	Site Description	Site Status
	AOC 21-002(b)	Container storage area	Investigated, reported
21-003-99	SWMU 21-003	Container storage area	Investigated, reported, remediation pending
	AOC 21-013(f)	Surface disposal site	
21-006(c)-99	SWMU 21-006(a)	Seepage pits	36% complete; work ongoing
	SWMU 21-006(b)	Seepage pits	
	SWMU 21-006(c)	Seepage pits	
	SWMU 21-006(d)	Seepage pits	
	AOC 21-009	Waste treatment laboratory	Investigated, reported
	SWMU 21-012(b)	Dry well and system	Investigated, reported
	SWMU 21-013(c)	Surface disposal area	Investigated, reported
21-017(a)-99	SWMU 21-022(f)	Sump and pipeline	Delayed pending deactivation of utilities
21-022(h)-99	SWMU 21-022(h)	Sump, pipeline, and outfall	95% complete; work ongoing
	SWMU 21-022(i)	Sump pump	
	SWMU 21-022(j)	Sump pump	
21-023(a)-99	SWMU 21-023(a)	Septic system, building 21-3	95% complete; work ongoing
	SWMU 21-023(b)	Septic system, building 21-3	
	SWMU 21-023(d)	Septic system, building 21-3	
	SWMU 21-024(a)	Septic system	Investigated, reported
	SWMU 21-024(b)	Septic system	95% complete; work ongoing
	SWMU 21-024(c)	Septic system	Investigated, reported; remediation pending
	SWMU 21-024(d)	Septic system	95% complete; work ongoing
	SWMU 21-024(e)	Septic system	Investigated, reported
	SWMU 21-024(g)	Septic system	Investigated, reported
	SWMU 21-024(h)	Septic system	Outfall samples collected, delayed pending deactivation of utilities
	SWMU 21-024(i)	Septic system (inlet line only)	5% complete; work ongoing
	SWMU 21-024(j)	Septic system	5% complete; work ongoing
	SWMU 21-024(k)	Septic system	Outfall samples collected, delayed pending deactivation of utilities
21-024(l)-99	AOC 21-004(a)	Aboveground tank	Investigated, reported
	SWMU 21-022(a)	Waste line and sump	
	SWMU 21-024(l)	Outfall	
	SWMU 21-024(n)	Drainline	Outfall samples collected, delayed pending deactivation of utilities
	SWMU 21-024(o)	Drainline	Investigated, reported

Table 1.1-1 (continued)

Consolidated Unit	SWMU/AOC Number	Site Description	Site Status
21-026(a)-99	SWMU 21-013(a)	Surface disposal area	Investigated, reported
	SWMU 21-026(a)	Sewage treatment plant	
	SWMU 21-026(b)	Sludge drying/sand filter beds	
	AOC 21-026(c)	Dosing siphon chamber	
	AOC 21-026(d)	Outfall	
	SWMU 21-027(a)	Surface drainage and outfalls	95% complete; work ongoing
	SWMU 21-027(c)	Pipe and outfall	Investigated, reported
PCB-contamination area	Near SWMU 21-024(m)	Outfall	Investigated, reported

Note: Shading denotes SWMUs/AOCs that are not consolidated.

Table 1.1-2
SWMUs and AOCs Not Addressed in This Report

Consolidated Unit	SWMU/AOC Number	Site Description	Site Status
21-002(a)	SWMU 21-002(a)	Container storage areas	Other work plan (Supplemental DP Site)
21-004(b)-99	SWMU 21-004(b)	Tank and/or associated equipment	Other work plan (Middle Los Alamos)
	SWMU 21-004(c)	Tank and/or associated equipment	Other work plan (Middle Los Alamos)
	AOC 21-004(d)	Drain line	Other work plan (Middle Los Alamos)
21-006(e)-99	SWMU 21-006(e)	Seepage pit	Other work plan (Middle Los Alamos)
	AOC 21-006(f)	Seepage pit	Other work plan (Middle Los Alamos)
	SWMU 21-011(b)	Sump	Other work plan (Middle Los Alamos)
	SWMU 21-011(k)	Outfall	Remedy complete
21-013(d)-99	SWMU 21-013(d)	Surface disposal site (cold dump)	Remedy complete
	SWMU 21-013(e)	Surface disposal site	Remedy complete
	SWMU 21-014	MDA A	Other work plan (MDA A)
	SWMU 21-015	MDA B	Other work plan (MDA B)
21-016(a)-99	AOC 21-001	Container storage	Other work plan (MDA T)
	SWMU 21-007	Incinerators	Other work plan (MDA T)
	SWMU 21-010(a)	Waste treatment facility	Other work plan (MDA T)
	SWMU 21-010(b)	Waste treatment facility	Other work plan (MDA T)
	SWMU 21-010(c)	Waste treatment facility	Other work plan (MDA T)
	SWMU 21-010(d)	Waste treatment facility	Other work plan (MDA T)
	SWMU 21-010(e)	Waste treatment facility	Other work plan (MDA T)
	SWMU 21-010(f)	Waste treatment facility	Other work plan (MDA T)
	SWMU 21-010(g)	Waste treatment facility	Other work plan (MDA T)
	SWMU 21-010(h)	Waste treatment facility	Other work plan (MDA T)
	SWMU 21-011(a)	Waste treatment facility	Other work plan (MDA T)
	SWMU 21-011(c)	Tank and sump	Other work plan (MDA T)
	SWMU 21-011(d)	Aboveground tank	Other work plan (MDA T)
	SWMU 21-011(e)	Aboveground tank	Other work plan (MDA T)
	SWMU 21-011(f)	Aboveground tank	Other work plan (MDA T)
	SWMU 21-011(g)	Aboveground tank	Other work plan (MDA T)
	AOC 21-011(h)	Aboveground tank	Other work plan (MDA T)
	SWMU 21-011(i)	Aboveground tank	Other work plan (MDA T)
	SWMU 21-011(j)	Aboveground tank	Other work plan (MDA T)
	SWMU 21-016(a)	MDA T	Other work plan (MDA T)
	SWMU 21-016(b)	MDA T	Other work plan (MDA T)
	AOC 21-028(a)	Container storage	Other work plan (MDA T)
	AOC C-21-009	One-time spill	Other work plan (MDA T)
	AOC C-21-012	One-time spill	Other work plan (MDA T)

Table 1.1-2 (continued)

Consolidated Unit	SWMU/AOC Number	Site Description	Site Status
21-017(a)-99	SWMU 21-017(a)	MDA U	Other work plan (MDA U)
	SWMU 21-017(b)	MDA U	Other work plan (MDA U)
	SWMU 21-017(c)	MDA U	Other work plan (MDA U)
21-018(a)-99	SWMU 21-013(b)	Surface disposal site	Other work plan (MDA V)
	AOC 21-013(g)	Surface disposal site	Other work plan (MDA V)
	SWMU 21-018(a)	MDA V	Other work plan (MDA V)
	SWMU 21-018(b)	MDA V laundry facility	Other work plan (MDA V)
	SWMU 21-023(c)	Septic system	Other work plan (MDA V)
21-021-99	SWMU 21-021	Systematic release (sitewide)	Investigation complete
21-022(b)-99	SWMU 21-022(b)	Waste lines, Building 21-2	Other work plan (Middle Los Alamos)
	SWMU 21-022(c)	Waste lines, Building 21-3	Other work plan (Middle Los Alamos)
	SWMU 21-022(d)	Waste lines, Building 21-4	Other work plan (Middle Los Alamos)
	SWMU 21-022(e)	Waste lines, Building 21-5	Other work plan (Middle Los Alamos)
	SWMU 21-022(g)	Waste lines, Building 21-150	Other work plan (Middle Los Alamos)
	SWMU 21-024(f)	Septic system	Remedy complete
	SWMU 21-024(i)	Septic system (tank and outfall area)	Partial remedy complete
21-027(d)-99	SWMU 21-027(d)	Drain line	Partial remedy complete
	AOC 21-028(c)	Container storage Building 21-3	Other work plan (Middle Los Alamos)
	SWMU 21-029	DP tank farm	Investigation complete
	AOC 21-030	Sump	Remedy complete
	AOC C-21-001	One-time spill	Other work plan (Supplemental DP Site)
	AOC C-21-002	Nonintentional release area	Other work plan (MDA T)
	AOC C-21-005	One-time spill	Other work plan (MDA T)
	AOC C-21-006	Unintentional release area	Other work plan (Supplemental DP Site)
	AOC C-21-007	Non-intentional release area	Other work plan (MDA T)
	AOC C-21-027	Cooling tower	Other work plan (Supplemental DP Site)
	AOC C-21-033	One-time spill	Other work plan (MDA T)
	AOC C-21-034	Tank	Other work plan (MDA T)
	AOC C-21-035	Aboveground tank	Other work plan (MDA T)
	AOC C-21-036	Aboveground tank	Other work plan (MDA T)
	AOC C-21-037	Aboveground tank	Other work plan (MDA T)
	AOC 21-028(d)	Container storage dock area	Other work plan (Supplemental DP Site)

Note: Shading denotes SWMUs/AOCs that are not consolidated.

Table 1.1-3
SWMUs and AOCs Approved for No Further Action

Consolidated Unit	SWMU/AOC Number	ER ID Number of Request or Approval Document
	SWMU 21-005	NMED 2001, 070236
	AOC 21-008	EPA 2004, 087296
	SWMU 21-012(a)	NMED 1998, 063042
21-021-99	AOC 21-019(a)	EPA 2004, 087296
	AOC 21-019(b)	EPA 2004, 087296
	AOC 21-019(c)	EPA 2004, 087296
	AOC 21-019(d)	EPA 2004, 087296
	AOC 21-019(e)	EPA 2004, 087296
	AOC 21-019(f)	EPA 2004, 087296
	AOC 21-019(g)	EPA 2004, 087296
	AOC 21-019(h)	EPA 2004, 087296
	AOC 21-019(i)	EPA 2004, 087296
	AOC 21-019(j)	EPA 2004, 087296
	AOC 21-019(k)	EPA 2004, 087296
	AOC 21-019(l)	EPA 2004, 087296
	AOC 21-019(m)	EPA 2004, 087296
	AOC 21-020(a)	EPA 2004, 087296
	AOC 21-020(b)	EPA 2004, 087296
	SWMU 21-024(m)	NMED 1998, 063042
	AOC 21-025(a)	EPA 2004, 087296
	AOC 21-025(b)	EPA 2004, 087296
	SWMU 21-027(b)	NMED 1998, 063042
	AOC 21-028(b)	EPA 2004, 087296
	AOC 21-028(e)	EPA 2004, 087296
	SWMU 21-029	NMED 2003, 078138
	AOC C-21-002	EPA 2004, 087296
	AOC C-21-003	EPA 2004, 087296
	AOC C-21-004	EPA 2004, 087296
	AOC C-21-008	EPA 2004, 087296
	AOC C-21-010	EPA 2004, 087296
	AOC C-21-011	EPA 2004, 087296
	AOC C-21-013	EPA 2004, 087296
	AOC C-21-014	EPA 2004, 087296
	AOC C-21-015	EPA 2004, 087296
	AOC C-21-016	EPA 2004, 087296
	AOC C-21-017	EPA 2004, 087296

Table 1.1-3 (continued)

Consolidated Unit	SWMU/AOC Number	ER ID Number of Request or Approval Document
	AOC C-21-018	EPA 2004, 087296
	AOC C-21-019	EPA 2004, 087296
	AOC C-21-020	EPA 2004, 087296
	AOC C-21-021	EPA 2004, 087296
	AOC C-21-022	EPA 2004, 087296
	AOC C-21-023	EPA 2004, 087296
	AOC C-21-024	EPA 2004, 087296
	AOC C-21-025	EPA 2004, 087296
	AOC C-21-026	EPA 2004, 087296
21-027(d)-99	AOC C-21-028	EPA 2004, 087296
	AOC C-21-029	EPA 2004, 087296
	AOC C-21-030	EPA 2004, 087296
	AOC C-21-031	EPA 2004, 087296
	AOC C-21-032	EPA 2004, 087296

Note: Shading denotes SWMUs/AOCs that are not consolidated.

Table 3.0-1
Number and Type of Samples Collected at the Investigation Sites

SWMU/AOC/ Consolidated Unit	Surface Samples Collected	Subsurface Samples Collected	Subtotal Surface and Subsurface Samples	Field Duplicate Samples Collected	Trip Blank Samples Collected	Rinsate Samples Collected	Total Samples Collected
21-002(b)	18	18	36	4	2	2	44
21-003-99	47	81	128	9	5	5	147
21-009	8	8	16	1	1	1	19
21-013(c)	33	33	66	5	3	3	77
21-024(c)	15	35	50	4	5	3	62
Suspected PCB-Contaminated Outfall	18	6	24	1	0	0	25
Total	**139**	**181**	**320**	**24**	**16**	**14**	**374**

Note: Data are from the 2006/2007 field investigation with the exception of usable 1994 data at Consolidated Unit 21-003-99 and SWMU 21-013(c)

Table 3.0-2
Number and Type of Samples Collected at the Facility-unimpacted Corrective Action Sites

SWMU/AOC/ Consolidated Unit	Surface Samples Collected	Subsurface Samples Collected	Subtotal Surface and Subsurface Samples	Field Duplicate Samples Collected	Trip Blank Samples Collected	Rinsate Samples Collected	Total Samples Collected
21-012(b)	22	84	106	8	8	5	127
21-024(a)	14	32	46	4	5	3	58
21-024(e)	15	42	57	4	4	3	68
21-024(g)	25	61	86	5	5	5	101
21-024(l)-99	14	58	72	4	5	3	84
21-024(o)	11	12	23	2	1	0	26
21-026(a)-99	24	47	71	5	7	3	86
21-027(c)	15	21	36	2	0	1	39
Total	**140**	**357**	**497**	**34**	**35**	**23**	**589**

Table 3.1-1
Samples Collected and Laboratory Analyses Requested for AOC 21-002(b)

Sample ID	Location ID	Depth (ft)	Media	Nitrate/pH	Cyanide (Total)	Metals	Perchlorate	Dioxin/Furan	Explosive Compounds	PCBs	SVOCs	VOCs	Americium-241	Gamma Spectroscopy	Tritium	Isotopic Plutonium	Isotopic Uranium	Strontium-90
RE21-06-68368	21-25679	0.0–0.5	Soil	5717S[a]	5717S	5717S	5717S	—[b]	—	—	5715S	—	5719S	5719S	5719S	5719S	5719S	5719S
RE21-06-68369	21-25679	2.5–3.0	Tuff	5717S	5717S	5717S	5717S	5726S	5716S	5715S	5715S	5715S	5719S	5719S	5719S	5719S	5719S	5719S
RE21-06-68370	21-25680	0.0–0.5	Soil	5717S	5717S	5717S	5717S	—	—	—	5715S	—	5719S	5719S	5719S	5719S	5719S	5719S
RE21-06-68371	21-25680	2.5–3.0	Tuff	5717S	5717S	5717S	5717S	—	—	—	5715S	5715S	5719S	5719S	5719S	5719S	5719S	5719S
RE21-06-68373	21-25681	0.0–0.5	Soil	5717S	5717S	5717S	5717S	—	—	—	5715S	—	5719S	5719S	5719S	5719S	5719S	5719S
RE21-06-68374	21-25681	2.5–3.0	Tuff	5717S	5717S	5717S	5717S	—	—	—	5715S	5715S	5719S	5719S	5719S	5719S	5719S	5719S
RE21-06-68375	21-25682	0.0–0.5	Soil	5717S	5717S	5717S	5717S	—	—	—	5715S	—	5719S	5719S	5719S	5719S	5719S	5719S
RE21-06-68376	21-25682	2.5–3.0	Tuff	5717S	5717S	5717S	5717S	—	—	—	5715S	5715S	5719S	5719S	5719S	5719S	5719S	5719S
RE21-06-68378	21-25683	0.0–0.5	Soil	5717S	5717S	5717S	5717S	—	—	—	5715S	—	5719S	5719S	5719S	5719S	5719S	5719S
RE21-06-68379	21-25683	2.5–3.0	Tuff	5717S	5717S	5717S	5717S	—	5713S	5713S	5713S	5715S	5719S	5719S	5719S	5719S	5719S	5719S
RE21-06-68380	21-25684	0.0–0.5	Soil	5717S	5717S	5717S	5717S	—	—	—	5715S	—	5719S	5719S	5719S	5719S	5719S	5719S
RE21-06-68381	21-25684	2.5–3.0	Tuff	5717S	5717S	5717S	5717S	—	—	—	5715S	5715S	5719S	5719S	5719S	5719S	5719S	5719S
RE21-06-68383	21-25685	0.0–0.5	Soil	5717S	5717S	5717S	5717S	—	—	—	5715S	—	5719S	5719S	5719S	5719S	5719S	5719S
RE21-06-68384	21-25685	2.5–3.0	Tuff	5717S	5717S	5717S	5717S	—	—	—	5715S	5715S	5719S	5719S	5719S	5719S	5719S	5719S
RE21-06-68385	21-25686	0.0–0.5	Soil	5717S	5717S	5717S	5717S	—	—	—	5715S	—	5719S	5719S	5719S	5719S	5719S	5719S
RE21-06-68386	21-25686	2.5–3.0	Tuff	5717S	5717S	5717S	5717S	—	—	—	5715S	5715S	5719S	5719S	5719S	5719S	5719S	5719S
RE21-06-68388	21-25687	0.0–0.5	Soil	5717S	5717S	5717S	5717S	—	—	—	5715S	—	5719S	5719S	5719S	5719S	5719S	5719S
RE21-06-68389	21-25687	2.5–3.0	Tuff	5717S	5717S	5717S	5717S	—	—	—	5715S	5715S	5719S	5719S	5719S	5719S	5719S	5719S
RE21-06-68390	21-25688	0.0–0.5	Soil	5717S	5717S	5717S	5717S	—	—	—	5715S	—	5719S	5719S	5719S	5719S	5719S	5719S
RE21-06-68391	21-25688	2.5–3.0	Tuff	5717S	5717S	5717S	5717S	—	—	—	5715S	5715S	5719S	5719S	5719S	5719S	5719S	5719S
RE21-06-68396	21-25689	0.0–0.5	Soil	5709S	5709S	5709S	5709S	—	—	—	5707S	—	5711S	5711S	5711S	5711S	5711S	5711S
RE21-06-68397	21-25689	2.5–3.0	Tuff	5709S	5709S	5709S	5709S	—	—	—	5707S	5707S	5711S	5711S	5711S	5711S	5711S	5711S
RE21-06-68398	21-25690	0.0–0.5	Soil	5709S	5709S	5709S	5709S	—	—	—	5707S	—	5711S	5711S	5711S	5711S	5711S	5711S
RE21-06-68399	21-25690	2.5–3.0	Tuff	5709S	5709S	5709S	5709S	—	—	—	5707S	5707S	5711S	5711S	5711S	5711S	5711S	5711S
RE21-06-68400	21-25691	0.0–0.5	Soil	5709S	5709S	5709S	5709S	—	—	—	5707S	—	5711S	5711S	5711S	5711S	5711S	5711S
RE21-06-68401	21-25691	2.5–3.0	Tuff	5709S	5709S	5709S	5709S	—	—	—	5707S	5707S	5711S	5711S	5711S	5711S	5711S	5711S
RE21-06-68402	21-25692	0.0–0.5	Soil	5709S	5709S	5709S	5709S	—	—	—	5707S	—	5711S	5711S	5711S	5711S	5711S	5711S
RE21-06-68403	21-25692	2.5–3.0	Tuff	5709S	5709S	5709S	5709S	—	—	—	5707S	5707S	5711S	5711S	5711S	5711S	5711S	5711S
RE21-06-68404	21-25693	0.0–0.5	Soil	5709S	5709S	5709S	5709S	—	—	—	5707S	—	5711S	5711S	5711S	5711S	5711S	5711S
RE21-06-68405	21-25693	2.5–3.0	Tuff	5709S	5709S	5709S	5709S	—	—	—	5707S	5707S	5711S	5711S	5711S	5711S	5711S	5711S
RE21-06-68406	21-25694	0.0–0.5	Soil	5709S	5709S	5709S	5709S	—	—	—	5707S	—	5711S	5711S	5711S	5711S	5711S	5711S
RE21-06-68407	21-25694	2.5–3.0	Tuff	5709S	5709S	5709S	5709S	—	—	—	5707S	5707S	5711S	5711S	5711S	5711S	5711S	5711S

Table 3.1-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Nitrate/pH	Cyanide (Total)	Metals	Perchlorate	Dioxin/Furan	Explosive Compounds	PCBs	SVOCs	VOCs	Americium-241	Gamma Spectroscopy	Tritium	Isotopic Plutonium	Isotopic Uranium	Strontium-90
RE21-06-68408	21-25695	0.0–0.5	Soil	5709S	5709S	5709S	5709S	—	—	—	5707S	—	5711S	5711S	5711S	5711S	5711S	5711S
RE21-06-68409	21-25695	2.5–3.0	Tuff	5709S	5709S	5709S	5709S	—	—	—	5707S	5707S	5711S	5711S	5711S	5711S	5711S	5711S
RE21-06-68410	21-25696	0.0–0.5	Soil	5709S	5709S	5709S	5709S	—	—	—	5707S	—	5711S	5711S	5711S	5711S	5711S	5711S
RE21-06-68411	21-25696	2.5–3.0	Tuff	5709S	5709S	5709S	5709S	—	—	—	5707S	5707S	5711S	5711S	5711S	5711S	5711S	5711S

[a] Alphanumeric = Analysis request number.

[b] — = Not requested.

Table 3.1-2
Samples Collected and Laboratory Analyses Requested for Consolidated Unit 21-003-99

Sample ID	Location ID	Depth (ft)	Media	Nitrate/pH	Cyanide (Total)	Metals	Perchlorate	Dioxin/Furan	Explosive Compounds	PCBs	Uranium	SVOCs	VOCs	Americium-241	Gamma Spectroscopy	Tritium	Isotopic Plutonium	Isotopic Uranium	Strontium-90
AAB8961 [a]	21-01884	0.0–0.5	Soil	— [b]	—	20247 [c]	—	—	—	—	20095	—	—	—	20095	20095	20095	20095	20095
AAB8966	21-01885	0.0–0.5	Soil	—	—	20247	—	—	—	—	20095	—	—	—	20095	20095	20095	20095	20095
AAB8971	21-01886	0.0–0.5	Soil	—	—	20247	—	—	—	—	20095	—	—	—	20095	20095	20095	20095	20095
AAB8976	21-01887	0.0–0.5	Soil	—	—	20247	—	—	—	—	20095	—	—	—	20095	20095	20095	20095	20095
AAB8981	21-01888	0.0–0.5	Soil	—	—	20247	—	—	—	—	20095	—	—	—	20095	20095	20095	20095	20095
AAB8983	21-01888	1.0–1.5	Soil	—	—	20247	—	—	—	—	20095	—	—	—	20095	20095	20095	20095	20095
AAB8986	21-01889	0.0–0.5	Soil	—	—	20247	—	—	—	—	20095	—	—	—	20095	20095	20095	20095	20095
AAB8991	21-01890	0.0–0.5	Soil	—	—	20247	—	—	—	—	20095	—	—	—	20095	20095	20095	20095	20095
AAB8996	21-01891	0.0–0.5	Soil	—	—	20247	—	—	—	—	20095	—	—	—	20095	20095	20095	20095	20095
AAB8998	21-01891	1.0–1.5	Soil	—	—	20247	—	—	—	—	20095	—	—	—	20095	20095	20095	20095	20095
AAB9001	21-01892	0.0–0.5	Soil	—	—	20247	—	—	—	—	20095	—	—	—	20095	20095	20095	20095	20095
AAB9003	21-01892	1.0–1.5	Soil	—	—	20247	—	—	—	—	20095	—	—	—	20095	20095	20095	20095	20095
AAB9005	21-01892	1.5–2.0	Soil	—	—	20247	—	—	—	—	20095	—	—	—	20095	20095	20095	20095	20095
RE21-06-68434	21-25704	0.0–0.5	Soil	5583S	5583S	5583S	5583S	—	—	5582S	—	5582S	5582S	5585S	5585S	5585S	5585S	5585S	5585S
RE21-06-68435	21-25704	0.5–1.0	Soil	5583S	5583S	5583S	5583S	—	—	5582S	—	5582S	5582S	5585S	5585S	5585S	5585S	5585S	5585S
RE21-06-68436	21-25704	1.5–2.0	Soil	5583S	5583S	5583S	5583S	—	—	5582S	—	5582S	5582S	5585S	5585S	5585S	5585S	5585S	5585S
RE21-06-68437	21-25705	0.0–0.5	Soil	5583S	5583S	5583S	5583S	—	—	5582S	—	5582S	5582S	5585S	5585S	5585S	5585S	5585S	5585S
RE21-06-68438	21-25705	0.5–1.0	Soil	5583S	5583S	5583S	5583S	—	—	5582S	—	5582S	5582S	5585S	5585S	5585S	5585S	5585S	5585S
RE21-06-68439	21-25705	1.5–2.0	Soil	5583S	5583S	5583S	5583S	—	—	5582S	—	5582S	5582S	5585S	5585S	5585S	5585S	5585S	5585S
RE21-06-68440	21-25706	0.0–0.5	Soil	5583S	5583S	5583S	5583S	—	—	5582S	—	5582S	—	5585S	5585S	5585S	5585S	5585S	5585S
RE21-06-68441	21-25706	0.5–1.0	Soil	5583S	5583S	5583S	5583S	—	—	5582S	—	5582S	5582S	5585S	5585S	5585S	5585S	5585S	5585S
RE21-06-68442	21-25706	1.5–2.0	Soil	5588S	5588S	5588S	5588S	—	—	5587S	—	5587S	5587S	5589S	5589S	5589S	5589S	5589S	5589S
RE21-06-68443	21-25707	0.0–0.5	Soil	5583S	5583S	5583S	5583S	—	—	5582S	—	5582S	—	5585S	5585S	5585S	5585S	5585S	5585S
RE21-06-68444	21-25707	0.5–1.0	Soil	5583S	5583S	5583S	5583S	—	—	5582S	—	5582S	5582S	5585S	5585S	5585S	5585S	5585S	5585S
RE21-06-68445	21-25707	1.5–2.0	Soil	5583S	5583S	5583S	5583S	—	—	5582S	—	5582S	5582S	5585S	5585S	5585S	5585S	5585S	5585S
RE21-06-68446	21-25708	0.0–0.5	Soil	5583S	5583S	5583S	5583S	—	—	5582S	—	5582S	—	5585S	5585S	5585S	5585S	5585S	5585S
RE21-06-68447	21-25708	0.5–1.0	Soil	5583S	5583S	5583S	5583S	—	—	5582S	—	5582S	5582S	5585S	5585S	5585S	5585S	5585S	5585S
RE21-06-68448	21-25708	1.5–2.0	Soil	5583S	5583S	5583S	5583S	—	—	5582S	—	5582S	5582S	5585S	5585S	5585S	5585S	5585S	5585S
RE21-06-68449	21-25709	0.0–0.5	Soil	5583S	5583S	5583S	5583S	—	—	5582S	—	5582S	—	5585S	5585S	5585S	5585S	5585S	5585S
RE21-06-68450	21-25709	0.5–1.0	Soil	5583S	5583S	5583S	5583S	—	—	5582S	—	5582S	5582S	5585S	5585S	5585S	5585S	5585S	5585S
RE21-06-68451	21-25709	1.5–2.0	Soil	5583S	5583S	5583S	5583S	—	—	5582S	—	5582S	5582S	5585S	5585S	5585S	5585S	5585S	5585S

Table 3.1-2 (continued)

Sample ID	Location ID	Depth (ft)	Media	Nitrate/pH	Cyanide (Total)	Metals	Perchlorate	Dioxin/Furan	Explosive Compounds	PCBs	Uranium	SVOCs	VOCs	Americium-241	Gamma Spectroscopy	Tritium	Isotopic Plutonium	Isotopic Uranium	Strontium-90
RE21-06-68452	21-25710	0.0–0.5	Soil	5583S	5583S	5583S	5583S	—	—	5582S	—	5582S	—	5585S	5585S	5585S	5585S	5585S	5585S
RE21-06-68453	21-25710	0.5–1.0	Soil	5583S	5583S	5583S	5583S	—	—	5582S	—	5582S	5582S	5585S	5585S	5585S	5585S	5585S	5585S
RE21-06-68454	21-25710	1.5–2.0	Soil	5583S	5583S	5583S	5583S	—	—	5582S	—	5582S	5582S	5585S	5585S	5585S	5585S	5585S	5585S
RE21-06-68455	21-25711	0.0–0.5	Soil	5583S	5583S	5583S	5583S	—	—	5582S	—	5582S	—	5585S	5585S	5585S	5585S	5585S	5585S
RE21-06-68456	21-25711	0.5–1.0	Soil	5583S	5583S	5583S	5583S	—	—	5582S	—	5582S	5582S	5585S	5585S	5585S	5585S	5585S	5585S
RE21-06-68457	21-25711	1.5–2.0	Soil	5583S	5583S	5583S	5583S	—	—	5582S	—	5582S	5582S	5585S	5585S	5585S	5585S	5585S	5585S
RE21-06-68458	21-25712	0.0–0.5	Soil	5588S	5588S	5588S	5588S	—	—	5587S	—	5587S	—	5589S	5589S	5589S	5589S	5589S	5589S
RE21-06-68459	21-25712	0.5–1.0	Soil	5588S	5588S	5588S	5588S	—	—	5587S	—	5587S	5587S	5589S	5589S	5589S	5589S	5589S	5589S
RE21-06-68460	21-25712	1.5–2.0	Soil	5588S	5588S	5588S	5588S	—	—	5587S	—	5587S	5587S	5589S	5589S	5589S	5589S	5589S	5589S
RE21-06-68461	21-25713	0.0–0.5	Soil	5588S	5588S	5588S	5588S	—	—	5587S	—	5587S	—	5589S	5589S	5589S	5589S	5589S	5589S
RE21-06-68462	21-25713	0.5–1.0	Tuff	5588S	5588S	5588S	5588S	—	—	5587S	—	5587S	5587S	5589S	5589S	5589S	5589S	5589S	5589S
RE21-06-68463	21-25713	1.5–2.0	Tuff	5588S	5588S	5588S	5588S	—	—	5587S	—	5587S	5587S	5589S	5589S	5589S	5589S	5589S	5589S
RE21-06-68464	21-25714	0.0–0.5	Soil	5588S	5588S	5588S	5588S	—	—	5587S	—	5587S	—	5589S	5589S	5589S	5589S	5589S	5589S
RE21-06-68465	21-25714	0.5–1.0	Soil	5588S	5588S	5588S	5588S	—	—	5587S	—	5587S	5587S	5589S	5589S	5589S	5589S	5589S	5589S
RE21-06-68466	21-25714	1.5–2.0	Tuff	5588S	5588S	5588S	5588S	—	—	5587S	—	5587S	5587S	5589S	5589S	5589S	5589S	5589S	5589S
RE21-06-68467	21-25715	0.0–0.5	Soil	5588S	5588S	5588S	5588S	—	—	5587S	—	5587S	—	5589S	5589S	5589S	5589S	5589S	5589S
RE21-06-68468	21-25715	0.5–1.0	Soil	5588S	5588S	5588S	5588S	—	—	5587S	—	5587S	5587S	5589S	5589S	5589S	5589S	5589S	5589S
RE21-06-68469	21-25715	1.5–2.0	Tuff	5588S	5588S	5588S	5588S	—	—	5587S	—	5587S	5587S	5589S	5589S	5589S	5589S	5589S	5589S
RE21-06-68470	21-25716	0.0–0.5	Soil	5588S	5588S	5588S	5588S	—	—	5587S	—	5587S	—	5589S	5589S	5589S	5589S	5589S	5589S
RE21-06-68471	21-25716	0.5–1.0	Tuff	5588S	5588S	5588S	5588S	—	—	5587S	—	5587S	5587S	5589S	5589S	5589S	5589S	5589S	5589S
RE21-06-68472	21-25716	1.5–2.0	Tuff	5588S	5588S	5588S	5588S	—	—	5587S	—	5587S	5587S	5589S	5589S	5589S	5589S	5589S	5589S
RE21-06-68473	21-25717	0.0–0.5	Soil	5588S	5588S	5588S	5588S	—	—	5587S	—	5587S	—	5589S	5589S	5589S	5589S	5589S	5589S
RE21-06-68474	21-25717	0.5–1.0	Tuff	5588S	5588S	5588S	5588S	—	—	5587S	—	5587S	5587S	5589S	5589S	5589S	5589S	5589S	5589S
RE21-06-68475	21-25717	1.5–2.0	Tuff	5588S	5588S	5588S	5588S	—	—	5587S	—	5587S	5587S	5589S	5589S	5589S	5589S	5589S	5589S
RE21-06-68476	21-25718	0.0–0.5	Soil	5588S	5588S	5588S	5588S	—	—	5587S	—	5587S	—	5589S	5589S	5589S	5589S	5589S	5589S
RE21-06-68477	21-25718	0.5–1.0	Tuff	5588S	5588S	5588S	5588S	—	—	5587S	—	5587S	5587S	5589S	5589S	5589S	5589S	5589S	5589S
RE21-06-68478	21-25718	1.5–2.0	Tuff	5588S	5588S	5588S	5588S	—	—	5587S	—	5587S	5587S	5589S	5589S	5589S	5589S	5589S	5589S
RE21-06-68479	21-25719	0.0–0.5	Soil	5588S	5588S	5588S	5588S	—	—	5587S	—	5587S	—	5589S	5589S	5589S	5589S	5589S	5589S
RE21-06-68480	21-25719	0.5–1.0	Tuff	5588S	5588S	5588S	5588S	—	—	5587S	—	5587S	5587S	5589S	5589S	5589S	5589S	5589S	5589S
RE21-06-68481	21-25719	1.5–2.0	Tuff	5588S	5588S	5588S	5588S	—	—	5587S	—	5587S	5587S	5589S	5589S	5589S	5589S	5589S	5589S
RE21-06-68482	21-25720	0.0–0.5	Soil	5588S	5588S	5588S	5588S	—	—	5587S	—	5587S	—	5589S	5589S	5589S	5589S	5589S	5589S
RE21-06-68483	21-25720	0.5–1.0	Tuff	5588S	5588S	5588S	5588S	—	—	5587S	—	5587S	5587S	5589S	5589S	5589S	5589S	5589S	5589S
RE21-06-68484	21-25720	1.5–2.0	Tuff	5588S	5588S	5588S	5588S	—	—	5587S	—	5587S	5587S	5589S	5589S	5589S	5589S	5589S	5589S
RE21-06-68498	21-25721	0.0–0.5	Soil	5619S	5619S	5619S	5619S	—	—	5618S	—	5618S	—	5621S	5621S	5621S	5621S	5621S	5621S

Table 3.1-2 (continued)

Sample ID	Location ID	Depth (ft)	Media	Nitrate/pH	Cyanide (Total)	Metals	Perchlorate	Dioxin/Furan	Explosive Compounds	PCBs	Uranium	SVOCs	VOCs	Americium-241	Gamma Spectroscopy	Tritium	Isotopic Plutonium	Isotopic Uranium	Strontium-90
RE21-06-68499	21-25721	0.5–1.0	Soil	5619S	5619S	5619S	5619S	—	—	5618S	—	5618S	5618S	5621S	5621S	5621S	5621S	5621S	5621S
RE21-06-68500	21-25721	1.5–2.0	Tuff	5619S	5619S	5619S	5619S	—	—	5618S	—	5618S	5618S	5621S	5621S	5621S	5621S	5621S	5621S
RE21-06-68502	21-25722	0.0–0.5	Soil	5619S	5619S	5619S	5619S	—	—	5618S	—	5618S	—	5621S	5621S	5621S	5621S	5621S	5621S
RE21-06-68503	21-25722	0.5–1.0	Soil	5619S	5619S	5619S	5619S	—	—	5618S	—	5618S	5618S	5621S	5621S	5621S	5621S	5621S	5621S
RE21-06-68504	21-25722	1.5–2.0	Tuff	5619S	5619S	5619S	5619S	—	—	5618S	—	5618S	5618S	5621S	5621S	5621S	5621S	5621S	5621S
RE21-06-68506	21-25723	0.0–0.5	Soil	5619S	5619S	5619S	5619S	—	—	5618S	—	5618S	—	5621S	5621S	5621S	5621S	5621S	5621S
RE21-06-68507	21-25723	0.5–1.0	Tuff	5619S	5619S	5619S	5619S	—	—	5618S	—	5618S	5618S	5621S	5621S	5621S	5621S	5621S	5621S
RE21-06-68508	21-25723	1.5–2.0	Tuff	5619S	5619S	5619S	5619S	—	—	5618S	—	5618S	5618S	5621S	5621S	5621S	5621S	5621S	5621S
RE21-06-68510	21-25724	0.0–0.5	Soil	5619S	5619S	5619S	5619S	—	—	5618S	—	5618S	—	5621S	5621S	5621S	5621S	5621S	5621S
RE21-06-68511	21-25724	0.5–1.0	Tuff	5619S	5619S	5619S	5619S	—	—	5618S	—	5618S	5618S	5621S	5621S	5621S	5621S	5621S	5621S
RE21-06-68512	21-25724	1.5–2.0	Tuff	5619S	5619S	5619S	5619S	—	—	5618S	—	5618S	5618S	5621S	5621S	5621S	5621S	5621S	5621S
RE21-06-68514	21-25725	0.0–0.5	Soil	5619S	5619S	5619S	5619S	—	—	5618S	—	5618S	—	5621S	5621S	5621S	5621S	5621S	5621S
RE21-06-68515	21-25725	0.5–1.0	Soil	5619S	5619S	5619S	5619S	—	—	5618S	—	5618S	5618S	5621S	5621S	5621S	5621S	5621S	5621S
RE21-06-72611	21-25725	3.0–3.5	Soil	5598S	5598S	5598S	5598S	5608S	5598S	5598S	—	5598S	5598S	5598S	5598S	5598S	5598S	5598S	5598S
RE21-06-68538	21-25725	4.0–4.5	Soil	—	—	—	—	—	—	—	—	—	5618S	—	—	—	—	—	—
RE21-06-68518	21-25726	0.0–0.5	Soil	5619S	5619S	5619S	5619S	—	—	5618S	—	5618S	—	5621S	5621S	5621S	5621S	5621S	5621S
RE21-06-68519	21-25726	0.5–1.0	Tuff	5619S	5619S	5619S	5619S	—	—	5618S	—	5618S	5618S	5621S	5621S	5621S	5621S	5621S	5621S
RE21-06-68520	21-25726	1.5–2.0	Tuff	5619S	5619S	5619S	5619S	—	—	5618S	—	5618S	5618S	5621S	5621S	5621S	5621S	5621S	5621S
RE21-06-68521	21-25727	0.0–0.5	Soil	5619S	5619S	5619S	5619S	—	5618S	5618S	—	5618S	—	5621S	5621S	5621S	5621S	5621S	5621S
RE21-06-68522	21-25727	0.5–1.0	Tuff	5619S	5619S	5619S	5619S	—	5618S	5618S	—	5618S	5618S	5621S	5621S	5621S	5621S	5621S	5621S
RE21-06-68523	21-25727	1.5–2.0	Tuff	5619S	5619S	5619S	5619S	—	5618S	5618S	—	5618S	5618S	5621S	5621S	5621S	5621S	5621S	5621S
RE21-06-68524	21-25728	0.0–0.5	Soil	5619S	5619S	5619S	5619S	—	5618S	5618S	—	5618S	—	5621S	5621S	5621S	5621S	5621S	5621S
RE21-06-68525	21-25728	0.5–1.0	Tuff	5619S	5619S	5619S	5619S	—	5618S	5618S	—	5618S	5618S	5621S	5621S	5621S	5621S	5621S	5621S
RE21-06-68526	21-25728	1.5–2.0	Tuff	5619S	5619S	5619S	5619S	—	5618S	5618S	—	5618S	5618S	5621S	5621S	5621S	5621S	5621S	5621S
RE21-06-68527	21-25729	0.0–0.5	Soil	5619S	5619S	5619S	5619S	—	5618S	5618S	—	5618S	—	5621S	5621S	5621S	5621S	5621S	5621S
RE21-06-68528	21-25729	0.5–1.0	Tuff	5619S	5619S	5619S	5619S	—	5618S	5618S	—	5618S	5618S	5621S	5621S	5621S	5621S	5621S	5621S
RE21-06-68529	21-25729	1.5–2.0	Tuff	5619S	5619S	5619S	5619S	—	5618S	5618S	—	5618S	5618S	5621S	5621S	5621S	5621S	5621S	5621S
RE21-06-68530	21-25730	0.0–0.5	Soil	5619S	5619S	5619S	5619S	—	5618S	5618S	—	5618S	—	5621S	5621S	5621S	5621S	5621S	5621S
RE21-06-68532	21-25730	0.5–1.0	Tuff	5619S	5619S	5619S	5619S	—	5618S	5618S	—	5618S	5618S	5621S	5621S	5621S	5621S	5621S	5621S
RE21-06-68533	21-25730	1.5–2.0	Tuff	5619S	5619S	5619S	5619S	—	5618S	5618S	—	5618S	5618S	5621S	5621S	5621S	5621S	5621S	5621S
RE21-06-68534	21-25731	0.0–0.5	Soil	5619S	5619S	5619S	5619S	—	5618S	5618S	—	5618S	—	5621S	5621S	5621S	5621S	5621S	5621S
RE21-06-68536	21-25731	0.5–1.0	Tuff	5619S	5619S	5619S	5619S	—	5618S	5618S	—	5618S	5618S	5621S	5621S	5621S	5621S	5621S	5621S
RE21-06-68537	21-25731	1.5–2.0	Tuff	5619S	5619S	5619S	5619S	—	5618S	5618S	—	5618S	5618S	5621S	5621S	5621S	5621S	5621S	5621S
RE21-06-68548	21-25732	0.0–0.5	Soil	5631S	5631S	5631S	5631S	—	—	5630S	—	5630S	—	5633S	5633S	5633S	5633S	5633S	5633S

Table 3.1-2 (continued)

Sample ID	Location ID	Depth (ft)	Media	Nitrate/pH	Cyanide (Total)	Metals	Perchlorate	Dioxin/Furan	Explosive Compounds	PCBs	Uranium	SVOCs	VOCs	Americium-241	Gamma Spectroscopy	Tritium	Isotopic Plutonium	Isotopic Uranium	Strontium-90
RE21-06-68549	21-25732	0.5–1.0	Tuff	5631S	5631S	5631S	5631S	—	—	5630S	—	5630S	5630S	5633S	5633S	5633S	5633S	5633S	5633S
RE21-06-68550	21-25732	1.5–2.0	Tuff	5631S	5631S	5631S	5631S	—	—	5630S	—	5630S	5630S	5633S	5633S	5633S	5633S	5633S	5633S
RE21-06-68551	21-25733	0.0–0.5	Soil	5631S	5631S	5631S	5631S	—	—	5630S	—	5630S	—	5633S	5633S	5633S	5633S	5633S	5633S
RE21-06-68552	21-25733	0.5–1.0	Tuff	5631S	5631S	5631S	5631S	—	—	5630S	—	5630S	5630S	5633S	5633S	5633S	5633S	5633S	5633S
RE21-06-68553	21-25733	1.5–2.0	Tuff	5631S	5631S	5631S	5631S	—	—	5630S	—	5630S	5630S	5633S	5633S	5633S	5633S	5633S	5633S
RE21-06-68554	21-25734	0.0–0.5	Soil	5631S	5631S	5631S	5631S	—	—	5630S	—	5630S	—	5633S	5633S	5633S	5633S	5633S	5633S
RE21-06-68555	21-25734	0.5–1.0	Soil	5631S	5631S	5631S	5631S	—	—	5630S	—	5630S	5630S	5633S	5633S	5633S	5633S	5633S	5633S
RE21-06-68556	21-25734	1.5–2.0	Tuff	5631S	5631S	5631S	5631S	—	—	5630S	—	5630S	5630S	5633S	5633S	5633S	5633S	5633S	5633S
RE21-06-68557	21-25735	0.0–0.5	Soil	5631S	5631S	5631S	5631S	—	—	5630S	—	5630S	—	5633S	5633S	5633S	5633S	5633S	5633S
RE21-06-68558	21-25735	0.5–1.0	Tuff	5631S	5631S	5631S	5631S	—	—	5630S	—	5630S	5630S	5633S	5633S	5633S	5633S	5633S	5633S
RE21-06-68559	21-25735	1.5–2.0	Tuff	5631S	5631S	5631S	5631S	—	—	5630S	—	5630S	5630S	5633S	5633S	5633S	5633S	5633S	5633S
RE21-06-68560	21-25736	0.0–0.5	Soil	5631S	5631S	5631S	5631S	—	—	5630S	—	5630S	—	5633S	5633S	5633S	5633S	5633S	5633S
RE21-06-68561	21-25736	0.5–1.0	Tuff	5631S	5631S	5631S	5631S	—	—	5630S	—	5630S	5630S	5633S	5633S	5633S	5633S	5633S	5633S
RE21-06-68562	21-25736	1.5–2.0	Tuff	5631S	5631S	5631S	5631S	—	—	5630S	—	5630S	5630S	5633S	5633S	5633S	5633S	5633S	5633S
RE21-06-68563	21-25737	0.0–0.5	Soil	5631S	5631S	5631S	5631S	—	—	5630S	—	5630S	—	5633S	5633S	5633S	5633S	5633S	5633S
RE21-06-68564	21-25737	0.5–1.0	Tuff	5631S	5631S	5631S	5631S	—	—	5630S	—	5630S	5630S	5633S	5633S	5633S	5633S	5633S	5633S
RE21-06-68565	21-25737	1.5–2.0	Tuff	5631S	5631S	5631S	5631S	—	—	5630S	—	5630S	5630S	5633S	5633S	5633S	5633S	5633S	5633S
RE21-06-68566	21-25738	0.0–0.5	Soil	5631S	5631S	5631S	5631S	—	—	5630S	—	5630S	—	5633S	5633S	5633S	5633S	5633S	5633S
RE21-06-68567	21-25738	0.5–1.0	Tuff	5631S	5631S	5631S	5631S	—	—	5630S	—	5630S	5630S	5633S	5633S	5633S	5633S	5633S	5633S
RE21-06-68568	21-25738	1.5–2.0	Tuff	5631S	5631S	5631S	5631S	—	—	5630S	—	5630S	5630S	5633S	5633S	5633S	5633S	5633S	5633S
RE21-06-68569	21-25739	0.0–0.5	Tuff	5631S	5631S	5631S	5631S	—	—	5630S	—	5630S	—	5633S	5633S	5633S	5633S	5633S	5633S
RE21-06-68570	21-25739	0.5–1.0	Tuff	5631S	5631S	5631S	5631S	—	—	5630S	—	5630S	5630S	5633S	5633S	5633S	5633S	5633S	5633S
RE21-06-68571	21-25739	1.5–2.0	Tuff	5631S	5631S	5631S	5631S	—	—	5630S	—	5630S	5630S	5633S	5633S	5633S	5633S	5633S	5633S
RE21-06-68572	21-25740	0.0–0.5	Soil	5631S	5631S	5631S	5631S	—	—	5630S	—	5630S	—	5633S	5633S	5633S	5633S	5633S	5633S
RE21-06-68573	21-25740	0.5–1.0	Soil	5631S	5631S	5631S	5631S	—	—	5630S	—	5630S	5630S	5633S	5633S	5633S	5633S	5633S	5633S
RE21-06-68574	21-25740	1.5–2.0	Soil	5631S	5631S	5631S	5631S	—	—	5630S	—	5630S	5630S	5633S	5633S	5633S	5633S	5633S	5633S
RE21-06-68575	21-25741	0.0–0.5	Soil	5631S	5631S	5631S	5631S	—	—	5630S	—	5630S	—	5633S	5633S	5633S	5633S	5633S	5633S
RE21-06-68576	21-25741	0.5–1.0	Soil	5631S	5631S	5631S	5631S	—	—	5630S	—	5630S	5630S	5633S	5633S	5633S	5633S	5633S	5633S
RE21-06-68577	21-25741	1.5–2.0	Soil	5631S	5631S	5631S	5631S	—	—	5630S	—	5630S	5630S	5633S	5633S	5633S	5633S	5633S	5633S

[a] Sample IDs AAB indicate historical data.

[b] — = Not requested.

[c] Alphanumeric = Analysis request number.

Table 3.1-3
Samples Collected and Laboratory Analyses Requested for SWMU 21-009

Sample ID	Location ID	Depth (ft)	Media	Nitrate/pH	Cyanide (Total)	Metals	Perchlorate	Dioxin/Furan	Explosive Compounds	PCBs	SVOCs	VOCs	Americium-241	Gamma Spectroscopy	Tritium	Isotopic Plutonium	Isotopic Uranium	Strontium-90
RE21-06-68252	21-25636	0.0–0.5	Soil	5689S [a]	5689S	5689S	5689S	— [b]	—	—	5687S	—	5691S	5691S	5691S	5691S	5691S	5691S
RE21-06-68253	21-25636	1.5–2.0	Soil	5689S	5689S	5689S	5689S	—	—	—	5687S	5687S	5691S	5691S	5691S	5691S	5691S	5691S
RE21-06-68254	21-25637	0.0–0.5	Soil	5689S	5689S	5689S	5689S	—	—	—	5687S	—	5691S	5691S	5691S	5691S	5691S	5691S
RE21-06-68255	21-25637	1.5–2.0	Soil	5689S	5689S	5689S	5689S	—	—	—	5687S	5687S	5691S	5691S	5691S	5691S	5691S	5691S
RE21-06-68256	21-25638	0.0–0.5	Soil	5689S	5689S	5689S	5689S	—	—	—	5687S	—	5691S	5691S	5691S	5691S	5691S	5691S
RE21-06-68257	21-25638	1.5–2.0	Tuff	5689S	5689S	5689S	5689S	—	—	—	5687S	5687S	5691S	5691S	5691S	5691S	5691S	5691S
RE21-06-68258	21-25639	0.0–0.5	Soil	5689S	5689S	5689S	5689S	—	—	—	5687S	—	5691S	5691S	5691S	5691S	5691S	5691S
RE21-06-68259	21-25639	1.5–2.0	Soil	5689S	5689S	5689S	5689S	—	—	—	5687S	5687S	5691S	5691S	5691S	5691S	5691S	5691S
RE21-06-68260	21-25640	0.0–0.5	Soil	5689S	5689S	5689S	5689S	—	—	—	5687S	—	5691S	5691S	5691S	5691S	5691S	5691S
RE21-06-68261	21-25640	1.5–2.0	Soil	5685S	5685S	5685S	5685S	5737S	5684S	5684S	5684S	5684S	5686S	5686S	5686S	5686S	5686S	5686S
RE21-06-68262	21-25641	0.0–0.5	Soil	5689S	5689S	5689S	5689S	—	—	—	5687S	—	5691S	5691S	5691S	5691S	5691S	5691S
RE21-06-68263	21-25641	1.5–2.0	Soil	5689S	5689S	5689S	5689S	—	—	—	5687S	5687S	5691S	5691S	5691S	5691S	5691S	5691S
RE21-06-68264	21-25642	0.0–0.5	Soil	5689S	5689S	5689S	5689S	—	—	—	5687S	—	5691S	5691S	5691S	5691S	5691S	5691S
RE21-06-68265	21-25642	1.5–2.0	Soil	5689S	5689S	5689S	5689S	—	—	—	5687S	5687S	5691S	5691S	5691S	5691S	5691S	5691S
RE21-06-68266	21-25643	0.0–0.5	Soil	5689S	5689S	5689S	5689S	—	—	—	5687S	—	5691S	5691S	5691S	5691S	5691S	5691S
RE21-06-68267	21-25643	1.5–2.0	Tuff	5689S	5689S	5689S	5689S	—	—	—	5687S	5687S	5691S	5691S	5691S	5691S	5691S	5691S

[a] — = Not requested.

[b] Alphanumeric = Analysis request number.

Table 3.1-4
Samples Collected and Laboratory Analyses Requested for SWMU 21-013(c)

Sample ID	Location ID	Depth (ft)	Media	Nitrate/pH	Cyanide (Total)	Metals	Perchlorate	Dioxin/Furan	Explosive Compounds	PCBs	Uranium	SVOCs	VOCs	Americium-241	Gamma Spectroscopy	Tritium	Isotopic Plutonium	Isotopic Uranium	Strontium-90
AAB7101 [a]	21-01908	0.0–0.5	Soil	— [b]	—	20239 [c]	—	—	—	—	19906	19363	19363	—	19906	19906	19906	—	19906
AAB7102	21-01908	0.0–2.5	Soil	—	—	20239	—	—	—	—	19906	19363	19363	—	19906	19906	19906	19906	19906
AAB7105	21-01909	0.0–0.5	Soil	—	—	20239	—	—	—	—	19906	19363	19363	—	19906	19906	19906	—	19906
AAB7106	21-01909	0.0–2.5	Soil	—	—	20239	—	—	—	—	19906	19363	19363	—	19906	19906	19906	19906	19906
AAB7109	21-01910	0.0–0.5	Soil	—	—	20239	—	—	—	—	19906	19363	19363	—	19906	19906	19906	19906	19906
AAB7110	21-01910	0.0–2.5	Soil	—	—	20239	—	—	—	—	19906	19363	19363	—	19906	19906	19906	—	19906
AAB7113	21-01911	0.0–0.5	Soil	—	—	20239	—	—	—	—	19906	19363	19363	—	19906	19906	19906	19906	19906
AAB7114	21-01911	0.0–2.5	Soil	—	—	20239	—	—	—	—	19906	19363	19363	—	19906	19906	19906	—	19906
AAB7117	21-01912	0.0–0.5	Soil	—	—	20239	—	—	—	—	19906	19363	19363	—	19906	19906	19906	19906	19906
AAB7118	21-01912	0.0–2.5	Soil	—	—	20239	—	—	—	—	19906	19363	19363	—	19906	19906	19906	—	19906
AAB7121	21-01913	0.0–0.5	Soil	—	—	20239	—	—	—	—	19906	19363	19363	—	19906	19906	19906	19906	19906
AAB7122	21-01913	0.0–2.5	Soil	—	—	20239	—	—	—	—	19906	19363	19363	—	19906	19906	19906	19906	19906
AAB7125	21-01914	0.0–0.5	Soil	—	—	20239	—	—	—	—	19906	19363	19363	—	19906	19906	19906	19906	19906
AAB7126	21-01914	0.0–2.5	Soil	—	—	20239	—	—	—	—	19906	19363	19363	—	19906	19906	19906	—	19906
AAB7129	21-01915	0.0–0.5	Soil	—	—	20239	—	—	—	—	19906	19363	19363	—	19906	19906	19906	—	19906
AAB7130	21-01915	0.0–2.5	Soil	—	—	20239	—	—	—	—	19906	19363	19363	—	19906	19906	19906	—	19906
AAB7133	21-01916	0.0–0.5	Soil	—	—	20239	—	—	—	—	19906	19363	19363	—	19906	19906	19906	—	19906
AAB7134	21-01916	0.0–2.5	Soil	—	—	20239	—	—	—	—	19906	19363	19363	—	19906	19906	19906	19906	19906
AAB7137	21-01917	0.0–0.5	Soil	—	—	20239	—	—	—	—	19906	19363	19363	—	19906	19906	19906	—	19906
AAB7138	21-01917	0.0–2.5	Soil	—	—	20239	—	—	—	—	19906	19363	19363	—	19906	19906	19906	19906	19906
RE21-06-68282	21-25647	0.0–0.5	Soil	5647S	5647S	5647S	5647S	—	5646S	5646S		5646S	—	5649S	5649S	5649S	5649S	5649S	5649S
RE21-06-68283	21-25647	2.5–3.0	Soil	5647S	5647S	5647S	5647S	—	5646S	5646S		5646S	5646S	5649S	5649S	5649S	5649S	5649S	5649S
RE21-06-68284	21-25648	0.0–0.5	Soil	5647S	5647S	5647S	5647S	—	5646S	5646S		5646S	—	5649S	5649S	5649S	5649S	5649S	5649S
RE21-06-68285	21-25648	2.5–3.0	Soil	5647S	5647S	5647S	5647S	—	5646S	5646S		5646S	5646S	5649S	5649S	5649S	5649S	5649S	5649S
RE21-06-68287	21-25649	0.0–0.5	Soil	5647S	5647S	5647S	5647S	—	5646S	5646S		5646S	—	5649S	5649S	5649S	5649S	5649S	5649S
RE21-06-68288	21-25649	2.5–3.0	Tuff	5647S	5647S	5647S	5647S	—	5646S	5646S		5646S	5646S	5649S	5649S	5649S	5649S	5649S	5649S
RE21-06-68289	21-25650	0.0–0.5	Soil	5647S	5647S	5647S	5647S	—	5646S	5646S		5646S	—	5649S	5649S	5649S	5649S	5649S	5649S
RE21-06-68290	21-25650	2.5–3.0	Soil	5647S	5647S	5647S	5647S	—	5646S	5646S		5646S	5646S	5649S	5649S	5649S	5649S	5649S	5649S
RE21-06-68292	21-25651	0.0–0.5	Soil	5645S	5645S	5645S	5645S	5669S	5642S	5642S		5642S	—	5643S	5643S	5643S	5643S	5643S	5643S
RE21-06-68293	21-25651	2.5–3.0	Soil	5645S	5645S	5645S	5645S	5669S	5642S	5642S		5642S	5642S	5643S	5643S	5643S	5643S	5643S	5643S
RE21-06-68294	21-25652	0.0–0.5	Soil	5647S	5647S	5647S	5647S	—	5646S	5646S		5646S	—	5649S	5649S	5649S	5649S	5649S	5649S

Table 3.1-4 (continued)

Sample ID	Location ID	Depth (ft)	Media	Nitrate/pH	Cyanide (Total)	Metals	Perchlorate	Dioxin/Furan	Explosive Compounds	PCBs	Uranium	SVOCs	VOCs	Americium-241	Gamma Spectroscopy	Tritium	Isotopic Plutonium	Isotopic Uranium	Strontium-90
RE21-06-68295	21-25652	2.5–3.0	Tuff	5647S	5647S	5647S	5647S	—	5646S	5646S		5646S	5646S	5649S	5649S	5649S	5649S	5649S	5649S
RE21-06-68297	21-25653	0.0–0.5	Soil	5647S	5647S	5647S	5647S	—	5646S	5646S		5646S	—	5649S	5649S	5649S	5649S	5649S	5649S
RE21-06-68298	21-25653	2.5–3.0	Tuff	5647S	5647S	5647S	5647S	—	5646S	5646S		5646S	5646S	5649S	5649S	5649S	5649S	5649S	5649S
RE21-06-68299	21-25654	0.0–0.5	Tuff	5647S	5647S	5647S	5647S	—	5646S	5646S		5646S	—	5649S	5649S	5649S	5649S	5649S	5649S
RE21-06-68300	21-25654	2.5–3.0	Tuff	5647S	5647S	5647S	5647S	—	5646S	5646S		5646S	5646S	5649S	5649S	5649S	5649S	5649S	5649S
RE21-06-68302	21-25655	0.0–0.5	Soil	5647S	5647S	5647S	5647S	—	5646S	5646S		5646S	—	5649S	5649S	5649S	5649S	5649S	5649S
RE21-06-68303	21-25655	2.5–3.0	Tuff	5647S	5647S	5647S	5647S	—	5646S	5646S		5646S	5646S	5649S	5649S	5649S	5649S	5649S	5649S
RE21-06-68304	21-25656	0.0–0.5	Soil	5647S	5647S	5647S	5647S	—	5646S	5646S		5646S	—	5649S	5649S	5649S	5649S	5649S	5649S
RE21-06-68305	21-25656	0.5–1.0	Tuff	5647S	5647S	5647S	5647S	—	5646S	5646S		5646S	5646S	5649S	5649S	5649S	5649S	5649S	5649S
RE21-06-68312	21-25657	0.0–0.5	Soil	5651S	5651S	5651S	5651S	—	5650S	5650S		5650S	—	5653S	5653S	5653S	5653S	5653S	5653S
RE21-06-68313	21-25657	2.5–3.0	Tuff	5651S	5651S	5651S	5651S	—	5650S	5650S		5650S	5650S	5653S	5653S	5653S	5653S	5653S	5653S
RE21-06-68314	21-25658	0.0–0.5	Soil	5651S	5651S	5651S	5651S	—	5650S	5650S		5650S	—	5653S	5653S	5653S	5653S	5653S	5653S
RE21-06-68315	21-25658	2.5–3.0	Tuff	5651S	5651S	5651S	5651S	—	5650S	5650S		5650S	5650S	5653S	5653S	5653S	5653S	5653S	5653S
RE21-06-68316	21-25659	0.0–0.5	Soil	5651S	5651S	5651S	5651S	—	5650S	5650S		5650S	—	5653S	5653S	5653S	5653S	5653S	5653S
RE21-06-68317	21-25659	0.5–1.0	Tuff	5651S	5651S	5651S	5651S	—	5650S	5650S		5650S	5650S	5653S	5653S	5653S	5653S	5653S	5653S
RE21-06-68318	21-25660	0.0–0.5	Soil	5651S	5651S	5651S	5651S	—	5650S	5650S		5650S	—	5653S	5653S	5653S	5653S	5653S	5653S
RE21-06-68319	21-25660	2.5–3.0	Tuff	5651S	5651S	5651S	5651S	—	5650S	5650S		5650S	5650S	5653S	5653S	5653S	5653S	5653S	5653S
RE21-06-68320	21-25661	0.0–0.5	Soil	5651S	5651S	5651S	5651S	—	5650S	5650S		5650S	—	5653S	5653S	5653S	5653S	5653S	5653S
RE21-06-68321	21-25661	2.5–3.0	Tuff	5651S	5651S	5651S	5651S	—	5650S	5650S		5650S	5650S	5653S	5653S	5653S	5653S	5653S	5653S
RE21-06-68322	21-25662	0.0–0.5	Soil	5651S	5651S	5651S	5651S	—	5650S	5650S		5650S	—	5653S	5653S	5653S	5653S	5653S	5653S
RE21-06-68323	21-25662	2.5–3.0	Tuff	5651S	5651S	5651S	5651S	—	5650S	5650S		5650S	5650S	5653S	5653S	5653S	5653S	5653S	5653S
RE21-06-68324	21-25663	0.0–0.5	Soil	5655S	5655S	5655S	5655S	—	5654S	5654S		5654S	—	5657S	5657S	5657S	5657S	5657S	5657S
RE21-06-68325	21-25663	2.5–3.0	Tuff	5655S	5655S	5655S	5655S	—	5654S	5654S		5654S	5654S	5657S	5657S	5657S	5657S	5657S	5657S
RE21-06-68326	21-25664	0.0–0.5	Soil	5655S	5655S	5655S	5655S	—	5654S	5654S		5654S	—	5657S	5657S	5657S	5657S	5657S	5657S
RE21-06-68327	21-25664	2.5–3.0	Tuff	5655S	5655S	5655S	5655S	—	5654S	5654S		5654S	5654S	5657S	5657S	5657S	5657S	5657S	5657S
RE21-06-68328	21-25665	0.0–0.5	Soil	5655S	5655S	5655S	5655S	—	5654S	5654S		5654S	—	5657S	5657S	5657S	5657S	5657S	5657S
RE21-06-68329	21-25665	2.5–3.0	Soil	5655S	5655S	5655S	5655S	—	5654S	5654S		5654S	5654S	5657S	5657S	5657S	5657S	5657S	5657S
RE21-06-68330	21-25666	0.0–0.5	Soil	5655S	5655S	5655S	5655S	—	5654S	5654S		5654S	—	5657S	5657S	5657S	5657S	5657S	5657S
RE21-06-68331	21-25666	2.5–3.0	Soil	5655S	5655S	5655S	5655S	—	5654S	5654S		5654S	5654S	5657S	5657S	5657S	5657S	5657S	5657S
RE21-06-68332	21-25667	0.0–0.5	Soil	5655S	5655S	5655S	5655S	—	5654S	5654S		5654S	—	5657S	5657S	5657S	5657S	5657S	5657S
RE21-06-68333	21-25667	2.5–3.0	Tuff	5655S	5655S	5655S	5655S	—	5654S	5654S		5654S	5654S	5657S	5657S	5657S	5657S	5657S	5657S
RE21-06-68334	21-25668	0.0–0.5	Soil	5655S	5655S	5655S	5655S	—	5654S	5654S		5654S	—	5657S	5657S	5657S	5657S	5657S	5657S
RE21-06-68335	21-25668	2.5–3.0	Tuff	5655S	5655S	5655S	5655S	—	5654S	5654S		5654S	5654S	5657S	5657S	5657S	5657S	5657S	5657S

Table 3.1-4 (continued)

Sample ID	Location ID	Depth (ft)	Media	Nitrate/pH	Cyanide (Total)	Metals	Perchlorate	Dioxin/Furan	Explosive Compounds	PCBs	Uranium	SVOCs	VOCs	Americium-241	Gamma Spectroscopy	Tritium	Isotopic Plutonium	Isotopic Uranium	Strontium-90
RE21-06-68336	21-25669	0.0–0.5	Soil	5655S	5655S	5655S	5655S	—	5654S	5654S		5654S	—	5657S	5657S	5657S	5657S	5657S	5657S
RE21-06-68337	21-25669	2.5–3.0	Tuff	5655S	5655S	5655S	5655S	—	5654S	5654S		5654S	5654S	5657S	5657S	5657S	5657S	5657S	5657S

[a] Sample IDs AAB indicate historical data.

[b] — = Not requested.

[c] Alphanumeric = Analysis request number.

Table 3.1-5
Samples Collected and Laboratory Analyses Requested for SWMU 21-024(c)

Sample ID	Location ID	Depth (ft)	Media	Nitrate/pH	Cyanide (Total)	Metals	Perchlorate	Dioxin/Furan	Explosive Compounds	PCBs	SVOCs	VOCs	Americium-241	Gamma Spectroscopy	Tritium	Isotopic Plutonium	Isotopic Uranium	Strontium-90
MD21-07-74337	21-25748	4.0–5.0	Tuff	6905S [a]	6905S	6905S	6905S	— [b]	—	6904S	6904S	6904S	6906S	6906S	6906S	6906S	6906S	6906S
MD21-07-74338	21-25748	14.0–15.0	Tuff	6905S	6905S	6905S	6905S	—	—	6904S	6904S	6904S	6906S	6906S	6906S	6906S	6906S	6906S
MD21-07-74339	21-25750	2.5–3.0	Soil	6420S	6419S, 6420S	6420S	6420S	—	—	6418S	6418S	6418S	6421S	6421S	6421S	6421S	6421S	6421S
MD21-07-74340	21-25750	4.0–4.5	Soil	6420S	6419S, 6420S	6420S	6420S	—	—	6418S	6418S	6418S	6421S	6421S	6421S	6421S	6421S	6421S
MD21-07-74341	21-25751	4.0–4.5	Tuff	6420S	6419S, 6420S	6420S	6420S	—	—	6418S	6418S	6418S	6421S	6421S	6421S	6421S	6421S	6421S
MD21-07-74342	21-25751	6.0–6.5	Tuff	6420S	6419S, 6420S	6420S	6420S	—	—	6418S	6418S	6418S	6421S	6421S	6421S	6421S	6421S	6421S
MD21-07-74357	21-25752	2.3–3.3	Soil	6716S	6716S	6716S	6716S	—	—	6715S	6715S	—	6717S	6717S	6717S	6717S	6717S	6717S
MD21-07-74344	21-25752	3.8–4.8	Tuff	6716S	6716S	6716S	6716S	—	—	—	6715S	6715S	6717S	6717S	6717S	6717S	6717S	6717S
MD21-07-142	21-25752	2.3–3.3	Soil	—	—	—	—	—	—	—	—	07-20	—	—	—	—	—	—
MD21-07-74345	21-25753	2.3–3.3	Soil	6727S	6727S	6727S	6727S	—	—	—	6726S	—	6728S	6728S	6728S	6728S	6728S	6728S
MD21-07-74346	21-25753	3.8–4.8	Tuff	6727S	6727S	6727S	6727S	—	—	—	6726S	6726S	6728S	6728S	6728S	6728S	6728S	6728S
MD21-07-143	21-25753	2.3–3.3	Soil	—	—	—	—	—	—	—	—	07-20	—	—	—	—	—	—
MD21-07-74347	21-25754	2.0–3.0	Soil	6740S	6740S	6740S	6740S	—	—	6739S	6739S	—	6741S	6741S	6741S	6741S	6741S	6741S
MD21-07-74348	21-25754	4.0–5.0	Tuff	6740S	6740S	6740S	6740S	—	—	6739S	6739S	6739S	6741S	6741S	6741S	6741S	6741S	6741S
MD21-07-144	21-25754	2.0–3.0	Soil	—	—	—	—	—	—	—	—	07-20	—	—	—	—	—	—
MD21-07-74349	21-25755	2.0–3.0	Soil	6740S	6740S	6740S	6740S	—	—	6739S	6739S	—	6741S	6741S	6741S	6741S	6741S	6741S
MD21-07-74350	21-25755	4.0–5.0	Soil	6740S	6740S	6740S	6740S	—	—	6739S	6739S	6739S	6741S	6741S	6741S	6741S	6741S	6741S
MD21-07-145	21-25755	2.0–3.0	Soil	—	—	—	—	—	—	—	—	07-20	—	—	—	—	—	—
RE21-06-68637	21-25757	0.0–0.5	Soil	5637S	5637S, 5638S	5637S	5637S	—	—	5636S	5636S	—	5639S	5639S	5639S	5639S	5639S	5639S
RE21-06-68638	21-25757	1.5–2.0	Tuff	5637S	5637S, 5638S	5637S	5637S	—	—	5636S	5636S	5636S	5639S	5639S	5639S	5639S	5639S	5639S
RE21-06-72609	21-25757	3.0–3.5	Tuff	5637S	5637S, 5638S	5637S	5637S	—	—	5636S	5636S	5636S	5639S	5639S	5639S	5639S	5639S	5639S
RE21-06-68639	21-25758	0.0–0.5	Soil	5637S	5637S, 5638S	5637S	5637S	—	—	5636S	5636S	—	5639S	5639S	5639S	5639S	5639S	5639S
RE21-06-68640	21-25758	1.5–2.0	Tuff	5637S	5637S, 5638S	5637S	5637S	—	—	5636S	5636S	5636S	5639S	5639S	5639S	5639S	5639S	5639S
RE21-06-68641	21-25759	0.0–0.5	Soil	5637S	5637S, 5638S	5637S	5637S	—	—	5636S	5636S	—	5639S	5639S	5639S	5639S	5639S	5639S
RE21-06-68642	21-25759	1.5–2.0	Tuff	5637S	5637S, 5638S	5637S	5637S	—	—	5636S	5636S	5636S	5639S	5639S	5639S	5639S	5639S	5639S
RE21-06-68643	21-25760	0.0–0.5	Soil	5637S	5637S, 5638S	5637S	5637S	5667S	5636S	5636S	5636S	—	5639S	5639S	5639S	5639S	5639S	5639S
RE21-06-68644	21-25760	1.5–2.0	Tuff	5637S	5637S, 5638S	5637S	5637S	—	—	5636S	5636S	5636S	5639S	5639S	5639S	5639S	5639S	5639S
MD21-07-74351	21-25760	5.0–5.5	Tuff	6905S	6905S	6905S	6905S	—	—	6904S	6904S	6904S	6906S	6906S	6906S	6906S	6906S	6906S
RE21-06-68645	21-25761	0.0–0.5	Soil	5637S	5637S, 5638S	5637S	5637S	—	—	5636S	5636S	—	5639S	5639S	5639S	5639S	5639S	5639S
RE21-06-68646	21-25761	1.5–2.0	Tuff	5637S	5637S, 5638S	5637S	5637S	—	—	5636S	5636S	5636S	5639S	5639S	5639S	5639S	5639S	5639S
RE21-06-68647	21-25762	0.0–0.5	Soil	5637S	5637S, 5638S	5637S	5637S	—	—	5636S	5636S	—	5639S	5639S	5639S	5639S	5639S	5639S
RE21-06-68648	21-25762	1.5–2.0	Soil	5637S	5637S, 5638S	5637S	5637S	—	—	5636S	5636S	5636S	5639S	5639S	5639S	5639S	5639S	5639S

Table 3.1-5 (continued)

Sample ID	Location ID	Depth (ft)	Media	Nitrate/pH	Cyanide (Total)	Metals	Perchlorate	Dioxin/Furan	Explosive Compounds	PCBs	SVOCs	VOCs	Americium-241	Gamma Spectroscopy	Tritium	Isotopic Plutonium	Isotopic Uranium	Strontium-90
RE21-06-68649	21-25763	0.0–0.5	Soil	5637S	5637S, 5638S	5637S	5637S	—	—	5636S	5636S	—	5639S	5639S	5639S	5639S	5639S	5639S
RE21-06-68650	21-25763	1.5–2.0	Soil	5637S	5637S, 5638S	5637S	5637S	—	—	5636S	5636S	5636S	5639S	5639S	5639S	5639S	5639S	5639S
RE21-06-68651	21-25764	0.0–0.5	Soil	5637S	5637S, 5638S	5637S	5637S	—	—	5636S	5636S	—	5639S	5639S	5639S	5639S	5639S	5639S
RE21-06-68652	21-25764	1.5–2.0	Soil	5637S	5637S, 5638S	5637S	5637S	—	—	5636S	5636S	5636S	5639S	5639S	5639S	5639S	5639S	5639S
RE21-06-68653	21-25765	0.0–0.5	Soil	5637S	5637S, 5638S	5637S	5637S	—	—	5636S	5636S	—	5639S	5639S	5639S	5639S	5639S	5639S
RE21-06-68654	21-25765	1.5–2.0	Tuff	5637S	5637S, 5638S	5637S	5637S	—	—	5636S	5636S	5636S	5639S	5639S	5639S	5639S	5639S	5639S
RE21-06-68655	21-25766	0.0–0.5	Soil	5637S	5637S, 5638S	5637S	5637S	—	—	5636S	5636S	—	5639S	5639S	5639S	5639S	5639S	5639S
RE21-06-68656	21-25766	1.5–2.0	Tuff	5637S	5637S, 5638S	5637S	5637S	—	—	5636S	5636S	5636S	5639S	5639S	5639S	5639S	5639S	5639S
RE21-06-68657	21-25767	0.0–0.5	Soil	5637S	5637S, 5638S	5637S	5637S	—	—	5636S	5636S	—	5639S	5639S	5639S	5639S	5639S	5639S
RE21-06-68658	21-25767	1.5–2.0	Tuff	5637S	5637S, 5638S	5637S	5637S	—	—	5636S	5636S	5636S	5639S	5639S	5639S	5639S	5639S	5639S
RE21-06-68659	21-25768	0.0–0.5	Soil	5637S	5637S, 5638S	5637S	5637S	—	—	5636S	5636S	—	5639S	5639S	5639S	5639S	5639S	5639S
RE21-06-68660	21-25768	1.5–2.0	Tuff	5637S	5637S, 5638S	5637S	5637S	—	—	5636S	5636S	5636S	5639S	5639S	5639S	5639S	5639S	5639S
RE21-06-68661	21-25769	0.0–0.5	Soil	5637S	5637S, 5638S	5637S	5637S	—	—	5636S	5636S	—	5639S	5639S	5639S	5639S	5639S	5639S
RE21-06-68662	21-25769	1.5–2.0	Tuff	5637S	5637S, 5638S	5637S	5637S	—	—	5636S	5636S	5636S	5639S	5639S	5639S	5639S	5639S	5639S
RE21-06-68663	21-25770	0.0–0.5	Soil	5637S	5637S, 5638S	5637S	5637S	—	—	5636S	5636S	—	5639S	5639S	5639S	5639S	5639S	5639S
RE21-06-68664	21-25770	1.5–2.0	Tuff	5637S	5637S, 5638S	5637S	5637S	—	—	5636S	5636S	5636S	5639S	5639S	5639S	5639S	5639S	5639S
RE21-06-68665	21-25771	0.0–0.5	Soil	5637S	5637S, 5638S	5637S	5637S	—	—	5636S	5636S	—	5639S	5639S	5639S	5639S	5639S	5639S
RE21-06-68666	21-25771	1.5–2.0	Tuff	5637S	5637S, 5638S	5637S	5637S	—	—	5636S	5636S	5636S	5639S	5639S	5639S	5639S	5639S	5639S

[a] Alphanumeric = Analysis request number.

[b] — = Not requested.

Table 3.1-6
Samples Collected and Laboratory Analyses Requested for the Suspected PCB Contaminated Outfall

Sample ID	Location ID	Depth (ft)	Media	Nitrate/pH	Cyanide (Total)	Metals	Perchlorate	Dioxin/Furan	Explosive Compounds	PCBs	SVOCs	Americium-241	Gamma Spectroscopy	Tritium	Isotopic Plutonium	Isotopic Uranium	Strontium-90
RE21-07-4580	21-600088	0.0–0.5	Soil	— [a]	—	—	—	—	—	—	07-268 [b]	—	—	—	—	—	—
RE21-07-551	21-600088	0.0–0.5	Soil	—	—	—	—	—	—	07-43	—	—	—	—	—	—	—
RE21-07-4581	21-600089	0.0–0.5	Soil	—	—	—	—	—	—	—	07-268	—	—	—	—	—	—
RE21-07-552	21-600089	0.0–0.5	Soil	—	—	—	—	—	—	07-43	—	—	—	—	—	—	—
RE21-07-4582	21-600090	0.0–0.5	Soil	—	—	—	—	—	—	—	07-268	—	—	—	—	—	—
RE21-07-553	21-600090	0.0–0.5	Soil	—	—	—	—	—	—	07-43	—	—	—	—	—	—	—
RE21-07-4583	21-600091	0.0–0.5	Soil	—	—	—	—	—	—	—	07-268	—	—	—	—	—	—
RE21-07-4723	21-600091	0.0–0.5	Soil	—	—	—	—	07-290	—	—	—	—	—	—	—	—	—
RE21-07-554	21-600091	0.0–0.5	Soil	—	—	—	—	—	—	07-43	—	—	—	—	—	—	—
RE21-07-4584	21-600092	0.0–0.5	Soil	—	—	—	—	—	—	—	07-268	—	—	—	—	—	—
RE21-07-555	21-600092	0.0–0.5	Soil	—	—	—	—	—	—	07-43	—	—	—	—	—	—	—
RE21-07-556	21-600093	0.0–0.5	Soil	—	—	—	—	—	—	07-53	—	—	—	—	—	—	—
RE21-07-4357	21-600093	0.5–1.0	Soil	—	—	—	—	—	07-268	—	—	—	—	—	—	—	—
RE21-07-563	21-600093	0.5–1.0	Soil	07-53	07-53	07-53	07-53	07-83	—	—	07-53	07-53	07-53	07-53	07-53	07-53	07-53
RE21-07-571	21-600093	0.5–1.0	Soil	—	—	—	—	—	—	07-53	—	—	—	—	—	—	—
RE21-07-4359	21-600094	0.0–0.5	Soil	—	—	—	—	07-273	—	—	07-268	—	—	—	—	—	—
RE21-07-557	21-600094	0.0–0.5	Soil	—	—	—	—	—	—	07-53	—	—	—	—	—	—	—
RE21-07-565	21-600094	0.5–1.0	Soil	—	—	—	—	—	—	07-53	—	—	—	—	—	—	—
RE21-07-4361	21-600095	0.0–0.5	Soil	—	—	—	—	07-273	—	—	07-268	—	—	—	—	—	—
RE21-07-558	21-600095	0.0–0.5	Soil	—	—	—	—	—	—	07-53	—	—	—	—	—	—	—
RE21-07-566	21-600095	0.5–1.0	Soil	—	—	—	—	—	—	07-53	—	—	—	—	—	—	—
RE21-07-4363	21-600096	0.0–0.5	Soil	—	—	—	—	07-273	—	—	07-268	—	—	—	—	—	—
RE21-07-559	21-600096	0.0–0.5	Soil	—	—	—	—	—	—	07-53	—	—	—	—	—	—	—
RE21-07-567	21-600096	0.5–1.0	Soil	—	—	—	—	—	—	07-53	—	—	—	—	—	—	—

[a] — = Not requested.

[b] Alphanumeric = Analysis request number.

Table 3.3-1
Samples Collected and Laboratory Analyses Requested for SWMU 21-012(b)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate/pH	Dioxin/Furan	Gamma Spectroscopy	Tritium	Isotopic Plutonium	Isotopic Uranium	Metals	PCBs	Perchlorate	Strontium-90	SVOCs	VOCs	Explosieve Compounds	Cyanide (Total)
MD21-07-74366	21-25778	0.0–0.5	Soil	6568S[a]	6567S	—[b]	6568S	6568S	6568S	6568S	6567S	—	6567S	6568S	6569S	—	—	6567S
MD21-07-74367	21-25778	2.0–2.5	Soil	6568S	6567S	—	6568S	6568S	6568S	6568S	6567S	—	6567S	6568S	6569S	6569S	—	6567S
MD21-07-74369	21-25779	0.0–0.5	Soil	6568S	6567S	—	6568S	6568S	6568S	6568S	6567S	—	6567S	6568S	6569S	—	—	6567S
MD21-07-74370	21-25779	2.0–2.5	Soil	6568S	6567S	—	6568S	6568S	6568S	6568S	6567S	—	6567S	6568S	6569S	6569S	—	6567S
MD21-07-74372	21-25780	0.0–0.5	Soil	6568S	6567S	—	6568S	6568S	6568S	6568S	6567S	—	6567S	6568S	6569S	—	—	6567S
MD21-07-74373	21-25780	2.0–2.5	Soil	6568S	6567S	—	6568S	6568S	6568S	6568S	6567S	—	6567S	6568S	6569S	6569S	—	6567S
MD21-07-74375	21-25781	0.0–0.5	Soil	6568S	6567S	—	6568S	6568S	6568S	6568S	6567S	—	6567S	6568S	6569S	—	—	6567S
MD21-07-74376	21-25781	2.0–2.5	Soil	6568S	6567S	—	6568S	6568S	6568S	6568S	6567S	—	6567S	6568S	6569S	6569S	—	6567S
MD21-07-74378	21-25782	0.0–0.5	Soil	6568S	6567S	—	6568S	6568S	6568S	6568S	6567S	—	6567S	6568S	6569S	—	—	6567S
MD21-07-74379	21-25782	2.0–2.5	Soil	6568S	6567S	—	6568S	6568S	6568S	6568S	6567S	—	6567S	6568S	6569S	6569S	—	6567S
MD21-07-74381	21-25783	0.0–0.5	Soil	6568S	6567S	—	6568S	6568S	6568S	6568S	6567S	—	6567S	6568S	6569S	—	—	6567S
MD21-07-74382	21-25783	2.0–2.5	Soil	6568S	6567S	—	6568S	6568S	6568S	6568S	6567S	—	6567S	6568S	6569S	6569S	—	6567S
MD21-07-74384	21-25784	0.0–0.5	Soil	6568S	6567S	—	6568S	6568S	6568S	6568S	6567S	—	6567S	6568S	6569S	—	—	6567S
MD21-07-74385	21-25784	2.0–2.5	Soil	6568S	6567S	—	6568S	6568S	6568S	6568S	6567S	—	6567S	6568S	6569S	6569S	—	6567S
MD21-07-74387	21-25785	0.0–0.5	Soil	6568S	6567S	—	6568S	6568S	6568S	6568S	6567S	—	6567S	6568S	6569S	—	—	6567S
MD21-07-74388	21-25785	2.0–2.5	Soil	6568S	6567S	—	6568S	6568S	6568S	6568S	6567S	—	6567S	6568S	6569S	6569S	—	6567S
MD21-07-74390	21-25786	0.0–0.5	Soil	6568S	6567S	—	6568S	6568S	6568S	6568S	6567S	—	6567S	6568S	6569S	—	—	6567S
MD21-07-74391	21-25786	2.0–2.5	Soil	6568S	6567S	—	6568S	6568S	6568S	6568S	6567S	—	6567S	6568S	6569S	6569S	—	6567S
MD21-07-74393	21-25787	0.0–0.5	Soil	6568S	6567S	—	6568S	6568S	6568S	6568S	6567S	—	6567S	6568S	6569S	—	—	6567S
MD21-07-74394	21-25787	2.0–2.5	Soil	6568S	6567S	—	6568S	6568S	6568S	6568S	6567S	—	6567S	6568S	6569S	6569S	—	6567S
MD21-07-74396	21-25788	0.0–0.5	Soil	6568S	6567S	—	6568S	6568S	6568S	6568S	6567S	—	6567S	6568S	6569S	—	—	6567S
MD21-07-74397	21-25788	2.0–2.5	Soil	6568S	6567S	—	6568S	6568S	6568S	6568S	6567S	—	6567S	6568S	6569S	6569S	—	6567S
MD21-07-74399	21-25789	0.0–0.5	Soil	6568S	6567S	—	6568S	6568S	6568S	6568S	6567S	—	6567S	6568S	6569S	—	—	6567S
MD21-07-74400	21-25789	2.0–2.5	Soil	6568S	6567S	—	6568S	6568S	6568S	6568S	6567S	—	6567S	6568S	6569S	6569S	—	6567S
MD21-07-74402	21-25790	0.0–0.5	Soil	6568S	6567S	—	6568S	6568S	6568S	6568S	6567S	—	6567S	6568S	6569S	—	—	6567S
MD21-07-74403	21-25790	2.0–2.5	Soil	6568S	6567S	—	6568S	6568S	6568S	6568S	6567S	—	6567S	6568S	6569S	6569S	—	6567S
MD21-07-74405	21-25791	0.0–0.5	Soil	6568S	6567S	—	6568S	6568S	6568S	6568S	6567S	—	6567S	6568S	6569S	—	—	6567S
MD21-07-74406	21-25791	2.0–2.5	Soil	6568S	6567S	—	6568S	6568S	6568S	6568S	6567S	—	6567S	6568S	6569S	6569S	—	6567S
MD21-07-74408	21-25792	0.0–0.5	Soil	6568S	6567S	—	6568S	6568S	6568S	6568S	6567S	—	6567S	6568S	6569S	—	—	6567S
MD21-07-74409	21-25792	2.0–2.5	Soil	6568S	6567S	—	6568S	6568S	6568S	6568S	6567S	—	6567S	6568S	6569S	6569S	—	6567S
MD21-07-74411	21-25793	0.0–0.5	Soil	6568S	6567S	—	6568S	6568S	6568S	6568S	6567S	—	6567S	6568S	6569S	—	—	6567S

Table 3.3-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate/pH	Dioxin/Furan	Gamma Spectroscopy	Tritium	Isotopic Plutonium	Isotopic Uranium	Metals	PCBs	Perchlorate	Strontium-90	SVOCs	VOCs	Explosive Compounds	Cyanide (Total)
MD21-07-74412	21-25793	2.0–2.5	Soil	6568S	6567S	—	6568S	6568S	6568S	6568S	6567S	—	6567S	6568S	6569S	6569S	—	6567S
MD21-07-74414	21-25794	0.0–0.5	Soil	6606S	6605S	—	6606S	6606S	6606S	6606S	6605S	—	6605S	6606S	6604S	—	—	6605S
MD21-07-74415	21-25794	2.0–2.5	Soil	6606S	6605S	—	6606S	6606S	6606S	6606S	6605S	—	6605S	6606S	6604S	6604S	—	6605S
MD21-07-74418	21-25795	0.0–0.5	Soil	6606S	6605S	—	6606S	6606S	6606S	6606S	6605S	—	6605S	6606S	6604S	—	—	6605S
MD21-07-74419	21-25795	2.0–2.5	Soil	6606S	6605S	—	6606S	6606S	6606S	6606S	6605S	—	6605S	6606S	6604S	6604S	—	6605S
MD21-07-74416	21-25796	0.0–0.5	Soil	6606S	6605S	—	6606S	6606S	6606S	6606S	6605S	—	6605S	6606S	6604S	—	—	6605S
MD21-07-74417	21-25796	2.0–2.5	Tuff	6606S	6605S	—	6606S	6606S	6606S	6606S	6605S	—	6605S	6606S	6604S	6604S	—	6605S
MD21-07-74436	21-25797	0.0–0.5	Soil	6799S	6798S	—	6799S	6799S	6799S	6799S	6798S	6797S	6798S	6799S	6797S	—	—	6798S
MD21-07-74437	21-25797	2.0–3.0	Tuff	6799S	6798S	—	6799S	6799S	6799S	6799S	6798S	6797S	6798S	6799S	6797S	6797S	—	6798S
MD21-07-74438	21-25797	5.0–6.0	Tuff	6799S	6798S	—	6799S	6799S	6799S	6799S	6798S	6797S	6798S	6799S	6797S	6797S	—	6798S
MD21-07-74439	21-25798	0.0–0.5	Soil	6789S	6788S	—	6789S	6789S	6789S	6789S	6788S	6787S	6788S	6789S	6787S	—	—	6788S
MD21-07-74440	21-25798	2.0–3.0	Tuff	6789S	6788S	—	6789S	6789S	6789S	6789S	6788S	6787S	6788S	6789S	6787S	6787S	—	6788S
MD21-07-74441	21-25798	5.0–6.0	Tuff	6789S	6788S	—	6789S	6789S	6789S	6789S	6788S	6787S	6788S	6789S	6787S	6787S	—	6788S
RE21-07-25	21-25800	2.33–3.33	Tuff	—	—	—	—	—	—	—	—	—	—	—	—	07—63	—	-
MD21-07-74445	21-25800	2.33–3.34	Tuff	6676S	6675S	—	6676S	6676S	6676S	6676S	6675S	—	6675S	6676S	6674S	—	—	6675S
MD21-07-74446	21-25800	4.33–5.33	Tuff	6676S	6675S	—	6676S	6676S	6676S	6676S	6675S	—	6675S	6676S	6674S	6674S	—	6675S
MD21-07-74447	21-25801	2.33–3.33	Tuff	6676S	6675S	—	6676S	6676S	6676S	6676S	6675S	—	6675S	6676S	6674S	—	—	6675S
RE21-07-26	21-25801	2.33–3.33	Tuff	—	—	—	—	—	—	—	—	—	—	—	—	07—63	—	-
MD21-07-74448	21-25801	4.33–5.33	Tuff	6676S	6675S	—	6676S	6676S	6676S	6676S	6675S	—	6675S	6676S	6674S	6674S	—	6675S
RE21-07-28	21-25802	1.5–2.5	Soil	—	—	—	—	—	—	—	—	—	—	—	—	07—63	—	-
MD21-07-74449	21-25802	2.0–3.0	Soil	6676S	6675S	—	6676S	6676S	6676S	6676S	6675S	—	6675S	6676S	6674S	—	—	6675S
MD21-07-74450	21-25802	4.0–5.0	Tuff	6676S	6675S	—	6676S	6676S	6676S	6676S	6675S	—	6675S	6676S	6674S	6674S	—	6675S
MD21-07-74451	21-25803	2.33–3.33	Soil	6810S	6809S	—	6810S	6810S	6810S	6810S	6809S	—	6809S	6810S	6808S	—	—	6809S
RE21-07-24	21-25803	2.33–3.33	Soil	—	—	—	—	—	—	—	—	—	—	—	—	07—63	—	-
MD21-07-74452	21-25803	4.33–5.33	Tuff	6810S	6809S	—	6810S	6810S	6810S	6810S	6809S	—	6809S	6810S	6808S	6808S	—	6809S
MD21-07-74453	21-25804	2.0–3.0	Soil	6676S	6675S	—	6676S	6676S	6676S	6676S	6675S	—	6675S	6676S	6674S	—	—	6675S
RE21-07-27	21-25804	2.0–3.0	Soil	—	—	—	—	—	—	—	—	—	—	—	—	07—63	—	-
MD21-07-74454	21-25804	4.0–5.0	Tuff	6676S	6675S	—	6676S	6676S	6676S	6676S	6675S	—	6675S	6676S	6674S	6674S	—	6675S
MD21-07-74455	21-25805	2.67–3.67	Soil	6824S	6823S	—	6824S	6824S	6824S	6824S	6823S	—	6823S	6824S	6822S	6822S	—	6823S
MD21-07-74456	21-25805	4.67–5.67	Tuff	6824S	6823S	—	6824S	6824S	6824S	6824S	6823S	—	6823S	6824S	6822S	6822S	—	6823S
MD21-07-74457	21-25806	2.0–3.0	Tuff	6835S	6834S	—	6835S	6835S	6835S	6835S	6834S	—	6834S	6835S	6833S	6833S	—	6834S
MD21-07-74458	21-25806	4.0–5.0	Tuff	6835S	6834S	—	6835S	6835S	6835S	6835S	6834S	—	6834S	6835S	6833S	6833S	—	6834S
MD21-07-74459	21-25807	2.5–3.5	Tuff	6835S	6834S	—	6835S	6835S	6835S	6835S	6834S	6833S	6834S	6835S	6833S	6833S	—	6834S

Table 3.3-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate/pH	Dioxin/Furan	Gamma Spectroscopy	Tritium	Isotopic Plutonium	Isotopic Uranium	Metals	PCBs	Perchlorate	Strontium-90	SVOCs	VOCs	Explosive Compounds	Cyanide (Total)
MD21-07-74460	21-25807	4.5–5.5	Tuff	6835S	6834S	—	6835S	6835S	6835S	6835S	6834S	6833S	6834S	6835S	6833S	6833S	—	6834S
MD21-07-74461	21-25808	2.5–3.5	Tuff	6835S	6834S	—	6835S	6835S	6835S	6835S	6834S	6833S	6834S	6835S	6833S	6833S	—	6834S
MD21-07-74462	21-25808	4.5–5.5	Tuff	6835S	6834S	—	6835S	6835S	6835S	6835S	6834S	6833S	6834S	6835S	6833S	6833S	—	6834S
MD21-07-74463	21-25809	2.0–3.0	Tuff	6840S	6839S	—	6840S	6840S	6840S	6840S	6839S	—	6839S	6840S	6838S	6838S	—	6839S
MD21-07-74464	21-25809	4.0–5.0	Tuff	6840S	6839S	—	6840S	6840S	6840S	6840S	6839S	—	6839S	6840S	6838S	6838S	—	6839S
MD21-07-74433	21-25810	0.0–0.5	Soil	6789S	6788S	—	6789S	6789S	6789S	6789S	6788S	6787S	6788S	6789S	6787S	—	—	6788S
MD21-07-74434	21-25810	2.0–3.0	Tuff	6789S	6788S	—	6789S	6789S	6789S	6789S	6788S	6787S	6788S	6789S	6787S	6787S	—	6788S
MD21-07-74435	21-25810	5.0–6.0	Tuff	6789S	6788S	—	6789S	6789S	6789S	6789S	6788S	6787S	6788S	6789S	6787S	6787S	—	6788S
MD21-07-74467	21-25811	3.0–4.0	Tuff	6835S	6834S	—	6835S	6835S	6835S	6835S	6834S	6833S	6834S	6835S	6833S	6833S	—	6834S
MD21-07-74468	21-25811	5.0–6.0	Tuff	6835S	6834S	—	6835S	6835S	6835S	6835S	6834S	6833S	6834S	6835S	6833S	6833S	—	6834S
MD21-07-74469	21-25812	2.0–3.0	Tuff	6840S	6839S	—	6840S	6840S	6840S	6840S	6839S	—	6839S	6840S	6838S	6838S	—	6839S
MD21-07-74470	21-25812	4.0–5.0	Tuff	6840S	6839S	—	6840S	6840S	6840S	6840S	6839S	—	6839S	6840S	6838S	6838S	—	6839S
MD21-07-74471	21-25813	3.0–4.0	Tuff	6840S	6839S	—	6840S	6840S	6840S	6840S	6839S	—	6839S	6840S	6838S	6838S	—	6839S
MD21-07-74472	21-25813	5.0–6.0	Tuff	6840S	6839S	—	6840S	6840S	6840S	6840S	6839S	—	6839S	6840S	6838S	6838S	—	6839S
MD21-07-74473	21-25814	1.6–2.6	Tuff	6835S	6834S	—	6835S	6835S	6835S	6835S	6834S	6833S	6834S	6835S	6833S	6833S	—	6834S
MD21-07-74474	21-25814	3.5–4.5	Tuff	6835S	6834S	—	6835S	6835S	6835S	6835S	6834S	6833S	6834S	6835S	6833S	6833S	—	6834S
MD21-07-74475	21-25815	2.0–3.0	Tuff	6840S	6839S	—	6840S	6840S	6840S	6840S	6839S	—	6839S	6840S	6838S	6838S	—	6839S
MD21-07-74476	21-25815	4.0–5.0	Tuff	6840S	6839S	—	6840S	6840S	6840S	6840S	6839S	—	6839S	6840S	6838S	6838S	—	6839S
MD21-07-74478	21-25816	4.0–5.0	Tuff	6835S	6834S	—	6835S	6835S	6835S	6835S	6834S	6833S	6834S	6835S	6833S	6833S	—	6834S
MD21-07-74477	21-25816	6.0–7.0	Tuff	6835S	6834S	—	6835S	6835S	6835S	6835S	6834S	6833S	6834S	6835S	6833S	6833S	—	6834S
MD21-07-74479	21-25817	2.5–3.5	Tuff	6850S	6849S	—	6850S	6850S	6850S	6850S	6849S	—	6849S	6850S	6848S	6848S	—	6849S
MD21-07-74480	21-25817	4.5–5.5	Tuff	6850S	6849S	—	6850S	6850S	6850S	6850S	6849S	—	6849S	6850S	6848S	6848S	—	6849S
RE21-07-76274	21-27671	55.0–56.0	Tuff	7065S	7063S	—	7065S	7065S	7065S	7065S	7063S	—	7063S	7065S	7064S	7064S	—	7063S
RE21-07-76275	21-27671	60.0–61.0	Tuff	7065S	7063S	—	7065S	7065S	7065S	7065S	7063S	—	7063S	7065S	7064S	7064S	—	7063S
RE21-07-76276	21-27671	65.0–66.0	Tuff	7065S	7063S	—	7065S	7065S	7065S	7065S	7063S	—	7063S	7065S	7064S	7064S	—	7063S
RE21-07-76277	21-27671	70.0–71.0	Tuff	7065S	7063S	7078S	7065S	7065S	7065S	7065S	7063S	7064S	7063S	7065S	7064S	7064S	7064S	7063S
RE21-07-76278	21-27671	75.0–76.0	Tuff	7065S	7063S	—	7065S	7065S	7065S	7065S	7063S	—	7063S	7065S	7064S	7064S	—	7063S
RE21-07-76280	21-27672	5.0–6.0	Tuff	7065S	7063S	—	7065S	7065S	7065S	7065S	7063S	—	7063S	7065S	7064S	7064S	—	7063S
RE21-07-76281	21-27672	10.0–11.0	Tuff	7065S	7063S	—	7065S	7065S	7065S	7065S	7063S	—	7063S	7065S	7064S	7064S	—	7063S
RE21-07-76282	21-27672	15.0–16.0	Tuff	7065S	7063S	—	7065S	7065S	7065S	7065S	7063S	—	7063S	7065S	7064S	7064S	—	7063S
RE21-07-76283	21-27672	20.0–21.0	Tuff	7065S	7063S	—	7065S	7065S	7065S	7065S	7063S	—	7063S	7065S	7064S	7064S	—	7063S
RE21-07-76284	21-27672	25.0–26.0	Tuff	7065S	7063S	—	7065S	7065S	7065S	7065S	7063S	—	7063S	7065S	7064S	7064S	—	7063S
RE21-07-76286	21-27673	5.0–6.0	Tuff	7070S	7069S	—	7070S	7070S	7070S	7070S	7069S	—	7069S	7070S	7068S	7068S	—	7069S

Table 3.3-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate/pH	Dioxin/Furan	Gamma Spectroscopy	Tritium	Isotopic Plutonium	Isotopic Uranium	Metals	PCBs	Perchlorate	Strontium-90	SVOCs	VOCs	Explosive Compounds	Cyanide (Total)
RE21-07-76287	21-27673	10.0–11.0	Tuff	7070S	7069S	—	7070S	7070S	7070S	7070S	7069S	—	7069S	7070S	7068S	7068S	—	7069S
RE21-07-76288	21-27673	15.0–16.0	Tuff	7070S	7069S	—	7070S	7070S	7070S	7070S	7069S	—	7069S	7070S	7068S	7068S	—	7069S
RE21-07-76289	21-27673	20.0–21.0	Tuff	7070S	7069S	—	7070S	7070S	7070S	7070S	7069S	—	7069S	7070S	7068S	7068S	—	7069S
RE21-07-76290	21-27673	25.0–26.0	Tuff	7070S	7069S	—	7070S	7070S	7070S	7070S	7069S	—	7069S	7070S	7068S	7068S	—	7069S
RE21-07-76292	21-27674	5.0–6.0	Tuff	7070S	7069S	—	7070S	7070S	7070S	7070S	7069S	—	7069S	7070S	7068S	7068S	—	7069S
RE21-07-76293	21-27674	10.0–11.0	Tuff	7070S	7069S	—	7070S	7070S	7070S	7070S	7069S	—	7069S	7070S	7068S	7068S	—	7069S
RE21-07-76294	21-27674	18.0–19.0	Tuff	7070S	7069S	—	7070S	7070S	7070S	7070S	7069S	—	7069S	7070S	7068S	7068S	—	7069S
RE21-07-76295	21-27674	20.0–21.0	Tuff	7070S	7069S	—	7070S	7070S	7070S	7070S	7069S	—	7069S	7070S	7068S	7068S	—	7069S
RE21-07-76296	21-27674	25.0–26.0	Tuff	7070S	7069S	—	7070S	7070S	7070S	7070S	7069S	—	7069S	7070S	7068S	7068S	—	7069S

[a] Alphanumeric = Analysis request number.

[b] — = Not requested.

Table 3.3-2
Samples Collected and Laboratory Analyses Requested for SWMU 21-024(a)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate/pH	Dioxin/Furan	Gamma Spectroscopy	Tritium	Isotopic Plutonium	Isotopic Uranium	Metals	PCB	Perchlorate	Strontium-90	SVOCs	VOCs	Explosive Compounds	Cyanide (Total)
RE21-07-74874	21-27320	0.0–0.5	Soil	6561S [a]	6559S	— [b]	6561S	6561S	6561S	6561S	6559S	—	6559S	6561S	6558S	—	—	6559S, 6560S
RE21-07-74875	21-27320	2.0–2.5	Tuff	6561S	6559S	—	6561S	6561S	6561S	6561S	6559S	—	6559S	6561S	6558S	6558S	—	6559S, 6560S
RE21-07-74877	21-27321	0.0–0.5	Soil	6561S	6559S	—	6561S	6561S	6561S	6561S	6559S	—	6559S	6561S	6558S	—	—	6559S, 6560S
RE21-07-74878	21-27321	2.0–2.5	Tuff	6561S	6559S	—	6561S	6561S	6561S	6561S	6559S	—	6559S	6561S	6558S	6558S	—	6559S, 6560S
RE21-07-74880	21-27322	0.0–0.5	Soil	6561S	6559S	—	6561S	6561S	6561S	6561S	6559S	—	6559S	6561S	6558S	—	—	6559S, 6560S
RE21-07-74881	21-27322	2.0–2.5	Soil	6561S	6559S	—	6561S	6561S	6561S	6561S	6559S	—	6559S	6561S	6558S	6558S	—	6559S, 6560S
RE21-07-74883	21-27323	0.0–0.5	Soil	6561S	6559S	—	6561S	6561S	6561S	6561S	6559S	—	6559S	6561S	6558S	—	—	6559S, 6560S
RE21-07-74884	21-27323	2.0–2.5	Soil	6561S	6559S	—	6561S	6561S	6561S	6561S	6559S	—	6559S	6561S	6558S	6558S	—	6559S, 6560S
RE21-07-74887	21-27325	0.0–0.5	Soil	6561S	6559S	—	6561S	6561S	6561S	6561S	6559S	—	6559S	6561S	6558S	—	—	6559S, 6560S
RE21-07-74888	21-27325	2.0–2.5	Tuff	6561S	6559S	—	6561S	6561S	6561S	6561S	6559S	—	6559S	6561S	6558S	6558S	—	6559S, 6560S
RE21-07-74889	21-27326	0.0–0.5	Soil	6561S	6559S	—	6561S	6561S	6561S	6561S	6559S	—	6559S	6561S	6558S	—	—	6559S, 6560S
RE21-07-74890	21-27326	2.0–2.5	Soil	6561S	6559S	—	6561S	6561S	6561S	6561S	6559S	—	6559S	6561S	6558S	6558S	—	6559S, 6560S
RE21-07-74891	21-27327	0.0–0.5	Soil	6561S	6559S	—	6561S	6561S	6561S	6561S	6559S	—	6559S	6561S	6558S	—	—	6559S, 6560S
RE21-07-74892	21-27327	2.0–2.5	Soil	6561S	6559S	—	6561S	6561S	6561S	6561S	6559S	—	6559S	6561S	6558S	6558S	—	6559S, 6560S
RE21-07-74893	21-27328	0.0–0.5	Soil	6561S	6559S	—	6561S	6561S	6561S	6561S	6559S	—	6559S	6561S	6558S	—	—	6559S, 6560S
RE21-07-74894	21-27328	2.0–2.5	Tuff	6561S	6559S	—	6561S	6561S	6561S	6561S	6559S	—	6559S	6561S	6558S	6558S	—	6559S, 6560S
RE21-07-74895	21-27329	0.0–0.5	Soil	6561S	6559S	—	6561S	6561S	6561S	6561S	6559S	—	6559S	6561S	6558S	—	—	6559S, 6560S
RE21-07-74896	21-27329	2.0–2.5	Soil	6561S	6559S	—	6561S	6561S	6561S	6561S	6559S	—	6559S	6561S	6558S	6558S	—	6559S, 6560S
RE21-07-74897	21-27330	0.0–0.5	Tuff	6561S	6559S	—	6561S	6561S	6561S	6561S	6559S	—	6559S	6561S	6558S	—	—	6559S, 6560S
RE21-07-74898	21-27330	2.0–2.5	Tuff	6561S	6559S	—	6561S	6561S	6561S	6561S	6559S	—	6559S	6561S	6558S	6558S	—	6559S, 6560S
RE21-07-74899	21-27331	0.0–0.5	Tuff	6561S	6559S	—	6561S	6561S	6561S	6561S	6559S	—	6559S	6561S	6558S	—	—	6559S, 6560S
RE21-07-74900	21-27331	2.0–2.5	Tuff	6561S	6559S	—	6561S	6561S	6561S	6561S	6559S	—	6559S	6561S	6558S	6558S	—	6559S, 6560S
RE21-07-74901	21-27332	0.0–0.5	Soil	6561S	6559S	—	6561S	6561S	6561S	6561S	6559S	—	6559S	6561S	6558S	—	—	6559S, 6560S
RE21-07-74902	21-27332	2.0–2.5	Tuff	6561S	6559S	—	6561S	6561S	6561S	6561S	6559S	—	6559S	6561S	6558S	6558S	—	6559S, 6560S
RE21-07-74903	21-27333	0.0–0.5	Soil	6561S	6559S	—	6561S	6561S	6561S	6561S	6559S	—	6559S	6561S	6558S	—	—	6559S, 6560S
RE21-07-74904	21-27333	2.0–2.5	Soil	6561S	6559S	—	6561S	6561S	6561S	6561S	6559S	—	6559S	6561S	6558S	6558S	—	6559S, 6560S
RE21-07-74907	21-27335	2.67–3.67	Soil	6768S	6767S	—	6768S	6768S	6768S	6768S	6767S	—	6767S	6768S	6766S	—	—	6767S
MD21-07-62	21-27335	2.67–4.67	Soil	—	—	—	—	—	—	—	—	—	—	—	—	07–21	—	—
RE21-07-74908	21-27335	4.67–5.67	Tuff	6768S	6767S	—	6768S	6768S	6768S	6768S	6767S	—	6767S	6768S	6766S	6766S	—	6767S
MD21-07-63	21-27336	2.0–3.0	Tuff	—	—	—	—	—	—	—	—	—	—	—	—	07–21	—	—
RE21-07-74909	21-27336	2.0–3.0	Tuff	6768S	6767S	—	6768S	6768S	6768S	6768S	6767S	—	6767S	6768S	6766S	—	—	6767S
RE21-07-74910	21-27336	4.0–5.0	Tuff	6768S	6767S	—	6768S	6768S	6768S	6768S	6767S	—	6767S	6768S	6766S	6766S	—	6767S

Table 3.3-2 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate/pH	Dioxin/Furan	Gamma Spectroscopy	Tritium	Isotopic Plutonium	Isotopic Uranium	Metals	PCB	Perchlorate	Strontium-90	SVOCs	VOCs	Explosive Compounds	Cyanide (Total)
MD21-07-61	21-27338	2.67–3.67	Soil	—	—	—	—	—	—	—	—	—	—	—	—	07-21	—	—
RE21-07-74925	21-27338	2.67–3.67	Soil	6772S	6771S	—	6772S	6772S	6772S	6772S	6771S	—	6771S	6772S	6770S	—	—	6771S
RE21-07-74926	21-27338	4.67–5.67	Soil	6772S	6771S	—	6772S	6772S	6772S	6772S	6771S	—	6771S	6772S	6770S	6770S	—	6771S
RE21-07-74927	21-27339	6.1–7.1	Tuff	6861S	6860S	—	6861S	6861S	6861S	6861S	6860S	—	6860S	6861S	6859S	6859S	—	6860S
RE21-07-74928	21-27339	8.1–9.1	Tuff	6861S	6860S	—	6861S	6861S	6861S	6861S	6860S	—	6860S	6861S	6859S	6859S	—	6860S
RE21-07-74929	21-27340	5.0–6.0	Tuff	6861S	6860S	—	6861S	6861S	6861S	6861S	6860S	—	6860S	6861S	6859S	6859S	—	6860S
RE21-07-515	21-27340	5.5–6.5	Tuff	—	—	07-41	—	—	—	—	—	07-42	—	—	—	—	07-42	—
RE21-07-74930	21-27340	7.0–8.0	Tuff	6861S	6860S	—	6861S	6861S	6861S	6861S	6860S	—	6860S	6861S	6859S	6859S	—	6860S
RE21-07-74931	21-27341	5.0–6.0	Tuff	6955S	6954S	—	6955S	6955S	6955S	6955S	6954S	—	6954S	6955S	6953S	6953S	—	6954S
RE21-07-74932	21-27341	10.0–11.0	Tuff	6955S	6954S	—	6955S	6955S	6955S	6955S	6954S	—	6954S	6955S	6953S	6953S	—	6954S
RE21-07-74933	21-27341	15.0–16.0	Tuff	6955S	6954S	—	6955S	6955S	6955S	6955S	6954S	—	6954S	6955S	6953S	6953S	—	6954S
RE21-07-74934	21-27342	0.0–0.5	Soil	6786S	6785S	—	6786S	6786S	6786S	6786S	6785S	—	6785S	6786S	6784S	—	—	6785S
RE21-07-74935	21-27342	2.0–3.0	Tuff	6786S	6785S	—	6786S	6786S	6786S	6786S	6785S	—	6785S	6786S	6784S	6784S	—	6785S
RE21-07-74936	21-27342	5.0–6.0	Tuff	6786S	6785S	—	6786S	6786S	6786S	6786S	6785S	—	6785S	6786S	6784S	6784S	—	6785S

[a] Alphanumeric = Analysis request number.

[b] — = Not requested.

Table 3.3-3
Samples Collected and Laboratory Analyses Requested for SWMU 21-024(e)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate/pH	Dioxin/Furan	Gamma Spectroscopy	Tritium	Isotopic Plutonium	Isotopic Uranium	Metals	PCBs	Perchlorate	Strontium-90	SVOCs	VOCs	Explosive Compounds	Cyanide (Total)
RE21-07-74568	21-27242	0.0–0.5	Soil	6435S [a]	6433S	— [b]	6435S	6435S	6435S	6435S	6433S	—	6433S	6435S	6432S	6432S	—	6433S, 6434S
RE21-07-74582	21-27242	2.0–3.0	Tuff	6435S	6433S	—	6435S	6435S	6435S	6435S	6433S	—	6433S	6435S	6432S	6432S	—	6433S, 6434S
RE21-07-74569	21-27243	0.0–0.5	Soil	6435S	6433S	—	6435S	6435S	6435S	6435S	6433S	—	6433S	6435S	6432S	6432S	—	6433S, 6434S
RE21-07-74583	21-27243	2.0–3.0	Soil	6435S	6433S	—	6435S	6435S	6435S	6435S	6433S	—	6433S	6435S	6432S	6432S	—	6433S, 6434S
RE21-07-74572	21-27244	0.0–0.5	Soil	6435S	6433S	—	6435S	6435S	6435S	6435S	6433S	—	6433S	6435S	6432S	6432S	—	6433S, 6434S
RE21-07-74577	21-27244	2.0–3.0	Tuff	6435S	6433S	—	6435S	6435S	6435S	6435S	6433S	—	6433S	6435S	6432S	6432S	—	6433S, 6434S
RE21-07-74571	21-27245	0.0–0.5	Soil	6435S	6433S	—	6435S	6435S	6435S	6435S	6433S	—	6433S	6435S	6432S	6432S	—	6433S, 6434S
RE21-07-74580	21-27245	2.0–3.0	Tuff	6435S	6433S	—	6435S	6435S	6435S	6435S	6433S	—	6433S	6435S	6432S	6432S	—	6433S, 6434S
RE21-07-74570	21-27246	0.0–0.5	Soil	6435S	6433S	—	6435S	6435S	6435S	6435S	6433S	—	6433S	6435S	6432S	6432S	—	6433S, 6434S
RE21-07-74581	21-27246	2.0–3.0	Tuff	6435S	6433S	—	6435S	6435S	6435S	6435S	6433S	—	6433S	6435S	6432S	6432S	—	6433S, 6434S
RE21-07-74575	21-27247	0.0–0.5	Soil	6435S	6433S	—	6435S	6435S	6435S	6435S	6433S	—	6433S	6435S	6432S	6432S	—	6433S, 6434S
RE21-07-74578	21-27247	2.0–3.0	Tuff	6435S	6433S	—	6435S	6435S	6435S	6435S	6433S	—	6433S	6435S	6432S	6432S	—	6433S, 6434S
RE21-07-74574	21-27248	0.0–0.5	Soil	6435S	6433S	—	6435S	6435S	6435S	6435S	6433S	—	6433S	6435S	6432S	6432S	—	6433S, 6434S
RE21-07-74579	21-27248	2.0–3.0	Tuff	6435S	6433S	—	6435S	6435S	6435S	6435S	6433S	—	6433S	6435S	6432S	6432S	—	6433S, 6434S
RE21-07-74573	21-27249	0.0–0.5	Soil	6435S	6433S	—	6435S	6435S	6435S	6435S	6433S	—	6433S	6435S	6432S	6432S	—	6433S, 6434S
RE21-07-74576	21-27249	2.0–3.0	Tuff	6435S	6433S	—	6435S	6435S	6435S	6435S	6433S	—	6433S	6435S	6432S	6432S	—	6433S, 6434S
RE21-07-74584	21-27250	0.0–0.5	Soil	6450S	6448S	—	6450S	6450S	6450S	6450S	6448S	—	6448S	6450S	6447S	—	—	6448S, 6449S
RE21-07-74585	21-27250	2.0–2.5	Tuff	6494S	6493S	—	6494S	6494S	6494S	6494S	6493S	—	6493S	6494S	6492S	6492S	—	6493S
RE21-07-74586	21-27251	0.0–0.5	Soil	6450S	6448S	—	6450S	6450S	6450S	6450S	6448S	—	6448S	6450S	6447S	—	—	6448S, 6449S
RE21-07-74587	21-27251	2.0–2.5	Tuff	6494S	6493S	—	6494S	6494S	6494S	6494S	6493S	—	6493S	6494S	6492S	6492S	—	6493S
RE21-07-74588	21-27252	0.0–0.5	Soil	6450S	6448S	—	6450S	6450S	6450S	6450S	6448S	—	6448S	6450S	6447S	—	—	6448S, 6449S
RE21-07-74589	21-27252	2.0–2.5	Tuff	6494S	6493S	—	6494S	6494S	6494S	6494S	6493S	—	6493S	6494S	6492S	6492S	—	6493S
RE21-07-74590	21-27253	0.0–0.5	Soil	6450S	6448S	—	6450S	6450S	6450S	6450S	6448S	—	6448S	6450S	6447S	—	—	6448S, 6449S
RE21-07-4045	21-27253	1.0–1.5	Tuff	—	—	07-296	—	—	—	—	—	07-297	—	—	—	—	07-297	—
RE21-07-74591	21-27253	1.0–1.5	Tuff	6494S	6493S	—	6494S	6494S	6494S	6494S	6493S	—	6493S	6494S	6492S	6492S	—	6493S
RE21-07-74592	21-27254	0.0–0.5	Soil	6450S	6448S	—	6450S	6450S	6450S	6450S	6448S	—	6448S	6450S	6447S	—	—	6448S, 6449S
RE21-07-74593	21-27254	2.0–2.5	Tuff	6494S	6493S	—	6494S	6494S	6494S	6494S	6493S	—	6493S	6494S	6492S	6492S	—	6493S
RE21-07-74594	21-27255	0.0–0.5	Soil	6450S	6448S	—	6450S	6450S	6450S	6450S	6448S	—	6448S	6450S	6447S	—	—	6448S, 6449S
RE21-07-74595	21-27255	2.0–2.5	Tuff	6494S	6493S	—	6494S	6494S	6494S	6494S	6493S	—	6493S	6494S	6492S	6492S	—	6493S
RE21-07-74615	21-27259	10.0–11.0	Tuff	7097S	7098S	—	7097S	7097S	7097S	7097S	7098S	—	7098S	7097S	7096S	7096S	—	7098S
RE21-07-74616	21-27259	15.0–16.0	Tuff	7097S	7098S	—	7097S	7097S	7097S	7097S	7098S	—	7098S	7097S	7096S	7096S	—	7098S

Table 3.3-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate/pH	Dioxin/Furan	Gamma Spectroscopy	Tritium	Isotopic Plutonium	Isotopic Uranium	Metals	PCBs	Perchlorate	Strontium—90	SVOCs	VOCs	Explosive Compounds	Cyanide (Total)
RE21-07-74617	21-27259	20.0–21.0	Tuff	7097S	7098S	—	7097S	7097S	7097S	7097S	7098S	—	7098S	7097S	7096S	7096S	—	7098S
RE21-07-74618	21-27260	0.0–0.5	Soil	7097S	7098S	—	7097S	7097S	7097S	7097S	7098S	—	7098S	7097S	7096S	—	—	7098S
RE21-07-74619	21-27260	2.0–3.0	Tuff	7097S	7098S	—	7097S	7097S	7097S	7097S	7098S	—	7098S	7097S	7096S	7096S	—	7098S
RE21-07-74620	21-27260	5.0–6.0	Tuff	7097S	7098S	—	7097S	7097S	7097S	7097S	7098S	—	7098S	7097S	7096S	7096S	—	7098S
RE21-07-74627	21-27263	3.0–4.0	Soil	7066S	7066S	—	7066S	7066S	7066S	7066S	7066S	—	7066S	7066S	7066S	7066S	—	7066S
RE21-07-74628	21-27263	5.0–6.0	Soil	7066S	7066S	—	7066S	7066S	7066S	7066S	7066S	—	7066S	7066S	7066S	7066S	—	7066S
RE21-07-74629	21-27264	4.0–5.0	Soil	7066S	7066S	—	7066S	7066S	7066S	7066S	7066S	—	7066S	7066S	7066S	7066S	—	7066S
RE21-07-74630	21-27264	6.0–7.0	Soil	7066S	7066S	—	7066S	7066S	7066S	7066S	7066S	—	7066S	7066S	7066S	7066S	—	7066S
RE21-07-74631	21-27265	4.25–5.25	Soil	7066S	7066S	—	7066S	7066S	7066S	7066S	7066S	—	7066S	7066S	7066S	7066S	—	7066S
RE21-07-74632	21-27265	6.25–7.25	Tuff	7066S	7066S	—	7066S	7066S	7066S	7066S	7066S	—	7066S	7066S	7066S	7066S	—	7066S
RE21-07-74633	21-27266	4.5–5.5	Soil	7073S	7072S	—	7073S	7073S	7073S	7073S	7072S	—	7072S	7073S	7071S	7071S	—	7072S
RE21-07-74634	21-27266	6.5–7.5	Tuff	7073S	7072S	—	7073S	7073S	7073S	7073S	7072S	—	7072S	7073S	7071S	7071S	—	7072S
RE21-07-74635	21-27267	5.0–6.0	Soil	7073S	7072S	—	7073S	7073S	7073S	7073S	7072S	—	7072S	7073S	7071S	7071S	—	7072S
RE21-07-74636	21-27267	7.0–8.0	Tuff	7073S	7072S	—	7073S	7073S	7073S	7073S	7072S	—	7072S	7073S	7071S	7071S	—	7072S
RE21-07-74637	21-27268	3.75–4.75	Soil	7073S	7072S	—	7073S	7073S	7073S	7073S	7072S	—	7072S	7073S	7071S	7071S	—	7072S
RE21-07-74638	21-27268	5.75–6.75	Tuff	7073S	7072S	—	7073S	7073S	7073S	7073S	7072S	—	7072S	7073S	7071S	7071S	—	7072S
RE21-07-74639	21-27269	1.25–2.25	Soil	7073S	7072S	—	7073S	7073S	7073S	7073S	7072S	—	7072S	7073S	7071S	7071S	—	7072S
RE21-07-74640	21-27269	3.25–4.25	Tuff	7073S	7072S	—	7073S	7073S	7073S	7073S	7072S	—	7072S	7073S	7071S	7071S	—	7072S
RE21-07-74641	21-27270	2.0–3.0	Soil	7073S	7072S	—	7073S	7073S	7073S	7073S	7072S	—	7072S	7073S	7071S	7071S	—	7072S
RE21-07-74642	21-27270	4.0–5.0	Soil	7073S	7072S	—	7073S	7073S	7073S	7073S	7072S	—	7072S	7073S	7071S	7071S	—	7072S
RE21-07-74643	21-27271	6.0–7.0	Soil	7097S	7098S	—	7097S	7097S	7097S	7097S	7098S	—	7098S	7097S	7096S	7096S	—	7098S
RE21-07-74644	21-27271	8.0–9.0	Tuff	7097S	7098S	—	7097S	7097S	7097S	7097S	7098S	—	7098S	7097S	7096S	7096S	—	7098S
RE21-07-74645	21-27272	6.0–7.0	Soil	7097S	7098S	—	7097S	7097S	7097S	7097S	7098S	—	7098S	7097S	7096S	7096S	—	7098S
RE21-07-74646	21-27272	9.0–10.0	Tuff	7097S	7098S	—	7097S	7097S	7097S	7097S	7098S	—	7098S	7097S	7096S	7096S	—	7098S
RE21-07-74647	21-27273	3.5–4.0	Soil	7097S	7098S	—	7097S	7097S	7097S	7097S	7098S	—	7098S	7097S	7096S	7096S	—	7098S
RE21-07-74648	21-27273	5.0–6.0	Tuff	7097S	7098S	—	7097S	7097S	7097S	7097S	7098S	—	7098S	7097S	7096S	7096S	—	7098S

[a] Alphanumeric = Analysis request number.
[b] — = Not requested.

Table 3.3-4
Samples Collected and Laboratory Analyses Requested for SWMU 21-024(g)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate	Dioxin/Furan	Gamma Spectroscopy	Tritium	Explosive Compounds	Isotopic Plutonium	Isotopic Uranium	Metals	PCB	Perchlorate	Strontium-90	SVOC	VOC	Cyanide (Total)
RE21-07-75871	21-27592	0.0–0.5	Soil	6626S [a]	6625S	— [b]	6626S	6626S	—	6626S	6626S	6625S	—	6625S	6626S	6624S	—	6625S
RE21-07-75872	21-27592	2.0–2.5	Tuff	6626S	6625S	—	6626S	6626S	—	6626S	6626S	6625S	—	6625S	6626S	6624S	6624S	6625S
RE21-07-75873	21-27593	0.0–0.5	Soil	6626S	6625S	—	6626S	6626S	—	6626S	6626S	6625S	—	6625S	6626S	6624S	—	6625S
RE21-07-75874	21-27593	2.0–2.5	Tuff	6626S	6625S	—	6626S	6626S	—	6626S	6626S	6625S	—	6625S	6626S	6624S	6624S	6625S
RE21-07-75875	21-27594	0.0–0.5	Soil	6626S	6625S	—	6626S	6626S	—	6626S	6626S	6625S	—	6625S	6626S	6624S	—	6625S
RE21-07-75876	21-27594	2.0–2.5	Soil	6626S	6625S	—	6626S	6626S	—	6626S	6626S	6625S	—	6625S	6626S	6624S	6624S	6625S
RE21-07-75877	21-27595	0.0–0.5	Soil	6626S	6625S	—	6626S	6626S	—	6626S	6626S	6625S	—	6625S	6626S	6624S	—	6625S
RE21-07-75878	21-27595	2.0–2.5	Tuff	6626S	6625S	—	6626S	6626S	—	6626S	6626S	6625S	—	6625S	6626S	6624S	6624S	6625S
RE21-07-75879	21-27596	0.0–0.5	Soil	6626S	6625S	—	6626S	6626S	—	6626S	6626S	6625S	—	6625S	6626S	6624S	—	6625S
RE21-07-75880	21-27596	2.0–2.5	Tuff	6626S	6625S	—	6626S	6626S	—	6626S	6626S	6625S	—	6625S	6626S	6624S	6624S	6625S
RE21-07-582	21-27596	2.0–3.0	Tuff	—	—	07-102	—	—	07-84	—	—	—	07-84	—	—	—	—	—
RE21-07-75881	21-27597	0.0–0.5	Soil	6626S	6625S	—	6626S	6626S	—	6626S	6626S	6625S	—	6625S	6626S	6624S	—	6625S
RE21-07-75882	21-27597	2.0–2.5	Tuff	6626S	6625S	—	6626S	6626S	—	6626S	6626S	6625S	—	6625S	6626S	6624S	6624S	6625S
RE21-07-75883	21-27598	0.0–0.5	Soil	6626S	6625S	—	6626S	6626S	—	6626S	6626S	6625S	—	6625S	6626S	6624S	—	6625S
RE21-07-75884	21-27598	2.0–2.5	Soil	6626S	6625S	—	6626S	6626S	—	6626S	6626S	6625S	—	6625S	6626S	6624S	6624S	6625S
RE21-07-75885	21-27599	0.0–0.5	Soil	6626S	6625S	—	6626S	6626S	—	6626S	6626S	6625S	—	6625S	6626S	6624S	—	6625S
RE21-07-75886	21-27599	2.0–2.5	Tuff	6626S	6625S	—	6626S	6626S	—	6626S	6626S	6625S	—	6625S	6626S	6624S	6624S	6625S
RE21-07-75887	21-27600	0.0–0.5	Soil	6631S	6630S	—	6631S	6631S	—	6631S	6631S	6630S	—	6630S	6631S	6629S	—	6630S
RE21-07-75888	21-27600	2.0–2.5	Tuff	6631S	6630S	—	6631S	6631S	—	6631S	6631S	6630S	—	6630S	6631S	6629S	6629S	6630S
RE21-07-75889	21-27601	0.0–0.5	Soil	6631S	6630S	—	6631S	6631S	—	6631S	6631S	6630S	—	6630S	6631S	6629S	—	6630S
RE21-07-75890	21-27601	2.0–2.5	Tuff	6631S	6630S	—	6631S	6631S	—	6631S	6631S	6630S	—	6630S	6631S	6629S	6629S	6630S
RE21-07-75891	21-27602	0.0–0.5	Soil	6631S	6630S	—	6631S	6631S	—	6631S	6631S	6630S	—	6630S	6631S	6629S	—	6630S
RE21-07-75892	21-27602	2.0–2.5	Tuff	6631S	6630S	—	6631S	6631S	—	6631S	6631S	6630S	—	6630S	6631S	6629S	6629S	6630S
RE21-07-75893	21-27603	0.0–0.5	Soil	6631S	6630S	—	6631S	6631S	—	6631S	6631S	6630S	—	6630S	6631S	6629S	—	6630S
RE21-07-75894	21-27603	2.0–2.5	Soil	6631S	6630S	—	6631S	6631S	—	6631S	6631S	6630S	—	6630S	6631S	6629S	6629S	6630S
RE21-07-75895	21-27604	0.0–0.5	Soil	6631S	6630S	—	6631S	6631S	—	6631S	6631S	6630S	—	6630S	6631S	6629S	—	6630S
RE21-07-75896	21-27604	2.0–2.5	Soil	6631S	6630S	—	6631S	6631S	—	6631S	6631S	6630S	—	6630S	6631S	6629S	6629S	6630S
RE21-07-75897	21-27605	0.0–0.5	Tuff	6631S	6630S	—	6631S	6631S	—	6631S	6631S	6630S	—	6630S	6631S	6629S	—	6630S
RE21-07-75898	21-27605	2.0–2.5	Tuff	6631S	6630S	—	6631S	6631S	—	6631S	6631S	6630S	—	6630S	6631S	6629S	6629S	6630S
RE21-07-75911	21-27606	0.0–1.0	Soil	6976S	6975S	—	6976S	6976S	—	6976S	6976S	6975S	—	6975S	6976S	6974S	—	6975S
RE21-07-75912	21-27606	5.0–6.0	Soil	6976S	6975S	—	6976S	6976S	—	6976S	6976S	6975S	—	6975S	6976S	6974S	6974S	6975S
RE21-07-75913	21-27606	10.0–11.0	Tuff	6976S	6975S	—	6976S	6976S	—	6976S	6976S	6975S	—	6975S	6976S	6974S	6974S	6975S

Table 3.3-4 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate	Dioxin/Furan	Gamma Spectroscopy	Tritium	Explosive Compounds	Isotopic Plutonium	Isotopic Uranium	Metals	PCB	Perchlorate	Strontium-90	SVOC	VOC	Cyanide (Total)
RE21-07-75914	21-27607	0.0–1.0	Soil	6976S	6975S	—	6976S	6976S	—	6976S	6976S	6975S	—	6975S	6976S	6974S	—	6975S
RE21-07-75915	21-27607	5.0–6.0	Tuff	6976S	6975S	—	6976S	6976S	—	6976S	6976S	6975S	—	6975S	6976S	6974S	6974S	6975S
RE21-07-75916	21-27607	10.0–11.0	Tuff	6976S	6975S	—	6976S	6976S	—	6976S	6976S	6975S	—	6975S	6976S	6974S	6974S	6975S
RE21-07-75917	21-27608	0.0–0.5	Soil	6979S	6978S	—	6979S	6979S	—	6979S	6979S	6978S	—	6978S	6979S	6977S	—	6978S
RE21-07-75918	21-27608	2.0–3.0	Tuff	6979S	6978S	—	6979S	6979S	—	6979S	6979S	6978S	—	6978S	6979S	6977S	6977S	6978S
RE21-07-75919	21-27608	5.0–6.0	Tuff	6979S	6978S	—	6979S	6979S	—	6979S	6979S	6978S	—	6978S	6979S	6977S	6977S	6978S
RE21-07-75920	21-27609	3.2–4.2	Soil	6979S	6978S	—	6979S	6979S	—	6979S	6979S	6978S	—	6978S	6979S	6977S	6977S	6978S
RE21-07-75921	21-27609	8.2–9.2	Tuff	6979S	6978S	—	6979S	6979S	—	6979S	6979S	6978S	—	6978S	6979S	6977S	6977S	6978S
RE21-07-75922	21-27609	13.2–14.2	Tuff	6979S	6978S	—	6979S	6979S	—	6979S	6979S	6978S	—	6978S	6979S	6977S	6977S	6978S
RE21-07-75923	21-27610	0.0–0.5	Soil	6979S	6978S	—	6979S	6979S	—	6979S	6979S	6978S	—	6978S	6979S	6977S	6977S	6978S
RE21-07-75924	21-27610	5.0–6.0	Tuff	6979S	6978S	—	6979S	6979S	—	6979S	6979S	6978S	—	6978S	6979S	6977S	6977S	6978S
RE21-07-75925	21-27610	10.0–11.0	Tuff	6979S	6978S	—	6979S	6979S	—	6979S	6979S	6978S	—	6978S	6979S	6977S	6977S	6978S
RE21-07-75926	21-27611	0.0–0.5	Soil	6979S	6978S	—	6979S	6979S	—	6979S	6979S	6978S	—	6978S	6979S	6977S	—	6978S
RE21-07-75927	21-27611	2.0–3.0	Tuff	6979S	6978S	—	6979S	6979S	—	6979S	6979S	6978S	—	6978S	6979S	6977S	6977S	6978S
RE21-07-75928	21-27611	5.0–6.0	Tuff	6979S	6978S	—	6979S	6979S	—	6979S	6979S	6978S	—	6978S	6979S	6977S	6977S	6978S
RE21-07-75929	21-27612	0.0–0.5	Soil	6634S	6633S	—	6634S	6634S	—	6634S	6634S	6633S	—	6633S	6634S	6632S	—	6633S
RE21-07-75930	21-27612	2.0–2.5	Tuff	6634S	6633S	—	6634S	6634S	—	6634S	6634S	6633S	—	6633S	6634S	6632S	6632S	6633S
RE21-07-75931	21-27613	0.0–0.5	Soil	6634S	6633S	—	6634S	6634S	—	6634S	6634S	6633S	—	6633S	6634S	6632S	—	6633S
RE21-07-75932	21-27613	2.0–2.5	Soil	6634S	6633S	—	6634S	6634S	—	6634S	6634S	6633S	—	6633S	6634S	6632S	6632S	6633S
RE21-07-75933	21-27614	1.8–2.8	Tuff	6872S	6871S	—	6872S	6872S	—	6872S	6872S	6871S	—	6871S	6872S	6870S	6870S	6871S
RE21-07-75934	21-27614	3.8–4.8	Tuff	6872S	6871S	—	6872S	6872S	—	6872S	6872S	6871S	—	6871S	6872S	6870S	6870S	6871S
RE21-07-75935	21-27615	2.5–3.5	Tuff	6875S	6874S	—	6875S	6875S	—	6875S	6875S	6874S	—	6874S	6875S	6873S	6873S	6874S
RE21-07-75936	21-27615	4.5–5.5	Tuff	6875S	6874S	—	6875S	6875S	—	6875S	6875S	6874S	—	6874S	6875S	6873S	6873S	6874S
RE21-07-75937	21-27616	0.0–0.5	Soil	6880S	6879S	—	6880S	6880S	—	6880S	6880S	6879S	—	6879S	6880S	6878S	6878S	6879S
RE21-07-75938	21-27616	2.0–3.0	Tuff	6880S	6879S	—	6880S	6880S	—	6880S	6880S	6879S	—	6879S	6880S	6878S	6878S	6879S
RE21-07-75939	21-27617	0.0–1.0	Tuff	6880S	6879S	—	6880S	6880S	—	6880S	6880S	6879S	—	6879S	6880S	6878S	6878S	6879S
RE21-07-75940	21-27617	2.0–3.0	Tuff	6880S	6879S	—	6880S	6880S	—	6880S	6880S	6879S	—	6879S	6880S	6878S	6878S	6879S
RE21-07-75941	21-27618	0.0–1.0	Tuff	6880S	6879S	—	6880S	6880S	—	6880S	6880S	6879S	—	6879S	6880S	6878S	6878S	6879S
RE21-07-75942	21-27618	2.0–3.0	Tuff	6880S	6879S	—	6880S	6880S	—	6880S	6880S	6879S	—	6879S	6880S	6878S	6878S	6879S
RE21-07-75943	21-27619	4.0–5.0	Soil	6880S	6879S	—	6880S	6880S	—	6880S	6880S	6879S	—	6879S	6880S	6878S	6878S	6879S
RE21-07-75944	21-27619	6.0–7.0	Tuff	6880S	6879S	—	6880S	6880S	—	6880S	6880S	6879S	—	6879S	6880S	6878S	6878S	6879S
RE21-07-75945	21-27620	4.6–5.6	Tuff	6886S	6885S	—	6886S	6886S	—	6886S	6886S	6885S	—	6885S	6886S	6884S	6884S	6885S
RE21-07-75946	21-27620	6.6–7.6	Tuff	6886S	6885S	—	6886S	6886S	—	6886S	6886S	6885S	—	6885S	6886S	6884S	6884S	6885S

Table 3.3-4 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate	Dioxin/Furan	Gamma Spectroscopy	Tritium	Explosive Compounds	Isotopic Plutonium	Isotopic Uranium	Metals	PCB	Perchlorate	Strontium-90	SVOC	VOC	Cyanide (Total)
RE21-07-75947	21-27621	3.6–4.6	Tuff	6886S	6885S	—	6886S	6886S	—	6886S	6886S	6885S	—	6885S	6886S	6884S	6884S	6885S
RE21-07-75948	21-27621	5.6–6.6	Tuff	6886S	6885S	—	6886S	6886S	—	6886S	6886S	6885S	—	6885S	6886S	6884S	6884S	6885S
RE21-07-75949	21-27622	4.0–5.0	Tuff	6914S	6913S	—	6914S	6914S	—	6914S	6914S	6913S	—	6913S	6914S	6912S	6912S	6913S
RE21-07-75950	21-27622	6.0–7.0	Tuff	6914S	6913S	—	6914S	6914S	—	6914S	6914S	6913S	—	6913S	6914S	6912S	6912S	6913S
RE21-07-75951	21-27623	4.0–5.0	Tuff	6917S	6916S	—	6917S	6917S	—	6917S	6917S	6916S	—	6916S	6917S	6915S	6915S	6916S
RE21-07-75952	21-27623	6.0–7.0	Tuff	6917S	6916S	—	6917S	6917S	—	6917S	6917S	6916S	—	6916S	6917S	6915S	6915S	6916S
RE21-07-75970	21-27625	0.0–0.5	Tuff	6952S	6951S	—	6952S	6952S	—	6952S	6952S	6951S	—	6951S	6952S	6950S	—	6951S
RE21-07-75971	21-27625	5.0–6.0	Tuff	6952S	6951S	—	6952S	6952S	—	6952S	6952S	6951S	—	6951S	6952S	6950S	6950S	6951S
RE21-07-75972	21-27625	10.0–11.0	Tuff	6952S	6951S	—	6952S	6952S	—	6952S	6952S	6951S	—	6951S	6952S	6950S	6950S	6951S
RE21-07-75973	21-27626	0.0–0.5	Soil	6958S	6957S	—	6958S	6958S	—	6958S	6958S	6957S	—	6957S	6958S	6956S	—	6957S
RE21-07-75974	21-27626	5.0–6.0	Tuff	6958S	6957S	—	6958S	6958S	—	6958S	6958S	6957S	—	6957S	6958S	6956S	6956S	6957S
RE21-07-75975	21-27626	10.0–11.0	Tuff	6958S	6957S	—	6958S	6958S	—	6958S	6958S	6957S	—	6957S	6958S	6956S	6956S	6957S
RE21-07-75976	21-27627	10.0–11.0	Tuff	7076S	7075S	—	7076S	7076S	—	7076S	7076S	7075S	—	7075S	7076S	7074S	7074S	7075S
RE21-07-75977	21-27627	15.0–16.0	Tuff	7076S	7075S	—	7076S	7076S	—	7076S	7076S	7075S	—	7075S	7076S	7074S	7074S	7075S
RE21-07-75978	21-27627	20.0–21.0	Tuff	7076S	7075S	—	7076S	7076S	—	7076S	7076S	7075S	—	7075S	7076S	7074S	7074S	7075S
RE21-07-75979	21-27628	0.0–0.5	Soil	6952S	6951S	—	6952S	6952S	—	6952S	6952S	6951S	—	6951S	6952S	6950S	—	6951S
RE21-07-75980	21-27628	2.0–3.0	Tuff	6952S	6951S	—	6952S	6952S	—	6952S	6952S	6951S	—	6951S	6952S	6950S	6950S	6951S
RE21-07-75981	21-27629	0.0–0.5	Soil	6952S	6951S	—	6952S	6952S	—	6952S	6952S	6951S	—	6951S	6952S	6950S	—	6951S
RE21-07-75982	21-27629	2.0–3.0	Tuff	6952S	6951S	—	6952S	6952S	—	6952S	6952S	6951S	—	6951S	6952S	6950S	6950S	6951S
RE21-07-75983	21-27630	0.0–0.5	Soil	6952S	6951S	—	6952S	6952S	—	6952S	6952S	6951S	—	6951S	6952S	6950S	—	6951S
RE21-07-75984	21-27630	2.0–3.0	Tuff	6952S	6951S	—	6952S	6952S	—	6952S	6952S	6951S	—	6951S	6952S	6950S	6950S	6951S

[a] Alphanumeric = Analysis request number.

[b] — = Not requested.

Table 3.3-5
Samples Collected and Laboratory Analyses Requested for Consolidated Unit 21-024(l)-99

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate/pH	Dioxin/Furan	Gamma Specroscopy	Tritium	Isotopic Plutonium	Isotopic Uranium	Metals	PCBs	Perchlorate	Strontium-90	SVOCs	VOCs	Explosive Coumpounds	Cyanide (Total)
RE21-07-75339	21-27439	0.0–0.5	Soil	6575S [a]	6575S	— [b]	6575S	6575S	6575S	6575S	6575S	—	6575S	6575S	6574S	6574S	—	6575S
RE21-07-75340	21-27439	3.5–4.0	Soil	6575S	6575S	—	6575S	6575S	6575S	6575S	6575S	—	6575S	6575S	6574S	6574S	—	6575S
RE21-07-75341	21-27439	5.0–5.5	Soil	6575S	6575S	—	6575S	6575S	6575S	6575S	6575S	—	6575S	6575S	6574S	6574S	—	6575S
RE21-07-75342	21-27440	3.5–4.0	Soil	6575S	6575S	—	6575S	6575S	6575S	6575S	6575S	—	6575S	6575S	6574S	6574S	—	6575S
RE21-07-75343	21-27440	5.0–5.5	Soil	6575S	6575S	—	6575S	6575S	6575S	6575S	6575S	—	6575S	6575S	6574S	6574S	—	6575S
RE21-07-75344	21-27441	3.5–4.0	Soil	6575S	6575S	—	6575S	6575S	6575S	6575S	6575S	—	6575S	6575S	6574S	6574S	—	6575S
RE21-07-75345	21-27441	5.0–5.5	Soil	6575S	6575S	—	6575S	6575S	6575S	6575S	6575S	—	6575S	6575S	6574S	6574S	—	6575S
RE21-07-75346	21-27442	3.5–4.0	Soil	6575S	6575S	—	6575S	6575S	6575S	6575S	6575S	—	6575S	6575S	6574S	6574S	—	6575S
RE21-07-75347	21-27442	5.0–5.5	Soil	6575S	6575S	—	6575S	6575S	6575S	6575S	6575S	—	6575S	6575S	6574S	6574S	—	6575S
RE21-07-75348	21-27443	3.5–4.0	Soil	6575S	6575S	—	6575S	6575S	6575S	6575S	6575S	—	6575S	6575S	6574S	6574S	—	6575S
RE21-07-75349	21-27443	5.5–6.0	Soil	6575S	6575S	—	6575S	6575S	6575S	6575S	6575S	—	6575S	6575S	6574S	6574S	—	6575S
RE21-07-75616	21-27514	10.0–11.0	Tuff	7055S	7054S	—	7055S	7055S	7055S	7055S	7054S	—	7054S	7055S	7053S	7053S	—	7054S
RE21-07-75617	21-27514	15.0–16.0	Tuff	7055S	7054S	—	7055S	7055S	7055S	7055S	7054S	—	7054S	7055S	7053S	7053S	—	7054S
RE21-07-75618	21-27514	20.0–21.0	Tuff	7055S	7054S	—	7055S	7055S	7055S	7055S	7054S	—	7054S	7055S	7053S	7053S	—	7054S
RE21-07-75619	21-27515	10.0–11.0	Tuff	7061S	7060S	—	7061S	7061S	7061S	7061S	7060S	—	7060S	7061S	7059S	7059S	—	7060S
RE21-07-3963	21-27515	15.0–16.0	Tuff	—	—	07-259	—	—	—	—	—	07-258	—	—	—	—	07-258	—
RE21-07-75620	21-27515	15.0–16.0	Tuff	7061S	7060S	—	7061S	7061S	7061S	7061S	7060S	—	7060S	7061S	7059S	7059S	—	7060S
RE21-07-75621	21-27515	20.0–21.0	Tuff	7061S	7060S	—	7061S	7061S	7061S	7061S	7060S	—	7060S	7061S	7059S	7059S	—	7060S
RE21-07-75622	21-27516	2.0–3.0	Soil	7061S	7060S	—	7061S	7061S	7061S	7061S	7060S	—	7060S	7061S	7059S	7059S	—	7060S
RE21-07-75623	21-27516	4.0–5.0	Tuff	7061S	7060S	—	7061S	7061S	7061S	7061S	7060S	—	7060S	7061S	7059S	7059S	—	7060S
RE21-07-75624	21-27516	6.0–7.0	Tuff	7061S	7060S	—	7061S	7061S	7061S	7061S	7060S	—	7060S	7061S	7059S	7059S	—	7060S
RE21-07-75625	21-27517	0.0–0.5	Soil	6603S	6602S	—	6603S	6603S	6603S	6603S	6602S	—	6602S	6603S	6601S	—	—	6602S
RE21-07-75626	21-27517	2.0–2.5	Soil	6603S	6602S	—	6603S	6603S	6603S	6603S	6602S	—	6602S	6603S	6601S	6601S	—	6602S
RE21-07-75627	21-27518	0.0–0.5	Soil	6603S	6602S	—	6603S	6603S	6603S	6603S	6602S	—	6602S	6603S	6601S	—	—	6602S
RE21-07-75628	21-27518	2.0–2.5	Soil	6603S	6602S	—	6603S	6603S	6603S	6603S	6602S	—	6602S	6603S	6601S	6601S	—	6602S
RE21-07-75629	21-27519	0.0–0.5	Soil	6603S	6602S	—	6603S	6603S	6603S	6603S	6602S	—	6602S	6603S	6601S	—	—	6602S
RE21-07-75630	21-27519	2.0–2.5	Soil	6603S	6602S	—	6603S	6603S	6603S	6603S	6602S	—	6602S	6603S	6601S	6601S	—	6602S
RE21-07-75631	21-27520	2.0–3.0	Soil	7043S	7042S	—	7043S	7043S	7043S	7043S	7042S	—	7042S	7043S	7041S	7041S	—	7042S
RE21-07-75632	21-27520	4.0–5.0	Soil	7043S	7042S	—	7043S	7043S	7043S	7043S	7042S	—	7042S	7043S	7041S	7041S	—	7042S
RE21-07-75633	21-27521	2.5–3.5	Soil	7049S	7048S	—	7049S	7049S	7049S	7049S	7048S	—	7048S	7049S	7047S	7047S	—	7048S
RE21-07-75634	21-27521	4.5–5.5	Soil	7049S	7048S	—	7049S	7049S	7049S	7049S	7048S	—	7048S	7049S	7047S	7047S	—	7048S
RE21-07-75635	21-27522	5.0–6.0	Soil	7046S	7045S	—	7046S	7046S	7046S	7046S	7045S	—	7045S	7046S	7044S	7044S	—	7045S

Table 3.3-5 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate/pH	Dioxin/Furan	Gamma Specroscopy	Tritium	Isotopic Plutonium	Isotopic Uranium	Metals	PCBs	Perchlorate	Strontium-90	SVOCs	VOCs	Explosive Compounds	Cyanide (Total)
RE21-07-75636	21-27522	7.0–8.0	Tuff	7046S	7045S	—	7046S	7046S	7046S	7046S	7045S	—	7045S	7046S	7044S	7044S	—	7045S
RE21-07-75637	21-27523	3.0–4.0	Soil	7055S	7054S	—	7055S	7055S	7055S	7055S	7054S	—	7054S	7055S	7053S	7053S	—	7054S
RE21-07-75638	21-27523	5.0–6.0	Soil	7055S	7054S	—	7055S	7055S	7055S	7055S	7054S	—	7054S	7055S	7053S	7053S	—	7054S
RE21-07-75639	21-27524	2.0–3.0	Soil	7043S	7042S	—	7043S	7043S	7043S	7043S	7042S	—	7042S	7043S	7041S	7041S	—	7042S
RE21-07-75640	21-27524	4.0–5.0	Soil	7043S	7042S	—	7043S	7043S	7043S	7043S	7042S	—	7042S	7043S	7041S	7041S	—	7042S
RE21-07-75641	21-27525	5.0–6.0	Tuff	7046S	7045S	—	7046S	7046S	7046S	7046S	7045S	—	7045S	7046S	7044S	7044S	—	7045S
RE21-07-75642	21-27525	7.0–8.0	Tuff	7046S	7045S	—	7046S	7046S	7046S	7046S	7045S	—	7045S	7046S	7044S	7044S	—	7045S
RE21-07-75643	21-27526	4.0–5.0	Soil	7055S	7054S	—	7055S	7055S	7055S	7055S	7054S	—	7054S	7055S	7053S	7053S	—	7054S
RE21-07-75644	21-27526	6.0–7.0	Tuff	7055S	7054S	—	7055S	7055S	7055S	7055S	7054S	—	7054S	7055S	7053S	7053S	—	7054S
RE21-07-75663	21-27530	0.0–0.5	Soil	7058S	7057S	—	7058S	7058S	7058S	7058S	7057S	—	7057S	7058S	7056S	—	—	7057S
RE21-07-75664	21-27530	2.0–3.0	Soil	7058S	7057S	—	7058S	7058S	7058S	7058S	7057S	—	7057S	7058S	7056S	7056S	—	7057S
RE21-07-75665	21-27530	5.0–6.0	Soil	7058S	7057S	—	7058S	7058S	7058S	7058S	7057S	—	7057S	7058S	7056S	7056S	—	7057S
RE21-07-75672	21-27533	0.0–0.5	Tuff	7034S	7033S	—	7034S	7034S	7034S	7034S	7033S	—	7033S	7034S	7032S	—	—	7033S
RE21-07-75673	21-27533	2.0–3.0	Tuff	7034S	7033S	—	7034S	7034S	7034S	7034S	7033S	—	7033S	7034S	7032S	7032S	—	7033S
RE21-07-75674	21-27534	0.0–0.5	Soil	7034S	7033S	—	7034S	7034S	7034S	7034S	7033S	—	7033S	7034S	7032S	—	—	7033S
RE21-07-75675	21-27534	2.0–3.0	Soil	7034S	7033S	—	7034S	7034S	7034S	7034S	7033S	—	7033S	7034S	7032S	7032S	—	7033S
RE21-07-75676	21-27535	0.0–0.5	Soil	7034S	7033S	—	7034S	7034S	7034S	7034S	7033S	—	7033S	7034S	7032S	—	—	7033S
RE21-07-75677	21-27535	2.0–3.0	Soil	7034S	7033S	—	7034S	7034S	7034S	7034S	7033S	—	7033S	7034S	7032S	7032S	—	7033S
RE21-07-75678	21-27536	0.0–0.5	Soil	7040S	7039S	—	7040S	7040S	7040S	7040S	7039S	—	7039S	7040S	7038S	—	—	7039S
RE21-07-75679	21-27536	2.0–3.0	Tuff	7040S	7039S	—	7040S	7040S	7040S	7040S	7039S	—	7039S	7040S	7038S	7038S	—	7039S
RE21-07-75680	21-27537	0.0–0.5	Soil	7040S	7039S	—	7040S	7040S	7040S	7040S	7039S	—	7039S	7040S	7038S	—	—	7039S
RE21-07-75681	21-27537	2.0–3.0	Tuff	7040S	7039S	—	7040S	7040S	7040S	7040S	7039S	—	7039S	7040S	7038S	7038S	—	7039S
RE21-07-75682	21-27538	0.0–0.5	Soil	7034S	7033S	—	7034S	7034S	7034S	7034S	7033S	—	7033S	7034S	7032S	—	—	7033S
RE21-07-75683	21-27538	2.0–3.0	Soil	7034S	7033S	—	7034S	7034S	7034S	7034S	7033S	—	7033S	7034S	7032S	7032S	—	7033S
RE21-07-75684	21-27539	2.0–3.0	Soil	7035S	7035S	—	7035S	7035S	7035S	7035S	7035S	—	7035S	7035S	7035S	7035S	—	7035S
RE21-07-75685	21-27539	5.0–6.0	Tuff	7034S	7033S	—	7034S	7034S	7034S	7034S	7033S	—	7033S	7034S	7032S	7032S	—	7033S
RE21-07-75686	21-27540	0.0–0.5	Soil	7034S	7033S	—	7034S	7034S	7034S	7034S	7033S	—	7033S	7034S	7032S	—	—	7033S
RE21-07-75687	21-27540	2.0–3.0	Soil	7034S	7033S	—	7034S	7034S	7034S	7034S	7033S	—	7033S	7034S	7032S	7032S	—	7033S
RE21-07-75690	21-27542	0.0–0.5	Soil	7034S	7033S	—	7034S	7034S	7034S	7034S	7033S	—	7033S	7034S	7032S	—	—	7033S
RE21-07-75691	21-27542	2.0–3.0	Tuff	7034S	7033S	—	7034S	7034S	7034S	7034S	7033S	—	7033S	7034S	7032S	7032S	—	7033S
RE21-07-75692	21-27543	0.0–0.5	Soil	7034S	7033S	—	7034S	7034S	7034S	7034S	7033S	—	7033S	7034S	7032S	—	—	7033S
RE21-07-75693	21-27543	2.0–3.0	Tuff	7034S	7033S	—	7034S	7034S	7034S	7034S	7033S	—	7033S	7034S	7032S	7032S	—	7033S
RE21-07-75694	21-27544	2.0–3.0	Tuff	7034S	7033S	—	7034S	7034S	7034S	7034S	7033S	—	7033S	7034S	7032S	7032S	—	7033S

Table 3.3-5 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate/pH	Dioxin/Furan	Gamma Specroscopy	Tritium	Isotopic Plutonium	Isotopic Uranium	Metals	PCBs	Perchlorate	Strontium-90	SVOCs	VOCs	Explosive Compounds	Cyanide (Total)
RE21-07-75695	21-27544	4.0–5.0	Tuff	7034S	7033S	—	7034S	7034S	7034S	7034S	7033S	—	7033S	7034S	7032S	7032S	—	7033S
RE21-07-75696	21-27545	3.0–4.0	Soil	7052S	7051S	—	7052S	7052S	7052S	7052S	7051S	—	7051S	7052S	7050S	7050S	—	7051S
RE21-07-75697	21-27545	5.0–6.0	Tuff	7052S	7051S	—	7052S	7052S	7052S	7052S	7051S	—	7051S	7052S	7050S	7050S	—	7051S
RE21-07-75698	21-27546	1.0–2.0	Soil	7052S	7051S	—	7052S	7052S	7052S	7052S	7051S	—	7051S	7052S	7050S	7050S	—	7051S
RE21-07-75699	21-27546	4.0–5.0	Soil	7052S	7051S	—	7052S	7052S	7052S	7052S	7051S	—	7051S	7052S	7050S	7050S	—	7051S
RE21-07-75700	21-27547	0.5–1.5	Soil	7052S	7051S	—	7052S	7052S	7052S	7052S	7051S	—	7051S	7052S	7050S	7050S	—	7051S
RE21-07-75701	21-27547	2.5–3.5	Soil	7052S	7051S	—	7052S	7052S	7052S	7052S	7051S	—	7051S	7052S	7050S	7050S	—	7051S

[a] Alphanumeric = Analysis request number.

[b] — = Not requested.

Table 3.3-6
Samples Collected and Laboratory Analyses Requested for SWMU 21-024(o)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate/pH	Dioxin/Furan	Gamma Spectroscopy	Tritium	Isotopic Plutonium	Isotopic Uranium	Metals	PCBs	Perchlorate	Strontium-90	SVOCs	VOCs	Explosive Compounds	Cyanide (Total)
RE21-07-74952	21-27346	0.0–0.5	Soil	6521S [a]	6519S	— [b]	6521S	6521S	6521S	6521S	6519S	—	6519S	6521S	6518S	—	—	6519S
RE21-07-74953	21-27346	2.0–2.5	Tuff	6521S	6519S	—	6521S	6521S	6521S	6521S	6519S	—	6519S	6521S	6518S	6518S	—	6519S
RE21-07-74955	21-27347	0.0–0.5	Soil	6521S	6519S	—	6521S	6521S	6521S	6521S	6519S	—	6519S	6521S	6518S	—	—	6519S
RE21-07-74956	21-27347	2.0–2.5	Tuff	6521S	6519S	—	6521S	6521S	6521S	6521S	6519S	—	6519S	6521S	6518S	6518S	—	6519S
RE21-07-74958	21-27348	0.0–0.5	Soil	6521S	6519S	—	6521S	6521S	6521S	6521S	6519S	—	6519S	6521S	6518S	—	—	6519S
RE21-07-74959	21-27348	2.0–2.5	Tuff	6521S	6519S	—	6521S	6521S	6521S	6521S	6519S	—	6519S	6521S	6518S	6518S	—	6519S
RE21-07-74960	21-27349	0.0–0.5	Soil	6521S	6519S	—	6521S	6521S	6521S	6521S	6519S	—	6519S	6521S	6518S	—	—	6519S
RE21-07-74961	21-27349	2.0–2.5	Soil	6521S	6519S	—	6521S	6521S	6521S	6521S	6519S	—	6519S	6521S	6518S	6518S	—	6519S
RE21-07-74962	21-27350	0.0–0.5	Soil	6521S	6519S	—	6521S	6521S	6521S	6521S	6519S	—	6519S	6521S	6518S	—	—	6519S
RE21-07-74963	21-27350	2.0–2.5	Tuff	6521S	6519S	—	6521S	6521S	6521S	6521S	6519S	—	6519S	6521S	6518S	6518S	—	6519S
RE21-07-74964	21-27351	0.0–0.5	Soil	6521S	6519S	—	6521S	6521S	6521S	6521S	6519S	—	6519S	6521S	6518S	—	—	6519S
RE21-07-74965	21-27351	2.0–2.5	Soil	6521S	6519S	—	6521S	6521S	6521S	6521S	6519S	—	6519S	6521S	6518S	6518S	—	6519S
RE21-07-74966	21-27352	0.0–0.5	Soil	6521S	6519S	—	6521S	6521S	6521S	6521S	6519S	—	6519S	6521S	6518S	—	—	6519S
RE21-07-74967	21-27352	2.0–2.5	Soil	6521S	6519S	—	6521S	6521S	6521S	6521S	6519S	—	6519S	6521S	6518S	6518S	—	6519S
RE21-07-74968	21-27353	0.0–0.5	Soil	6521S	6519S	—	6521S	6521S	6521S	6521S	6519S	—	6519S	6521S	6518S	—	—	6519S
RE21-07-74969	21-27353	2.0–2.5	Soil	6521S	6519S	—	6521S	6521S	6521S	6521S	6519S	—	6519S	6521S	6518S	6518S	—	6519S
RE21-07-74970	21-27354	0.0–0.5	Soil	6521S	6519S	—	6521S	6521S	6521S	6521S	6519S	—	6519S	6521S	6518S	—	—	6519S
RE21-07-74971	21-27354	2.0–2.5	Soil	6521S	6519S	—	6521S	6521S	6521S	6521S	6519S	—	6519S	6521S	6518S	6518S	—	6519S
RE21-07-74972	21-27355	0.0–0.5	Soil	6521S	6519S	—	6521S	6521S	6521S	6521S	6519S	—	6519S	6521S	6518S	—	—	6519S
RE21-07-4030	21-27355	2.0–2.5	Tuff	—	—	07-266	—	—	—	—	—	07-265	—	—	—	—	07-265	—
RE21-07-74973	21-27355	2.0–2.5	Soil	6521S	6519S	—	6521S	6521S	6521S	6521S	6519S	—	6519S	6521S	6518S	6518S	—	6519S
RE21-07-74974	21-27356	0.0–0.5	Soil	6521S	6519S	—	6521S	6521S	6521S	6521S	6519S	—	6519S	6521S	6518S	—	—	6519S
RE21-07-74975	21-27356	2.0–2.5	Soil	6521S	6519S	—	6521S	6521S	6521S	6521S	6519S	—	6519S	6521S	6518S	6518S	—	6519S

[a] Alphanumeric = Analysis request number.
[b] — = Not requested.

Table 3.3-7
Samples Collected and Laboratory Analyses Requested for Consolidated Unit 21-026(a)-99

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate/pH	Dioxin/Furan	Gamma Spectroscopy	Tritium	Isotopic Plutonium	Isotopic Uranium	Metals	PCBs	Perchlorate	Strontium-90	SVOCs	VOCs	Explosive Compounds	Cyanide (Total)
RE21-07-75726	21-27550	0.0–0.5	Soil	7010S [a]	7009S	— [b]	7010S	7010S	7010S	7010S	7009S	—	7009S	7010S	7008S	—	—	7009S
RE21-07-75727	21-27550	4.33–5.33	Tuff	7010S	7009S	—	7010S	7010S	7010S	7010S	7009S	—	7009S	7010S	7008S	7008S	—	7009S
RE21-07-75728	21-27550	6.33–7.33	Tuff	7010S	7009S	—	7010S	7010S	7010S	7010S	7009S	—	7009S	7010S	7008S	7008S	—	7009S
RE21-07-75729	21-27550	9.33–10.33	Tuff	7010S	7009S	—	7010S	7010S	7010S	7010S	7009S	—	7009S	7010S	7008S	7008S	—	7009S
RE21-07-75730	21-27551	10.0–11.0	Tuff	7027S	7026S	—	7027S	7027S	7027S	7027S	7026S	—	7026S	7027S	7025S	7025S	—	7026S
RE21-07-75731	21-27551	15.0–16.0	Tuff	7027S	7026S	—	7027S	7027S	7027S	7027S	7026S	—	7026S	7027S	7025S	7025S	—	7026S
RE21-07-75732	21-27551	20.0–21.0	Tuff	7027S	7026S	—	7027S	7027S	7027S	7027S	7026S	—	7026S	7027S	7025S	7025S	—	7026S
RE21-07-75734	21-27552	0.0–0.5	Soil	6990S	6989S	—	6990S	6990S	6990S	6990S	6989S	—	6989S	6990S	6988S	—	—	6989S
RE21-07-75735	21-27552	2.0–3.0	Soil	6990S	6989S	—	6990S	6990S	6990S	6990S	6989S	—	6989S	6990S	6988S	6988S	—	6989S
RE21-07-75736	21-27552	5.0–6.0	Tuff	6990S	6989S	—	6990S	6990S	6990S	6990S	6989S	—	6989S	6990S	6988S	6988S	—	6989S
RE21-07-75737	21-27553	0.0–0.5	Soil	6990S	6989S	—	6990S	6990S	6990S	6990S	6989S	—	6989S	6990S	6988S	—	—	6989S
RE21-07-75738	21-27553	2.0–3.0	Soil	6990S	6989S	—	6990S	6990S	6990S	6990S	6989S	—	6989S	6990S	6988S	6988S	—	6989S
RE21-07-75739	21-27553	5.0–6.0	Tuff	6990S	6989S	—	6990S	6990S	6990S	6990S	6989S	—	6989S	6990S	6988S	6988S	—	6989S
RE21-07-75752	21-27554	0.0–0.5	Soil	6993S	6992S	—	6993S	6993S	6993S	6993S	6992S	—	6992S	6993S	6991S	—	—	6992S
RE21-07-75753	21-27554	2.5–3.5	Tuff	6993S	6992S	—	6993S	6993S	6993S	6993S	6992S	—	6992S	6993S	6991S	6991S	—	6992S
RE21-07-75754	21-27554	4.5–5.5	Tuff	6993S	6992S	—	6993S	6993S	6993S	6993S	6992S	—	6992S	6993S	6991S	6991S	—	6992S
RE21-07-75743	21-27555	0.0–0.5	Soil	6651S	6650S	—	6651S	6651S	6651S	6651S	6650S	—	6650S	6651S	6649S	—	—	6650S
RE21-07-75744	21-27555	2.0–2.5	Tuff	6651S	6650S	—	6651S	6651S	6651S	6651S	6650S	—	6650S	6651S	6649S	6649S	—	6650S
RE21-07-75745	21-27556	0.0–0.5	Soil	6651S	6650S	—	6651S	6651S	6651S	6651S	6650S	—	6650S	6651S	6649S	—	—	6650S
RE21-07-75746	21-27556	2.0–2.5	Tuff	6651S	6650S	—	6651S	6651S	6651S	6651S	6650S	—	6650S	6651S	6649S	6649S	—	6650S
RE21-07-75747	21-27557	0.0–0.5	Soil	6651S	6650S	—	6651S	6651S	6651S	6651S	6650S	—	6650S	6651S	6649S	—	—	6650S
RE21-07-75748	21-27557	2.0–2.5	Tuff	6651S	6650S	—	6651S	6651S	6651S	6651S	6650S	—	6650S	6651S	6649S	6649S	—	6650S
RE21-07-75749	21-27558	0.0–0.5	Soil	6651S	6650S	—	6651S	6651S	6651S	6651S	6650S	—	6650S	6651S	6649S	—	—	6650S
RE21-07-75750	21-27558	2.0–2.5	Tuff	6651S	6650S	—	6651S	6651S	6651S	6651S	6650S	—	6650S	6651S	6649S	6649S	—	6650S
RE21-07-583	21-27558	2.0–3.0	Tuff	—	—	07-292	—	—	—	—	—	07-291	—	—	—	—	07-291	—
RE21-07-75755	21-27559	0.0–0.5	Soil	6993S	6992S	—	6993S	6993S	6993S	6993S	6992S	—	6992S	6993S	6991S	—	—	6992S
RE21-07-75756	21-27559	2.5–3.5	Tuff	6993S	6992S	—	6993S	6993S	6993S	6993S	6992S	—	6992S	6993S	6991S	6991S	—	6992S
RE21-07-75757	21-27559	4.5–5.5	Tuff	6993S	6992S	—	6993S	6993S	6993S	6993S	6992S	—	6992S	6993S	6991S	6991S	—	6992S
RE21-07-75765	21-27560	0.0–0.5	Soil	6990S	6989S	—	6990S	6990S	6990S	6990S	6989S	—	6989S	6990S	6988S	—	—	6989S
RE21-07-75766	21-27560	2.0–3.0	Soil	6990S	6989S	—	6990S	6990S	6990S	6990S	6989S	—	6989S	6990S	6988S	6988S	—	6989S
RE21-07-75767	21-27561	0.0–0.5	Soil	6990S	6989S	—	6990S	6990S	6990S	6990S	6989S	—	6989S	6990S	6988S	—	—	6989S

Table 3.3-7 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate/pH	Dioxin/Furan	Gamma Spectroscopy	Tritium	Isotopic Plutonium	Isotopic Uranium	Metals	PCBs	Perchlorate	Strontium-90	SVOCs	VOCs	Explosive Compounds	Cyanide (Total)
RE21-07-75768	21-27561	2.0–3.0	Soil	6990S	6989S	—	6990S	6990S	6990S	6990S	6989S	—	6989S	6990S	6988S	6988S	—	6989S
RE21-07-75769	21-27562	0.0–0.5	Soil	6990S	6989S	—	6990S	6990S	6990S	6990S	6989S	—	6989S	6990S	6988S	—	—	6989S
RE21-07-75770	21-27562	2.0–3.0	Tuff	6990S	6989S	—	6990S	6990S	6990S	6990S	6989S	—	6989S	6990S	6988S	6988S	—	6989S
RE21-07-75771	21-27563	0.0–0.5	Soil	6990S	6989S	—	6990S	6990S	6990S	6990S	6989S	—	6989S	6990S	6988S	—	—	6989S
RE21-07-75772	21-27563	2.0–3.0	Soil	6990S	6989S	—	6990S	6990S	6990S	6990S	6989S	—	6989S	6990S	6988S	6988S	—	6989S
RE21-07-75773	21-27564	9.5–10.5	Tuff	6993S	6992S	—	6993S	6993S	6993S	6993S	6992S	—	6992S	6993S	6991S	6991S	—	6992S
RE21-07-75774	21-27564	11.5–12.5	Tuff	6993S	6992S	—	6993S	6993S	6993S	6993S	6992S	—	6992S	6993S	6991S	6991S	—	6992S
RE21-07-75775	21-27565	12.0–13.0	Tuff	7004S	7003S	—	7004S	7004S	7004S	7004S	7003S	—	7003S	7004S	7002S	7002S	—	7003S
RE21-07-75776	21-27565	14.0–15.0	Tuff	7004S	7003S	—	7004S	7004S	7004S	7004S	7003S	—	7003S	7004S	7002S	7002S	—	7003S
RE21-07-75777	21-27566	12.0–13.0	Tuff	7004S	7003S	—	7004S	7004S	7004S	7004S	7003S	—	7003S	7004S	7002S	7002S	—	7003S
RE21-07-75778	21-27566	14.0–15.0	Tuff	7004S	7003S	—	7004S	7004S	7004S	7004S	7003S	—	7003S	7004S	7002S	7002S	—	7003S
RE21-07-75781	21-27568	10.0–11.0	Tuff	7027S	7026S	—	7027S	7027S	7027S	7027S	7026S	—	7026S	7027S	7025S	7025S	—	7026S
RE21-07-75782	21-27568	12.0–13.0	Tuff	7027S	7026S	—	7027S	7027S	7027S	7027S	7026S	—	7026S	7027S	7025S	7025S	—	7026S
RE21-07-75804	21-27570	0.0–0.5	Soil	7007S	7006S	—	7007S	7007S	7007S	7007S	7006S	—	7006S	7007S	7005S	—	—	7006S
RE21-07-75805	21-27570	3.5–4.5	Tuff	7007S	7006S	—	7007S	7007S	7007S	7007S	7006S	—	7006S	7007S	7005S	7005S	—	7006S
RE21-07-75806	21-27570	5.5–6.5	Tuff	7007S	7006S	—	7007S	7007S	7007S	7007S	7006S	—	7006S	7007S	7005S	7005S	—	7006S
RE21-07-75807	21-27571	0.0–0.5	Soil	7007S	7006S	—	7007S	7007S	7007S	7007S	7006S	—	7006S	7007S	7005S	—	—	7006S
RE21-07-75808	21-27571	3.5–4.5	Tuff	7007S	7006S	—	7007S	7007S	7007S	7007S	7006S	—	7006S	7007S	7005S	7005S	—	7006S
RE21-07-75809	21-27571	5.5–6.5	Tuff	7007S	7006S	—	7007S	7007S	7007S	7007S	7006S	—	7006S	7007S	7005S	7005S	—	7006S
RE21-07-75810	21-27572	0.0–0.5	Tuff	7021S	7020S	—	7021S	7021S	7021S	7021S	7020S	—	7020S	7021S	7019S	—	—	7020S
RE21-07-75811	21-27572	2.0–3.0	Tuff	7021S	7020S	—	7021S	7021S	7021S	7021S	7020S	—	7020S	7021S	7019S	7019S	—	7020S
RE21-07-75812	21-27572	5.0–6.0	Tuff	7021S	7020S	—	7021S	7021S	7021S	7021S	7020S	—	7020S	7021S	7019S	7019S	—	7020S
RE21-07-75813	21-27573	0.0–0.5	Soil	7015S	7014S	—	7015S	7015S	7015S	7015S	7014S	—	7014S	7015S	7013S	—	—	7014S
RE21-07-75814	21-27573	2.0–3.0	Tuff	7015S	7014S	—	7015S	7015S	7015S	7015S	7014S	—	7014S	7015S	7013S	7013S	—	7014S
RE21-07-75815	21-27574	0.0–0.5	Soil	7015S	7014S	—	7015S	7015S	7015S	7015S	7014S	—	7014S	7015S	7013S	—	—	7014S
RE21-07-75816	21-27574	2.0–3.0	Tuff	7015S	7014S	—	7015S	7015S	7015S	7015S	7014S	—	7014S	7015S	7013S	7013S	—	7014S
RE21-07-75817	21-27575	0.0–0.5	Soil	7015S	7014S	—	7015S	7015S	7015S	7015S	7014S	—	7014S	7015S	7013S	—	—	7014S
RE21-07-75818	21-27575	2.0–3.0	Tuff	7015S	7014S	—	7015S	7015S	7015S	7015S	7014S	—	7014S	7015S	7013S	7013S	—	7014S
RE21-07-75819	21-27576	0.0–0.5	Soil	7015S	7014S	—	7015S	7015S	7015S	7015S	7014S	—	7014S	7015S	7013S	—	—	7014S
RE21-07-75820	21-27576	2.0–3.0	Tuff	7015S	7014S	—	7015S	7015S	7015S	7015S	7014S	—	7014S	7015S	7013S	7013S	—	7014S
RE21-07-75821	21-27577	0.0–0.5	Soil	7015S	7014S	—	7015S	7015S	7015S	7015S	7014S	—	7014S	7015S	7013S	—	—	7014S
RE21-07-75822	21-27577	2.0–3.0	Tuff	7015S	7014S	—	7015S	7015S	7015S	7015S	7014S	—	7014S	7015S	7013S	7013S	—	7014S
RE21-07-75823	21-27578	0.0–0.5	Soil	7015S	7014S	—	7015S	7015S	7015S	7015S	7014S	—	7014S	7015S	7013S	—	—	7014S

Table 3.3-7 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate/pH	Dioxin/Furan	Gamma Spectroscopy	Tritium	Isotopic Plutonium	Isotopic Uranium	Metals	PCBs	Perchlorate	Strontium-90	SVOCs	VOCs	Explosive Compounds	Cyanide (Total)
RE21-07-75824	21-27578	2.0–3.0	Tuff	7015S	7014S	—	7015S	7015S	7015S	7015S	7014S	—	7014S	7015S	7013S	7013S	—	7014S
RE21-07-75825	21-27579	0.0–0.5	Soil	7015S	7014S	—	7015S	7015S	7015S	7015S	7014S	—	7014S	7015S	7013S	—	—	7014S
RE21-07-75826	21-27579	2.0–3.0	Tuff	7015S	7014S	—	7015S	7015S	7015S	7015S	7014S	—	7014S	7015S	7013S	7013S	—	7014S
RE21-07-75827	21-27580	0.0–0.5	Soil	7015S	7014S	—	7015S	7015S	7015S	7015S	7014S	—	7014S	7015S	7013S	—	—	7014S
RE21-07-75828	21-27580	2.0–3.0	Tuff	7015S	7014S	—	7015S	7015S	7015S	7015S	7014S	—	7014S	7015S	7013S	7013S	—	7014S
RE21-07-75829	21-27581	10.0–11.0	Tuff	7030S	7029S	—	7030S	7030S	7030S	7030S	7029S	—	7029S	7030S	7028S	7028S	—	7029S
RE21-07-75830	21-27581	12.0–13.0	Tuff	7030S	7029S	—	7030S	7030S	7030S	7030S	7029S	—	7029S	7030S	7028S	7028S	—	7029S

[a] Alphanumeric = Analysis request number.

[b] — = Not requested.

Table 3.3-8
Samples Collected and Laboratory Analyses Requested for SWMU 21-027(c)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate/pH	Dioxin/Furan	Gamma Spectroscopy	Tritium	Isotopic Plutonium	Isotopic Uranium	Metals	PCBs	Perchlorate	Strontium-90	SVOCs	VOCs	Explosive Compounds	Cyanide(Total)
RE21-07-75115	21-27399	3.0–4.0	Soil	7104S [a]	7103S	— [b]	7104S	7104S	7104S	7104S	7103S	—	7103S	7104S	7102S	7102S	—	7103S
RE21-07-75116	21-27399	5.0–6.0	Soil	7104S	7103S	—	7104S	7104S	7104S	7104S	7103S	—	7103S	7104S	7102S	7102S	—	7103S
RE21-07-75117	21-27399	8.0–9.0	Tuff	7104S	7103S	—	7104S	7104S	7104S	7104S	7103S	—	7103S	7104S	7102S	7102S	—	7103S
RE21-07-75121	21-27401	0.0–0.5	Soil	6577S	6576S	—	6577S	6577S	6577S	6577S	6576S	—	6576S	6577S	6578S	—	—	6576S
RE21-07-75122	21-27401	2.0–2.5	Soil	6577S	6576S	—	6577S	6577S	6577S	6577S	6576S	—	6576S	6577S	6578S	6578S	—	6576S
RE21-07-75123	21-27402	0.0–0.5	Soil	6577S	6576S	—	6577S	6577S	6577S	6577S	6576S	—	6576S	6577S	6578S	—	—	6576S
RE21-07-75124	21-27402	2.0–2.5	Soil	6577S	6576S	—	6577S	6577S	6577S	6577S	6576S	—	6576S	6577S	6578S	6578S	—	6576S
RE21-07-75125	21-27403	0.0–0.5	Soil	6577S	6576S	—	6577S	6577S	6577S	6577S	6576S	—	6576S	6577S	6578S	—	—	6576S
RE21-07-75126	21-27403	2.0–2.5	Soil	6577S	6576S	—	6577S	6577S	6577S	6577S	6576S	—	6576S	6577S	6578S	6578S	—	6576S
RE21-07-75127	21-27404	0.0–0.5	Soil	6577S	6576S	—	6577S	6577S	6577S	6577S	6576S	—	6576S	6577S	6578S	—	—	6576S
RE21-07-75128	21-27404	2.0–2.5	Soil	6577S	6576S	—	6577S	6577S	6577S	6577S	6576S	—	6576S	6577S	6578S	6578S	—	6576S
RE21-07-75129	21-27405	0.0–0.5	Soil	6577S	6576S	—	6577S	6577S	6577S	6577S	6576S	—	6576S	6577S	6578S	—	—	6576S
RE21-07-75130	21-27405	2.0–2.5	Soil	6577S	6576S	—	6577S	6577S	6577S	6577S	6576S	—	6576S	6577S	6578S	6578S	—	6576S
RE21-07-75131	21-27406	0.0–0.5	Soil	6577S	6576S	—	6577S	6577S	6577S	6577S	6576S	—	6576S	6577S	6578S	—	—	6576S
RE21-07-75132	21-27406	2.0–2.5	Soil	6577S	6576S	—	6577S	6577S	6577S	6577S	6576S	—	6576S	6577S	6578S	6578S	—	6576S
RE21-07-75133	21-27407	0.0–0.5	Soil	6577S	6576S	—	6577S	6577S	6577S	6577S	6576S	—	6576S	6577S	6578S	—	—	6576S
RE21-07-75134	21-27407	2.0–2.5	Soil	6577S	6576S	—	6577S	6577S	6577S	6577S	6576S	—	6576S	6577S	6578S	6578S	—	6576S
RE21-07-75135	21-27408	0.0–0.5	Soil	6577S	6576S	—	6577S	6577S	6577S	6577S	6576S	—	6576S	6577S	6578S	—	—	6576S
RE21-07-75136	21-27408	2.0–2.5	Soil	6577S	6576S	—	6577S	6577S	6577S	6577S	6576S	—	6576S	6577S	6578S	6578S	—	6576S
RE21-07-75137	21-27409	0.0–0.5	Soil	6577S	6576S	—	6577S	6577S	6577S	6577S	6576S	—	6576S	6577S	6578S	—	—	6576S
RE21-07-75138	21-27409	2.0–2.5	Soil	6577S	6576S	—	6577S	6577S	6577S	6577S	6576S	—	6576S	6577S	6578S	6578S	—	6576S
RE21-07-75139	21-27410	0.0–0.5	Soil	6577S	6576S	—	6577S	6577S	6577S	6577S	6576S	—	6576S	6577S	6578S	—	—	6576S
RE21-07-75140	21-27410	2.0–2.5	Soil	6577S	6576S	—	6577S	6577S	6577S	6577S	6576S	—	6576S	6577S	6578S	6578S	—	6576S
RE21-07-5087	21-27411	0.0–0.5	Soil	—	—	07-308	—	—	—	—	—	07-309	—	—	—	—	07-309	—
RE21-07-75141	21-27411	0.0–0.5	Soil	6577S	6576S	—	6577S	6577S	6577S	6577S	6576S	—	6576S	6577S	6578S	—	—	6576S
RE21-07-75142	21-27411	2.0–2.5	Soil	6577S	6576S	—	6577S	6577S	6577S	6577S	6576S	—	6576S	6577S	6578S	6578S	—	6576S
RE21-07-75143	21-27412	0.0–0.5	Soil	6577S	6576S	—	6577S	6577S	6577S	6577S	6576S	—	6576S	6577S	6578S	—	—	6576S
RE21-07-75144	21-27412	2.0–2.5	Soil	6577S	6576S	—	6577S	6577S	6577S	6577S	6576S	—	6576S	6577S	6578S	6578S	—	6576S
RE21-07-75145	21-27413	2.5–3.5	Soil	7099S	7099S	—	7099S	7099S	7099S	7099S	7099S	—	7099S	7099S	7099S	7099S	—	7099S

Table 3.3-8 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate/pH	Dioxin/Furan	Gamma Spectroscopy	Tritium	Isotopic Plutonium	Isotopic Uranium	Metals	PCBs	Perchlorate	Strontium-90	SVOCs	VOCs	Explosive Compounds	Cyanide(Total)
RE21-07-75146	21-27413	4.5–5.5	Soil	7099S	7099S	—	7099S	7099S	7099S	7099S	7099S	—	7099S	7099S	7099S	7099S	—	7099S
RE21-07-75147	21-27414	0.0–0.5	Soil	7104S	7103S	—	7104S	7104S	7104S	7104S	7103S	—	7103S	7104S	7102S	—	—	7103S
RE21-07-75148	21-27414	3.0–4.0	Soil	7104S	7103S	—	7104S	7104S	7104S	7104S	7103S	—	7103S	7104S	7102S	7102S	—	7103S
RE21-07-75151	21-27414	5.0–6.0	Soil	7108S	7107S	—	7108S	7108S	7108S	7108S	7107S	—	7107S	7108S	7106S	7106S	—	7107S
RE21-07-75149	21-27415	0.0–0.5	Soil	7104S	7103S	—	7104S	7104S	7104S	7104S	7103S	—	7103S	7104S	7102S	—	—	7103S
RE21-07-75150	21-27415	3.0–4.0	Soil	7104S	7103S	—	7104S	7104S	7104S	7104S	7103S	—	7103S	7104S	7102S	7102S	—	7103S
RE21-07-75153	21-27415	5.0–6.0	Soil	7104S	7103S	—	7104S	7104S	7104S	7104S	7103S	—	7103S	7104S	7102S	7102S	—	7103S

[a] Alphanumeric = Analysis request number.

[b] — = Not requested.

Table 6.2-1
AOC 21-002(b) Field-Screening Results

Location Number	Sample Top Depth Interval (ft)	Sample Bottom Depth Interval (ft)	Work Plan Location ID	PID Background (ppm)	PID (ppm)	Alpha Background (dpm)	Alpha (dpm)	Beta Background (dpm)	Beta/ Gamma (dpm)	External Radiation Survey Background at 30 cm gamma SPA-3 (cpm)	External Radiation Survey at 30 cm gamma SPA-3 (cpm)
21-25679	0.0	0.5	1a	0.0	0.0	12.7	<MDA[a]	2640	2190	10220	12830
21-25679	2.5	3.0	1b	0.0	1.8	12.7	<MDA	2640	2560	na[b]	na
21-25680	0.0	0.5	2a	0.0	na	12.7	<MDA	2640	2160	10220	13650
21-25680	2.5	3.0	2b	0.0	0.0	12.7	<MDA	2640	2780	na	na
21-25681	0.0	0.5	3a	0.0	0.0	12.7	<MDA	2640	2100	10220	13590
21-25681	2.5	3.0	3b	0.0	0.0	12.7	<MDA	2640	<MDA	na	na
21-25682	0.0	0.5	4a	0.0	0.0	12.7	<MDA	2640	<MDA	10220	13270
21-25682	2.5	3.0	4b	0.0	0.0	12.7	<MDA	2640	626	na	na
21-25683	0.0	0.5	5a	0.0	0.0	12.7	<MDA	2640	<MDA	10220	13430
21-25683	2.5	3.0	5b	0.0	0.0	12.7	30.6	2640	911	na	na
21-25684	0.0	0.5	6a	0.0	0.0	12.7	24.4	2640	465	10220	14230
21-25684	2.5	3.0	6b	0.0	0.0	12.7	55.4	2640	828	na	na
21-25685	0.0	0.5	7a	0.0	0.0	12.7	<MDA	2640	<MDA	10220	13560
21-25685	2.5	3.0	7b	0.0	0.0	12.7	55.4	2640	649	na	na
21-25686	0.0	0.5	8a	0.0	0.0	12.7	<MDA	2640	293	10220	11560
21-25686	2.5	3.0	8b	0.0	0.0	12.7	NDA [c]	2640	608	na	na
21-25687	0.0	0.5	9a	0.0	0.0	12.7	NDA	2640	121	10220	13050
21-25687	0.0	0.5	9a-1[d]	0.0	0.0	12.7	<MDA	2640	804	na	na
21-25687	2.5	3.0	9b	0.0	0.0	12.7	43.8	2640	222	10220	13160
21-25688	0.0	0.5	10a	0.0	0.0	12.7	<MDA	2640	192.3	na	na
21-25688	0.0	0.5	10a-1	0.0	0.0	12.7	<MDA	2640	121	10220	13810
21-25688	2.5	3.0	10b	0.0	0.0	12.7	<MDA	2640	822	na	na
21-25689	0.0	0.5	11a	0.0	0.0	12.7	30.6	2640	376	10220	13080
21-25689	2.5	3.0	11b	0.0	0.0	12.7	18.22	2640	150.7	na	na
21-25690	0.0	0.5	12a	0.0	0.0	12.7	NDA	2640	150.7	10220	12870
21-25690	2.5	3.0	12b	0.0	0.0	12.7	74	2640	632	na	na

Table 6.2-1 (continued)

Location Number	Sample Top Depth Interval (ft)	Sample Bottom Depth Interval (ft)	Work Plan Location ID	PID Background (ppm)	PID (ppm)	Alpha Background (dpm)	Alpha (dpm)	Beta Background (dpm)	Beta/Gamma (dpm)	External Radiation Survey Background at 30 cm gamma SPA-3 (cpm)	External Radiation Survey at 30 cm gamma SPA-3 (cpm)
21-25691	0.0	0.5	13a	0.0	0.0	12.7	24.4	2640	281	10220	13180
21-25691	2.5	3.0	13b	0.0	0.0	12.7	30.6	2640	935	na	na
21-25692	0.0	0.5	14a	0.0	0.0	12.7	49.2	2640	168.6	10220	12770
21-25692	2.5	3.0	14b	0.0	0.0	12.7	43	2640	679	na	na
21-25693	0.0	0.5	15a	0.0	0.0	12.7	<MDA	2640	281	10220	13270
21-25693	2.5	3.0	15b	0.0	0.0	12.7	<MDA	2640	679	na	na
21-25694	0.0	0.5	16a	0.0	0.0	12.7	30.6	2640	352	10220	12410
21-25694	2.5	3.0	16b	0.0	0.0	12.7	<MDA	2640	804	na	na
21-25695	0.0	0.5	17a	0.0	0.0	12.7	18.22	2640	156.7	10220	12620
21-25695	0.0	0.5	17a-1	0.0	0.0	13.7	18.2	2640	400	na	na
21-25695	2.5	3.0	17b	0.0	0.0	12.7	43	2640	661	na	na
21-25696	0.0	0.5	18a	0.0	0.0	12.7	30.6	2640	323	na	na
21-25696	0.0	0.5	18a-1	0.0	0.0	12.7	36.8	2640	323	na	na
21-25696	2.5	3.0	18b	0.0	0.0	12.7	74	2640	566	na	na

[a] MDA = Minimum detectable activity.

[b] na = Not available.

[c] NDA = No detectable activity

[d] # -1 = Duplicate sample.

Table 6.2-2
Consolidated Unit 21-003-99 Field-Screening Results

Location Number	Sample Top Depth Interval (ft)	Sample Bottom Depth Interval (ft)	Work Plan Location ID	PID Background (ppm)	PID (ppm)	Alpha Background (dpm)	Alpha (dpm)	Beta Background (dpm)	Beta/ Gamma (dpm)	External Radiation Survey Background at 30 cm gamma-3 SPA (cpm)	External Radiation Survey at 30 cm gamma SPA-3 (cpm)
21-25704	0.0	0.5	1a	1.3	0.43	11.87	<MDA[a]	1249	<MDA	2340	5140
21-25704	0.5	1.0	1b	1.3	0.3	11.87	<MDA	1249	<MDA	na[b]	na
21-25704	1.5	2.0	1c	1.3	0.4	11.87	<MDA	1249	<MDA	na	na
21-25705	0.0	0.5	2a	1.3	1.3	11.87	<MDA	1249	<MDA	2340	4620
21-25705	0.5	1.0	2b	1.3	0.7	11.87	<MDA	1249	<MDA	na	na
21-25705	1.5	2.0	2c	1.3	0.8	11.87	<MDA	1249	<MDA	na	na
21-25706	0.0	0.5	3a	1.3	0.5	11.87	<MDA	1249	<MDA	2340	4520
21-25706	0.5	1.0	3b	1.3	0.9	11.87	<MDA	1249	<MDA	na	na
21-25706	1.5	2.0	3c	1.3	0.1	11.87	<MDA	1249	<MDA	na	na
21-25707	0.0	0.5	4a	1.3	1.4	11.87	<MDA	1249	<MDA	2340	4280
21-25707	0.5	1.0	4b	1.3	0.5	11.87	<MDA	1249	<MDA	na	na
21-25707	1.5	2.0	4c	1.3	0.5	11.87	<MDA	1249	<MDA	na	na
21-25708	0.0	0.5	5a	1.3	0.6	11.87	<MDA	1249	<MDA	2340	5650
21-25708	0.5	1.0	5b	1.3	0.5	11.87	<MDA	1249	<MDA	na	na
21-25708	1.5	2.0	5c	1.3	0.5	11.87	<MDA	1249	<MDA	na	na
21-25709	0.0	0.5	6a	1.3	0.9	11.87	<MDA	1249	<MDA	2340	2630
21-25709	0.5	1.0	6b	1.3	0.6	11.87	<MDA	1249	<MDA	na	na
21-25709	1.5	2.0	6c	1.3	0.5	11.87	<MDA	1249	<MDA	na	na
21-25710	0.0	0.5	7a	1.3	0.9	11.87	<MDA	1249	<MDA	2340	2160
21-25710	0.5	1.0	7b	1.3	1.0	11.87	<MDA	1249	<MDA	na	na
21-25710	1.5	2.0	7c	1.3	0.6	11.87	<MDA	1249	<MDA	na	na
21-25711	0.0	0.5	8a	1.3	0.5	11.87	<MDA	1249	<MDA	2340	1100
21-25711	0.5	1.0	8b	1.3	0.6	11.87	<MDA	1249	<MDA	na	na
21-25711	1.5	2.0	8c	1.3	1.0	11.87	<MDA	1249	<MDA	na	na
21-25712	0.0	0.5	9a	0.2	0.3	11.87	<MDA	1249	<MDA	2340	1413
21-25712	0.0	0.5	9a-1[c]	0.2	0.3	11.87	<MDA	1249	<MDA	na	na
21-25712	0.5	1.0	9b	0.2	0.3	11.87	<MDA	1249	<MDA	na	na

Table 6.2-2 (continued)

Location Number	Sample Top Depth Interval (ft)	Sample Bottom Depth Interval (ft)	Work Plan Location ID	PID Background (ppm)	PID (ppm)	Alpha Background (dpm)	Alpha (dpm)	Beta Background (dpm)	Beta/ Gamma (dpm)	External Radiation Survey Background at 30 cm gamma-3 SPA (cpm)	External Radiation Survey at 30 cm gamma SPA-3 (cpm)
21-25712	1.5	2.0	9c	0.2	0.3	11.87	<MDA	1249	<MDA	na	na
21-25713	0.0	0.5	10a	0.2	0.3	11.87	<MDA	1249	<MDA	2340	3100
21-25713	0.0	0.5	10a-1	0.2	0.3	11.87	<MDA	1249	<MDA	na	na
21-25713	0.5	1.0	10b	0.2	0.4	11.87	<MDA	1249	<MDA	na	na
21-25713	1.5	2.0	10c	0.2	0.9	11.87	<MDA	1249	<MDA	na	na
21-25714	0.0	0.5	11a	0.2	0.2	11.87	<MDA	1249	<MDA	2340	3030
21-25714	0.5	1.0	11b	0.2	0.8	11.87	<MDA	1249	<MDA	na	na
21-25714	1.5	2.0	11c	0.2	0.2	11.87	<MDA	1249	<MDA	na	na
21-25715	0.0	0.5	12a	0.2	0.0	11.87	<MDA	1249	<MDA	2340	4210
21-25715	0.5	1.0	12b	0.2	0.2	11.87	<MDA	1249	<MDA	na	na
21-25715	1.5	2.0	12c	0.2	0.1	11.87	<MDA	1249	<MDA	na	na
21-25716	0.0	0.5	13a	0.2	0.2	11.87	<MDA	1249	<MDA	2340	6350
21-25716	0.5	1.0	13b	0.2	0.0	11.87	<MDA	1249	<MDA	na	na
21-25716	1.5	2.0	13c	0.2	0.0	11.87	<MDA	1249	<MDA	na	na
21-25717	0.0	0.5	14a	0.2	0.3	11.87	<MDA	1249	<MDA	2340	3860
21-25717	0.5	1.0	14b	0.2	0.5	11.87	<MDA	1249	<MDA	na	na
21-25717	1.5	2.0	14c	0.2	0.4	11.87	<MDA	1249	<MDA	na	na
21-25718	0.0	0.5	15a	0.0	0.3	11.87	<MDA	1249	<MDA	2340	6060
21-25718	0.0	0.5	15a-1	0.0	0.3	11.87	<MDA	1249	<MDA	na	na
21-25718	0.5	1.0	15b	0.0	0.6	11.87	<MDA	1249	<MDA	na	na
21-25718	1.5	2.0	15c	0.0	0.1	11.87	<MDA	1249	<MDA	na	na
21-25719	0.0	0.5	16a	0.0	0.3	11.87	<MDA	1249	<MDA	2340	5960
21-25719	0.5	1.0	16b	0.0	0.5	11.87	<MDA	1249	<MDA	na	na
21-25719	1.5	2.0	16c	0.0	0.1	11.87	<MDA	1249	<MDA	na	na
21-25720	0.0	0.5	17a	0.0	0.5	11.87	<MDA	1249	<MDA	2340	5160
21-25720	0.5	1.0	17b	0.0	0.1	11.87	<MDA	1249	<MDA	na	na
21-25720	1.5	2.0	17c	0.0	0.2	11.87	<MDA	1249	<MDA	na	na
21-25720	0.0	0.5	17a-1	na	0.5	11.87	<MDA	1249	<MDA	na	na
21-25722	0.0	0.5	19a	1.1	0.5	11.87	<MDA	1249	<MDA	2340	5420
21-25722	0.5	1.0	19b	1.1	0.8	11.87	<MDA	1249	<MDA	na	na

Table 6.2-2 (continued)

Location Number	Sample Top Depth Interval (ft)	Sample Bottom Depth Interval (ft)	Work Plan Location ID	PID Background (ppm)	PID (ppm)	Alpha Background (dpm)	Alpha (dpm)	Beta Background (dpm)	Beta/ Gamma (dpm)	External Radiation Survey Background at 30 cm gamma-3 SPA (cpm)	External Radiation Survey at 30 cm gamma SPA-3 (cpm)
21-25722	1.5	2.0	19c	1.1	0.4	11.87	<MDA	1249	<MDA	na	na
21-25723	0.0	0.5	20a	1.1	0.3	11.87	<MDA	1249	<MDA	2340	5990
21-25723	0.5	1.0	20b	1.1	0.4	11.87	<MDA	1249	<MDA	na	na
21-25723	1.5	2.0	20c	1.1	0.8	11.87	<MDA	1249	<MDA	na	na
21-25724	0.0	0.5	21a	1.1	0.5	11.87	<MDA	1249	<MDA	2340	4720
21-25724	0.0	0.5	21a-1	1.1	0.5	11.87	<MDA	1249	<MDA	na	na
21-25724	0.5	1.0	21b	1.1	0.6	11.87	<MDA	1249	<MDA	na	na
21-25724	1.5	2.0	21c	1.1	1.8	11.87	<MDA	1249	<MDA	na	na
21-25725	0.0	0.5	22a	1.1	0.8	11.87	<MDA	1249	<MDA	2340	6220
21-25725	0.5	1.0	22b	1.1	1.5	11.87	<MDA	1249	<MDA	na	na
21-25726	0.0	0.5	23a	1.1	1.2	11.87	<MDA	1249	<MDA	2340	6890
21-25726	0.5	1.0	23b	1.1	1.2	11.87	<MDA	1249	<MDA	na	na
21-25726	1.5	2.0	23c	1.1	1.3	11.87	46.1	1249	2890	na	na
21-25727	0.0	0.5	24a	1.1	2.5	11.87	65.9	1249	3000	2340	7640
21-25727	0.5	1.0	24b	1.1	1.3	11.87	72.5	1249	2790	na	na
21-25727	0.0	0.5	24a-1	1.1	2.5	11.87	26.3	1249	2480	na	na
21-25727	1.5	2.0	24c	1.1	2.9	11.87	46.1	1249	2680	na	na
21-25728	0.0	0.5	25a	1.1	1	11.87	52.7	1249	2410	2340	7730
21-25728	0.5	1.0	25b	1.1	1.4	11.87	<MDA	1249	<MDA	na	na
21-25728	1.5	2.0	25c	1.1	2.1	11.87	72.5	1249	2420	na	na
21-25721	0.0	0.5	18a	1.1	0.7	11.87	52.7	1249	2800	2340	5740
21-25721	0.5	1.0	18b	1.1	0.8	11.87	65.9	1249	2790	na	na
21-25721	1.5	2.0	18c	1.1	0.9	11.87	52.7	1249	2820	na	na
21-25729	0.0	0.5	26a	1.1	1.1	11.87	46.1	1249	2590	2340	6260
21-25729	0.0	0.5	26a-1	1.1	1	11.87	32.9	1249	2840	na	na
21-25729	0.5	1.0	26b	1.1	1.2	11.87	59.3	1249	2680	na	na
21-25729	1.5	2.0	26c	1.1	1	11.87	59.3	1249	2790	na	na
21-25730	0.0	0.5	27a	1.1	1.1	11.87	<MDA	1249	3050	2340	6160
21-25730	0.5	1.0	27b	1.1	1.3	11.87	<MDA	1249	3120	na	na
21-25730	1.5	2.0	27c	1.1	1.1	11.87	59.3	1249	3140	na	na

Table 6.2-2 (continued)

Location Number	Sample Top Depth Interval (ft)	Sample Bottom Depth Interval (ft)	Work Plan Location ID	PID Background (ppm)	PID (ppm)	Alpha Background (dpm)	Alpha (dpm)	Beta Background (dpm)	Beta/ Gamma (dpm)	External Radiation Survey Background at 30 cm gamma-3 SPA (cpm)	External Radiation Survey at 30 cm gamma SPA-3 (cpm)
21-25731	0.0	0.5	28a	1.1	1.6	11.87	59.3	1249	2960	2340	5260
21-25731	0.5	1.0	28b	1.1	0.9	11.87	52.7	1249	2800	na	na
21-25731	1.5	2.0	28c	1.1	2.3	11.87	<MDA	1249	3000	na	na
21-25725	3.0	3.5	22d	1.1	23.4	11.87	13.18	1249	2800	na	na
21-25725	4.0	4.5	22e	1.1	3.2	11.87	26.3	1249	2310	na	na
21-25732	0.0	0.5	29a	1.0	0.2	6.7	46.1	1896	3060	2340	4360
21-25732	0.5	1.0	29b	1.0	0.5	6.7	46.1	1896	2950	na	na
21-25732	1.5	2.0	29c	1.0	0.5	6.7	65.9	1896	2990	na	na
21-25733	0.0	0.5	30a	1.0	0.4	6.7	92.2	1896	3310	2340	5570
21-25733	0.5	1.0	30b	1.0	0.7	6.7	105.4	1896	3400	na	na
21-25733	1.5	2.0	30c	1	0.8	6.7	72.5	1896	2970	na	na
21-25734	0.0	0.5	31a	1	0.8	6.7	85.6	1896	3040	2340	3940
21-25734	0.5	1.0	31b	1	0.9	6.7	52.7	1896	2610	na	na
21-25734	1.5	2.0	31c	1	1	6.7	65.9	1896	3070	na	na
21-25735	0.0	0.5	32a	1	0.9	6.7	79.1	1896	3140	2340	2760
21-25735	0.0	0.5	32a-1	1	na	6.7	52.7	1896	2510	na	na
21-25735	0.5	1.0	32b	1	0.8	6.7	65.9	1896	2750	na	na
21-25735	1.5	2.0	32c	1	0.6	6.7	59.3	1896	2990	na	na
21-25736	0.0	0.5	33a	1	0.7	6.7	72.5	1896	2880	2340	5550
21-25736	0.5	1.0	33b	1	0.8	6.7	<MDA	1896	3310	na	na
21-25736	1.5	2.0	33c	1	1.4	6.7	98.8	1896	2950	na	na
21-25737	0.0	0.5	34a	1	0.7	6.7	65.9	1896	2590	2340	3060
21-25737	0.5	1.0	34b	1	0.7	6.7	65.9	1896	2550	na	na
21-25737	1.5	2.0	34c	1	0.8	6.7	52.7	1896	2850	na	na
21-25738	0.0	0.5	35a	1	0.7	6.7	72.5	1896	2730	2340	4340
21-25738	0.5	1.0	35b	1	0.8	6.7	72.5	1896	2740	na	na
21-25738	0.5	1.0	35c	1	1.1	6.7	65.9	1896	2460	na	na
21-25739	0.0	0.5	36a	1.1	0.7	6.7	<MDA	1896	3030	2340	6870
21-25739	0.5	1.0	36b	1.1	1	6.7	59.3	1896	2950	na	na
21-25739	1.5	2.0	36c	1.1	0.7	6.7	<MDA	1896	2930	na	na

Table 6.2-2 (continued)

Location Number	Sample Top Depth Interval (ft)	Sample Bottom Depth Interval (ft)	Work Plan Location ID	PID Background (ppm)	PID (ppm)	Alpha Background (dpm)	Alpha (dpm)	Beta Background (dpm)	Beta/ Gamma (dpm)	External Radiation Survey Background at 30 cm gamma-3 SPA (cpm)	External Radiation Survey at 30 cm gamma SPA-3 (cpm)
21-25740	0.0	0.5	37a	1.1	0.7	6.7	65.9	1896	2790	2340	1123
21-25740	0.5	1.0	37b	1.1	0.7	6.7	59.3	1896	2620	na	na
21-25740	1.5	2.0	37c	1.1	0.8	6.7	112	1896	2720	na	na
21-25741	0.0	0.5	38a	1.1	1.2	6.7	<MDA	1896	2600	2340	1713
21-25741	0.0	0.5	38a-1	1.1	na	6.7	<MDA	1896	2520	na	na
21-25741	0.5	1.0	38b	1.1	0.8	6.7	46.1	1896	2530	na	na
21-25741	1.5	2.0	38c	1.1	0.8	6.7	46.1	1896	2440	na	na

[a] MDA = Minimum detectable activity.

[b] na = Not available.

[c] # -1 = Duplicate sample.

Table 6.2-3
SWMU 21-009 Field-Screening Results

Location Number	Sample Top Depth Interval (ft)	Sample Bottom Depth Interval (ft)	Location ID	PID Background (ppm)	PID (ppm)	Alpha Background (dpm)	Alpha (dpm)	Beta Background (dpm)	Beta/ Gamma (dpm)	External Radiation Survey Background at 30 cm gamma-3 SPA (cpm)	External Radiation Survey at 30 cm gamma SPA-3 (cpm)
21-25636	0.0	0.5	1a	0.8	0.0	500	NDA[a]	200	524	13005	12970
21-25636	1.5	2.0	1b	0.8	0.0	500	NDA	200	528	na[b]	na
21-25637	0.0	0.5	2a	0.8	0.0	500	NDA	200	573	13005	10560
21-25637	1.5	2.0	2b	0.8	0.0	500	NDA	200	593	na	na
21-25638	0.0	0.5	3a	0.8	0.0	500	NDA	200	595	13005	11690
21-25638	1.5	2.0	3b	0.8	0.0	500	NDA	200	613	na	na
21-25639	0.0	0.5	4a	0.8	0.0	500	NDA	200	539	13005	8540
21-25639	1.5	2.0	4b	0.8	0.0	500	NDA	200	573	na	na
21-25640	0.0	0.5	5a	0.8	0.0	500	NDA	200	526	13005	10570
21-25640	1.5	2.0	5b	0.8	0.0	500	NDA	200	420	na	na
21-25641	0.0	0.5	6a	0.8	0.0	500	NDA	200	628	13005	9930
21-25641	1.5	2.0	6b	0.8	0.0	500	NDA	200	480	na	na
21-25642	0.0	0.5	7a	0.8	0.0	500	NDA	200	611	13005	7310
21-25642	1.5	2.0	7b	0.8	0.0	500	NDA	200	585	na	na
21-25643	0.0	0.5	8a	0.8	0.0	500	NDA	200	531	13005	8570
21-25643	1.5	2.0	8b	0.8	0.0	500	NDA	200	430	na	na
21-25643	0.0	0.5	8a-1[c]	0.8	0.0	500	NDA	200	574	na	na

[a] NDA = No detectable activity.

[b] na = Not available.

[c] # -1 = Duplicate sample.

Table 6.2-4
SWMU 21-013(c) Field-Screening Results

Location Number	Sample Top Depth Interval (ft)	Sample Bottom Depth Interval (ft)	Location ID	PID Background (ppm)	PID (ppm)	Alpha Background (dpm)	Alpha (dpm)	Beta Background (dpm)	Beta/ Gamma (dpm)	External Radiation Survey Background at 30 cm gamma SPA-3 (cpm)	External Radiation Survey at 30 cm gamma SPA-3 (cpm)
21-25647	0.0	0.5	0a	3.7	0.9	19.77	6	1269	433	15010	<MDA[a]
21-25647	2.5	3.0	0b	3.7	0.6	19.77	42	1269	1192	na[b]	na
21-25648	0.0	0.5	1a	3.7	0.5	19.77	31	1269	877	15010	850
21-25648	2.5	3.0	1b	3.7	1.4	19.77	NDA[c]	1269	909	na	na
21-25649	0.0	0.5	2a	3.7	0.4	19.77	NDA	1269	1130	15010	1028
21-25649	2.5	3.0	2b	3.7	1.1	19.77	NDA	1269	1667	na	na
21-25650	0.0	0.5	3a	3.7	0.5	19.77	NDA	1269	957	15010	876
21-25650	2.5	3.0	3b	3.7	0.5	19.77	NDA	1269	1167	na	na
21-25651	0.0	0.5	4a	3.7	0.5	19.77	75.6	1269	1465	15010	1100
21-25651	0.0	0.5	4a-1[d]	3.7	na	19.77	22.9	1269	1518	na	na
21-25651	2.5	3.0	4b	3.7	0.3	19.77	49.2	1269	878	15010	2200
21-25652	0.0	0.5	5a	3.7	0.5	19.77	NDA	1269	1928	na	na
21-25652	2.5	3.0	5b	3.7	0.4	19.77	9.73	1269	2000	na	na
21-25653	0.0	0.5	6a	3.7	0.9	19.77	9.73	1269	1360	15010	3530
21-25653	2.5	3.0	6b	3.7	1.1	19.77	NDA	1269	1754	na	na
21-25654	0.0	0.5	7a	3.7	0.7	19.77	NDA	1269	2240	15010	3330
21-25654	2.5	3.0	7b	3.7	0.5	19.77	9.73	1269	1912	na	na
21-25655	0.0	0.5	8a	3.7	0.7	19.77	NDA	1269	800	15010	2240
21-25655	2.5	3.0	8b	3.7	0.7	19.77	42.6	1269	1526	na	na
21-25656	0.0	0.5	9a	3.7	1.3	19.77	NDA	1269	1622	15010	2810
21-25656	0.5	1.0	9b	3.7	1	19.77	16.32	1269	1474	na	na
21-25657	0.0	0.5	10a	3.7	0.6	19.77	NDA	1269	1430	15010	816
21-25657	2.5	3.0	10b	3.7	0.7	19.77	NDA	1269	2170	na	na
21-25658	0.0	0.5	11a	3.7	0.3	19.77	62.4	1269	1833	15010	2650
21-25658	0.0	0.5	11a-1	3.7	na	19.77	NDA	1269	1185	na	na
21-25658	2.5	3.0	11b	3.7	0.4	19.77	55.8	1269	1570	na	na
21-25659	0.0	0.5	12a	3.7	0.7	19.77	NDA	1269	1053	15010	<MDA

Table 6.2-4 (continued)

Location Number	Sample Top Depth Interval (ft)	Sample Bottom Depth Interval (ft)	Location ID	PID Background (ppm)	PID (ppm)	Alpha Background (dpm)	Alpha (dpm)	Beta Background (dpm)	Beta/ Gamma (dpm)	External Radiation Survey Background at 30 cm gamma SPA-3 (cpm)	External Radiation Survey at 30 cm gamma SPA-3 (cpm)
21-25659	0.5	1.0	12b	3.7	0.4	19.77	NDA	1269	1788	na	na
21-25660	0.0	0.5	13a	3.7	0.8	19.77	NDA	1269	1185	15010	943
21-25660	2.5	3.0	13b	3.7	0.4	19.77	42.6	1269	1465	na	na
21-25661	0.0	0.5	14a	3.7	0.5	19.77	16.32	1269	1430	15010	2190
21-25661	2.5	3.0	14b	3.7	0.4	19.77	42.6	1269	1745	na	na
21-25662	0.0	0.5	15a	3.7	0.5	19.77	69	1269	878	15010	<bkg[e]
21-25662	2.5	3.0	15b	3.7	0.4	19.77	9.73	1269	1386	na	na
21-25663	0.0	0.5	16a	0.4	0.3	19.63	NDA	2070	233	15010	1429
21-25663	0.0	0.5	16a-1	0.4	na	19.63	NDA	2070	243	na	na
21-25663	2.5	3.0	16b	0.4	0.6	19.63	20	2070	243	na	na
21-25664	0.0	0.5	17a	0.4	0.5	19.63	56	2070	253	15010	506
21-25664	0.0	0.5	17a-1	0.4	na	19.63	31	2070	224	na	na
21-25664	2.5	3.0	17b	0.4	0.5	19.63	74	2070	284	na	na
21-25665	0.0	0.5	18a	0.4	0.4	19.63	18	2070	232	15010	485
21-25665	2.5	3.0	18b	0.4	0.7	19.63	68	2070	246	na	na
21-25666	0.0	0.5	19a	0.4	0.4	19.63	37	2070	232	15010	1722
21-25666	2.5	3.0	19b	0.4	0.9	19.63	24	2070	245	na	na
21-25667	0.0	0.5	20a	0.4	0.6	19.63	24	2070	255	15010	2070
21-25667	2.5	3.0	20b	0.4	0.6	19.63	24	2070	277	na	na
21-25668	0.0	0.5	21a	0.4	0.8	19.63	24	2070	266	15010	1731
21-25668	2.5	3.0	21b	0.4	0.7	19.63	56	2070	298	na	na
21-25669	0.0	0.5	22a	0.4	1.4	19.63	68	2070	260	15010	3800
21-25669	0.0	0.5	22a-1	0.4	na	19.63	18	2070	250	na	na
21-25669	2.5	3.0	22b	0.4	0.9	19.63	24	2070	283	na	na

[a] MDA = Minimum detectable activity.

[b] na = Not available.

[c] NDA = No detectable activity.

[d] # -1 = Duplicate sample.

[e] bkg = Background

Table 6.2-5
SWMU 21-024(c) Field-Screening Results

Location Number	Sample Top Depth Interval (ft)	Sample Bottom Depth Interval (ft)	Location ID	PID Background (ppm)	PID (ppm)	Alpha Background (dpm)	Alpha (dpm)	Beta Background (dpm)	Beta/ Gamma (dpm)	External Radiation Survey Background at 30 cm gamma SPA-3 (cpm)	External Radiation Survey at 30 cm gamma SPA-3 (cpm)
21-25757	0.0	0.5	1a	0.8	0.4	6.7	72.5	1896	3600	13240	18970
21-25757	1.5	2.0	1b	0.8	0.6	6.7	<MDA[a]	1896	2930	na[b]	na
21-25757	3.0	3.5	1c	0.8	0.6	6.7	52.3	1896	2950	na	na
21-25758	0.0	0.5	2a	0.8	0.7	6.7	85.6	1896	2560	13240	19140
21-25758	1.5	2.0	2b	0.8	0.7	6.7	52.7	1896	3030	na	na
21-25759	0.0	0.5	3a	0.8	0.9	6.7	<MDA	1896	2870	13240	18800
21-25759	1.5	2.0	3b	0.8	0.7	6.7	52.7	1896	2980	na	na
21-25760	0.0	0.5	4a	0.8	0.7	6.7	32.9	1896	3730	13240	24000
21-25760	1.5	2.0	4b	0.8	0.9	6.7	59.3	1896	3440	na	na
21-25761	0.0	0.5	6a	0.8	0.9	6.7	59.3	1896	3000	13240	18520
21-25761	0.0	0.5	6a-1[c]	0.8	na	6.7	79.1	1896	2650	na	na
21-25761	1.5	2.0	6b	0.8	0.8	6.7	65.9	1896	2800	na	na
21-25762	0.0	0.5	5a	0.8	0.7	6.7	<MDA	1896	2890	13240	19380
21-25762	1.5	2.0	5b	0.8	0.8	6.7	32.9	1896	2800	na	na
21-25763	0.0	0.5	7a	0.8	0.9	6.7	46.1	1896	3590	13240	19890
21-25763	1.5	2.0	7b	0.8	1.1	6.7	39.5	1896	3280	na	na
21-25764	0.0	0.5	9a	0.8	0.9	6.7	46.1	1896	2690	13240	28400
21-25764	1.5	2.0	9b	0.8	0.9	6.7	39.5	1896	3130	na	na
21-25765	0.0	0.5	8a	0.8	2.3	6.7	39.5	1896	2960	na	na
21-25765	1.5	2.0	8b	0.8	0.8	6.7	51.7	1896	3100	13240	21900
21-25766	0.0	0.5	10a	1.0	0.9	6.7	105	1896	2770	na	na
21-25766	1.5	2.0	10b	1.0	1.2	6.7	32	1896	2270	na	na
21-25767	0.0	0.5	11a	1.0	0.7	6.7	52	1896	3060	13240	22400
21-25767	1.5	2.0	11b	1.0	1.3	6.7	32	1896	2460	na	na
21-25768	0.0	0.5	12a	1.0	1.1	6.7	98	1896	2810	13240	22500
21-25768	1.5	2.0	12b	1.0	0.7	6.7	98	1896	2730	na	na
21-25769	0.0	0.5	13a	1.0	0.8	6.7	92	1896	3260	13240	21300
21-25769	1.5	2.0	13b	1.0	0.8	6.7	52	1896	2810	na	na

Table 6.2-5 (continued)

Location Number	Sample Top Depth Interval (ft)	Sample Bottom Depth Interval (ft)	Location ID	PID Background (ppm)	PID (ppm)	Alpha Background (dpm)	Alpha (dpm)	Beta Background (dpm)	Beta/ Gamma (dpm)	External Radiation Survey Background at 30 cm gamma SPA-3 (cpm)	External Radiation Survey at 30 cm gamma SPA-3 (cpm)
21-25770	0.0	0.5	14a	1.0	0.7	6.7	131	1896	2690	13240	22500
21-25770	1.5	2.0	14b	1.0	0.7	6.7	39	1896	3100	na	na
21-25771	0.0	0.5	15a	1.0	0.9	6.7	138	1896	3060	13240	21800
21-25771	0.0	0.5	15a-1	1.0	na	6.7	52	1896	2810	na	na
21-25771	1.5	2.0	15b	1.0	1.0	6.7	26	1896	2740	na	na
21-25748	4.0	5.0	AH-1a	na	16.3	na	65	na	2310	na	na
21-25748	14.0	15.0	AH-1b	na	14.7	na	83	na	2410	na	na
21-25750	2.5	3.0	A1	na	na	24	NDA[d]	1710	NDA	na	na
21-25750	4.0	4.5	A2	na	na	24	NDA	1710	NDA	na	na
21-25751	4.0	4.5	B1	na	4.5	24	NDA	1710	NDA	na	na
21-25751	6.0	6.5	B2	na	n/a	24	NDA	1710	NDA	na	na
21-25752	2.33	3.33	C1	na	n/a	27	105	1929	2660	na	na
21-25752	3.83	4.83	C2	na	0.2	27	22	1929	2790	na	na
21-25753	2.33	3.33	D1	na	5.0	28	93	1628	2180	na	na
21-25753	3.83	4.83	D2	na	1.1	28	50	1628	2350	na	na
21-25755	2.0	3.0	F1	na	1.3	59	143	1568	1607	na	na
21-25755	4.0	5.0	F2	na	0.6	59	107	1568	2330	na	na
21-25754	2.0	3.0	E1	na	2.3	59	71	1568	2350	na	na
21-25754	4.0	5.0	E2	na	2.3	59	64	1568	2250	na	na
21-25752	2.33	3.33	C1-1	na	0	na	61	na	2580	na	na
21-25760	5.0	5.5	4c	na	10.8	na	41	na	3130	na	na
21-25752	2.33	3.33	C1[e]	na	0.4	na	53	na	1519	na	na
21-25753	2.33	3.33	D1[e]	na	0	na	21	na	1476	na	na
21-25754	2.0	3.0	E1[e]	na	12.7	na	35	na	1295	na	na
21-25755	2.0	3.0	F1[e]	na	0.8	na	23	na	2340	na	na
21-25752	2.33	3.33	C1-1[e]	na	0.4	na	53	na	1519	na	na

[a] MDA = Minimum detectable activity.

[b] na = Not available.

[c] # -1 = Duplicate sample.

[d] NDA = No detectable activity.

[e] VOC sampling only.

Table 6.2-6
Suspected PCB Contaminated Outfall Field-Screening Results

Location Number	Sample Top Depth Interval (ft)	Sample Bottom Depth Interval (ft)	Work Plan Location ID	PID Background (ppm)	PID (ppm)	Alpha Background (dpm)	Alpha (dpm)	Beta Background (dpm)	Beta/ Gamma (dpm)	External Radiation Survey Background at 30 cm gamma-3 SPA (cpm)	External Radiation Survey at 30 cm gamma SPA-3 (cpm)
21-600088	0	0.5	1	0	0.7	na[a]	15	na	1087	na	na
21-600089	0	0.5	2	0	0	na	45	na	800	na	na
21-600090	0	0.5	3	0	1.4	na	45	na	1248	na	na
21-600091	0	0.5	4	0	0.1	na	51	na	1199	na	na
21-600092	0	0.5	5	0	7.8	na	39	na	1059	na	na
21-600093	0	0.5	6a	0	0	14.46	50	1252	977	na	na
21-600094	0	0.5	7a	0	6.2	14.46	67	1252	1179	na	na
21-600095	0	0.5	8a	0	0	14.46	88	1252	1344	na	na
21-600096	0	0.5	9a	0	0	14.46	23	1252	1075	na	na
21-600093	0.5	1	6b	0	30.8	14.46	39	1252	1362	na	na
21-600094	0.5	1	7b	0	0.5	14.46	12	1252	1124	na	na
21-600095	0.5	1	8b	0	0	14.46	77	1252	1466	na	na
21-600096	0.5	1	9b	0	0	14.46	67	1252	1338	na	na
21-600093	0.5	1	6b	0	30.8	14.46	39	1252	1362	na	na
21-600092	0	0.5	5a-1[b]	0	7.8	na	39	na	1059	na	na
21-600093	0.5	1	6b	0	5	59.9	24	1954	906	na	na
21-600094	0	0.5	7a	0	1	59.9	3	1954	958	na	na
21-600095	0	0.5	8a	0	2.9	59.9	1	1954	742	na	na
21-600096	0	0.5	9a	0	1.2	59.9	45	1954	578	na	na
21-600088	0	0.5	1	0	0.2	59.9	45	1954	733	na	na
21-600089	0	0.5	2	0	0	59.9	24	1954	592	na	na
21-600090	0	0.5	3	0	0	59.9	8	1954	573	na	na
21-600091	0	0.5	4	0	0	59.9	50	1954	963	na	na
21-600092	0.0	0.5	5	0	0	59.9	18	1954	780	na	na
21-600091	0.0	0.5	4	0	0.2	39	0	1576	576	na	na

[a] na = Not available.

[b] # -1 = Duplicate sample.

Table 6.2-7
SWMU 21-012(b) Field-Screening Results

Location Number	Sample Top Depth Interval (ft)	Sample Bottom Depth Interval (ft)	Work Plan Location ID	PID Background (ppm)	PID (ppm)	Alpha Background (dpm)	Alpha (dpm)	Beta Background (dpm)	Beta/ Gamma (dpm)	External Radiation Survey Background at 30 cm gamma-3 SPA (cpm)	External Radiation Survey at 30 cm gamma SPA-3 (cpm)
21-25778	0	0.5	6a	0	0	33	86	1821	619	227	na[a]
21-25778	2	2.5	6b	0	0	33	120	1821	886	227	na
21-25779	0	0.5	7a	0	0.1	33	25	1821	0	227	na
21-25779	2	2.5	7b	0	0	33	73	1821	868	227	na
21-25780	0	0.5	8a	0	0	33	64	1821	1005	227	na
21-25780	2	2.5	8b	0	0	33	53	1821	607	227	na
21-25781	0	0.5	9a	0	0	33	109	1821	1117	227	na
21-25781	2	2.5	9b	0	0	33	95	1821	961	227	na
21-25782	0	0.5	10a	0	0	33	81	1821	1198	227	na
21-25782	2	2.5	10b	0	0	33	154	1821	980	227	na
21-25783	0	0.5	11a	0	0	33	56	1821	1067	227	na
21-25783	2	2.5	11b	0	0	33	120	1821	1018	227	na
21-25784	0	0.5	12a	0	0	33	69	1821	974	227	na
21-25784	2	2.5	12b	0	0.1	33	73	1821	1067	227	na
21-25785	0	0.5	19a	0	0.3	33	67	1821	868	227	na
21-25785	2	2.5	19b	0	0	33	146	1821	1229	227	na
21-25786	0	0.5	21a	0	1.4	33	58	1821	632	227	na
21-25786	2	2.5	21b	0	0.9	33	61	1821	718	227	na
21-25787	0	0.5	30a	0	0.1	33	45	1821	830	227	na
21-25787	2	2.5	30b	0	0.1	33	28	1821	1329	227	na
21-25788	0	0.5	31a	0	0	33	90	1821	258	227	na
21-25788	2	2.5	31b	0	0	33	84	1821	1136	227	na
21-25789	0	0.5	32a	0	0	33	22	1821	369	227	na
21-25789	2	2.5	32b	0	0	33	106	1821	1229	227	na
21-25790	0	0.5	33a	0	0	33	33	1821	1098	227	na
21-25790	2	2.5	33b	0	0.1	33	112	1821	880	227	na
21-25791	0	0.5	34a	0	0.1	33	98	1821	788	227	na
21-25791	2	2.5	34b	0	0.1	33	92	1821	1092	227	na

Table 6.2-7 (continued)

Location Number	Sample Top Depth Interval (ft)	Sample Bottom Depth Interval (ft)	Work Plan Location ID	PID Background (ppm)	PID (ppm)	Alpha Background (dpm)	Alpha (dpm)	Beta Background (dpm)	Beta/ Gamma (dpm)	External Radiation Survey Background at 30 cm gamma-3 SPA (cpm)	External Radiation Survey at 30 cm gamma SPA-3 (cpm)
21-25792	0	0.5	35a	0	0	33	98	1821	788	227	na
21-25792	2	2.5	35b	0	0.1	33	86	1821	1106	227	na
21-25793	0	0.5	36a	0	0.1	33	106	1821	1111	227	na
21-25793	2	2.5	36b	0	0.1	33	95	1821	1235	227	na
21-25794	0	0.5	17a	0	0.3	29	32	1564	1311	na	na
21-25794	2	2.5	17b	0	0.4	29	41	1564	987	na	na
21-25796	0	0.5	20a	0	0	29	46	1564	1399	na	na
21-25796	2	2.5	20b	0	0	29	54	1564	1455	Na	na
21-25795	0	0.5	18a	0	0	29	60	1564	1286	na	na
21-25795	2	2.5	18b	0	0	29	59	1564	387	Na	na
21-25779	0	0.5	7a-1[b]	0	0.1	na	<MDA[c]	na	<MDA	na	na
21-25789	0	0.5	32a-1	0	0	na	<MDA	na	<MDA	na	na
21-25792	0	0.5	35a-1	0	0	na	<MDA	na	<MDA	na	na
21-25810	0	0.5	BH-1	0	0	45	78	1590	1148	na	na
21-25810	2	3	BH-1	0	0.4	45	63	1590	1109	na	na
21-25810	5	6	BH-1	0	0.5	45	85	1590	967	na	na
21-25797	0	0.5	BH-2	0	0.5	39	3	2310	720	na	na
21-25797	2	3	BH-2	0	0	39	3	2310	502	na	na
21-25797	5	6	BH-2	0	0	39	43	2310	696	na	na
21-25798	0	0.5	BH-7	0	0.4	45	42	1590	1173	na	na
21-25798	2	3	BH-7	0	0.3	45	56	1590	1207	na	na
21-25798	5	6	BH-7	0	0	45	56	1590	962	na	na
21-25800	0	0.5	5a	0	0	40	0	1673	1256	na	na
21-25800	2	2.5	5b	0	0	40	24	1673	13	na	na
21-25801	0	0.5	16a	0	0	40	24	1673	1364	na	na
21-25801	2	2.5	16b	0	0	40	17	1673	1462	na	na
21-25802	0	0.5	29a	0	0	40	24	1673	839	na	na
21-25802	2	2.5	29b	0	0	40	11	1673	1403	na	na
21-25803	2.33	3.33	4a	0	0.1	na	0	na	939	na	na
21-25803	2	3	4b	0	0.4	na	0	na	1294	na	na

Table 6.2-7 (continued)

Location Number	Sample Top Depth Interval (ft)	Sample Bottom Depth Interval (ft)	Work Plan Location ID	PID Background (ppm)	PID (ppm)	Alpha Background (dpm)	Alpha (dpm)	Beta Background (dpm)	Beta/ Gamma (dpm)	External Radiation Survey Background at 30 cm gamma-3 SPA (cpm)	External Radiation Survey at 30 cm gamma SPA-3 (cpm)
21-25804	0	0.5	28a	0	0	40	31	1673	1359	na	na
21-25804	4	5	28b	0	0	40	26	1673	1361	na	na
21-25805	2.67	3.67	15a	0	0.7	20	21	1779	886	na	na
21-25805	4.67	5.67	15b	0	1.3	20	61	1779	453	na	na
21-25806	2	3	27a	0	0.8	0.2	7	113.3	555	na	na
21-25806	3	4	27b	0	1.3	0.2	15	113.3	283	na	na
21-25807	2.5	3.5	2a	0	0.4	<MDA	35	<MDA	571	<MDA	<MDA
21-25807	4.5	5.5	2b	0	0.9	<MDA	43	<MDA	544	<MDA	<MDA
21-25808	2.5	3.5	1a	0	0.5	<MDA	65	<MDA	696	<MDA	<MDA
21-25808	4.5	5.5	1b	0	0.4	<MDA	29	<MDA	506	<MDA	<MDA
21-25809	2	3	3a	0	0.9	21.3	0	1299	765	na	Na
21-25809	4	5	3b	0	1.5	21.3	38	1299	808	na	na
21-25811	3	4	14a	0	1.9	35.2	32	1324	930	na	na
21-25811	5	6	14b	0	0.7	35.2	43	1324	1027	na	na
21-25812	2	3	22a	0	3.3	21.3	28	1299	661	na	na
21-25812	4	5	22b	0	4.3	21.3	28	1299	645	na	na
21-25813	3	4	23a	0	3.1	35.2	22	1324	452	na	na
21-25813	5	6	23b	0	2.9	35.2	43	1324	756	na	na
21-25814	1.6	2.6	24a	0	1.8	0.2	22	113.3	718	na	na
21-25814	3.5	4.5	24b	0	1.1	0.2	15	113.3	962	na	na
21-25815	2	3	25a	0	1.7	21.3	36	1299	629	na	na
21-25815	4	5	25b	0	1.4	21.3	23	1299	580	na	na
21-25816	6	7	26b	0	0.7	0.2	29	113.3	419	na	na
21-25816	4	5	26a	0	0.7	0.2	22	113.3	718	na	na
21-25817	2.5	3.5	13a	0	0.5	24.2	34	1605	212	na	na
21-25817	4.5	5.5	13b	0	1.2	24.2	54	1605	707	na	na
21-25798	0	0.5	BH-7-1	0	0.3	45	92	1590	913	na	na
21-25803	0	1	4a-1	0	0.1	na	0	na	932	na	na
21-25803	2.33	3.33	4a	0	0.5	66	59	2490	605	na	na
21-25800	2.33	3.33	5a	0	0	na	42	na	428	na	na

Table 6.2-7 (continued)

Location Number	Sample Top Depth Interval (ft)	Sample Bottom Depth Interval (ft)	Work Plan Location ID	PID Background (ppm)	PID (ppm)	Alpha Background (dpm)	Alpha (dpm)	Beta Background (dpm)	Beta/ Gamma (dpm)	External Radiation Survey Background at 30 cm gamma-3 SPA (cpm)	External Radiation Survey at 30 cm gamma SPA-3 (cpm)
21-25801	2.33	3.33	16a	0	0	na	13	na	325	na	na
21-25804	2	3	28a	0	0.2	na	14	na	727	na	na
21-25802	1.5	2.5	29a	0	0	na	8	na	562	na	na
21-25803	2.33	3.33	4a-1	0	0.5	na	59	na	605	na	na
21-27671	55	56	BH-6a	0	0	36.5	10	1822	1215	na	na
21-27671	60	61	BH-6b	0	0	36.5	16	1822	1061	na	na
21-27671	65	66	BH-6c	0	0	36.5	52	1822	1162	na	na
21-27671	70	71	BH-6d	0	79	36.5	47	1822	1441	na	na
21-27671	75	76	BH-6e	0	0.6	36.5	26	1822	1310	na	na
21-27672	5	6	BH-5a	0	0.2	36.5	21	1822	995	na	na
21-27672	10	11	BH-5b	0	0.2	36.5	58	1822	1019	na	na
21-27672	15	16	BH-5c	0	0.5	36.5	5	1822	936	na	na
21-27672	20	21	BH-5d	0	0.1	36.5	16	1822	1180	na	na
21-27672	25	26	BH-5e	0	0.3	36.5	73	1822	1150	na	na
21-27673	5	6	BH-3a	0	0.1	24.1	44	1784	938	na	na
21-27673	10	11	BH-3b	0	0.1	24.1	49	1784	1283	na	na
21-27673	15	16	BH-3c	0	0	24.1	38	1784	1402	na	na
21-27673	20	21	BH-3d	0	0	24.1	38	1784	1414	na	na
21-27673	25	26	BH-3e	0	0.1	24.1	33	1784	1509	na	na
21-27674	5	6	BH-4a	0	0	24.1	44	1784	1140	na	na
21-27674	10	11	BH-4b	0	0.2	24.1	12	1784	1164	na	na
21-27674	18	19	BH-4c	0	0	24.1	23	1784	896	na	na
21-27674	20	21	BH-4d	0	0	24.1	28	1784	1152	na	na
21-27674	25	26	BH-4e	0	0.1	24.1	59	1784	956	na	na
21-27671	75	76	BH-6e-1	0	0.6	na	26	na	1310	na	na
21-27674	25	26	BH-4e-1	0	0.1	na	59	na	956	na	na

[a] na = Not available.

[b] # -1 = Duplicate sample.

[c] MDA = Minimum detectable activity.

Table 6.2-8
SWMU 21-024(a) Field-Screening Results

Location Number	Sample Top Depth Interval (ft)	Sample Bottom Depth Interval (ft)	Work Plan Location ID	PID Background (ppm)	PID (ppm)	Alpha Background (dpm)	Alpha (dpm)	Beta Background (dpm)	Beta/ Gamma (dpm)	External Radiation Survey Background at 30 cm gamma-3 SPA (cpm)	External Radiation Survey at 30 cm gamma SPA-3 (cpm)
21-27320	0	0.5	6a-1[a]	0	0.1	na[b]	<MDA[c]	na	<MDA	na	na
21-27326	0	0.5	12a-1	0	0	na	<MDA	na	<MDA	na	na
21-27330	0	0.5	16a-1	0	0.2	33	67	1821	3140	na	na
21-27320	0	0.5	6a	0	0.1	na	<MDA	na	<MDA	na	na
21-27320	2	2.5	6b	0	0.4	na	<MDA	na	<MDA	na	na
21-27321	0	0.5	7a	0	0.4	na	<MDA	na	<MDA	na	na
21-27321	2	2.5	7b	0	0	na	<MDA	na	<MDA	na	na
21-27322	0	0.5	8a	0	0.1	na	<MDA	na	<MDA	na	na
21-27322	2	2.5	8b	0	0	na	<MDA	na	<MDA	na	na
21-27323	0	0.5	9a	0	0.1	na	<MDA	na	<MDA	na	na
21-27323	2	2.5	9b	0	0.1	na	<MDA	na	<MDA	na	na
21-27325	0	0.5	11a	0	0.1	na	<MDA	na	<MDA	na	na
21-27325	2	2.5	11b	0	0.1	na	<MDA	na	<MDA	na	na
21-27326	0	0.5	12a	0	0	na	<MDA	na	<MDA	na	na
21-27326	2	2.5	12b	0	0	na	<MDA	na	<MDA	na	na
21-27327	0	0.5	13a	0	0.3	na	<MDA	na	<MDA	na	na
21-27327	2	2.5	13b	0	0.4	na	<MDA	na	<MDA	na	na
21-27328	0	0.5	14a	0	0.4	33	67	1821	3380	na	na
21-27328	2	2.5	14b	0	0.4	33	72	1821	3300	na	na
21-27329	0	0.5	15a	0	0.3	33	84	1821	1005	na	na
21-27329	2	2.5	15b	0	0.3	33	84	1821	3120	na	na
21-27330	0	0.5	16a	0	0.2	33	67	1821	3110	na	na
21-27330	2	2.5	16b	0	0.3	33	56	1821	3420	na	na
21-27331	0	0.5	17a	0	0.3	33	50	1821	3070	na	na
21-27331	2	2.5	17b	0	0.3	33	78	1821	3200	na	na
21-27332	0	0.5	18a	0	0.3	33	78	1821	3160	na	na
21-27332	2	2.5	18b	0	0.3	33	95	1821	2940	na	na

Table 6.2-8 (continued)

Location Number	Sample Top Depth Interval (ft)	Sample Bottom Depth Interval (ft)	Work Plan Location ID	PID Background (ppm)	PID (ppm)	Alpha Background (dpm)	Alpha (dpm)	Beta Background (dpm)	Beta/ Gamma (dpm)	External Radiation Survey Background at 30 cm gamma-3 SPA (cpm)	External Radiation Survey at 30 cm gamma SPA-3 (cpm)
21-27333	0	0.5	19a	0	0.2	33	67	1821	2760	na	na
21-27333	2	2.5	19b	0	0.6	33	101	1821	3570	na	na
21-27335	2.67	3.67	2a	0	0.1	29	50	1630	2130	na	na
21-27335	4.67	5.67	2b	0	0.1	29	21	1630	2480	na	na
21-27336	2	3	5a	0	0.3	29	21	1630	2520	na	na
21-27336	4	5	5b	0	0.2	29	50	1630	234	na	na
21-27338	2.67	3.67	1a	0	0.2	37	62	1685	1226	na	na
21-27338	4.67	5.67	1b	0	0.1	37	19	1685	1378	na	na
21-27339	6.1	7.1	3a	0	0.9	25.8	38	144.4	609	na	na
21-27339	8.1	9.1	3b	0	0.8	25.8	24	144.4	864	na	na
21-27340	5	6	4a	0	1.3	25.8	52	144.4	761	na	na
21-27340	7	8	4b	0	0.6	25.8	17	144.4	859	na	na
21-27341	5	6	BH-1	0	0.4	na	5	na	873	na	na
21-27341	10	11	BH-1	0	0.4	na	419	na	1126	na	na
21-27341	15	16	BH-1	0	0.1	na	13	na	486	na	na
21-27342	0	0.5	BH-2	0	0.3	45	92	1590	894	na	na
21-27342	2	3	BH-2	0	0.5	45	78	1590	1139	na	na
21-27342	5	6	BH-2	0	0	45	99	1590	1511	na	na
21-27341	10	11	BH-1-1	0	0.4	na	41	na	1126	na	na
21-27338	2.67	3.67	1a	0	0	na	47	na	2460	na	na
21-27335	2.67	3.67	2a	0	0	na	59	na	2690	na	na
21-27336	2	3	5a	0	0	na	29	na	2440	na	na
21-27340	5.5	6.5	4a	0	0.1	42.9	0	1678	529	na	na

[a] # -1 = Duplicate sample.

[b] na = Not available.

[c] MDA = Minimum detectable activity.

Table 6.2-9
SWMU 21-024(e) Field-Screening Results

Location Number	Sample Top Depth Interval (ft)	Sample Bottom Depth Interval (ft)	Work Plan Location ID	PID Background (ppm)	PID (ppm)	Alpha Background (dpm)	Alpha (dpm)	Beta Background (dpm)	Beta/ Gamma (dpm)	External Radiation Survey Background at 30 cm gamma-3 SPA (cpm)	External Radiation Survey at 30 cm gamma SPA-3 (cpm)
21-27242	0	0.5	14a	0	0.9	14	54	1324	1179	na[a]	na
21-27243	0	0.5	15a	0	0.2	14	54	1324	1239	na	na
21-27246	0	0.5	18a	0	1.7	14	44	1324	1109	na	na
21-27245	0	0.5	17a	0	11.6	14	40	1324	972	na	na
21-27244	0	0.5	16a	0	1.1	14	16	1324	1021	na	na
21-27249	0	0.5	21a	0	3	14	64	1324	580	na	na
21-27248	0	0.5	20a	0	0.5	14	44	1324	842	na	na
21-27247	0	0.5	19a	0	4.7	14	49	1324	684	na	na
21-27249	2	3	21b	0	0	12	49	1307	731	na	na
21-27244	2	3	16b	0	0.7	12	62	1307	964	na	na
21-27247	2	3	19b	0	1.2	14	24	1324	880	na	na
21-27248	2	3	20b	0	0.6	14	34	1324	1182	na	na
21-27245	2	3	17b	0	2.7	18	18	1281	951	na	na
21-27246	2	3	18b	0	10.7	18	18	1281	679	na	na
21-27242	2	3	14b	0	15.9	18	56	1281	491	na	na
21-27243	2	3	15b	0	3.3	18	18	1281	659	na	na
21-27250	0	0.5	22a	0	0.7	42	23	1617	1590	na	na
21-27250	2	2.5	22b	0	0	na	<MDA[b]	na	<MDA	na	na
21-27251	0	0.5	23a	0	1	42	29	1617	1737	na	na
21-27251	2	2.5	23b	0	0.9	na	<MDA	na	<MDA	na	na
21-27252	0	0.5	24a	0	1.1	42	32	1617	1544	na	na
21-27252	2	2.5	24b	0	0.8	na	<MDA	na	<MDA	na	na
21-27253	0	0.5	25a	0	1.5	42	31	1617	1542	na	na
21-27253	1	1.5	25b	0	20.4	na	0	na	1836	na	na
21-27254	0	0.5	26a	0	0.9	42	36	1617	1426	na	na
21-27254	2	2.5	26b	0	4.5	na	4	na	1419	na	na
21-27255	0	0.5	27a	0	0.8	42	60	1617	1770	na	na

Table 6.2-9 (continued)

Location Number	Sample Top Depth Interval (ft)	Sample Bottom Depth Interval (ft)	Work Plan Location ID	PID Background (ppm)	PID (ppm)	Alpha Background (dpm)	Alpha (dpm)	Beta Background (dpm)	Beta/ Gamma (dpm)	External Radiation Survey Background at 30 cm gamma-3 SPA (cpm)	External Radiation Survey at 30 cm gamma SPA-3 (cpm)
21-27255	2	2.5	27b	0	3.5	na	1	na	1987	na	na
21-27247	0	0.5	19a-1[c]	0	4.7	18	31	1281	426	na	na
21-27255	0	0.5	27a-1	0	0	42	43	1617	1010	na	na
21-27259	10	11	BH-1a	0	0.8	31	16	1763	836	na	na
21-27259	15	16	BH-1b	0	11.8	31	0	1763	681	na	na
21-27259	20	21	BH-1c	0	8.4	31	11	1763	634	na	na
21-27260	0	0.5	BH-2a	0	7	31	16	1763	610	na	na
21-27260	2	3	BH-2b	0	0.2	31	21	1763	461	na	na
21-27260	5	6	BH-2c	0	5.7	31	42	1763	759	na	na
21-27263	3	4	3a	0	0.1	na	6	na	91	na	na
21-27263	5	6	3b	0	0	na	14	na	249	na	na
21-27264	4	5	4a	0	2.5	na	18	na	41	na	na
21-27264	6	7	4b	0	0.1	na	20	na	428	na	na
21-27265	4.25	5.25	5a	0	0.1	na	0	na	177	na	na
21-27265	6.25	7.25	5b	0	0.2	na	14	na	249	na	na
21-27266	4.5	5.5	6a	0	0	na	19	na	139	na	na
21-27266	6.5	7.5	6b	0	0	na	8	na	576	na	na
21-27267	5	6	7a	0	0	na	31	na	483	na	na
21-27267	7	8	7b	0	0.1	na	48	na	641	na	na
21-27268	3.75	4.75	8a	0	7.6	na	37	na	469	na	na
21-27268	5.75	6.75	8b	0	1.9	na	19	na	906	na	na
21-27269	1.25	2.25	1a	0	0.1	na	31	na	720	na	na
21-27269	3.25	4.25	1b	0	0	na	19	na	727	na	na
21-27270	2	3	2a	0	0.2	na	31	na	863	na	na
21-27270	4	5	2b	0	0.4	na	19	na	383	na	na
21-27271	6	7	9a	0	2	31	42	1763	426	na	na
21-27271	8	9	9b	0	2.6	31	16	1763	681	na	na
21-27272	6	7	10a	0	0.5	51	0	1907	232	na	na
21-27272	9	10	10b	0	0	51	1	1907	887	na	na
21-27273	3.5	4	12a	0	0	51	6	1907	470	na	na

Table 6.2-9 (continued)

Location Number	Sample Top Depth Interval (ft)	Sample Bottom Depth Interval (ft)	Work Plan Location ID	PID Background (ppm)	PID (ppm)	Alpha Background (dpm)	Alpha (dpm)	Beta Background (dpm)	Beta/ Gamma (dpm)	External Radiation Survey Background at 30 cm gamma-3 SPA (cpm)	External Radiation Survey at 30 cm gamma SPA-3 (cpm)
21-27273	5	6	12b	0	0	51	14	1907	990	na	na
21-27268	3.75	4.75	8a-1	0	7.6	na	37	na	469	na	na
21-27273	3.5	4	12a-1	0	0	na	6	na	470	na	na
21-27253	1	1.5	25b	0	175	45	17	1831	671	na	na

[a] na = Not available.

[b] MDA = Minimum detectable activity.

[c] # -1 = Duplicate sample.

Table 6.2-10
SWMU 21-024(g) Field-Screening Results

Location Number	Sample Top Depth Interval (ft)	Sample Bottom Depth Interval (ft)	Work Plan Location ID	PID Background (ppm)	PID (ppm)	Alpha Background (dpm)	Alpha (dpm)	Beta Background (dpm)	Beta/ Gamma (dpm)	External Radiation Survey Background at 30 cm gamma-3 SPA (cpm)	External Radiation Survey at 30 cm gamma SPA-3 (cpm)
21-27592	0	0.5	16a	0	1.5	na[a]	42	na	1298	na	na
21-27592	2	2.5	16b	0	1.2	na	49	na	719	na	na
21-27593	0	0.5	17a	0	11.3	na	25	na	1280	na	na
21-27593	2	2.5	17b	0	21.9	na	0	na	1535	na	na
21-27594	0	0.5	18a	0	2.9	30	11	1501	977	na	na
21-27594	2	2.5	18b	0	0.5	30	64	1501	991	na	na
21-27595	0	0.5	19a	0	3.2	na	13	na	444	na	na
21-27595	2	2.5	19b	0	1.4	na	48	na	1460	na	na
21-27596	0	0.5	20a	0	8	30	4	1501	898	na	na
21-27596	2	2.5	20b	0	24.2	na	13	na	1517	na	na
21-27597	0	0.5	21a	0	1.8	30	0	1501	972	na	na
21-27597	2	2.5	21b	0	2	30	0	1501	1222	na	na
21-27598	0	0.5	22a	0	0.2	30	0	1501	729	na	na
21-27598	2	2.5	22b	0	0.1	30	40	1501	1121	na	na
21-27599	0	0.5	23a	0	0.2	30	5	1501	1089	na	na
21-27599	2	2.5	23b	0	0.5	30	33	1501	1398	na	na
21-27600	0	0.5	27a	0	0.3	na	31	na	1012	na	na
21-27600	2	2.5	27b	0	0.3	na	54	na	1292	na	na
21-27601	0	0.5	28a	0	0	na	20	na	968	na	na
21-27601	2	2.5	28b	0	0.2	na	0	na	831	na	na
21-27602	0	0.5	29a	0	0.4	na	32	na	1025	na	na
21-27602	2	2.5	29b	0	0.5	na	31	na	1047	na	na
21-27603	0	0.5	30a	0	0.6	na	40	na	1159	na	na
21-27603	2	2.5	30b	0	0.5	na	58	na	781	na	na
21-27604	0	0.5	31a	0	0.6	na	65	na	1454	na	na
21-27604	2	2.5	31b	0	0.4	na	66	na	725	na	na
21-27605	0	0.5	32a	0	4.2	na	20	na	835	na	na

Table 6.2-10 (continued)

Location Number	Sample Top Depth Interval (ft)	Sample Bottom Depth Interval (ft)	Work Plan Location ID	PID Background (ppm)	PID (ppm)	Alpha Background (dpm)	Alpha (dpm)	Beta Background (dpm)	Beta/ Gamma (dpm)	External Radiation Survey Background at 30 cm gamma-3 SPA (cpm)	External Radiation Survey at 30 cm gamma SPA-3 (cpm)
21-27605	2	2.5	32b	0	2	na	25	na	93	na	na
21-27595	0	0.5	19a-1[b]	0	3.2	na	0	na	544	na	na
21-27606	0	1	BH-4	0	0.2	14.27	21	1316	1101	na	na
21-27606	5	6	BH-4	0	0.1	14.27	21	1316	1473	na	na
21-27606	10	11	BH-4	0	0.2	14.27	9	1316	1255	na	na
21-27607	0	1	BH-3	0	0.7	14.27	51	1316	1248	na	na
21-27607	5	6	BH-3	0	0.2	14.27	51	1316	1431	na	na
21-27607	10	11	BH-3	0	0.4	14.27	45	1316	1529	na	na
21-27608	0	0.5	BH-7	0	0.2	25.1	39	2050	1459	na	na
21-27608	2	3	BH-7	0	1.5	25.1	52	2050	1190	na	na
21-27608	5	6	BH-7	0	0.5	25.1	28	2050	1160	na	na
21-27609	3.2	4.2	BH-1	0	0.1	25	40	1486	952	na	na
21-27609	8.2	9.2	BH-1	0	0.1	25	10	1486	1106	na	na
21-27609	13.2	14.2	BH-1	0	0	25	28	1486	896	na	na
21-27610	0	0.5	BH-8	0	0.3	25.1	25	2050	551	na	na
21-27610	5	6	BH-8	0	0.1	25.1	12	2050	786	na	na
21-27610	10	11	BH-8	0	0.1	25.1	50	2050	874	na	na
21-27611	0	0.5	BH-9	0	0	25	28	1486	637	na	na
21-27611	2	3	BH-9	0	0	25	4	1486	1323	na	na
21-27611	5	6	BH-9	0	0	25	28	1486	1099	na	na
21-27612	0	0.5	33a	0	2	na	25	na	844	na	na
21-27612	2	2.5	33b	0	2.5	na	8	na	899	na	na
21-27613	0	0.5	34a	0	19.7	na	14	na	887	na	na
21-27613	2	2.5	34b	0	3.6	na	0	na	775	na	na
21-27614	1.8	2.8	6a	0	0.3	18	39	1388	724	na	na
21-27614	3.8	4.8	6b	0	0.3	18	39	1388	752	na	na
21-27615	2.5	3.5	5a	0	0.8	36	6	1602	776	na	na
21-27615	4.5	5.5	5b	0	0.9	36	28	1602	586	na	na
21-27616	0	0.5	26a	0	0.4	na	80	na	826	na	na
21-27616	2	3	26b	0	0.2	na	58	na	1114	na	na

Table 6.2-10 (continued)

Location Number	Sample Top Depth Interval (ft)	Sample Bottom Depth Interval (ft)	Work Plan Location ID	PID Background (ppm)	PID (ppm)	Alpha Background (dpm)	Alpha (dpm)	Beta Background (dpm)	Beta/ Gamma (dpm)	External Radiation Survey Background at 30 cm gamma-3 SPA (cpm)	External Radiation Survey at 30 cm gamma SPA-3 (cpm)
21-27617	0	1	24a	0	0.5	na	44	na	951	na	na
21-27617	2	3	24b	0	0.6	na	51	na	1239	na	na
21-27618	0	1	25a	0	1.3	na	15	na	1255	na	na
21-27618	2	3	25b	0	0.7	na	66	na	1261	na	na
21-27619	4	5	12a	0	0.7	na	18	na	623	na	na
21-27619	6	7	12b	0	0.5	na	12	na	693	na	na
21-27620	4.6	5.6	3a	0	1.5	17.26	24	1806	954	na	na
21-27620	6.6	7.6	3b	0	1.7	17.26	24	1806	365	na	na
21-27621	3.6	4.6	4a	0	1.2	17.26	6	1806	954	na	na
21-27621	5.6	6.6	4b	0	0.7	17.26	24	1806	737	na	na
21-27622	4	5	11a	0	0.4	0.6	44	108.5	286	na	na
21-27622	6	7	11b	0	0.8	0.6	32	108.5	657	na	na
21-27623	4	5	10a	0	1.7	18	1	1613	713	na	na
21-27623	6	7	10b	0	1.3	18	20	1613	952	na	na
21-27613	0	0.5	34a-1	0	19.7	na	38	na	1205	na	na
21-27619	4	5	12a	0	0.9	na	18	na	602	na	na
21-27607	0	1	BH-3-1	0	0.7	na	51	na	1248	na	na
21-27625	0	0.5	BH-5	0	0.2	22.3	1	1847	381	na	na
21-27625	5	6	BH-5	0	0.1	22.3	37	1847	858	na	na
21-27625	10	11	BH-5	0	0.1	22.3	43	1847	1250	na	na
21-27626	0	0.5	BH-6	0	3	42.9	0	1678	977	na	na
21-27626	5	6	BH-6	0	0.3	42.9	0	1678	944	na	na
21-27626	10	11	BH-6	0	0	42.9	0	1678	606	na	na
21-27627	10	11	BH-2a	0	256	24.1	54	1784	1283	na	na
21-27627	15	16	BH-2b	0	303	24.1	33	1784	1420	na	na
21-27627	20	21	BH-2c	0	0	24.1	12	1784	1093	na	na
21-27628	0	0.5	13a	0	0	22	29	1847	751	na	na
21-27628	2	3	13b	0	0.3	22	16	1847	824	na	na
21-27629	0	0.5	14a	0	0.5	22.3	19	1847	668	na	na
21-27629	2	3	14b	0	0.3	22.3	7	1847	893	na	na

Table 6.2-10 (continued)

Location Number	Sample Top Depth Interval (ft)	Sample Bottom Depth Interval (ft)	Work Plan Location ID	PID Background (ppm)	PID (ppm)	Alpha Background (dpm)	Alpha (dpm)	Beta Background (dpm)	Beta/ Gamma (dpm)	External Radiation Survey Background at 30 cm gamma-3 SPA (cpm)	External Radiation Survey at 30 cm gamma SPA-3 (cpm)
21-27630	0	0.5	15a	0	24.2	22.3	19	1847	507	na	na
21-27630	2	3	15b	0	2.3	22.3	1	1847	661	na	na
21-27628	0	0.5	13a-1	0	0	na	29	na	751	na	na
21-27596	2	3	20b	0	2.5	29	16	2260	542	na	na

[a] na = Not available.

[b] # -1 = Duplicate sample.

Table 6.2-11
Consolidated Unit 21-024(l)-99 Field-Screening Results

Location Number	Sample Top Depth Interval (ft)	Sample Bottom Depth Interval (ft)	Work Plan Location ID	PID Background (ppm)	PID (ppm)	Alpha Background (dpm)	Alpha (dpm)	Beta Background (dpm)	Beta/ Gamma (dpm)	External Radiation Survey Background at 30 cm gamma-3 SPA (cpm)	External Radiation Survey at 30 cm gamma SPA-3 (cpm)
21-27439	0	0.5	12a	0	0.2	33	84	1821	836	227	na[a]
21-27439	3.5	4	12b	0	0.1	33	86	1821	824	227	na
21-27439	5	5.5	12c	0	0.1	33	69	1821	618	227	na
21-27440	3.5	4	9b	0	0	33	50	1821	868	227	na
21-27440	5	5.5	9c	0	0.1	33	19	1821	200	227	na
21-27441	3.5	4	10b	0	0	33	126	1821	949	227	na
21-27441	5	5.5	10c	0	0.2	33	67	1821	980	227	na
21-27442	3.5	4	11b	0	0.3	33	95	1821	1042	227	na
21-27442	5	5.5	11c	0	0.2	33	73	1821	1148	227	na
21-27443	3.5	4	13b	0	0	33	67	1821	774	227	na
21-27443	5.5	6	13c	0	0.2	na	<MDA[b]	na	<MDA	na	na
21-27514	10	11	BH-1a	0	0.8	12.85	33	1783	766	na	na
21-27514	15	16	BH-1b	0	0.05	12.85	50	1783	742	na	na
21-27514	20	21	BH-1c	0	1	12.85	102	1783	1095	na	na
21-27515	10	11	BH-2a	0	0.3	12.85	67	1783	1036	na	na
21-27515	15	16	BH-2b	0	0.3	12.85	15	1783	1218	na	na
21-27515	20	21	BH-2c	0	0	12.85	38	1783	1024	na	na
21-27516	2	3	BH-3a	0	0.1	12.85	96	1783	619	na	na
21-27516	4	5	BH-3b	0	0.2	12.85	61	1783	942	na	na
21-27516	6	7	BH-3c	0	0.7	12.85	50	1783	807	na	na
21-27517	0	0.5	14a	0	0.2	29	25	1564	1118	na	na
21-25717	2	2.5	14b	0	0.1	29	43	1564	1212	na	na
21-27518	0	0.5	15a	0	0.4	29	28	1564	1081	na	na
21-27518	2	2.5	15b	0	0.1	29	49	1564	1074	na	na
21-27519	0	0.5	16a	0	0	29	36	1564	1099	na	na
21-27519	2	2.5	16b	0	0.1	29	30	1564	925	na	na
21-27520	2	3	1a	0	0.2	0.6	0	103.9	314	na	na

Table 6.2-11 (continued)

Location Number	Sample Top Depth Interval (ft)	Sample Bottom Depth Interval (ft)	Work Plan Location ID	PID Background (ppm)	PID (ppm)	Alpha Background (dpm)	Alpha (dpm)	Beta Background (dpm)	Beta/ Gamma (dpm)	External Radiation Survey Background at 30 cm gamma-3 SPA (cpm)	External Radiation Survey at 30 cm gamma SPA-3 (cpm)
21-27520	4	5	1b	0	0.2	0.6	50	103.9	282	na	na
21-27521	2.5	3.5	2a	0	1.1	12.85	71	1783	401	na	na
21-27521	4.5	5.5	2b	0	5.7	12.85	79	1783	560	na	na
21-27522	5	6	3a	0	0.2	0.6	21	105.5	137	na	na
21-27522	7	8	3b	0	0.3	0.6	27	105.5	417	na	na
21-27523	3	4	4a	0	1	33.1	56	1760	478	na	na
21-27523	5	6	4b	0	0.4	33.1	84	1760	407	na	na
21-27524	2	3	5a	0	0.1	0.6	21	103.9	384	na	na
21-27524	4	5	5b	0	0.1	0.6	38	103.9	341	na	na
21-27525	5	6	6a	0	0.2	0.6	27	103.9	331	na	na
21-27525	7	8	6b	0	0.3	0.6	0	103.9	411	na	na
21-27526	4	5	7a	0	0.4	33.1	159	1760	636	na	na
21-27526	6	7	7b	0	0.3	33.1	27	1760	613	na	na
21-27525	5	6	6a-1[c]	0	3	na	27	na	331	na	na
21-27523	3	4	4a-1	0	1	na	56	na	478	na	na
21-27530	0	0.5	BH-4a	0	0.3	12.85	38	1783	407	na	na
21-27530	2	3	BH-4b	0	0	12.85	56	1783	578	na	na
21-27530	5	6	BH-4c	0	0.1	12.85	56	1783	531	na	na
21-27533	0	0.5	19a	0	4.2	20.7	8	1364	774	na	na
21-27533	2	3	19b	0	2	20.7	48	1364	762	na	na
21-27534	0	0.5	20a	0	0.4	41	15	1562	742	na	na
21-27534	2	3	20b	0	0	41	0	1562	710	na	na
21-27535	0	0.5	21a	0	0.1	41	0	1562	861	na	na
21-27535	2	3	21b	0	0	41	9	1562	969	na	na
21-27536	0	0.5	22a	0	0.2	0.6	55	103.9	444	na	na
21-27536	2	3	22b	0	0	0.6	72	103.9	374	na	na
21-27537	0	0.5	23a	0	0.1	0.6	61	103.9	471	na	na
21-27537	2	3	23b	0	0	0.6	33	103.9	347	na	na
21-27538	0	0.5	24a	0	0.2	20.7	25	1364	779	na	na
21-27538	2	3	24b	0	0	20.7	19	1364	727	na	na

Table 6.2-11 (continued)

Location Number	Sample Top Depth Interval (ft)	Sample Bottom Depth Interval (ft)	Work Plan Location ID	PID Background (ppm)	PID (ppm)	Alpha Background (dpm)	Alpha (dpm)	Beta Background (dpm)	Beta/ Gamma (dpm)	External Radiation Survey Background at 30 cm gamma-3 SPA (cpm)	External Radiation Survey at 30 cm gamma SPA-3 (cpm)
21-27539	2	3	25a	0	0.1	20.7	53	1364	774	na	na
21-27539	5	6	25b	0	0.1	20.7	8	1364	1020	na	na
21-27540	0	0.5	26a	0	0.1	20.7	13	1364	774	na	na
21-27540	2	3	26b	0	0.3	20.7	36	1364	762	na	na
21-27542	0	0.5	18a	0	0	20.7	59	1364	1026	na	na
21-27542	2	3	18b	0	0	20.7	19	1364	1138	na	na
21-27543	0	0.5	17a	0	0.3	20.7	42	1364	1132	na	na
21-27543	2	3	17b	0	0.2	20.7	30	1364	1062	na	na
21-27544	2	3	8a	0	0	20.7	2	1364	703	na	na
21-27544	4	5	8b	0	0	20.7	59	1364	879	na	na
21-27545	3	4	27a	0	0.4	33.1	50	1760	296	na	na
21-27545	5	6	27b	0	1.7	33.1	19	1760	672	na	na
21-27546	1	2	28a	0	0.4	33.1	56	1760	337	na	na
21-27546	4	5	28b	0	0	33.1	33	1760	437	na	na
21-27547	0	0.5	29a	0	0.4	33.1	15	1760	160	na	na
21-27547	2.5	3.5	29b	0	0.4	33.1	44	1760	360	na	na
21-27540	0	0.5	26a-1	0	0.1	na	13	na	774	na	na
21-27530	0	0.5	BH-4a-1	0	0.3	na	38	na	407	na	na
21-27515	15	16	BH-2	0	0	0.2	62	99.6	510	na	na

[a] na = Not available.

[b] MDA = Minimum detectable activity.

[c] #-1 = Duplicate sample.

Table 6.2-12
SWMU 21-024(o) Field-Screening Results

Location Number	Sample Top Depth Interval (ft)	Sample Bottom Depth Interval (ft)	Work Plan Location ID	PID Background (ppm)	PID (ppm)	Alpha Background (dpm)	Alpha (dpm)	Beta Background (dpm)	Beta/ Gamma (dpm)	External Radiation Survey Background at 30 cm gamma-3 SPA (cpm)	External Radiation Survey at 30 cm gamma SPA-3 (cpm)
21-27346	0	0.5	4a	0	0.3	33	61	1821	748	na[a]	na
21-27346	2	2.5	4b	0	1.2	33	100	1821	1452	na	na
21-27347	0	0.5	5a	0	1.4	33	95	1821	729	na	na
21-27347	2	2.5	5b	0	0.7	33	27	1821	1078	na	na
21-27348	0	0.5	6a	0	0.6	33	38	1821	904	na	na
21-27348	2	2.5	6b	0	0.4	33	78	1821	1010	na	na
21-27349	0	0.5	7a	0	0.5	33	33	1821	785	na	na
21-27349	2	2.5	7b	0	0.7	33	61	1821	929	na	na
21-27350	0	0.5	8a	0	0.5	33	94	1821	1041	na	na
21-27350	2	2.5	8b	0	0.6	na	<MDA[b]	na	<MDA	na	na
21-27351	0	0.5	9a	0	0.2	58	3	1714	1688	na	na
21-27351	2	2.5	9b	0	0.3	58	36	1714	1516	na	na
21-27352	0	0.5	10a	0	0.1	58	0	1714	1235	na	na
21-27352	2	2.5	10b	0	0.7	58	25	1714	1135	na	na
21-27353	0	0.5	11a	0	1.1	58	59	1714	1110	na	na
21-27353	2	2.5	11b	0	11.5	58	14	1714	1247	na	na
21-27354	0	0.5	12a	0	1.1	58	19	1714	1110	na	na
21-27354	2	2.5	12b	0	0.5	58	53	1714	1210	na	na
21-27355	0	0.5	13a	0	0.7	58	42	1714	1085	na	na
21-27355	2	2.5	13b	0	14.5	58	53	1714	1210	na	na
21-27356	0	0.5	14a	0	1.8	58	31	1714	1291	na	na
21-27356	2	2.5	14b	0	0.7	58	64	1714	1428	na	na
21-27349	0	0.5	7a-1[c]	0	0.5	33	78	1821	997	na	na
21-27355	0	0.5	13a-1	0	0.7	58	47	1714	1135	na	na
21-27355	2	2.5	13b	0	24.5	20.1	66	1608	976	na	na

[a] na = Not available.

[b] MDA = Minimum detectable activity.

[c] #-1 = Duplicate sample.

Table 6.2-13
Consolidated Unit 21-026(a)-99 Field-Screening Results

Location Number	Sample Top Depth Interval (ft)	Sample Bottom Depth Interval (ft)	Work Plan Location ID	PID Background (ppm)	PID (ppm)	Alpha Background (dpm)	Alpha (dpm)	Beta Background (dpm)	Beta/ Gamma (dpm)	External Radiation Survey Background at 30 cm gamma-3 SPA (cpm)	External Radiation Survey at 30 cm gamma SPA-3 (cpm)
21-27550	0	0.5	BH-1	0	1.6	23	40	1721	1590	na[a]	na
21-27550	4.33	5.33	BH-1	0	0.6	23	61	1721	1125	na	na
21-27550	6.33	7.33	BH-1	0	1.7	23	87	1721	1163	na	na
21-27550	9.33	10.33	BH-1	0	0.4	23	76	1721	1050	na	na
21-27551	10	11	BH-4a	0	0.5	40.9	15	1562	996	na	na
21-27551	15	16	BH-4b	0	0.4	40.9	4	1562	1184	na	na
21-27551	20	21	BH-4c	0	0.6	40.9	6	1562	829	na	na
21-27552	0	0.5	BH-3	0	0.1	16	13	1211	1073	na	na
21-27552	2	3	BH-3	0	0.9	16	19	1211	1150	na	na
21-27552	5	6	BH-3	0	0.4	16	25	1211	1080	na	na
21-27553	0	0.5	BH-2	0	0	16	1	1211	1087	na	na
21-27553	2	3	BH-2	0	0	16	25	1211	1178	na	na
21-27553	5	6	BH-2	0	0	16	1	1211	947	na	na
21-27555	0	0.5	9a	0	0.8	21	0	1411	1145	na	na
21-27755	2	3	9b	0	0.6	21	35	1411	1257	na	na
21-27556	0	0.5	10a	0	0	21	0	1411	939	na	na
21-27556	2	3	10b	0	0	21	23	1411	908	na	na
21-27557	0	0.5	11a	0	0	21	23	1411	883	na	na
21-27557	2	3	11b	0	0	21	34	1411	1320	na	na
21-27558	0	0.5	12a	0	1.5	21	42	1411	1132	na	na
21-27558	2	3	12b	0	11	21	40	1411	981	na	na
21-27554	0	0.5	1a	0	0.3	16.73	31	1140	779	na	na
21-27554	2.5	3.5	1b	0	0	16.73	37	1140	1010	na	na
21-27554	4.5	5.5	1c	0	0.1	16.73	72	1140	1606	na	na
21-27559	0	0.5	4a	0	0	16.73	19	1140	576	na	na
21-27559	2.5	3.5	4b	0	0.2	16.73	25	1140	1403	na	na
21-27559	4.5	5.5	4c	0	0.6	16.73	37	1140	1495	na	na

Table 6.2-13 (continued)

Location Number	Sample Top Depth Interval (ft)	Sample Bottom Depth Interval (ft)	Work Plan Location ID	PID Background (ppm)	PID (ppm)	Alpha Background (dpm)	Alpha (dpm)	Beta Background (dpm)	Beta/ Gamma (dpm)	External Radiation Survey Background at 30 cm gamma-3 SPA (cpm)	External Radiation Survey at 30 cm gamma SPA-3 (cpm)
21-27560	0	0.5	8a	0	0	16	25	1211	877	na	na
21-27560	2	3	8b	0	0.8	16	25	1211	1080	na	na
21-27561	0	0.5	7a	0	0	16	25	1211	1220	na	na
21-27561	2	3	7b	0	1.9	16	37	1211	1508	na	na
21-27562	0	0.5	6a	0	0	16	19	1211	800	na	na
21-27562	2	3	6b	0	0	16	25	1211	1115	na	na
21-27563	0	0.5	5a	0	0.1	16	31	1211	1192	na	na
21-27563	2	3	5b	0	0	16	31	1211	765	na	na
21-27564	9.5	10.5	15a	0	0.7	16.73	25	1140	1262	na	na
21-27564	11.5	12.5	15b	0	7.4	16.73	19	1140	1347	na	na
21-27565	12	13	17a	0	0	17.44	54	1806	514	na	na
21-27565	14	15	17b	0	0	17.44	48	1806	521	na	na
21-27566	12	13	16a	0	0.9	na	28	na	813	na	na
21-27566	14	15	16b	0	0.8	na	10	N/A	400	na	na
21-27568	10	11	14a	0	0.2	40.9	9	1562	920	na	na
21-27568	12	13	14b	0	0.2	40.9	4	1562	1141	na	na
21-27555	0	0.5	9a-1[b]	0	0.8	21	37	1411	1006	na	na
21-27552	0	0.5	BH-3-1	0	0.1	16	7	1211	1248	na	na
21-27566	12	13	16a-1	0	0.9	na	28	na	813	na	na
21-27570	0	0.5	2a	0	0	na	31	na	905	na	na
21-27570	3.5	4.5	2b	0	0	17.44	6	1806	402	na	na
21-27570	5.5	6.5	2c	0	0	17.44	18	1806	703	na	na
21-27571	0	0.5	3a	0	0	17.44	12	1806	171	na	na
21-27571	3.5	4.5	3b	0	0	17.44	24	1806	576	na	na
21-27571	5.5	6.5	3c	0	0	17.44	36	1806	836	na	na
21-27572	0	0.5	BH-5	0	0.2	19.83	29	1256	518	na	na
21-27572	2	3	BH-5	0	0.1	19.83	66	1256	687	na	na
21-27572	5	6	BH-5	0	0.2	19.83	47	1256	544	na	na
21-27573	0	0.5	18a	0	0.2	24	32	1691	596	na	na
21-27573	2	3	18b	0	0	24	32	1691	1263	na	na

Table 6.2-13 (continued)

Location Number	Sample Top Depth Interval (ft)	Sample Bottom Depth Interval (ft)	Work Plan Location ID	PID Background (ppm)	PID (ppm)	Alpha Background (dpm)	Alpha (dpm)	Beta Background (dpm)	Beta/ Gamma (dpm)	External Radiation Survey Background at 30 cm gamma-3 SPA (cpm)	External Radiation Survey at 30 cm gamma SPA-3 (cpm)
21-27574	0	0.5	19a	0	3.1	24	32	1691	336	na	na
21-27574	2	3	19b	0	0	24	32	1691	1224	na	na
21-27575	0	0.5	20a	0	0	24	26	1691	537	na	na
21-27575	2	3	20b	0	0	24	64	1691	1036	na	na
21-27576	0	0.5	21a	0	0	24	32	1691	304	na	na
21-27576	2	3	21b	0	0	24	26	1691	1062	na	na
21-27577	0	0.5	22a	0	0	24	19	1691	291	na	na
21-27577	2	3	22b	0	0	24	38	1691	1095	na	na
21-27578	0	0.5	23a	0	0	24	19	1691	252	na	na
21-27578	2	3	23b	0	0	24	13	1691	809	na	na
21-27579	0	0.5	24a	0	0	24	51	1691	485	na	na
21-27579	2	3	24b	0	0	24	45	1691	485	na	na
21-27580	0	0.5	25a	0	0	24	57	1691	401	na	na
21-27580	2	3	25b	0	0	24	51	1691	758	na	na
21-27581	10	11	13a	0	0.3	27.8	40.9	2020	1562	na	na
21-27581	12	13	13b	0	0.2	27.8	4	2020	974	na	na
21-27579	0	0.5	24a-1	0	0	24	51	1691	485	na	na
21-27581	10	11	13a-1	0	0.3	40.9	0	1562	1562	na	na
21-27558	2	3	12b	0	70.2	39	2	1576	535	na	na

[a] na = Not available.

[b] #-1 = Duplicate sample.

Table 6.2-14
SWMU 21-027(c) Field-Screening Results

Location Number	Sample Top Depth Interval (ft)	Sample Bottom Depth Interval (ft)	Work Plan Location ID	PID Background (ppm)	PID (ppm)	Alpha Background (dpm)	Alpha (dpm)	Beta Background (dpm)	Beta/ Gamma (dpm)	External Radiation Survey Background at 30 cm gamma-3 SPA (cpm)	External Radiation Survey at 30 cm gamma SPA-3 (cpm)
21-27399	3	4	BH-1a	0	30.1	na[a]	0	na	460	na	na
21-27399	5	6	BH-1b	0	20.1	na	18	na	544	na	na
21-27399	8	9	BH-1c	0	39.7	na	8	na	615	na	na
21-27401	0	0.5	4a	0	1.3	na	<MDA[b]	na	<MDA	na	na
21-27401	2	2.5	4b	0	1.1	na	<MDA	na	<MDA	na	na
21-27402	0	0.5	5a	0	0.4	na	<MDA	na	<MDA	na	na
21-27402	2	2.5	5b	0	5.7	na	<MDA	na	<MDA	na	na
21-27403	0	0.5	6a	0	1.5	na	<MDA	na	<MDA	na	na
21-27403	2	2.5	6b	0	1.7	na	<MDA	na	<MDA	na	na
21-27404	0	0.5	7a	0	1.7	na	<MDA	na	<MDA	na	na
21-27404	2	2.5	7b	0	1.6	na	<MDA	na	<MDA	na	na
21-27405	0	0.5	8a	0	1	na	<MDA	na	<MDA	na	na
21-27405	2	2.5	8b	0	0.5	na	<MDA	na	<MDA	na	na
21-27406	0	0.5	9a	0	40.9	na	<MDA	na	<MDA	na	na
21-27406	2	2.5	9b	0	17.9	na	<MDA	na	<MDA	na	na
21-27407	0	0.5	10a	0	1.5	na	<MDA	na	<MDA	na	na
21-27407	2	2.5	10b	0	5	na	<MDA	na	<MDA	na	na
21-27408	0	0.5	11a	0	0.7	na	<MDA	na	<MDA	na	na
21-27408	2	2.5	11b	0	0.6	na	<MDA	na	<MDA	na	na
21-27409	0	0.5	12a	0	0.6	na	<MDA	na	<MDA	na	na
21-27409	2	2.5	12b	0	0.7	na	<MDA	na	<MDA	na	na
21-27410	0	0.5	13a	0	0.2	na	<MDA	na	<MDA	na	na
21-27410	2	2.5	13b	0	1.7	na	<MDA	na	<MDA	na	na
21-24711	0	0.5	14a	0	43.2	na	<MDA	na	<MDA	na	na
21-27411	2	2.5	14b	0	4.7	na	<MDA	na	<MDA	na	na
21-27412	0	0.5	15a	0	1.7	na	<MDA	na	<MDA	na	na
21-27412	2	2.5	15b	0	1.4	na	<MDA	na	<MDA	na	na
21-27413	2.5	3.5	1a	0	0	42	10	2110	277	na	na

Table 6.2-14 (continued)

Location Number	Sample Top Depth Interval (ft)	Sample Bottom Depth Interval (ft)	Work Plan Location ID	PID Background (ppm)	PID (ppm)	Alpha Background (dpm)	Alpha (dpm)	Beta Background (dpm)	Beta/ Gamma (dpm)	External Radiation Survey Background at 30 cm gamma-3 SPA (cpm)	External Radiation Survey at 30 cm gamma SPA-3 (cpm)
21-27413	4.5	5.5	1b	0	0	42	0	2110	271	na	na
21-27414	0	0.5	2a	0	0.2	na	55	na	591	na	na
21-27414	3	4	2b	0	2.9	na	34	na	199	na	na
21-27415	0	0.5	3a	0	0.6	na	18	na	246	na	na
21-27415	3	4	3b	0	2.8	na	29	na	306	na	na
21-27414	5	6	2c	0	3.1	na	0	na	478	na	na
21-27415	5	6	3c	0	8.1	na	0	na	437	na	na
21-27403	0	0.5	6a-1[c]	0	1.5	na	<MDA	na	<MDA	na	na
21-27412	0	0.5	15a-1	0	1.7	na	<MDA	na	<MDA	na	na
21-27411	0	0.5	14a	0	0.1	28.4	18	1553	1502	na	na

[a] na = Not available.

[b] MDA = Minimum detectable activity.

[c] #-1 = Duplicate sample.

Table 6.3-1
Investigation Site COPCs

AOC 21-002(b)	Consolidated Unit 21-003-99	SWMU 21-009	SWMU 21-013(c)	SWMU 21-024(c)
Acetone	Acenaphthene	Aluminum	Acenaphthene	Acenaphthylene
Aluminum	Acetone	Anthracene	Aluminum	Aluminum
Americium-241	Aluminum	Barium	Anthracene	Americium-241
Anthracene	Americium-241	Benzo(a)pyrene	Aroclor-1254	Anthracene
Arsenic	Anthracene	Benzo(b)fluoranthene	Aroclor-1260	Aroclor-1242
Barium	Aroclor-1242	Benzo(k)fluoranthene	Arsenic	Aroclor-1254
Benzo(a)anthracene	Aroclor-1248	Chloroform	Barium	Aroclor-1260
Benzo(a)pyrene	Aroclor-1254	Chromium	Benzo(a)anthracene	Arsenic
Benzo(b)fluoranthene	Aroclor-1260	Cyanide (Total)	Benzo(a)pyrene	Barium
Benzo(g,h,i)perylene	Arsenic	Dichloroethene[1,1-]	Benzo(b)fluoranthene	Benzene
Benzo(k)fluoranthene	Barium	Fluoranthene	Benzo(g,h,i)perylene	Benzo(a)anthracene
Bis(2-ethylhexyl)phthalate	Benzene	Lead	Benzo(k)fluoranthene	Benzo(a)pyrene
Cadmium	Benzo(a)anthracene	Nitrate	Benzoic Acid	Benzo(b)fluoranthene
Chromium	Benzo(a)pyrene	Perchlorate	Bis(2-ethylhexyl)phthalate	Benzo(k)fluoranthene
Chrysene	Benzo(b)fluoranthene	Pyrene	Cadmium	Bis(2-ethylhexyl)phthalate
Cyanide (Total)	Benzoic Acid	Selenium	Chloroform	Cadmium
Dimethyl Phthalate	Benzyl Alcohol	Tetrachloroethene	Chromium	Carbon Disulfide
Di-n-butyl phthalate	Beryllium	Zinc	Chrysene	Cesium-137
Fluoranthene	Bis(2-ethylhexyl)phthalate	Americium-241	Dibenzofuran	Chlorobenzene
Indeno(1,2,3-cd)pyrene	Butylbenzene[sec-]	Plutonium-239	Di-n-butyl phthalate	Chloroform
Lead	Cesium-134	Tritium	Fluoranthene	Chromium
Methyl-2-pentanone[4-]	Cesium-137	— *	Fluorene	Chrysene
Methylene Chloride	Chloroform	—	Indeno(1,2,3-cd)pyrene	Copper
Nitrate	Chromium	—	Lead	Cyanide (Total)

Table 6.3-1 (continued)

AOC 21-002(b)	Consolidated Unit 21-003-99	SWMU 21-009	SWMU 21-013(c)	SWMU 21-024(c)
Perchlorate	Chrysene	—	Mercury	Dichlorobenzene[1,4-]
Phenanthrene	Cobalt	—	Methylnaphthalene[2-]	Dichloroethane[1,1-]
Plutonium-238	Copper	—	Nickel	Di-n-butylphthalate
Plutonium-239	Cyanide (Total)	—	Nitrate	Ethylbenzene
Pyrene	Dichlorobenzene[1,3-]	—	Perchlorate	Fluoranthene
Selenium	Dichloroethene[1,1-]	—	Phenanthrene	Hexachlorobenzene
Silver	Di-n-butylphthalate	—	Pyrene	Isopropyltoluene[4-]
Tritium	Ethylbenzene	—	Selenium	Lead
Xylene[1,3 and 1,4]	Fluoranthene	—	Thallium	Mercury
Zinc	Iron	—	Toluene	Methylene Chloride
—	Isopropyltoluene[4-]	—	Trichlorofluoromethane	Nickel
—	Lead	—	Uranium	Nitrate
—	Mercury	—	Vanadium	Perchlorate
—	Methylene Chloride	—	Xylene (Total)	Phenanthrene
—	Nickel	—	Americium-241	Plutonium-238
—	Nitrate	—	Cesium-137	Plutonium-239
—	Perchlorate	—	Plutonium-239	Propylbenzene[1-]
—	Phenanthrene	—	Strontium-90	Pyrene
—	Plutonium-238	—	Tritium	Selenium
—	Plutonium-239	—	Uranium-235	Silver
—	Pyrene	—	—	Styrene
—	Selenium	—	—	Tetrachloroethene
—	Strontium-90	—	—	Toluene
—	Styrene	—	—	Trichloroethene
—	Tetrachloroethene	—	—	Trimethylbenzene[1,2,4-]
—	Thallium	—	—	Trimethylbenzene[1,3,5-]
—	Toluene	—	—	Tritium

Table 6.3-1 (continued)

AOC 21-002(b)	Consolidated Unit 21-003-99	SWMU 21-009	SWMU 21-013(c)	SWMU 21-024(c)
—	Trichloroethene	—	—	Uranium
—	Tritium	—	—	Uranium-234
—	Uranium	—	—	Uranium-235
—	Uranium-234	—	—	Uranium-238
—	Uranium-235	—	—	Vanadium
—	Uranium-238	—	—	Xylene[1,2-]
—	Vanadium	—	—	Xylene[1,3-]+Xylene[1,4-]
—	Xylene[1,2-]	—	—	Zinc
—	Xylene[1,3 and 1,4]	—	—	—
—	Zinc	—	—	—

* — = Not a COPC.

Table 6.3-2
Inorganic Chemicals above BVs in Soil at AOC 21-002(b)

Sample ID	Location ID	Depth (ft)	Media	Cadmium	Calcium	Chromium	Cyanide (Total)	Lead	Nitrate	Perchlorate	Selenium	Silver	Uranium	Zinc
Soil BV [a]				**0.4**	**6120**	**19.3**	**0.5**	**22.3**	**na [b]**	**na**	**1.52**	**1**	**1.82**	**48.8**
Residential SSL [c]				**39**	**na**	**2100 [d]**	**1220**	**400**	**100000**	**55 [d]**	**391**	**391**	**16 [e]**	**23500**
Industrial SSL [c]				**564**	**na**	**5000 [d]**	**13700**	**800**	**100000**	**790 [d]**	**5680**	**5680**	**200 [e]**	**100000**
Construction SSL [c]				**154**	**na**	**26.1**	**4760**	**800**	**100000**	**na**	**1550**	**1550**	**na**	**92900**
RE21-06-68368	21-25679	0.0–0.5	Soil	0.685	8590 (J)	28.6	1.14	140	4.68 (J-)	— [f]	1.74 (U)	2.15	—	195
RE21-06-68370	21-25680	0.0–0.5	Soil	0.497 (J)	—	—	0.913	66.4	7.74 (J-)	—	1.64 (U)	—	—	93.5
RE21-06-68373	21-25681	0.0–0.5	Soil	0.474 (J)	—	—	—	40.6	2.68 (J-)	—	1.67 (U)	—	2.29 (J)	75.3
RE21-06-68375	21-25682	0.0–0.5	Soil	—	—	—	—	29.9	2.19 (J-)	—	1.71 (U)	—	—	48.9
RE21-06-68378	21-25683	0.0–0.5	Soil	0.984	—	—	1.49	267	10.1 (J-)	0.00127 (J)	1.7 (U)	—	—	262
RE21-06-68380	21-25684	0.0–0.5	Soil	0.494 (J)	—	—	—	63.6	4.36 (J-)	—	1.67 (U)	—	—	88.1
RE21-06-68383	21-25685	0.0–0.5	Soil	0.523 (J)	—	—	—	28.9	1.71 (J-)	—	1.62 (U)	—	—	67.5
RE21-06-68385	21-25686	0.0–0.5	Soil	—	—	—	—	—	—	—	1.58 (U)	—	—	—
RE21-06-68388	21-25687	0.0–0.5	Soil	0.891	—	—	—	451	1.87 (J-)	0.000785 (J)	1.6 (U)	—	—	221
RE21-06-68390	21-25688	0.0–0.5	Soil	—	—	—	—	—	13.8	—	1.81 (U)	—	—	—
RE21-06-68396	21-25689	0.0–0.5	Soil	0.557 (U)	—	—	—	58.4 (J-)	1.71	—	8.27	—	—	61.8
RE21-06-68398	21-25690	0.0–0.5	Soil	0.52 (U)	—	—	—	—	0.726 (J)	—	3.12	—	—	—
RE21-06-68400	21-25691	0.0–0.5	Soil	0.531 (U)	—	—	—	—	1.64	—	7.21	—	—	—
RE21-06-68402	21-25692	0.0–0.5	Soil	0.583 (U)	—	—	—	69.9 (J-)	3.75	—	7.35	—	—	100
RE21-06-68404	21-25693	0.0–0.5	Soil	0.573 (U)	—	—	0.749	155 (J-)	10.6	0.000862 (J)	6.58	—	—	182
RE21-06-68406	21-25694	0.0–0.5	Soil	0.566 (U)	—	—	—	66.9 (J-)	3.29	—	6.91	—	—	73.1

Table 6.3-2 (continued)

Sample ID	Location ID	Depth (ft)	Media	Cadmium	Calcium	Chromium	Cyanide (Total)	Lead	Nitrate	Perchlorate	Selenium	Silver	Uranium	Zinc
Soil BV [a]				**0.4**	**6120**	**19.3**	**0.5**	**22.3**	**na [b]**	**na**	**1.52**	**1**	**1.82**	**48.8**
Residential SSL [c]				**39**	**na**	**2100 [d]**	**1220**	**400**	**100000**	**55 [d]**	**391**	**391**	**16 [e]**	**23500**
Industrial SSL [c]				**564**	**na**	**5000 [d]**	**13700**	**800**	**100000**	**790 [d]**	**5680**	**5680**	**200 [e]**	**100000**
Construction SSL [c]				**154**	**na**	**26.1**	**4760**	**800**	**100000**	**na**	**1550**	**1550**	**na**	**92900**
RE21-06-68408	21-25695	0.0–0.5	Soil	0.546 (U)	—	—	—	25.7 (J-)	—	—	5.85	—	—	—
RE21-06-68410	21-25696	0.0–0.5	Soil	0.524 (U)	—	—	—	36.7 (J-)	0.75 (J)	—	7.69	—	—	55.7

Note: Units are mg/kg.

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

[b] na = Not available.

[c] SSLs from NMED (2006, 092513).

[d] Value from EPA Region 6 (2007, 095866).

[e] Value from EPA Region 9 (http://www.epa.gov/region9/waste/sfund/prg/files/04prgtable.pdf).

[f] — = Not detected or not detected above BV.

Table 6.3-3
Inorganic Chemicals above BVs in Tuff at AOC 21-002(b)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Arsenic	Barium	Cadmium	Calcium	Chromium	Copper	Cyanide (Total)	Lead	Magnesium	Nitrate	Perchlorate	Selenium
Qbt 2,3,4 BV [a]				**7340**	**2.79**	**46**	**1.63**	**2200**	**7.14**	**4.66**	**0.5**	**11.2**	**1690**	**na [b]**	**na**	**0.3**
Residential SSL [c]				**77800**	**3.9**	**15600**	**39**	**na**	**2100 [d]**	**3130**	**1220**	**400**	**n/a**	**100000**	**55 [d]**	**391**
Industrial SSL [c]				**100000**	**17.7**	**100000**	**564**	**na**	**5000 [d]**	**45400**	**13700**	**800**	**n/a**	**100000**	**790 [d]**	**5680**
Construction SSL [c]				**14400**	**85.2**	**60200**	**154**	**na**	**26.1**	**12400**	**4760**	**800**	**n/a**	**100000**	**na**	**1550**
RE21-06-68369	21-25679	2.5–3.0	Tuff	10400 (J+)	2.93	82.3	— [e]	—	11.3	—	—	—	—	1.17 (J-)	—	1.54 (U)
RE21-06-68371	21-25680	2.5–3.0	Tuff	7390 (J+)	3.38	—	—	—	17.2	—	—	—	—	—	—	1.6 (U)
RE21-06-68374	21-25681	2.5–3.0	Tuff	—	3.3	—	—	—	19.7	—	—	—	—	—	—	1.54 (U)
RE21-06-68376	21-25682	2.5–3.0	Tuff	12500 (J+)	3.55	138	—	2760 (J)	12.2	—	—	—	1880	—	0.000696 (J)	1.64 (U)
RE21-06-68379	21-25683	2.5–3.0	Tuff	—	—	—	—	—	7.55	—	—	—	—	1.37 (J-)	—	1.56 (U)
RE21-06-68381	21-25684	2.5–3.0	Tuff	7590 (J+)	—	75.2	—	—	15.4	—	—	—	—	—	—	1.6 (U)
RE21-06-68384	21-25685	2.5–3.0	Tuff	—	9.49	—	—	—	15.4	—	—	14.9	—	—	—	1.59 (U)
RE21-06-68386	21-25686	2.5–3.0	Tuff	—	—	58.6	—	—	25.1	—	—	—	—	—	—	1.61 (U)
RE21-06-68389	21-25687	2.5–3.0	Tuff	11000 (J+)	—	67.1	—	—	22.5	—	—	—	1730	—	—	1.66 (U)
RE21-06-68391	21-25688	2.5–3.0	Tuff	—	—	79.8	—	3810 (J)	9.06	—	—	—	—	2.19	—	1.59 (U)
RE21-06-68397	21-25689	2.5–3.0	Tuff	12700	—	61.7	2.62 (U)	—	10.6	—	0.547	—	1990 (J+)	0.77 (J)	—	6.93
RE21-06-68399	21-25690	2.5–3.0	Tuff	7390	3.06	—	—	—	20.5	—	—	—	—	0.761 (J)	0.00125 (J)	4.81
RE21-06-68401	21-25691	2.5–3.0	Tuff	—	—	—	—	—	8.69	—	—	—	—	0.753 (J)	—	2.3
RE21-06-68403	21-25692	2.5–3.0	Tuff	—	—	—	—	—	15.9	—	—	—	—	0.953 (J)	—	3.38
RE21-06-68405	21-25693	2.5–3.0	Tuff	8930	4.87	61.4	—	—	13.2	—	—	20.4 (J-)	—	0.751 (J)	—	6
RE21-06-68407	21-25694	2.5–3.0	Tuff	—	—	—	—	—	18.1	—	—	—	—	0.762 (J)	—	3.6
RE21-06-68409	21-25695	2.5–3.0	Tuff	—	3.43	—	—	—	10.8	—	—	—	—	—	—	3.9
RE21-06-68411	21-25696	2.5–3.0	Tuff	13600	3.26	146	2.69 (U)	2500	13.1	4.8	—	16.6 (J-)	2420 (J+)	—	0.00114 (J)	8.01

Note: Units are mg/kg.
[a] BVs from LANL (1998, 059730).
[b] na = Not available.
[c] SSLs from NMED (2006, 092513).
[d] Value from EPA Region 6 (2007, 095866).
[e] — = Not detected or not detected above BV.

Table 6.3-4
Organic Chemicals Detected in Soil at AOC 21-002(b)

Sample ID	Location ID	Depth (ft)	Media	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Bis(2-ethylhexyl) phthalate	Chrysene	Dimethyl Phthalate	Di-n-butylphthalate	Fluoranthene	Indeno(1,2,3-cd) pyrene	Phenanthrene	Pyrene
Residential SSL [a]				**22000**	**6.21**	**0.621**	**6.21**	**2290[b]**	**62.1**	**347**	**615**	**100000**	**6110**	**2290**	**6.21**	**1830**	**2290**
Industrial SSL [a]				**100000**	**23.4**	**2.34**	**23.4**	**30900[b]**	**234**	**1370**	**2310**	**100000**	**68400**	**24400**	**23.4**	**20500**	**30900**
Construction SSL[a]				**86000**	**212**	**21.2**	**212**	**9010[b]**	**2120**	**4660**	**21200**	**100000**	**23300**	**8730**	**212**	**6990**	**9010**
RE21-06-68368	21-25679	0.0–0.5	Soil	—[c]	0.0654	0.076 (J)	0.152 (J)	—	—	—	—	—	—	0.06	0.144 (J)	0.0329 (J)	0.0659
RE21-06-68373	21-25681	0.0–0.5	Soil	0.0075 (J)	—	—	—	—	0.41	—	0.174	0.12 (J)	0.0433 (J)	0.119	—	0.0368 (J)	0.116
RE21-06-68375	21-25682	0.0–0.5	Soil	0.0076 (J)	—	0.0627	0.155	0.139	—	—	0.0544	—	—	0.0363 (J)	0.14	—	0.0287 (J)
RE21-06-68378	21-25683	0.0–0.5	Soil	—	—	—	—	—	—	—	0.0388	—	—	0.0421	—	—	0.0471
RE21-06-68380	21-25684	0.0–0.5	Soil	—	—	—	—	—	0.0625	—	0.0352 (J)	—	—	0.0534	—	—	0.0474
RE21-06-68383	21-25685	0.0–0.5	Soil	—	—	—	—	—	—	—	0.052	—	—	0.0403	—	—	—
RE21-06-68388	21-25687	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	0.0224 (J)	—	0.0124 (J)	0.0218 (J)
RE21-06-68396	21-25689	0.0–0.5	Soil	—	—	—	—	—	—	0.795	—	—	—	0.0909 (J)	—	—	0.0745 (J)
RE21-06-68398	21-25690	0.0–0.5	Soil	0.0149 (J)	—	—	0.0559	—	—	—	—	—	—	0.0336 (J)	—	—	0.0292 (J)
RE21-06-68400	21-25691	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	0.0231 (J)	—	—	0.0168 (J)
RE21-06-68402	21-25692	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	0.47 (J)	0.0686 (J)	—	—	0.0767 (J)
RE21-06-68404	21-25693	0.0–0.5	Soil	0.00992 (J)	—	—	0.172 (J)	—	0.0757 (J)	—	—	—	—	0.143	—	—	0.155
RE21-06-68406	21-25694	0.0–0.5	Soil	—	—	—	0.358	—	—	—	—	—	—	0.118 (J)	—	—	0.102 (J)
RE21-06-68408	21-25695	0.0–0.5	Soil	—	—	—	0.073 (J)	—	—	1.99	—	—	—	0.0164 (J)	—	—	0.0181 (J)
RE21-06-68410	21-25696	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	0.05 (J)	—	—	—

Note: Units are mg/kg.
[a] SSLs from NMED (2006, 092513).
[b] Pyrene used as a surrogate based on structural similarity.
[c] — = Not detected.

Table 6.3-5
Organic Chemicals Detected in Tuff at AOC 21-002(b)

Sample ID	Location ID	Depth (ft)	Media	Acetone	Aroclor-1254	Aroclor-1260	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Chrysene	Fluoranthene
Residential SSL[a]				**28100**	**1.12**	**1.12**	**0.621**	**6.21**	**2290[b]**	**615**	**2290**
Industrial SSL[a]				**100000**	**8.26**	**8.26**	**2.34**	**23.4**	**30900[b]**	**2310**	**24400**
Construction SSL[a]				**98500**	**4.28**	**4.28**	**21.2**	**212**	**9010[b]**	**21200**	**8730**
RE21-06-68369	21-25679	2.5–3.0	Tuff	0.00598 (J)	0.0418	0.017	0.0807	0.335	0.172	0.099	0.0637
RE21-06-68371	21-25680	2.5–3.0	Tuff	0.0123 (J)	—[c]	—	—	—	—	—	—
RE21-06-68379	21-25683	2.5–3.0	Tuff	—	0.0394	0.0148	—	—	—	—	—

Table 6.3-5 (continued)

Sample ID	Location ID	Depth (ft)	Media	Heptachlorodibenzodioxin [1,2,3,4,6,7,8-]	Heptachlorodibenzofuran [1,2,3,4,6,7,8-]	Hexachlorodibenzofuran [1,2,3,4,7,8-]	Hexachlorodibenzofuran [1,2,3,6,7,8-]	Hexachlorodibenzofuran [2,3,4,6,7,8-]	Indeno(1,2,3-cd)pyrene	Methyl-2-pentanone[4-]	Methylene Chloride
Residential SSL[a]				**na [d]**	**na**	**na**	**na**	**na**	**6.21**	**5510**	**182**
Industrial SSL [a]				**na**	**na**	**na**	**na**	**na**	**23.4**	**7010**	**490**
Construction SSL [a]				**na**	**na**	**na**	**na**	**na**	**212**	**7010**	**2630**
RE21-06-68369	21-25679	2.5–3.0	Tuff	2.63E-06	1.07E-06 (J)	1.96E-07	1.24E-07 (J)	9.43E-08 (J)	0.166	—	0.00531 (J)
RE21-06-68371	21-25680	2.5–3.0	Tuff	—	—	—	—	—	—	0.00171 (J)	0.00547 (J)
RE21-06-68379	21-25683	2.5–3.0	Tuff	—	—	—	—	—	—	—	—

Table 6.3-5 (continued)

Sample ID	Location ID	Depth (ft)	Media	Octachlorodibenzodioxin [1,2,3,4,6,7,8,9-]	Octachlorodibenzofuran [1,2,3,4,6,7,8,9-]	Pentachlorodibenzodioxin [1,2,3,7,8-]	Pentachlorodibenzofuran [2,3,4,7,8-]	Pyrene	Tetrachlorodibenzofuran [2,3,7,8-]	Xylene[1,3 and 1,4]
Residential SSL[a]				**na**	**na**	**na**	**na**	**2290**	**na**	**82**
Industrial SSL [a]				**na**	**na**	**na**	**na**	**30900**	**na**	**82**
Construction SSL [a]				**na**	**na**	**na**	**na**	**9010**	**na**	**82**
RE21-06-68369	21-25679	2.5–3.0	Tuff	2.5E-05	2.78E-06 (J)	8.52E-08 (J)	2.04E-07 (J)	0.066	4.66E-07 (J)	0.000502 (J)
RE21-06-68371	21-25680	2.5–3.0	Tuff	—	—	—	—	—	—	—
RE21-06-68379	21-25683	2.5–3.0	Tuff	—	—	—	—	—	—	—

Note: Units are mg/kg.

[a] SSLs from NMED (2006, 092513).

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

[c] — = Not detected.

[d] na = Not available.

Table 6.3-6
Radionuclides Detected or Detected above FVs in Soil at AOC 21-002(b)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Plutonium-238	Plutonium-239	Tritium
Soil FV [a]				**0.013**	**0.023**	**0.054**	**na[b]**
Residential SAL[c]				**30**	**37**	**33**	**750**
Industrial SAL[c]				**180**	**240**	**210**	**4.4E+05**
Construction Worker SAL[c]				**34**	**40**	**36**	**3.2E+05**
RE21-06-68368	21-25679	0.0–0.5	Soil	0.0478	— [d]	1.66	—
RE21-06-68370	21-25680	0.0–0.5	Soil	0.0491	0.0244	0.553	0.0305
RE21-06-68373	21-25681	0.0–0.5	Soil	—	0.0849	0.354	—
RE21-06-68375	21-25682	0.0–0.5	Soil	0.0426	—	1.15	—
RE21-06-68378	21-25683	0.0–0.5	Soil	0.1	0.0356	2.9	0.0423
RE21-06-68380	21-25684	0.0–0.5	Soil	0.0383	0.027	0.478	—
RE21-06-68383	21-25685	0.0–0.5	Soil	0.0371	0.14	0.228	—
RE21-06-68385	21-25686	0.0–0.5	Soil	—	0.0523	—	—
RE21-06-68388	21-25687	0.0–0.5	Soil	—	—	0.352	—
RE21-06-68390	21-25688	0.0–0.5	Soil	0.0457	—	0.589 (J-)	—
RE21-06-68396	21-25689	0.0–0.5	Soil	—	—	0.474 (J-)	—
RE21-06-68398	21-25690	0.0–0.5	Soil	0.0996	—	0.595 (J-)	—
RE21-06-68400	21-25691	0.0–0.5	Soil	—	—	0.411 (J-)	—
RE21-06-68402	21-25692	0.0–0.5	Soil	—	—	1.6 (J-)	—
RE21-06-68404	21-25693	0.0–0.5	Soil	0.133	0.0319	5.2 (J-)	—
RE21-06-68406	21-25694	0.0–0.5	Soil	0.0851	—	1.34 (J-)	—
RE21-06-68408	21-25695	0.0–0.5	Soil	—	—	0.195 (J-)	—
RE21-06-68410	21-25696	0.0–0.5	Soil	—	—	0.66 (J-)	—

Note: Units are pCi/g.

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

[b] na = Not available.

[c] SALs from LANL (2005, 088493).

[d] — = Not detected or not detected above FV.

Table 6.3-7
Radionuclides Detected in Tuff at AOC 21-002(b)

Sample ID	Location ID	Depth (ft)	Media	Plutonium-238	Plutonium-239	Tritium
Qbt 2,3,4 FV [a]				**na [b]**	**na**	**na**
Residential SAL[c]				**37**	**33**	**750**
Industrial SAL [c]				**240**	**210**	**4.4E+05**
Construction Worker SAL [c]				**40**	**36**	**3.2E+05**
RE21-06-68369	21-25679	2.5–3.0	Tuff	— [d]	0.0751	0.0180
RE21-06-68371	21-25680	2.5–3.0	Tuff	—	—	0.0205
RE21-06-68379	21-25683	2.5–3.0	Tuff	—	0.0256	—
RE21-06-68381	21-25684	2.5–3.0	Tuff	—	—	0.0257
RE21-06-68384	21-25685	2.5–3.0	Tuff	0.103	—	0.0248
RE21-06-68386	21-25686	2.5–3.0	Tuff	0.0596	—	—
RE21-06-68389	21-25687	2.5–3.0	Tuff	—	—	0.0387
RE21-06-68399	21-25690	2.5–3.0	Tuff	—	—	0.0232
RE21-06-68401	21-25691	2.5–3.0	Tuff	—	0.0585 (J-)	—
RE21-06-68403	21-25692	2.5–3.0	Tuff	—	—	0.0153
RE21-06-68405	21-25693	2.5–3.0	Tuff	—	0.0518 (J-)	—
RE21-06-68407	21-25694	2.5–3.0	Tuff	—	—	0.0146
RE21-06-68409	21-25695	2.5–3.0	Tuff	—	0.0419 (J-)	0.0111
RE21-06-68411	21-25696	2.5–3.0	Tuff	—	0.0229 (J-)	0.0183

Note: Units are pCi/g.

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

[b] na = Not available.

[c] SALs from LANL (2005, 088493).

[d] — = Not detected.

Table 6.3-8
Inorganic Chemicals above BVs in Soil at Consolidated Unit 21-003-99

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Cadmium	Calcium	Chromium	Copper	Lead	Mercury	Nickel	Nitrate	Perchlorate	Selenium	Thallium	Uranium	Zinc
Soil BV [a]				**29200**	**0.4**	**6120**	**19.3**	**14.7**	**22.3**	**0.1**	**15.4**	**na [b]**	**na**	**1.52**	**0.73**	**1.82**	**48.8**
Residential SSL [c]				**77800**	**39**	**na**	**2100 [d]**	**3130**	**400**	**23 [d]**	**1560**	**100000**	**55 [d]**	**391**	**5.16**	**16 [e]**	**23500**
Industrial SSL [c]				**100000**	**564**	**na**	**5000 [d]**	**45400**	**800**	**610 [d]**	**22700**	**100000**	**790 [d]**	**5680**	**74.9**	**200 [e]**	**100000**
Construction SSL [c]				**14400**	**154**	**na**	**26.1**	**12400**	**800**	**927**	**6190**	**100000**	**na**	**1550**	**20.4**	**na**	**92900**
AAB8961 [f]	21-01884	0.0–0.5	Soil	— [g]	—	—	—	118	30.6	—	—	—	—	—	0.87 (U)	4.01 (J)	109
AAB8966	21-01885	0.0–0.5	Soil	—	—	—	—	17.8	—	—	—	—	—	—	2.6	3.66 (J)	52.6
AAB8971	21-01886	0.0–0.5	Soil	—	—	—	—	21.2	43.7	0.24 (J-)	—	—	—	—	0.87 (U)	4.22 (J)	72.7
AAB8976	21-01887	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	—	0.85 (U)	—	—
AAB8981	21-01888	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	—	0.84 (U)	2.09 (J)	—
AAB8983	21-01888	1.0–1.5	Soil	—	—	—	—	—	—	—	—	—	—	—	0.87 (U)	—	—
AAB8986	21-01889	0.0–0.5	Soil	—	0.47 (J)	6740	—	16.8	37.2	—	—	—	—	—	0.88 (U)	7.66 (J)	86.7
AAB8991	21-01890	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	—	0.84 (U)	2.04 (J)	—
AAB8996	21-01891	0.0–0.5	Soil	—	—	7150	—	—	—	—	—	—	—	—	0.85 (U)	—	54.5
AAB8998	21-01891	1.0–1.5	Soil	—	—	—	—	—	—	—	—	—	—	—	0.88 (U)	—	—
AAB9001	21-01892	0.0–0.5	Soil	—	—	—	—	—	—	0.32 (J-)	—	—	—	—	0.84 (U)	—	—
AAB9003	21-01892	1.0–1.5	Soil	—	—	—	—	—	—	0.37 (J-)	—	—	—	—	0.85 (U)	1.88 (J)	—
AAB9005	21-01892	1.5–2.0	Soil	—	—	—	—	—	—	0.21 (J-)	—	—	—	—	0.85 (U)	1.85 (J)	—
RE21-06-68434	21-25704	0.0–0.5	Soil	—	—	—	—	—	—	—	—	4.79	—	1.59 (U)	—	—	—
RE21-06-68435	21-25704	0.5–1.0	Soil	—	—	—	23.5	—	—	—	—	1.85	—	1.61 (U)	—	—	—
RE21-06-68436	21-25704	1.5–2.0	Soil	—	—	—	39.8	—	—	—	—	4.86	—	1.56 (U)	—	—	—
RE21-06-68437	21-25705	0.0–0.5	Soil	—	1.64	—	—	38.8	30.6 (J)	0.495 (J-)	—	3.1	—	1.54 (U)	—	—	194
RE21-06-68438	21-25705	0.5–1.0	Soil	—	0.451 (J)	—	—	—	—	0.29 (J-)	—	1.43 (J-)	—	1.65 (U)	—	—	53.1
RE21-06-68439	21-25705	1.5–2.0	Soil	—	—	—	21.5	—	—	—	—	1.75 (J-)	—	1.62 (U)	—	—	—
RE21-06-68440	21-25706	0.0–0.5	Soil	—	—	—	—	—	—	—	—	2.02 (J-)	—	1.65 (U)	—	—	—
RE21-06-68441	21-25706	0.5–1.0	Soil	—	—	—	—	—	—	—	—	0.991 (J-)	—	1.55 (U)	—	—	—
RE21-06-68442	21-25706	1.5–2.0	Soil	—	—	—	—	—	—	—	—	—	—	1.6 (U)	—	—	—
RE21-06-68443	21-25707	0.0–0.5	Soil	—	—	—	—	—	—	0.219 (J-)	—	1.77 (J-)	—	1.6 (U)	—	—	—
RE21-06-68444	21-25707	0.5–1.0	Soil	—	—	—	—	—	—	—	—	1.78 (J-)	—	—	—	—	—
RE21-06-68445	21-25707	1.5–2.0	Soil	—	—	—	—	—	—	—	—	1.82 (J-)	—	1.83 (U)	—	—	—
RE21-06-68446	21-25708	0.0–0.5	Soil	—	1.15	—	—	17	28.6 (J)	3.77 (J-)	—	2.29 (J-)	—	—	—	26.1	141
RE21-06-68447	21-25708	0.5–1.0	Soil	—	0.987	—	—	—	—	1.09 (J-)	—	1.4 (J-)	—	1.62 (U)	—	9.81	140
RE21-06-68448	21-25708	1.5–2.0	Soil	—	0.757	—	—	—	—	0.358 (J-)	—	1.2 (J-)	—	1.7 (U)	—	3.89	114
RE21-06-68450	21-25709	0.5–1.0	Soil	—	—	—	—	—	—	—	—	—	—	1.6 (U)	—	—	—
RE21-06-68451	21-25709	1.5–2.0	Soil	—	0.53 (U)	—	—	—	—	—	—	—	—	1.59 (U)	—	—	—

Table 6.3-8 (continued)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Cadmium	Calcium	Chromium	Copper	Lead	Mercury	Nickel	Nitrate	Perchlorate	Selenium	Thallium	Uranium	Zinc
Soil BV [a]				**29200**	**0.4**	**6120**	**19.3**	**14.7**	**22.3**	**0.1**	**15.4**	**na [b]**	**na**	**1.52**	**0.73**	**1.82**	**48.8**
Residential SSL [c]				**77800**	**39**	**na**	**2100 [d]**	**3130**	**400**	**23 [d]**	**1560**	**100000**	**55 [d]**	**391**	**5.16**	**16 [e]**	**23500**
Industrial SSL [c]				**100000**	**564**	**na**	**5000 [d]**	**45400**	**800**	**610 [d]**	**22700**	**100000**	**790 [d]**	**5680**	**74.9**	**200 [e]**	**100000**
Construction SSL [c]				**14400**	**154**	**na**	**26.1**	**12400**	**800**	**927**	**6190**	**100000**	**na**	**1550**	**20.4**	**na**	**92900**
RE21-06-68452	21-25710	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	1.57 (U)	—	—	—
RE21-06-68453	21-25710	0.5–1.0	Soil	—	0.545 (U)	—	—	—	—	—	—	0.958 (J-)	—	1.64 (U)	—	—	—
RE21-06-68454	21-25710	1.5–2.0	Soil	—	0.548 (U)	—	23.3	—	—	—	—	—	—	1.64 (U)	—	—	—
RE21-06-68455	21-25711	0.0–0.5	Soil	—	0.513 (U)	—	—	—	—	—	—	0.813 (J)	—	—	—	—	—
RE21-06-68456	21-25711	0.5–1.0	Soil	—	0.516 (U)	—	—	—	—	—	—	0.897 (J)	—	—	—	—	—
RE21-06-68457	21-25711	1.5–2.0	Soil	—	0.549 (U)	—	22.1 (J)	—	—	—	—	1.01 (J)	—	—	—	—	—
RE21-06-68459	21-25712	0.5–1.0	Soil	—	0.522 (U)	—	—	—	—	—	—	—	—	1.57 (U)	—	—	—
RE21-06-68461	21-25713	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	1.59 (U)	—	—	—
RE21-06-68464	21-25714	0.0–0.5	Soil	—	—	—	—	16.4	29.1	0.289	—	2.06	—	—	—	5.09	187
RE21-06-68465	21-25714	0.5–1.0	Soil	—	0.554 (U)	—	20.1	—	—	—	—	1.11 (J)	—	1.66 (U)	—	—	—
RE21-06-68467	21-25715	0.0–0.5	Soil	—	0.548	—	—	—	60.1	0.176	—	1.7	—	—	—	—	146
RE21-06-68468	21-25715	0.5–1.0	Soil	—	—	—	—	—	26.8	0.108	—	1.47	—	1.76 (U)	—	—	62.1
RE21-06-68470	21-25716	0.0–0.5	Soil	—	—	—	—	—	39.9	—	—	2.86	0.000792 (J)	1.62 (U)	—	—	74.7
RE21-06-68473	21-25717	0.0–0.5	Soil	—	0.659	—	—	—	—	—	—	—	—	—	—	—	—
RE21-06-68476	21-25718	0.0–0.5	Soil	—	0.522 (U)	—	—	—	—	—	—	2.46	0.00105 (J)	1.57 (U)	—	—	—
RE21-06-68479	21-25719	0.0–0.5	Soil	—	—	—	—	—	—	—	—	1.11	—	—	—	—	62.3
RE21-06-68482	21-25720	0.0–0.5	Soil	—	—	—	—	18.4	—	0.117	—	5.29	0.00102 (J)	—	—	2.68 (J)	51.2
RE21-06-68498	21-25721	0.0–0.5	Soil	—	0.797	—	—	42.3	24.5	0.307	—	12.4	0.0012 (J)	1.67 (U)	—	4.63	195
RE21-06-68499	21-25721	0.5–1.0	Soil	—	—	—	—	17.7	—	0.206	—	5.47	—	1.68 (U)	—	2.12	73.5
RE21-06-68502	21-25722	0.0–0.5	Soil	—	—	—	—	—	24.3	0.159	—	10.7	0.00279	—	—	2.41	—
RE21-06-68503	21-25722	0.5–1.0	Soil	—	—	—	—	—	—	—	—	3.26	0.00102 (J)	1.62 (U)	—	—	—
RE21-06-68506	21-25723	0.0–0.5	Soil	—	0.45 (J)	—	—	37.1	31.1	0.209	—	3.95	—	—	—	3.72	97.6
RE21-06-68510	21-25724	0.0–0.5	Soil	—	0.498 (J)	—	—	—	42.9	0.923	—	1.6	—	—	—	5.41	71.5
RE21-06-68514	21-25725	0.0–0.5	Soil	—	—	—	—	—	29.1	—	—	9.66	0.000608 (J)	1.76 (U)	—	2.72	—
RE21-06-68515	21-25725	0.5–1.0	Soil	—	—	—	—	—	—	—	—	1.44	—	1.58 (U)	—	—	—
RE21-06-72611	21-25725	3.0–3.5	Soil	—	—	11700	—	—	—	—	16.3	—	0.00323	1.57 (U)	—	—	—
RE21-06-68518	21-25726	0.0–0.5	Soil	—	—	—	—	—	—	—	—	85.2	0.00148 (J)	1.69 (U)	—	—	—
RE21-06-68521	21-25727	0.0–0.5	Soil	—	0.567 (U)	—	—	—	—	—	—	6.24	0.00086 (J)	2.29	—	—	—

Table 6.3-8 (continued)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Cadmium	Calcium	Chromium	Copper	Lead	Mercury	Nickel	Nitrate	Perchlorate	Selenium	Thallium	Uranium	Zinc
Soil BV [a]				**29200**	**0.4**	**6120**	**19.3**	**14.7**	**22.3**	**0.1**	**15.4**	**na [b]**	**na**	**1.52**	**0.73**	**1.82**	**48.8**
Residential SSL [c]				**77800**	**39**	**na**	**2100 [d]**	**3130**	**400**	**23 [d]**	**1560**	**100000**	**55 [d]**	**391**	**5.16**	**16 [e]**	**23500**
Industrial SSL [c]				**100000**	**564**	**na**	**5000 [d]**	**45400**	**800**	**610 [d]**	**22700**	**100000**	**790 [d]**	**5680**	**74.9**	**200 [e]**	**100000**
Construction SSL [c]				**14400**	**154**	**na**	**26.1**	**12400**	**800**	**927**	**6190**	**100000**	**na**	**1550**	**20.4**	**na**	**92900**
RE21-06-68524	21-25728	0.0–0.5	Soil	—	0.584 (U)	—	—	—	30.4	—	—	24.3	0.0022 (J)	3.27	—	2.14	50.9
RE21-06-68527	21-25729	0.0–0.5	Soil	—	0.503 (U)	—	—	—	—	—	—	7.22	0.000951 (J)	2.89	—	—	—
RE21-06-68530	21-25730	0.0–0.5	Soil	—	0.505 (U)	—	—	—	—	—	—	3.64	0.000771 (J)	3.35	—	—	62.7
RE21-06-68534	21-25731	0.0–0.5	Soil	—	0.522 (U)	—	—	—	—	—	—	1.27	—	3.63	—	—	—
RE21-06-68548	21-25732	0.0–0.5	Soil	—	—	—	—	18.8	—	—	—	2.82	—	—	—	—	57.5
RE21-06-68551	21-25733	0.0–0.5	Soil	—	0.763	—	—	25.3	58.4	0.69	—	3.31	0.000912 (J)	—	—	26.2	93.5
RE21-06-68554	21-25734	0.0–0.5	Soil	—	—	—	—	22.2	—	—	—	17.7 (J-)	0.00136 (J)	1.58 (U)	—	2.02	52.6
RE21-06-68555	21-25734	0.5–1.0	Soil	—	—	—	—	—	—	—	—	5.84 (J-)	0.000584 (J)	1.65 (U)	—	—	—
RE21-06-68557	21-25735	0.0–0.5	Soil	—	0.524 (U)	—	—	18.8	—	—	—	3.2 (J-)	—	1.57 (U)	—	—	—
RE21-06-68560	21-25736	0.0–0.5	Soil	—	—	—	—	—	—	—	—	1.11 (J-)	—	1.55 (U)	—	—	—
RE21-06-68563	21-25737	0.0–0.5	Soil	30000	—	—	—	—	—	—	—	1.57 (J-)	—	1.68 (U)	—	2.5	50.7
RE21-06-68566	21-25738	0.0–0.5	Soil	—	0.455 (J)	12900	—	—	40.3	0.485	—	4.62 (J-)	—	—	—	3.46	81.6
RE21-06-68572	21-25740	0.0–0.5	Soil	—	0.513 (U)	—	—	—	—	—	—	0.982 (J)	—	—	—	—	—
RE21-06-68573	21-25740	0.5–1.0	Soil	—	—	—	—	—	—	—	—	0.985 (J)	—	—	—	—	—
RE21-06-68574	21-25740	1.5–2.0	Soil	—	0.586 (U)	—	—	—	—	—	—	1.03 (J)	—	1.76 (U)	—	—	—
RE21-06-68575	21-25741	0.0–0.5	Soil	—	—	—	—	—	—	—	—	2.02	—	—	—	2.07	55
RE21-06-68576	21-25741	0.5–1.0	Soil	—	—	—	—	15.2	23	0.11	—	1.47	—	—	—	2.44	99.9
RE21-06-68577	21-25741	1.5–2.0	Soil	—	—	—	—	—	—	—	—	1.09	—	1.68 (U)	—	—	63.1

Note: Units are mg/kg.

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

[b] na = Not available.

[c] SSLs from NMED (2006, 092513).

[d] Value from EPA Region 6 (2007, 095866).

[e] Value from EPA Region 9 (http://www.epa.gov/region9/waste/sfund/prg/files/04prgtable.pdf).

[f] Sample IDs AAB indicate historical data.

[g] — = Not detected or not detected above BV.

Table 6.3-9
Inorganic Chemicals above BVs in Tuff at Consolidated Unit 21-003-99

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Arsenic	Barium	Beryllium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Magnesium	Mercury	Nickel	Nitrate	Perchlorate	Selenium	Uranium	Vanadium	Zinc
Qbt 2,3,4 BV [a]				**7340**	**2.79**	**46**	**1.21**	**2200**	**7.14**	**3.14**	**4.66**	**14500**	**11.2**	**1690**	**0.1**	**6.58**	**na [b]**	**na**	**0.3**	**2.4**	**17**	**63.5**
Residential SSL [c]				**77800**	**3.9**	**15600**	**156**	**na**	**2100 [d]**	**1520**	**3130**	**23500**	**400**	**na**	**23 [d]**	**1560**	**100000**	**55 [d]**	**391**	**16 [e]**	**78.2**	**23500**
Industrial SSL [c]				**100000**	**17.7**	**100000**	**2250**	**na**	**5000 [d]**	**20500**	**45400**	**100000**	**800**	**na**	**610 [d]**	**22700**	**100000**	**790 [d]**	**5680**	**200 [e]**	**1140**	**100000**
Construction SSL [c]				**14400**	**85.2**	**60200**	**56.2**	**na**	**26.1**	**61**	**12400**	**92900**	**800**	**na**	**927**	**6190**	**100000**	**na**	**1550**	**na**	**310**	**92900**
RE21-06-68462	21-25713	0.5–1.0	Tuff	— [f]	—	—	—	—	17.7	—	—	—	—	—	—	—	—	—	1.65 (U)	—	—	—
RE21-06-68463	21-25713	1.5–2.0	Tuff	—	—	—	—	—	24.4	—	—	—	—	—	—	—	—	—	1.66 (U)	—	—	—
RE21-06-68466	21-25714	1.5–2.0	Tuff	—	—	54.5	—	—	14.6	—	—	—	—	—	—	—	—	—	1.52 (U)	—	—	—
RE21-06-68469	21-25715	1.5–2.0	Tuff	8480 (J+)	—	46.9	—	—	14	—	—	—	16.1	—	—	—	—	—	1.64 (U)	—	—	—
RE21-06-68471	21-25716	0.5–1.0	Tuff	—	—	—	—	—	13.6	—	—	—	—	—	—	—	0.857 (J)	—	1.52 (U)	—	—	—
RE21-06-68472	21-25716	1.5–2.0	Tuff	7380 (J+)	—	107	—	—	10.8	22.3	—	—	—	—	—	6.62	0.881 (J)	—	1.53 (U)	—	—	—
RE21-06-68474	21-25717	0.5–1.0	Tuff	8540 (J+)	—	58.4	—	—	8.53	—	6.47	—	—	—	—	—	0.798 (J)	—	1.52 (U)	—	—	—
RE21-06-68475	21-25717	1.5–2.0	Tuff	—	—	—	—	—	19.6	—	—	—	—	—	—	—	—	—	1.51 (U)	—	—	—
RE21-06-68477	21-25718	0.5–1.0	Tuff	—	—	—	—	—	—	—	—	—	—	—	—	—	2.02	0.00141 (J)	1.55 (U)	—	—	—
RE21-06-68478	21-25718	1.5–2.0	Tuff	—	—	—	—	—	7.8	—	—	—	—	—	—	—	2.44	0.000742 (J)	1.51 (U)	—	—	—
RE21-06-68480	21-25719	0.5–1.0	Tuff	11500 (J+)	—	59	—	—	10.8	—	—	—	—	—	—	—	1.54	—	0.703 (J)	—	—	—
RE21-06-68481	21-25719	1.5–2.0	Tuff	34400 (J+)	3.98	197	2.29	4530 (J+)	23.6	4.27	10.1	21600	13.5	5520	—	16	—	0.00238	1.65 (U)	—	31.8	—
RE21-06-68483	21-25720	0.5–1.0	Tuff	14100 (J+)	—	84.5	—	—	14	—	5.14	—	—	1940	—	—	1.46	—	1.67 (U)	—	—	—
RE21-06-68484	21-25720	1.5–2.0	Tuff	15800 (J+)	2.99	94.9	—	2570 (J+)	11.5	3.36	20.1	—	21.4	2200	0.111	6.72	6.24	0.00235	0.674 (J)	3.66 (J)	20.5	—
RE21-06-68500	21-25721	1.5–2.0	Tuff	8430	—	57.5	—	—	9.15	—	10.1	—	—	—	—	—	7.68	—	1.62 (U)	—	—	—
RE21-06-68504	21-25722	1.5–2.0	Tuff	8930	—	64.6	—	—	—	—	—	—	—	—	—	—	2.32	0.00159 (J)	1.58 (U)	—	—	—
RE21-06-68507	21-25723	0.5–1.0	Tuff	10500	4.65	99.2	—	3420	8.64	3.16	51.2	—	18	1820 (J+)	—	—	3.33	0.000611 (J)	1.6 (U)	2.42	21.2	70.3
RE21-06-68508	21-25723	1.5–2.0	Tuff	—	—	—	—	—	—	—	9.05	—	—	—	—	—	1.28	—	1.48 (U)	—	—	—
RE21-06-68511	21-25724	0.5–1.0	Tuff	—	—	—	—	—	—	—	—	—	15.7	—	0.446	—	1.83	—	1.55 (U)	5.37	—	—
RE21-06-68512	21-25724	1.5–2.0	Tuff	—	—	—	—	—	7.79	—	—	—	—	—	—	—	1.14	—	1.52 (U)	—	—	—
RE21-06-68519	21-25726	0.5–1.0	Tuff	—	—	—	—	—	—	—	—	—	—	—	—	—	17.2	0.00116 (J)	1.62 (U)	—	—	—
RE21-06-68520	21-25726	1.5–2.0	Tuff	—	—	—	—	—	—	—	—	—	—	—	—	—	2.46	—	1.46 (U)	—	—	—
RE21-06-68522	21-25727	0.5–1.0	Tuff	10700 (J+)	4.15	74	—	2560	—	—	4.68	—	—	1700	—	—	3.14	0.00141 (J)	2.25	—	—	—
RE21-06-68523	21-25727	1.5–2.0	Tuff	11600 (J+)	5	97	—	8280	—	—	5.47	—	—	1900	—	6.82	2.99	0.00159 (J)	0.995 (J)	—	—	—
RE21-06-68525	21-25728	0.5–1.0	Tuff	13300 (J+)	3.43	152	—	49000	8.28	—	8.48	—	12.3	2660	—	10.4	6.4	0.0038	1.62 (U)	—	—	—
RE21-06-68526	21-25728	1.5–2.0	Tuff	11800 (J+)	5.32	111	—	19700	7.65	—	9.11	—	15.5	2260	—	7.27	24.6	0.00347	1.58 (U)	—	—	—
RE21-06-68528	21-25729	0.5–1.0	Tuff	15700 (J+)	4.75	69.8	1.69	2320	9.46	—	5.2	—	—	2370	—	7.82	2.43	0.00104 (J)	4.22	—	—	—
RE21-06-68529	21-25729	1.5–2.0	Tuff	13500 (J+)	5.74	72.6	1.94	3850	15.5	—	5.32	—	—	2200	—	10.1	1.68	0.000911 (J)	2.93	—	—	—
RE21-06-68532	21-25730	0.5–1.0	Tuff	—	4.03	—	—	—	—	—	—	—	—	—	—	—	1.83	—	1.97	—	—	—

Table 6.3-9 (continued)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Arsenic	Barium	Beryllium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Magnesium	Mercury	Nickel	Nitrate	Perchlorate	Selenium	Uranium	Vanadium	Zinc
Qbt 2,3,4 BV [a]				**7340**	**2.79**	**46**	**1.21**	**2200**	**7.14**	**3.14**	**4.66**	**14500**	**11.2**	**1690**	**0.1**	**6.58**	**na [b]**	**na**	**0.3**	**2.4**	**17**	**63.5**
Residential SSL [c]				**77800**	**3.9**	**15600**	**156**	**na**	**2100 [d]**	**1520**	**3130**	**23500**	**400**	**na**	**23 [d]**	**1560**	**100000**	**55 [d]**	**391**	**16 [e]**	**78.2**	**23500**
Industrial SSL [c]				**100000**	**17.7**	**100000**	**2250**	**na**	**5000 [d]**	**20500**	**45400**	**100000**	**800**	**na**	**610 [d]**	**22700**	**100000**	**790 [d]**	**5680**	**200 [e]**	**1140**	**100000**
Construction SSL [c]				**14400**	**85.2**	**60200**	**56.2**	**na**	**26.1**	**61**	**12400**	**92900**	**800**	**na**	**927**	**6190**	**100000**	**na**	**1550**	**na**	**310**	**92900**
RE21-06-68533	21-25730	1.5–2.0	Tuff	—	4.31	—	—	2850	11	—	—	—	—	—	—	11.5	1.27	—	1.03 (J)	—	—	—
RE21-06-68536	21-25731	0.5–1.0	Tuff	10600 (J+)	7.04	65	—	3740	8.92	—	6.12	—	12.1	—	—	—	1.37	—	1.49 (J)	—	—	—
RE21-06-68537	21-25731	1.5–2.0	Tuff	—	3.61	—	—	—	—	—	—	—	—	—	—	—	1.2	—	2.13	—	—	—
RE21-06-68549	21-25732	0.5–1.0	Tuff	10500	—	74.2 (J+)	—	—	8.26	—	—	—	—	—	—	—	1.48	—	1.56 (U)	—	—	—
RE21-06-68550	21-25732	1.5–2.0	Tuff	10700	—	73.2 (J+)	—	2740	8.76	—	4.9	—	16.5	—	—	—	1.11	—	1.55 (U)	—	—	—
RE21-06-68552	21-25733	0.5–1.0	Tuff	—	—	—	—	—	—	—	9.25	—	12.2	—	0.304	—	1.29	—	1.57 (U)	5.16	—	—
RE21-06-68553	21-25733	1.5–2.0	Tuff	—	—	—	—	—	9.67	—	—	—	—	—	—	—	1.33 (J-)	—	1.64 (U)	—	—	—
RE21-06-68556	21-25734	1.5–2.0	Tuff	12400	—	91 (J+)	—	3220	9.97	—	6.51	—	—	1730 (J+)	—	—	5.25 (J-)	0.000742 (J)	1.56 (U)	—	—	—
RE21-06-68558	21-25735	0.5–1.0	Tuff	8560	—	55 (J+)	—	—	21.6	—	—	—	—	—	—	—	0.865 (J-)	—	1.59 (U)	—	—	—
RE21-06-68559	21-25735	1.5–2.0	Tuff	—	—	—	—	—	—	—	—	—	—	—	—	—	0.854 (J-)	—	1.57 (U)	—	—	—
RE21-06-68561	21-25736	0.5–1.0	Tuff	10500	—	102 (J+)	—	2400	13.8	3.62	6.87	—	15.4	1850 (J+)	—	—	0.996 (J-)	—	1.55 (U)	—	20.1	—
RE21-06-68562	21-25736	1.5–2.0	Tuff	14000	—	109 (J+)	—	—	16.2	—	5.3	—	—	2040 (J+)	—	7.5	0.985 (J-)	—	1.69 (U)	—	—	—
RE21-06-68564	21-25737	0.5–1.0	Tuff	30200	4.36	237 (J+)	—	2990	23.9	—	8.18	17200	—	3650 (J+)	—	8	0.99 (J-)	—	1.7 (U)	—	25.7	—
RE21-06-68565	21-25737	1.5–2.0	Tuff	11400	—	159 (J+)	—	—	7.38	—	—	—	—	1930 (J+)	—	—	0.947 (J-)	—	1.57 (U)	—	—	—
RE21-06-68567	21-25738	0.5–1.0	Tuff	14700	2.9	95.9 (J+)	—	2240	11.3	—	6.89	—	11.6	1780 (J+)	—	—	1.67 (J-)	—	1.6 (U)	—	19.9	—
RE21-06-68568	21-25738	1.5–2.0	Tuff	—	—	85.1 (J+)	—	10600 (J)	22.9	—	—	—	—	—	—	—	3.23	—	1.56 (U)	—	—	—
RE21-06-68569	21-25739	0.0–0.5	Tuff	—	—	—	—	—	—	—	—	—	—	—	—	—	1.09	—	1.56 (U)	—	—	—
RE21-06-68570	21-25739	0.5–1.0	Tuff	—	—	—	—	—	—	—	—	—	—	—	—	—	1.02 (J)	0.000896 (J)	1.59 (U)	—	—	—
RE21-06-68571	21-25739	1.5–2.0	Tuff	—	—	—	—	—	—	—	—	—	—	—	—	—	0.948 (J)	—	1.59 (U)	—	—	—

Note: Units are mg/kg.

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

[b] na = Not available.

[c] SSLs from NMED (2006, 092513).

[d] Values from EPA Region 6 (2007, 095866).

[e] Values from EPA Region 9 (http://www.epa.gov/region9/waste/sfund/prg/files/04prgtable.pdf).

[f] — = Not detected or not detected above BV.

Table 6.3-10
Organic Chemicals Detected in Soil at Consolidated Unit 21-003-99

Sample ID	Location ID	Depth (ft)	Media	Acenaphthene	Acetone	Anthracene	Aroclor-1242	Aroclor-1248	Aroclor-1254	Aroclor-1260	Benzene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzoic Acid	Benzyl Alcohol	Bis(2-ethylhexyl)phthalate	Butylbenzene[sec-]	Chloroform	Chrysene
Residential SSL [a]				**3730**	**28100**	**22000**	**1.12**	**1.12**	**1.12**	**1.12**	**10.3**	**6.21**	**0.621**	**6.21**	**100000 [b]**	**18000 [b]**	**347**	**60.6**	**4**	**615**
Industrial SSL [a]				**33500**	**100000**	**100000**	**8.26**	**8.26**	**8.26**	**8.26**	**25.8**	**23.4**	**2.34**	**23.4**	**100000 [b]**	**100000 [b]**	**1370**	**60.6**	**9.59**	**2310**
Construction SSL [a]				**14100**	**98500**	**86000**	**4.28**	**4.28**	**4.28**	**4.28**	**174**	**212**	**21.2**	**212**	**na [c]**	**na**	**4660**	**60.6**	**216**	**21200**
RE21-06-68434	21-25704	0.0–0.5	Soil	— [d]	0.0197 (J+)	—	—	—	0.488 (J)	0.526 (J)	—	—	—	—	—	—	—	—	—	—
RE21-06-68435	21-25704	0.5–1.0	Soil	—	0.0292 (J+)	—	—	—	0.0389 (J-)	0.0599 (J-)	—	—	—	—	—	—	—	—	—	—
RE21-06-68436	21-25704	1.5–2.0	Soil	—	0.00956 (J+)	—	—	—	0.007 (J-)	0.0114 (J-)	—	—	—	—	—	—	—	—	—	—
RE21-06-68437	21-25705	0.0–0.5	Soil	—	0.00654 (J+)	—	—	—	24 (J)	17.6 (J)	—	—	—	—	—	—	0.63 (J)	—	0.000214 (J)	—
RE21-06-68438	21-25705	0.5–1.0	Soil	0.015 (J)	0.0192 (J+)	—	—	—	9.2 (J)	7.14 (J)	—	—	—	—	—	—	—	—	—	—
RE21-06-68439	21-25705	1.5–2.0	Soil	—	—	—	—	—	1.21 (J)	0.953 (J)	—	—	—	—	—	—	—	—	—	—
RE21-06-68440	21-25706	0.0–0.5	Soil	—	—	—	—	—	0.0056	0.0071	—	—	—	—	—	—	—	—	—	—
RE21-06-68441	21-25706	0.5–1.0	Soil	—	0.0273 (J+)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE21-06-68442	21-25706	1.5–2.0	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE21-06-68443	21-25707	0.0–0.5	Soil	—	—	—	—	—	0.0744	0.104	—	—	—	—	—	—	—	—	—	—
RE21-06-68444	21-25707	0.5–1.0	Soil	—	0.00928 (J+)	—	—	—	0.0047 (J-)	0.0068 (J-)	—	—	—	—	—	—	—	—	—	—
RE21-06-68445	21-25707	1.5–2.0	Soil	—	0.0228 (J+)	—	0.254 (J)	—	—	—	—	—	—	—	—	—	—	—	—	—
RE21-06-68446	21-25708	0.0–0.5	Soil	—	—	—	—	—	0.104	0.268	—	—	—	—	—	—	—	—	—	—
RE21-06-68447	21-25708	0.5–1.0	Soil	—	0.00936 (J+)	—	—	—	0.0204 (J-)	0.0605 (J-)	—	—	—	—	—	—	—	—	—	—
RE21-06-68448	21-25708	1.5–2.0	Soil	—	0.0291 (J+)	—	—	—	0.0053 (J-)	0.0142 (J-)	—	—	—	—	—	—	—	—	—	—
RE21-06-68449	21-25709	0.0–0.5	Soil	—	—	—	—	—	0.0097	0.0378	—	—	—	—	—	—	—	—	—	—
RE21-06-68450	21-25709	0.5–1.0	Soil	—	0.0089 (J+)	—	—	—	0.0052 (J-)	0.0134 (J-)	—	—	—	—	—	—	—	—	—	—
RE21-06-68451	21-25709	1.5–2.0	Soil	—	—	—	—	—	0.0029 (J-)	0.0032 (J-)	—	—	—	—	—	—	—	—	—	—
RE21-06-68452	21-25710	0.0–0.5	Soil	—	—	—	—	—	0.009	0.0394	—	—	—	—	—	—	—	—	—	—
RE21-06-68453	21-25710	0.5–1.0	Soil	—	—	—	—	—	—	0.0074 (J-)	—	—	—	—	—	—	—	—	—	—
RE21-06-68454	21-25710	1.5–2.0	Soil	—	0.0144 (J+)	—	—	—	—	0.0068 (J-)	—	—	—	—	—	—	—	—	—	—
RE21-06-68455	21-25711	0.0–0.5	Soil	—	—	—	—	—	0.109	0.0801	—	—	—	—	—	—	—	—	—	—
RE21-06-68456	21-25711	0.5–1.0	Soil	—	—	—	1.61 (J)	—	—	0.0661 (J)	—	—	—	—	—	—	—	—	—	—
RE21-06-68457	21-25711	1.5–2.0	Soil	—	0.00701 (J+)	—	0.243 (J)	—	—	—	—	—	—	—	—	—	—	—	—	—
RE21-06-68458	21-25712	0.0–0.5	Soil	—	—	—	—	—	0.0506	0.0669	—	—	—	—	—	—	—	—	—	—
RE21-06-68459	21-25712	0.5–1.0	Soil	—	—	—	—	—	0.0103	0.0183	—	—	—	—	—	—	—	—	—	—

Table 6.3-10 (continued)

Sample ID	Location ID	Depth (ft)	Media	Acenaphthene	Acetone	Anthracene	Aroclor-1242	Aroclor-1248	Aroclor-1254	Aroclor-1260	Benzene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzoic Acid	Benzyl Alcohol	Bis(2-ethylhexyl)phthalate	Butylbenzene[sec-]	Chloroform	Chrysene
Residential SSL [a]				**3730**	**28100**	**22000**	**1.12**	**1.12**	**1.12**	**1.12**	**10.3**	**6.21**	**0.621**	**6.21**	**100000 [b]**	**18000 [b]**	**347**	**60.6**	**4**	**615**
Industrial SSL [a]				**33500**	**100000**	**100000**	**8.26**	**8.26**	**8.26**	**8.26**	**25.8**	**23.4**	**2.34**	**23.4**	**100000 [b]**	**100000 [b]**	**1370**	**60.6**	**9.59**	**2310**
Construction SSL [a]				**14100**	**98500**	**86000**	**4.28**	**4.28**	**4.28**	**4.28**	**174**	**212**	**21.2**	**212**	**na [c]**	**na**	**4660**	**60.6**	**216**	**21200**
RE21-06-68460	21-25712	1.5–2.0	Soil	—	—	—	—	—	0.0051 (J-)	0.0098 (J-)	—	—	—	—	—	—	—	—	—	—
RE21-06-68461	21-25713	0.0–0.5	Soil	—	—	—	—	—	0.13	0.143	—	—	—	—	—	—	—	—	—	—
RE21-06-68464	21-25714	0.0–0.5	Soil	—	—	—	—	—	0.269	0.356	—	—	—	—	—	—	—	—	—	—
RE21-06-68465	21-25714	0.5–1.0	Soil	—	—	—	—	—	0.0528	0.082	—	—	—	—	—	—	—	—	—	—
RE21-06-68467	21-25715	0.0–0.5	Soil	—	—	—	—	—	0.107	0.102	—	—	—	—	—	—	—	—	—	0.15 (J+)
RE21-06-68468	21-25715	0.5–1.0	Soil	—	—	—	—	—	0.0103	0.0114	—	—	—	—	—	—	—	—	—	—
RE21-06-68470	21-25716	0.0–0.5	Soil	—	—	0.00761 (J)	0.138	—	0.0545	0.0638	—	—	—	—	—	—	—	—	—	—
RE21-06-68473	21-25717	0.0–0.5	Soil	—	—	—	—	—	0.541	0.658	—	—	—	—	—	—	—	—	—	—
RE21-06-68476	21-25718	0.0–0.5	Soil	0.381	—	—	—	—	—	0.0029 (J)	—	—	—	—	—	—	—	—	—	—
RE21-06-68479	21-25719	0.0–0.5	Soil	—	—	0.00863 (J)	—	—	0.344	0.583	—	0.0452	—	—	—	—	0.231	—	—	—
RE21-06-68482	21-25720	0.0–0.5	Soil	—	—	—	—	—	0.293	0.401	—	—	—	—	—	—	—	—	—	0.0208 (J)
RE21-06-68498	21-25721	0.0–0.5	Soil	—	—	0.00827 (J)	—	—	6.48	8.3	—	—	0.0395	0.137	—	—	—	—	—	0.0932
RE21-06-68499	21-25721	0.5–1.0	Soil	—	—	—	—	—	3.46	4.07	—	—	—	—	—	—	—	0.000218 (J)	—	—
RE21-06-68502	21-25722	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE21-06-68503	21-25722	0.5–1.0	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.000246 (J)	—	—
RE21-06-68506	21-25723	0.0–0.5	Soil	—	—	0.0116 (J)	—	—	0.583	1	—	—	0.0554 (J)	0.133 (J)	—	—	0.409 (J)	—	—	0.0888
RE21-06-68510	21-25724	0.0–0.5	Soil	—	—	—	—	—	0.416	0.602	—	—	—	—	—	—	0.0775 (J)	—	—	—
RE21-06-68514	21-25725	0.0–0.5	Soil	—	—	—	—	—	0.0478	0.0571	—	—	—	—	—	—	—	—	—	—
RE21-06-68515	21-25725	0.5–1.0	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE21-06-72611	21-25725	3.0–3.5	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE21-06-68518	21-25726	0.0–0.5	Soil	—	—	—	—	—	0.0169	0.0235	—	—	—	—	—	—	—	—	—	—
RE21-06-68521	21-25727	0.0–0.5	Soil	—	—	—	—	—	0.0094	0.0096	—	—	—	—	—	—	—	—	—	—
RE21-06-68524	21-25728	0.0–0.5	Soil	—	—	—	—	—	0.0397	0.0365	—	—	—	—	—	—	—	—	—	—
RE21-06-68527	21-25729	0.0–0.5	Soil	—	—	—	—	—	0.005	0.0043	—	—	—	—	—	—	—	—	—	—
RE21-06-68530	21-25730	0.0–0.5	Soil	0.0407	—	—	—	—	0.0699	0.1	—	—	—	—	—	—	—	—	—	—
RE21-06-68534	21-25731	0.0–0.5	Soil	—	—	—	—	—	0.0241	0.0363	—	—	—	—	—	—	—	—	—	—
RE21-06-68548	21-25732	0.0–0.5	Soil	—	—	—	—	—	0.0065	0.0155	—	—	—	—	—	—	—	—	—	0.017 (J)
RE21-06-68551	21-25733	0.0–0.5	Soil	—	—	—	—	—	0.203	0.646	—	—	0.087 (J)	—	—	—	—	—	—	0.42
RE21-06-68554	21-25734	0.0–0.5	Soil	—	—	—	—	—	0.0136	0.0563	—	—	—	—	0.459 (J)	—	—	—	—	—

Table 6.3-10 (continued)

Sample ID	Location ID	Depth (ft)	Media	Acenaphthene	Acetone	Anthracene	Aroclor-1242	Aroclor-1248	Aroclor-1254	Aroclor-1260	Benzene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzoic Acid	Benzyl Alcohol	Bis(2-ethylhexyl)phthalate	Butylbenzene[sec-]	Chloroform	Chrysene
Residential SSL [a]				**3730**	**28100**	**22000**	**1.12**	**1.12**	**1.12**	**1.12**	**10.3**	**6.21**	**0.621**	**6.21**	**100000 [b]**	**18000 [b]**	**347**	**60.6**	**4**	**615**
Industrial SSL [a]				**33500**	**100000**	**100000**	**8.26**	**8.26**	**8.26**	**8.26**	**25.8**	**23.4**	**2.34**	**23.4**	**100000 [b]**	**100000 [b]**	**1370**	**60.6**	**9.59**	**2310**
Construction SSL [a]				**14100**	**98500**	**86000**	**4.28**	**4.28**	**4.28**	**4.28**	**174**	**212**	**21.2**	**212**	**na [c]**	**na**	**4660**	**60.6**	**216**	**21200**
RE21-06-68555	21-25734	0.5–1.0	Soil	—	—	—	—	—	0.0029 (J)	0.0038	0.000662 (J)	—	—	—	—	—	—	—	—	—
RE21-06-68557	21-25735	0.0–0.5	Soil	—	—	—	—	—	0.0943	0.236	—	—	—	—	—	—	—	—	—	—
RE21-06-68560	21-25736	0.0–0.5	Soil	—	—	—	—	—	0.0024 (J)	0.0038	—	—	—	—	—	—	—	—	—	—
RE21-06-68563	21-25737	0.0–0.5	Soil	—	—	—	—	—	0.0678	0.257	—	—	0.0126 (J)	0.0297 (J)	—	0.232 (J)	—	—	—	0.0167 (J)
RE21-06-68566	21-25738	0.0–0.5	Soil	—	—	—	—	—	1.62	3.02	—	—	—	—	—	—	0.0868 (J)	—	—	—
RE21-06-68572	21-25740	0.0–0.5	Soil	—	—	—	—	—	0.0788	0.0392	—	—	—	—	—	—	—	—	—	—
RE21-06-68573	21-25740	0.5–1.0	Soil	—	—	—	—	—	0.195	0.209	—	—	—	—	—	—	—	—	—	—
RE21-06-68574	21-25740	1.5–2.0	Soil	—	—	—	—	—	0.0796	0.0887	—	—	—	—	—	—	—	—	—	—
RE21-06-68575	21-25741	0.0–0.5	Soil	—	—	—	—	0.167	0.194	0.277	—	—	—	—	—	—	—	—	—	—
RE21-06-68576	21-25741	0.5–1.0	Soil	—	—	—	—	0.157	0.191	0.275	—	—	—	—	—	—	—	—	—	—
RE21-06-68577	21-25741	1.5–2.0	Soil	—	—	—	—	—	0.094	0.106	—	—	—	—	—	—	—	—	—	—

Table 6.3-10 (continued)

Sample ID	Location ID	Depth (ft)	Media	Dichlorobenzene[1,3-]	Dichloroethene[1,1-]	Di-n-butylphthalate	Ethylbenzene	Fluoranthene	Heptachlorodibenzodioxin [1,2,3,4,6,7,8-]	Heptachlorodibenzofuran [1,2,3,4,6,7,8-]	Isopropyltoluene[4-]	Methylene Chloride	Octachlorodibenzodioxin [1,2,3,4,6,7,8,9-]	Octachlorodibenzofuran [1,2,3,4,6,7,8,9-]	Phenanthrene	Pyrene	Styrene	Tetrachloroethene	Toluene	Trichloroethene	Xylene[1,2-]	Xylene[1,3- and 1,4-]
Residential SSL [a]				**32.6**	**206**	**6110**	**128**	**2290**	**na**	**na**	**271 [e]**	**182**	**na**	**na**	**1830**	**2290**	**100**	**12.5**	**252**	**0.638**	**99.5**	**82**
Industrial SSL [a]				**37.4**	**777**	**68400**	**128**	**24400**	**na**	**na**	**389 [e]**	**490**	**na**	**na**	**20500**	**30900**	**100**	**31.6**	**252**	**1.56**	**99.5**	**82**
Construction SSL [a]				**37.4**	**678**	**23300**	**128**	**8730**	**na**	**na**	**389 [e]**	**2630**	**na**	**na**	**6990**	**9010**	**100**	**134**	**252**	**33.6**	**99.5**	**82**
RE21-06-68434	21-25704	0.0–0.5	Soil	—	—	—	0.000366 (J)	0.204 (J)	—	—	—	—	—	—	—	—	—	—	0.00334	—	0.000487 (J)	0.00127 (J)
RE21-06-68435	21-25704	0.5–1.0	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.000758 (J)	—	—	0.000425 (J)
RE21-06-68436	21-25704	1.5–2.0	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE21-06-68437	21-25705	0.0–0.5	Soil	—	—	0.136 (J)	0.000578 (J)	—	—	—	—	—	—	—	0.0186 (J)	0.0361 (J)	—	—	0.0114	—	0.000745 (J)	0.00198 (J)
RE21-06-68438	21-25705	0.5–1.0	Soil	—	—	—	0.000321 (J)	0.219 (J)	—	—	—	—	—	—	—	0.0163 (J)	—	—	0.00402	—	0.000465 (J)	0.00115 (J)
RE21-06-68439	21-25705	1.5–2.0	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.000404 (J)
RE21-06-68440	21-25706	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE21-06-68441	21-25706	0.5–1.0	Soil	—	—	—	0.000648 (J)	—	—	—	—	—	—	—	—	—	—	—	0.00654	—	0.000935 (J)	0.00253
RE21-06-68442	21-25706	1.5–2.0	Soil	—	—	0.0579 (J)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE21-06-68443	21-25707	0.0–0.5	Soil	—	—	—	—	0.205 (J)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE21-06-68444	21-25707	0.5–1.0	Soil	—	—	—	0.000367 (J)	—	—	—	—	—	—	—	—	—	—	—	0.0038	—	0.000512 (J)	0.00135 (J)
RE21-06-68445	21-25707	1.5–2.0	Soil	—	—	—	0.000325 (J)	—	—	—	—	—	—	—	—	—	—	—	0.00329	—	0.000462 (J)	0.00114 (J)
RE21-06-68446	21-25708	0.0–0.5	Soil	—	—	—	—	0.813 (J)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE21-06-68447	21-25708	0.5–1.0	Soil	—	—	—	0.000268 (J)	0.216 (J)	—	—	0.0219	—	—	—	—	0.013 (J)	—	—	0.00194	—	—	0.000961 (J)
RE21-06-68448	21-25708	1.5–2.0	Soil	—	—	—	0.000281 (J)	0.219 (J)	—	—	—	—	—	—	—	—	—	—	0.00366	—	—	0.00104 (J)
RE21-06-68449	21-25709	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE21-06-68450	21-25709	0.5–1.0	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00178	—	—	—	0.000405 (J)
RE21-06-68451	21-25709	1.5–2.0	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE21-06-68452	21-25710	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE21-06-68453	21-25710	0.5–1.0	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.000469 (J)	—	—	—
RE21-06-68454	21-25710	1.5–2.0	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.000595 (J)	—	—	0.000454 (J)
RE21-06-68455	21-25711	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE21-06-68456	21-25711	0.5–1.0	Soil	—	—	—	—	0.203 (J)	—	—	—	—	—	—	—	—	—	—	0.000856 (J)	—	—	0.00045 (J)
RE21-06-68457	21-25711	1.5–2.0	Soil	—	—	—	—	0.222 (J)	—	—	—	—	—	—	—	—	—	0.00046 (J)	0.000301 (J)	—	—	—
RE21-06-68458	21-25712	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Table 6.3-10 (continued)

Sample ID	Location ID	Depth (ft)	Media	Dichlorobenzene[1,3-]	Dichloroethene[1,1-]	Di-n-butylphthalate	Ethylbenzene	Fluoranthene	Heptachlorodibenzodioxin [1,2,3,4,6,7,8-]	Heptachlorodibenzofuran [1,2,3,4,6,7,8-]	Isopropyltoluene[4-]	Methylene Chloride	Octachlorodibenzodioxin [1,2,3,4,6,7,8,9-]	Octachlorodibenzofuran [1,2,3,4,6,7,8,9-]	Phenanthrene	Pyrene	Styrene	Tetrachloroethene	Toluene	Trichloroethene	Xylene[1,2-]	Xylene[1,3- and 1,4-]
Residential SSL [a]				**32.6**	**206**	**6110**	**128**	**2290**	**na**	**na**	**271 [e]**	**182**	**na**	**na**	**1830**	**2290**	**100**	**12.5**	**252**	**0.638**	**99.5**	**82**
Industrial SSL [a]				**37.4**	**777**	**68400**	**128**	**24400**	**na**	**na**	**389 [e]**	**490**	**na**	**na**	**20500**	**30900**	**100**	**31.6**	**252**	**1.56**	**99.5**	**82**
Construction SSL [a]				**37.4**	**678**	**23300**	**128**	**8730**	**na**	**na**	**389 [e]**	**2630**	**na**	**na**	**6990**	**9010**	**100**	**134**	**252**	**33.6**	**99.5**	**82**
RE21-06-68459	21-25712	0.5–1.0	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE21-06-68460	21-25712	1.5–2.0	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE21-06-68461	21-25713	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE21-06-68464	21-25714	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE21-06-68465	21-25714	0.5–1.0	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE21-06-68467	21-25715	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	—	—	0.113 (J+)	—	—	—	—	—	—
RE21-06-68468	21-25715	0.5–1.0	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE21-06-68470	21-25716	0.0–0.5	Soil	—	—	—	—	0.0919	—	—	—	—	—	—	0.0452	0.0941	—	—	—	—	—	—
RE21-06-68473	21-25717	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE21-06-68476	21-25718	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE21-06-68479	21-25719	0.0–0.5	Soil	—	—	0.0507 (J)	—	0.0445	—	—	—	—	—	—	0.0251 (J)	0.087	—	—	—	—	—	—
RE21-06-68482	21-25720	0.0–0.5	Soil	—	—	—	—	0.0377	—	—	—	—	—	—	0.019 (J)	0.0365	—	—	—	—	—	—
RE21-06-68498	21-25721	0.0–0.5	Soil	—	—	—	—	0.326 (J)	—	—	—	—	—	—	0.123	0.161	—	—	—	—	—	—
RE21-06-68499	21-25721	0.5–1.0	Soil	0.000276 (J)	0.000782 (J)	—	—	0.241 (J)	—	—	—	0.00271 (J)	—	—	—	0.0675	0.000302 (J)	—	—	0.000472 (J)	—	—
RE21-06-68502	21-25722	0.0–0.5	Soil	—	—	—	—	0.905 (J)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE21-06-68503	21-25722	0.5–1.0	Soil	—	0.00118	—	—	—	—	—	—	0.00296 (J)	—	—	—	—	0.000538 (J)	—	—	—	—	—
RE21-06-68506	21-25723	0.0–0.5	Soil	—	—	—	—	0.3 (J)	—	—	—	—	—	—	0.0831	0.23	—	—	—	—	—	—
RE21-06-68510	21-25724	0.0–0.5	Soil	—	—	—	—	0.203 (J)	—	—	—	—	—	—	—	0.0251 (J)	—	—	—	—	—	—
RE21-06-68514	21-25725	0.0–0.5	Soil	—	—	—	—	0.342 (J)	—	—	—	—	—	—	0.0438 (J)	0.119	—	—	—	—	—	—
RE21-06-68515	21-25725	0.5–1.0	Soil	—	0.000862 (J)	—	—	—	—	—	—	—	—	—	—	—	0.000326 (J)	—	—	—	—	—
RE21-06-72611	21-25725	3.0–3.5	Soil	—	—	—	—	—	3.67E-06	1.75E-06 (J)	0.0217	—	1.97E-05	3.31E-06 (J)	—	—	—	—	—	—	—	—
RE21-06-68518	21-25726	0.0–0.5	Soil	—	—	—	—	0.219 (J)	—	—	—	—	—	—	—	0.0146 (J)	—	—	—	—	—	—
RE21-06-68521	21-25727	0.0–0.5	Soil	—	—	—	—	0.229 (J)	—	—	—	—	—	—	0.0163 (J)	0.0284 (J)	—	—	—	—	—	—
RE21-06-68524	21-25728	0.0–0.5	Soil	—	—	—	—	0.244 (J)	—	—	—	—	—	—	—	0.0433 (J)	—	—	—	—	—	—
RE21-06-68527	21-25729	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	—	—	0.0173 (J)	—	—	—	—	—	—
RE21-06-68530	21-25730	0.0–0.5	Soil	—	—	—	—	0.208 (J)	—	—	—	—	—	—	—	0.0216 (J)	—	—	—	—	—	—
RE21-06-68534	21-25731	0.0–0.5	Soil	—	—	—	—	0.204 (J)	—	—	—	—	—	—	—	0.0111 (J)	—	—	—	—	—	—

Table 6.3-10 (continued)

Sample ID	Location ID	Depth (ft)	Media	Dichlorobenzene[1,3-]	Dichloroethene[1,1-]	Di-n-butylphthalate	Ethylbenzene	Fluoranthene	Heptachlorodibenzodioxin [1,2,3,4,6,7,8-]	Heptachlorodibenzofuran [1,2,3,4,6,7,8-]	Isopropyltoluene[4-]	Methylene Chloride	Octachlorodibenzodioxin [1,2,3,4,6,7,8,9-]	Octachlorodibenzofuran [1,2,3,4,6,7,8,9-]	Phenanthrene	Pyrene	Styrene	Tetrachloroethene	Toluene	Trichloroethene	Xylene[1,2-]	Xylene[1,3- and 1,4-]
Residential SSL [a]				**32.6**	**206**	**6110**	**128**	**2290**	**na**	**na**	**271 [e]**	**182**	**na**	**na**	**1830**	**2290**	**100**	**12.5**	**252**	**0.638**	**99.5**	**82**
Industrial SSL [a]				**37.4**	**777**	**68400**	**128**	**24400**	**na**	**na**	**389 [e]**	**490**	**na**	**na**	**20500**	**30900**	**100**	**31.6**	**252**	**1.56**	**99.5**	**82**
Construction SSL [a]				**37.4**	**678**	**23300**	**128**	**8730**	**na**	**na**	**389 [e]**	**2630**	**na**	**na**	**6990**	**9010**	**100**	**134**	**252**	**33.6**	**99.5**	**82**
RE21-06-68548	21-25732	0.0–0.5	Soil	—	—	—	—	0.0268 (J)	—	—	—	—	—	—	0.0115 (J)	0.0229 (J)	—	—	—	—	—	—
RE21-06-68551	21-25733	0.0–0.5	Soil	—	—	—	—	0.723	—	—	—	—	—	—	0.132 (J)	0.753	—	—	—	—	—	—
RE21-06-68554	21-25734	0.0–0.5	Soil	—	—	—	—	0.0223 (J)	—	—	—	—	—	—	—	0.0266 (J)	—	—	—	—	—	—
RE21-06-68555	21-25734	0.5–1.0	Soil	—	0.00122	—	0.00248	—	—	—	—	0.0132	—	—	—	—	—	—	—	0.00381	0.00199	0.00682
RE21-06-68557	21-25735	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE21-06-68560	21-25736	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE21-06-68563	21-25737	0.0–0.5	Soil	—	—	—	—	0.0295 (J)	—	—	—	—	—	—	0.0122 (J)	0.0244 (J)	—	—	—	—	—	—
RE21-06-68566	21-25738	0.0–0.5	Soil	—	—	—	—	0.0143 (J)	—	—	—	—	—	—	—	0.0163 (J)	—	—	—	—	—	—
RE21-06-68572	21-25740	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE21-06-68573	21-25740	0.5–1.0	Soil	—	—	—	—	0.137 (J)	—	—	—	—	—	—	—	0.14 (J)	—	—	—	—	—	—
RE21-06-68574	21-25740	1.5–2.0	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE21-06-68575	21-25741	0.0–0.5	Soil	—	—	—	—	0.0257 (J)	—	—	—	—	—	—	0.0126 (J)	0.0331 (J)	—	—	—	—	—	—
RE21-06-68576	21-25741	0.5–1.0	Soil	—	—	—	—	0.0154 (J)	—	—	—	—	—	—	—	0.0204 (J)	—	—	—	—	—	—
RE21-06-68577	21-25741	1.5–2.0	Soil	—	—	—	—	—	—	—	—	—	—	—	—	0.0144 (J)	—	—	—	—	—	—

Note: Units are mg/kg.

[a] SSLs from NMED (2006, 092513).

[b] Values from EPA Region 6 (2007, 095866).

[c] na = Not available.

[d] — = Not detected.

[e] Isopropylbenzene used as a surrogate based on structural similarity.

Table 6.3-11
Organic Chemicals Detected in Tuff at Consolidated Unit 21-003-99

Sample ID	Location ID	Depth (ft)	Media	Acenaphthene	Aroclor-1242	Aroclor-1248	Aroclor-1254	Aroclor-1260	Benzo(a)anthracene	Benzo(b)fluoranthene	Bis (2-ethylhexyl)phthalate	Butylbenzene[sec-]	Chrysene	Dichloroethene[1,1-]	Fluoranthene	Methylene Chloride	Phenanthrene	Pyrene	Styrene	Trichloroethene
Residential SSL [a]				**3730**	**1.12**	**1.12**	**1.12**	**1.12**	**6.21**	**6.21**	**347**	**60.6**	**615**	**206**	**2290**	**182**	**1830**	**2290**	**100**	**0.638**
Industrial SSL [a]				**33500**	**8.26**	**8.26**	**8.26**	**8.26**	**23.4**	**23.4**	**1370**	**60.6**	**2310**	**777**	**24400**	**490**	**20500**	**30900**	**100**	**1.56**
Construction SSL [a]				**14100**	**4.28**	**4.28**	**4.28**	**4.28**	**212**	**212**	**4660**	**60.6**	**21200**	**678**	**8730**	**2630**	**6990**	**9010**	**100**	**33.6**
RE21-06-68462	21-25713	0.5-1.0	Tuff	— [b]	0.00336 (J)	—	0.0076	0.0091	—	—	—	—	—	—	—	—	—	—	—	—
RE21-06-68463	21-25713	1.5-2.0	Tuff	—	—	—	—	0.0028 (J)	—	—	—	—	—	—	—	—	—	—	—	—
RE21-06-68466	21-25714	1.5-2.0	Tuff	—	—	—	—	0.0024 (J)	—	—	—	—	—	—	—	—	—	—	—	—
RE21-06-68469	21-25715	1.5-2.0	Tuff	—	—	—	0.0049	0.0036 (J)	—	—	—	—	—	—	—	—	—	—	—	—
RE21-06-68471	21-25716	0.5-1.0	Tuff	—	—	—	0.0017 (J)	0.002 (J)	—	—	—	—	—	—	—	—	—	—	—	—
RE21-06-68474	21-25717	0.5-1.0	Tuff	—	—	—	0.12	0.172	—	—	—	—	—	—	—	—	—	—	—	0.000489 (J)
RE21-06-68475	21-25717	1.5-2.0	Tuff	—	—	—	0.023	0.033	—	—	—	—	—	—	—	—	—	—	—	—
RE21-06-68478	21-25718	1.5-2.0	Tuff	—	—	—	0.0034 (J)	0.002 (J)	—	—	—	—	—	—	—	—	—	—	—	—
RE21-06-68480	21-25719	0.5-1.0	Tuff	—	—	—	0.0159	0.0402	—	—	—	—	—	—	—	—	—	—	—	—
RE21-06-68481	21-25719	1.5-2.0	Tuff	—	—	—	0.0031 (J)	0.0087	—	—	—	—	—	—	—	—	—	—	—	—
RE21-06-68483	21-25720	0.5-1.0	Tuff	—	—	—	0.0026 (J)	0.0069	—	—	—	—	—	—	—	—	—	—	—	—
RE21-06-68484	21-25720	1.5-2.0	Tuff	—	—	—	0.301	0.61	0.0108 (J)	0.0439	—	—	0.0301 (J)	—	0.0643	—	0.0399	0.0561	—	—
RE21-06-68500	21-25721	1.5-2.0	Tuff	—	—	—	0.497	0.684	—	—	—	—	—	—	—	—	—	—	0.000273 (J)	—
RE21-06-68504	21-25722	1.5-2.0	Tuff	—	—	—	—	—	—	—	—	0.000245 (J)	—	0.00109 (J)	0.213 (J)	0.00301 (J)	—	0.0191 (J)	0.000631 (J)	—
RE21-06-68507	21-25723	0.5-1.0	Tuff	—	—	—	0.058	0.118	—	—	—	—	—	0.00115 (J)	0.225 (J)	—	—	0.045	—	0.000842 (J)
RE21-06-68508	21-25723	1.5-2.0	Tuff	—	—	—	0.0227	0.0393	—	0.026 (J)	—	—	—	0.000411 (J)	0.218 (J)	—	—	0.0413	0.000373 (J)	—
RE21-06-68511	21-25724	0.5-1.0	Tuff	—	—	—	0.167	0.235	—	—	—	—	—	0.000582 (J)	—	—	—	—	0.000404 (J)	—
RE21-06-68512	21-25724	1.5-2.0	Tuff	—	—	—	0.0184	0.0277	—	—	0.232 (J)	—	—	—	0.211 (J)	—	—	0.0758	—	—
RE21-06-68519	21-25726	0.5-1.0	Tuff	0.259	—	—	—	—	—	—	—	—	—	0.000706 (J)	—	—	—	—	—	—
RE21-06-68522	21-25727	0.5-1.0	Tuff	—	—	—	0.0042	0.0062	—	—	—	—	—	—	0.214 (J)	—	—	—	—	0.000598 (J)
RE21-06-68523	21-25727	1.5-2.0	Tuff	—	—	—	0.0033 (J)	0.0055	—	—	—	—	—	—	—	—	—	—	—	—
RE21-06-68525	21-25728	0.5-1.0	Tuff	—	—	—	0.0064	0.0066	—	—	—	0.000293 (J)	—	—	—	—	—	—	—	0.0013 (J)
RE21-06-68526	21-25728	1.5-2.0	Tuff	—	—	—	0.0106	0.0094	—	—	—	0.000485 (J)	—	—	0.207 (J)	—	—	—	—	0.000494 (J)
RE21-06-68528	21-25729	0.5-1.0	Tuff	—	—	—	—	0.0024 (J)	—	—	—	—	—	—	—	—	—	—	—	0.000345 (J)
RE21-06-68532	21-25730	0.5-1.0	Tuff	—	—	—	0.0092	0.0158	—	—	—	—	—	—	—	—	—	—	—	—
RE21-06-68533	21-25730	1.5-2.0	Tuff	—	—	—	0.0048	0.0081	—	—	—	—	—	—	—	—	—	—	—	—
RE21-06-68536	21-25731	0.5-1.0	Tuff	—	—	—	0.0043	0.0067	—	—	—	—	—	—	0.226 (J)	—	0.0331 (J)	0.0247 (J)	—	—
RE21-06-68537	21-25731	1.5-2.0	Tuff	—	—	—	0.0023 (J)	0.0029 (J)	—	—	—	—	—	—	—	—	—	—	—	—

Table 6.3-11 (continued)

Sample ID	Location ID	Depth (ft)	Media	Acenaphthene	Aroclor-1242	Aroclor-1248	Aroclor-1254	Aroclor-1260	Benzo(a)anthracene	Benzo(b)fluoranthene	Bis (2-ethylhexyl)phthalate	Butylbenzene[sec-]	Chrysene	Dichloroethene[1,1-]	Fluoranthene	Methylene Chloride	Phenanthrene	Pyrene	Styrene	Trichloroethene
Residential SSL [a]				**3730**	**1.12**	**1.12**	**1.12**	**1.12**	**6.21**	**6.21**	**347**	**60.6**	**615**	**206**	**2290**	**182**	**1830**	**2290**	**100**	**0.638**
Industrial SSL [a]				**33500**	**8.26**	**8.26**	**8.26**	**8.26**	**23.4**	**23.4**	**1370**	**60.6**	**2310**	**777**	**24400**	**490**	**20500**	**30900**	**100**	**1.56**
Construction SSL [a]				**14100**	**4.28**	**4.28**	**4.28**	**4.28**	**212**	**212**	**4660**	**60.6**	**21200**	**678**	**8730**	**2630**	**6990**	**9010**	**100**	**33.6**
RE21-06-68549	21-25732	0.5-1.0	Tuff	—	—	—	0.0026 (J)	0.0019 (J)	—	—	—	—	—	—	—	—	—	—	—	—
RE21-06-68552	21-25733	0.5-1.0	Tuff	—	—	—	0.0068	0.0209	—	—	—	—	—	—	—	—	—	—	—	—
RE21-06-68553	21-25733	1.5-2.0	Tuff	—	—	—	0.0056	0.0176	—	—	—	—	—	—	—	—	—	—	—	—
RE21-06-68556	21-25734	1.5-2.0	Tuff	—	—	—	—	0.0029 (J)	—	—	—	—	—	—	—	0.0106	—	—	—	—
RE21-06-68558	21-25735	0.5-1.0	Tuff	—	—	—	0.0273	0.0118	—	—	—	—	—	—	—	—	—	—	—	—
RE21-06-68559	21-25735	1.5-2.0	Tuff	—	—	—	—	0.0042	—	—	—	—	—	—	—	—	—	—	—	—
RE21-06-68562	21-25736	1.5-2.0	Tuff	—	—	—	—	0.0019 (J)	—	—	—	—	—	—	—	—	—	—	—	—
RE21-06-68564	21-25737	0.5-1.0	Tuff	—	—	—	0.0142	0.0631	—	—	—	—	—	—	—	—	—	0.0123 (J)	—	—
RE21-06-68565	21-25737	1.5-2.0	Tuff	—	—	—	—	0.0039	—	—	—	—	—	—	—	—	—	—	—	—
RE21-06-68567	21-25738	0.5-1.0	Tuff	—	—	—	0.157	0.267	—	—	—	—	—	—	—	—	—	—	—	—
RE21-06-68568	21-25738	1.5-2.0	Tuff	—	—	—	0.0394	0.0551	—	—	—	—	—	—	—	—	—	—	—	—
RE21-06-68569	21-25739	0.0-0.5	Tuff	—	—	0.0985	0.0622	0.0168	—	—	—	—	—	—	—	—	—	—	—	—
RE21-06-68570	21-25739	0.5-1.0	Tuff	—	—	0.0197	0.0111	0.002 (J)	—	—	—	—	—	—	—	—	—	—	—	—
RE21-06-68571	21-25739	1.5-2.0	Tuff	—	—	0.0073	0.0037	—	—	—	—	—	—	—	—	—	—	—	—	—

Note: Units are mg/kg.

[a] SSLs from NMED (2006, 092513).

[b] — = Not detected.

Table 6.3-12
Radionuclides Detected or Detected above BVs/FVs in Soil at Consolidated Unit 21-003-99

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cesium-134	Cesium-137	Plutonium-238	Plutonium-239	Strontium-90	Tritium	Uranium-234	Uranium-235	Uranium-238
Soil BV/FV [a]				**0.013**	**na [b]**	**1.65**	**0.023**	**0.054**	**1.31**	**na**	**2.59**	**0.2**	**2.29**
Residential SAL [c]				**30**	**2.4**	**5.6**	**37**	**33**	**5.7**	**750**	**170**	**17**	**86**
Industrial SAL [c]				**180**	**9.7**	**23**	**240**	**210**	**1900**	**4.4E+05**	**1500**	**87**	**430**
Construction Worker SAL [c]				**34**	**7.7**	**18**	**40**	**36**	**800**	**3.2E+05**	**220**	**43**	**160**
AAB8961 [d]	21-01884	0.0–0.5	Soil	— [e]	—	—	0.0679	2.55	4.72	0.0862	—	0.276	—
AAB8966	21-01885	0.0–0.5	Soil	—	0.0568	—	0.216	2.45	—	0.507	—	—	—
AAB8971	21-01886	0.0–0.5	Soil	—	—	—	0.0832	2.36	—	0.254	—	0.333	—
AAB8976	21-01887	0.0–0.5	Soil	—	—	—	0.0787	—	—	0.0323	—	—	—
AAB8981	21-01888	0.0–0.5	Soil	—	—	—	0.0547	1.09	—	0.0651	—	—	—
AAB8983	21-01888	1.0–1.5	Soil	—	—	—	0.0509	0.154	—	0.0428	—	—	—
AAB8986	21-01889	0.0–0.5	Soil	0.837	—	3.05	0.163	10.6	—	0.428	—	—	—
AAB8991	21-01890	0.0–0.5	Soil	—	—	—	0.129	0.795	—	0.0274	—	0.288	—
AAB8996	21-01891	0.0–0.5	Soil	—	—	—	0.0704	0.473	—	0.124	—	—	—
AAB8998	21-01891	1.0–1.5	Soil	—	—	0.168	0.0524	0.0698	1.95	2.93	—	—	—
AAB9001	21-01892	0.0–0.5	Soil	—	—	—	0.0603	0.363	—	0.226	—	—	—
AAB9003	21-01892	1.0–1.5	Soil	—	—	—	0.116	0.0723	1.13	0.0987	—	—	—
AAB9005	21-01892	1.5–2.0	Soil	—	—	—	0.0332	0.107	—	0.117	—	—	—
RE21-06-68434	21-25704	0.0–0.5	Soil	—	—	—	—	—	—	0.283	—	—	—
RE21-06-68435	21-25704	0.5–1.0	Soil	—	—	—	—	—	—	0.122	—	—	—
RE21-06-68436	21-25704	1.5–2.0	Soil	—	—	—	—	—	—	0.0793	—	—	—
RE21-06-68437	21-25705	0.0–0.5	Soil	—	—	—	—	0.117	—	0.153	—	—	—
RE21-06-68438	21-25705	0.5–1.0	Soil	—	—	—	—	0.073	—	0.0591	—	—	—
RE21-06-68439	21-25705	1.5–2.0	Soil	—	—	—	—	—	—	0.0332	—	—	—
RE21-06-68440	21-25706	0.0–0.5	Soil	—	—	—	—	0.0758	—	0.321	—	—	—

Table 6.3-12 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cesium-134	Cesium-137	Plutonium-238	Plutonium-239	Strontium-90	Tritium	Uranium-234	Uranium-235	Uranium-238
Soil BV/FV [a]				**0.013**	**na [b]**	**1.65**	**0.023**	**0.054**	**1.31**	**na**	**2.59**	**0.2**	**2.29**
Residential SAL [c]				**30**	**2.4**	**5.6**	**37**	**33**	**5.7**	**750**	**170**	**17**	**86**
Industrial SAL [c]				**180**	**9.7**	**23**	**240**	**210**	**1900**	**4.4E+05**	**1500**	**87**	**430**
Construction Worker SAL [c]				**34**	**7.7**	**18**	**40**	**36**	**800**	**3.2E+05**	**220**	**43**	**160**
RE21-06-68441	21-25706	0.5–1.0	Soil	—	—	—	—	0.171	—	0.119	—	—	—
RE21-06-68442	21-25706	1.5–2.0	Soil	—	—	—	—	0.426	—	0.206	—	—	—
RE21-06-68443	21-25707	0.0–0.5	Soil	—	—	—	—	0.536	—	0.181	—	—	—
RE21-06-68444	21-25707	0.5–1.0	Soil	—	—	—	—	0.0505	—	0.132	—	—	—
RE21-06-68445	21-25707	1.5–2.0	Soil	—	—	—	—	—	—	0.297	—	—	—
RE21-06-68446	21-25708	0.0–0.5	Soil	0.0665	—	—	—	0.212	—	0.0974	26.6	2.29	14.4
RE21-06-68447	21-25708	0.5–1.0	Soil	—	—	—	—	0.201	—	0.0825	6.79	0.497	6.72
RE21-06-68448	21-25708	1.5–2.0	Soil	—	—	—	—	0.0364	—	0.0805	2.65	0.211	2.74
RE21-06-68449	21-25709	0.0–0.5	Soil	—	—	—	—	—	—	0.0531	—	—	—
RE21-06-68450	21-25709	0.5–1.0	Soil	—	—	—	—	—	—	0.0332	—	—	—
RE21-06-68451	21-25709	1.5–2.0	Soil	—	—	—	—	—	—	0.0520	—	—	—
RE21-06-68452	21-25710	0.0–0.5	Soil	—	—	—	—	—	—	0.0246	—	—	—
RE21-06-68454	21-25710	1.5–2.0	Soil	—	—	—	—	—	—	0.0672	—	—	—
RE21-06-68455	21-25711	0.0–0.5	Soil	—	—	—	—	0.0633	—	0.237	—	—	—
RE21-06-68456	21-25711	0.5–1.0	Soil	—	—	—	—	0.0612	—	0.293	—	—	—
RE21-06-68457	21-25711	1.5–2.0	Soil	—	—	—	—	0.115	—	0.415	—	—	—
RE21-06-68458	21-25712	0.0–0.5	Soil	—	—	—	—	—	—	0.0872	—	—	—
RE21-06-68459	21-25712	0.5–1.0	Soil	—	—	—	—	—	—	0.102	—	—	—
RE21-06-68460	21-25712	1.5–2.0	Soil	—	—	—	—	0.207	—	0.154	—	—	—
RE21-06-68461	21-25713	0.0–0.5	Soil	0.0641	—	—	—	0.081	—	0.297	—	—	—
RE21-06-68464	21-25714	0.0–0.5	Soil	0.113	—	—	—	0.266	—	0.221	—	—	—

Table 6.3-12 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cesium-134	Cesium-137	Plutonium-238	Plutonium-239	Strontium-90	Tritium	Uranium-234	Uranium-235	Uranium-238
Soil BV/FV [a]				**0.013**	**na [b]**	**1.65**	**0.023**	**0.054**	**1.31**	**na**	**2.59**	**0.2**	**2.29**
Residential SAL [c]				**30**	**2.4**	**5.6**	**37**	**33**	**5.7**	**750**	**170**	**17**	**86**
Industrial SAL [c]				**180**	**9.7**	**23**	**240**	**210**	**1900**	**4.4E+05**	**1500**	**87**	**430**
Construction Worker SAL [c]				**34**	**7.7**	**18**	**40**	**36**	**800**	**3.2E+05**	**220**	**43**	**160**
RE21-06-68465	21-25714	0.5–1.0	Soil	—	—	—	—	0.0402	—	0.120	—	—	—
RE21-06-68467	21-25715	0.0–0.5	Soil	0.192	—	—	—	0.666	—	0.306	—	—	—
RE21-06-68468	21-25715	0.5–1.0	Soil	0.0662	—	—	—	0.116	—	0.167	—	—	—
RE21-06-68470	21-25716	0.0–0.5	Soil	0.232	—	—	0.0246	0.565	—	0.420	—	—	—
RE21-06-68473	21-25717	0.0–0.5	Soil	0.0554	—	—	—	0.191	—	0.180	—	—	—
RE21-06-68476	21-25718	0.0–0.5	Soil	0.0832	—	—	—	0.118	—	0.446	—	—	—
RE21-06-68479	21-25719	0.0–0.5	Soil	0.11	—	—	—	0.552	—	0.269	—	—	—
RE21-06-68482	21-25720	0.0–0.5	Soil	0.0704	—	—	0.038	0.291	—	0.670	—	—	—
RE21-06-68498	21-25721	0.0–0.5	Soil	0.121	—	—	0.0287	0.457 (J)	—	0.37	2.85	—	2.56
RE21-06-68499	21-25721	0.5–1.0	Soil	—	—	0.235	—	0.656 (J)	—	0.146	—	—	—
RE21-06-68502	21-25722	0.0–0.5	Soil	0.217	—	—	—	1.48 (J)	—	1.589	—	—	—
RE21-06-68503	21-25722	0.5–1.0	Soil	—	—	—	—	0.125 (J)	—	0.239	—	—	—
RE21-06-68506	21-25723	0.0–0.5	Soil	0.351	—	—	0.0409	1.3 (J)	—	0.115	—	—	—
RE21-06-68510	21-25724	0.0–0.5	Soil	0.0506	—	—	—	0.347 (J)	—	0.124	3.71	0.242	3.22
RE21-06-68514	21-25725	0.0–0.5	Soil	0.321	—	—	—	1.57 (J)	—	0.195	—	—	—
RE21-06-68515	21-25725	0.5–1.0	Soil	—	—	—	—	0.0789 (J)	—	0.642	—	—	—
RE21-06-72611	21-25725	3.0–3.5	Soil	—	—	—	0.0219	0.0512	—	0.105	—	—	—
RE21-06-68534	21-25731	0.0-0.5	Soil	0.097	—	—	—	0.211 (J)	—	0.266	—	—	—
RE21-06-68548	21-25732	0.0-0.5	Soil	0.121	—	—	—	0.395	—	0.103	—	—	—
RE21-06-68551	21-25733	0.0-0.5	Soil	0.386	—	—	0.0569	1.96	—	0.173	14.2	0.717	10.5
RE21-06-68554	21-25734	0.0-0.5	Soil	0.115	—	—	—	0.32	—	0.171	—	—	—

Table 6.3-12 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cesium-134	Cesium-137	Plutonium-238	Plutonium-239	Strontium-90	Tritium	Uranium-234	Uranium-235	Uranium-238
Soil BV/FV [a]				**0.013**	**na [b]**	**1.65**	**0.023**	**0.054**	**1.31**	**na**	**2.59**	**0.2**	**2.29**
Residential SAL [c]				**30**	**2.4**	**5.6**	**37**	**33**	**5.7**	**750**	**170**	**17**	**86**
Industrial SAL [c]				**180**	**9.7**	**23**	**240**	**210**	**1900**	**4.4E+05**	**1500**	**87**	**430**
Construction Worker SAL [c]				**34**	**7.7**	**18**	**40**	**36**	**800**	**3.2E+05**	**220**	**43**	**160**
RE21-06-68555	21-25734	0.5-1.0	Soil	0.0505	—	0.216	—	0.24	—	9.42E-02	—	—	—
RE21-06-68557	21-25735	0.0-0.5	Soil	—	—	—	—	—	—	0.195	—	—	—
RE21-06-68560	21-25736	0.0-0.5	Soil	—	—	—	—	—	—	5.60E-02	—	—	—
RE21-06-68563	21-25737	0.0-0.5	Soil	0.121	—	—	—	0.263	—	0.409	—	—	—
RE21-06-68566	21-25738	0.0-0.5	Soil	0.0409	—	—	—	0.161	—	0.0579	—	—	—
RE21-06-68572	21-25740	0.0-0.5	Soil	0.0253	—	—	—	—	—	1.69E-02	—	—	—
RE21-06-68573	21-25740	0.5-1.0	Soil	—	—	0.246	—	0.171	—	3.97E-02	—	—	—
RE21-06-68574	21-25740	1.5-2.0	Soil	—	—	—	—	0.0272	—	7.57E-02	—	—	—
RE21-06-68575	21-25741	0.0-0.5	Soil	0.0753	—	—	—	0.0924	—	3.09E-02	—	—	—
RE21-06-68576	21-25741	0.5-1.0	Soil	0.0479	—	0.297	—	0.192	—	3.94E-02	—	—	—
RE21-06-68577	21-25741	1.5-2.0	Soil	—	—	0.129	—	0.142	—	0.0662	—	—	—

Note: Units are pCi/g.

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

[b] na = Not available.

[c] SALs from LANL (2005, 088493).

[d] Sample IDs AAB indicate historical data.

[e] — = Not detected or not detected above BV/FV.

Table 6.3-13
Radionuclides Detected or Detected above BVs/FVs in Tuff at Consolidated Unit 21-003-99

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cesium-137	Plutonium-238	Plutonium-239	Strontium-90	Tritium	Uranium-234	Uranium-235	Uranium-238
Qbt 2,3,4 FV/BV [a]				**na [b]**	**na**	**na**	**na**	**na**	**na**	**1.98**	**0.09**	**1.93**
Residential SAL [c]				**30**	**5.6**	**37**	**33**	**5.7**	**750**	**170**	**17**	**86**
Industrial SAL [c]				**180**	**23**	**240**	**210**	**1900**	**4.4E+05**	**1500**	**87**	**430**
Construction Worker SAL [c]				**34**	**18**	**40**	**36**	**800**	**3.2E+05**	**220**	**43**	**160**
RE21-06-68462	21-25713	0.5-1.0	Tuff	0.138	— [d]	—	—	—	0.122	—	0.103	—
RE21-06-68463	21-25713	1.5-2.0	Tuff	—	—	—	—	—	0.166	—	—	—
RE21-06-68466	21-25714	1.5-2.0	Tuff	—	—	—	—	—	0.0362	—	—	—
RE21-06-68469	21-25715	1.5-2.0	Tuff	0.0461	—	—	0.0702	—	0.0996	—	—	—
RE21-06-68471	21-25716	0.5-1.0	Tuff	0.0955	—	—	0.019	—	0.112	—	—	—
RE21-06-68472	21-25716	1.5-2.0	Tuff	0.0929	—	—	—	—	0.0994	—	—	—
RE21-06-68474	21-25717	0.5-1.0	Tuff	0.0666	0.166	—	0.105	—	0.102	—	—	—
RE21-06-68475	21-25717	1.5-2.0	Tuff	—	—	—	0.0242	—	0.0193	—	—	—
RE21-06-68477	21-25718	0.5-1.0	Tuff	—	—	—	0.202	0.0896 (J-)	0.450	—	—	—
RE21-06-68478	21-25718	1.5-2.0	Tuff	—	—	—	0.321	—	1.70	—	0.099	—
RE21-06-68480	21-25719	0.5-1.0	Tuff	—	—	—	—	—	0.552	—	—	—
RE21-06-68481	21-25719	1.5-2.0	Tuff	—	—	—	—	—	1.47	—	—	—
RE21-06-68483	21-25720	0.5-1.0	Tuff	—	—	—	—	—	0.406	—	—	—
RE21-06-68484	21-25720	1.5-2.0	Tuff	0.104	0.426	—	0.32	—	0.746	2.15	0.191	2.21
RE21-06-68500	21-25721	1.5-2.0	Tuff	—	—	—	0.0383 (J)	0.0863	0.0642	—	—	—
RE21-06-68504	21-25722	1.5-2.0	Tuff	—	0.087	—	0.105 (J)	—	0.146	—	0.096	—
RE21-06-68507	21-25723	0.5-1.0	Tuff	0.102	0.299	—	0.546 (J)	—	0.074	—	—	—

Table 6.3-13 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cesium-137	Plutonium-238	Plutonium-239	Strontium-90	Tritium	Uranium-234	Uranium-235	Uranium-238
Qbt 2,3,4 FV/BV [a]				**na [b]**	**na**	**na**	**na**	**na**	**na**	**1.98**	**0.09**	**1.93**
Residential SAL [c]				**30**	**5.6**	**37**	**33**	**5.7**	**750**	**170**	**17**	**86**
Industrial SAL [c]				**180**	**23**	**240**	**210**	**1900**	**4.4E+05**	**1500**	**87**	**430**
Construction Worker SAL [c]				**34**	**18**	**40**	**36**	**800**	**3.2E+05**	**220**	**43**	**160**
RE21-06-68508	21-25723	1.5-2.0	Tuff	—	—	—	0.0823 (J)	—	0.0606	—	—	—
RE21-06-68511	21-25724	0.5-1.0	Tuff	—	0.0679	—	0.0762 (J)	—	0.0755	6.79	0.393	6.78
RE21-06-68512	21-25724	1.5-2.0	Tuff	—	—	—	—	—	0.545	—	—	—
RE21-06-68519	21-25726	0.5-1.0	Tuff	—	—	—	0.0372 (J)	—	0.279	—	—	—
RE21-06-68520	21-25726	1.5-2.0	Tuff	—	—	—	0.0149 (J)	—	0.0468	—	—	—
RE21-06-68522	21-25727	0.5-1.0	Tuff	0.0629	0.194	—	0.306 (J)	—	0.148	—	—	—
RE21-06-68523	21-25727	1.5-2.0	Tuff	0.0335	—	—	0.156 (J)	—	0.167	—	—	—
RE21-06-68525	21-25728	0.5-1.0	Tuff	—	—	—	0.209 (J)	—	0.150	—	—	—
RE21-06-68526	21-25728	1.5-2.0	Tuff	0.0501	0.259	—	0.457 (J)	—	0.211	—	—	—
RE21-06-68528	21-25729	0.5-1.0	Tuff	—	—	—	0.0322 (J)	—	0.103	—	—	—
RE21-06-68529	21-25729	1.5-2.0	Tuff	—	—	—	0.0295 (J)	—	0.126	—	—	—
RE21-06-68532	21-25730	0.5-1.0	Tuff	—	0.145	—	0.112 (J)	—	0.0545	—	—	—
RE21-06-68533	21-25730	1.5-2.0	Tuff	—	—	—	0.036 (J)	—	0.0347	—	—	—
RE21-06-68536	21-25731	0.5-1.0	Tuff	—	0.149	—	0.258 (J)	—	0.0764	—	—	—
RE21-06-68537	21-25731	1.5-2.0	Tuff	—	0.235	—	0.249 (J)	—	0.0366	—	—	—
RE21-06-68549	21-25732	0.5-1.0	Tuff	—	0.168	0.0327	0.323	—	0.0645	—	—	—
RE21-06-68550	21-25732	1.5-2.0	Tuff	—	0.342	—	0.282	—	0.0373	—	—	—
RE21-06-68552	21-25733	0.5-1.0	Tuff	—	0.0767	—	0.208	—	0.218	2.93	0.161	2.23
RE21-06-68553	21-25733	1.5-2.0	Tuff	—	—	—	0.211	—	0.210	1.99	0.121	—

Table 6.3-13 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cesium-137	Plutonium-238	Plutonium-239	Strontium-90	Tritium	Uranium-234	Uranium-235	Uranium-238
Qbt 2,3,4 FV/BV [a]				**na [b]**	**na**	**na**	**na**	**na**	**na**	**1.98**	**0.09**	**1.93**
Residential SAL [c]				**30**	**5.6**	**37**	**33**	**5.7**	**750**	**170**	**17**	**86**
Industrial SAL [c]				**180**	**23**	**240**	**210**	**1900**	**4.4E+05**	**1500**	**87**	**430**
Construction Worker SAL [c]				**34**	**18**	**40**	**36**	**800**	**3.2E+05**	**220**	**43**	**160**
RE21-06-68556	21-25734	1.5-2.0	Tuff	—	0.224	—	0.325	—	0.0615	—	—	—
RE21-06-68558	21-25735	0.5-1.0	Tuff	—	—	—	—	—	0.107	—	—	—
RE21-06-68559	21-25735	1.5-2.0	Tuff	—	—	—	—	—	0.0562	—	—	—
RE21-06-68561	21-25736	0.5-1.0	Tuff	—	—	—	0.575	—	0.218	—	—	—
RE21-06-68562	21-25736	1.5-2.0	Tuff	—	—	—	0.2	—	0.171	—	—	—
RE21-06-68564	21-25737	0.5-1.0	Tuff	—	0.0781	—	0.0557	—	0.168	—	—	—
RE21-06-68565	21-25737	1.5-2.0	Tuff	—	—	—	—	—	0.0701	—	—	—
RE21-06-68567	21-25738	0.5-1.0	Tuff	—	—	—	—	—	0.0501	—	—	—
RE21-06-68568	21-25738	1.5-2.0	Tuff	—	—	—	—	—	0.0967	—	—	—
RE21-06-68569	21-25739	0.0-0.5	Tuff	—	—	—	—	—	0.0349	—	—	—
RE21-06-68570	21-25739	0.5-1.0	Tuff	—	—	—	—	—	0.0415	—	—	—
RE21-06-68571	21-25739	1.5-2.0	Tuff	—	—	—	—	—	0.0539	—	—	—

Note: Units are pCi/g.

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

[b] na = Not available.

[c] SALs from LANL (2005, 088493).

[d] — = Not detected or not detected above BV.

Table 6.3-14
Inorganic Chemicals above BVs in Soil at SWMU 21-009

Sample ID	Location ID	Depth (ft)	Media	Cadmium	Calcium	Chromium	Cyanide (Total)	Lead	Nickel	Nitrate	Perchlorate	Selenium	Zinc
Soil BV [a]				**0.4**	**6120**	**19.3**	**0.5**	**22.3**	**15.4**	**na [b]**	**na**	**1.52**	**48.8**
Residential SSL [c]				**39**	**na**	**2100 [d]**	**1220**	**400**	**1560**	**100000**	**55 [d]**	**391**	**23500**
Industrial SSL [c]				**564**	**na**	**5000 [d]**	**13700**	**800**	**22700**	**100000**	**790 [d]**	**5680**	**100000**
Construction SSL [c]				**154**	**na**	**26.1**	**4760**	**800**	**6190**	**100000**	**na**	**1550**	**92900**
RE21-06-68252	21-25636	0.0-0.5	Soil	0.536 (U)	— [e]	—	—	—	—	8.4	—	11.2	49.8
RE21-06-68253	21-25636	1.5-2.0	Soil	0.535 (U)	—	—	—	—	—	8.56	0.000579 (J)	9.69	59.8
RE21-06-68254	21-25637	0.0-0.5	Soil	0.542 (U)	—	—	—	—	—	5.76	—	12.2	—
RE21-06-68255	21-25637	1.5-2.0	Soil	0.552 (U)	—	—	—	—	17.1	1.52	—	10.7	—
RE21-06-68256	21-25638	0.0-0.5	Soil	0.535 (U)	—	—	—	—	—	8.44	—	10.5	—
RE21-06-68258	21-25639	0.0-0.5	Soil	0.556 (U)	—	—	—	—	—	4.07	—	11.9	—
RE21-06-68259	21-25639	1.5-2.0	Soil	0.562 (U)	—	—	—	—	—	2.91	—	9.6	—
RE21-06-68260	21-25640	0.0-0.5	Soil	0.534 (U)	—	—	—	—	—	7.99	—	7.96	—
RE21-06-68261	21-25640	1.5-2.0	Soil	0.531 (U)	—	24.7	—	—	—	19.3 (J-)	—	2.11	—
RE21-06-68262	21-25641	0.0-0.5	Soil	0.532 (U)	—	—	—	38.7	—	4.51	0.000659 (J)	11	113
RE21-06-68263	21-25641	1.5-2.0	Soil	0.523 (U)	—	—	—	—	—	3.31	—	11.8	—
RE21-06-68264	21-25642	0.0-0.5	Soil	0.537 (U)	9400	—	—	—	—	1.94 (J-)	—	9.32	—
RE21-06-68265	21-25642	1.5-2.0	Soil	0.549 (U)	—	—	0.542(J-)	—	—	1.4 (J-)	—	10.9	—
RE21-06-68266	21-25643	0.0-0.5	Soil	0.521 (U)	—	—	0.709 (J-)	—	—	4.01 (J-)	—	9.96	—

Note: Units are mg/kg.

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

[b] na = Not available.

[c] SSLs from NMED (2006, 092513).

[d] Value from EPA Region 6 (2007, 095866).

[e] — = Not detected or not detected above BV.

Table 6.3-15
Inorganic Chemicals above BVs in Tuff at SWMU 21-009

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Arsenic	Barium	Calcium	Chromium	Nitrate	Selenium
Qbt 2,3,4 BV [a]				**7340**	**2.79**	**46**	**2200**	**7.14**	**na [b]**	**0.3**
Residential SSL [c]				**77800**	**3.9**	**15600**	**na**	**2100 [d]**	**100000**	**391**
Industrial SSL [c]				**100000**	**17.7**	**100000**	**na**	**5000 [d]**	**100000**	**5680**
Construction SSL [c]				**14400**	**85.2**	**60200**	**na**	**26.1**	**100000**	**1550**
RE21-06-68257	21-25638	1.5-2.0	Tuff	— [e]	—	75.3 (J+)	2980	15.4	2.02	5.76
RE21-06-68267	21-25643	1.5-2.0	Tuff	8740	2.83	49.3 (J+)	—	9.51	1.52 (J-)	6.89

Note: Units are mg/kg.

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

[b] na = Not available.

[c] SSLs from NMED (2006, 092513).

[d] Value from EPA Region 6 (2007, 095866).

[e] — = Not detected or not detected above BV.

Table 6.3-16
Organic Chemicals Detected in Soil at SWMU 21-009

Sample ID	Location ID	Depth (ft)	Media	Anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Chloroform	Dichloroethene[1,1-]	Fluoranthene	Heptachlorodibenzodioxin[1,2,3,4,6,7,8-]	Heptachlorodibenzofuran[1,2,3,4,6,7,8-]	Hexachlorodibenzodioxin[1,2,3,4,7,8-]
Residential SSL [a]				**22000**	**0.621**	**6.21**	**62.1**	**4**	**206**	**2290**	**na [b]**	**na**	**na**
Industrial SSL [a]				**100000**	**2.34**	**23.4**	**234**	**9.59**	**777**	**24400**	**na**	**na**	**na**
Construction SSL [a]				**86000**	**21.2**	**212**	**2120**	**216**	**678**	**8730**	**na**	**na**	**na**
RE21-06-68252	21-25636	0.0–0.5	Soil	— [c]	—	—	—	—	—	0.0312 (J)	—	—	—
RE21-06-68253	21-25636	1.5–2.0	Soil	—	—	—	—	—	0.000891 (J)	—	—	—	—
RE21-06-68254	21-25637	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—
RE21-06-68255	21-25637	1.5–2.0	Soil	—	—	—	—	—	0.000614 (J)	—	—	—	—
RE21-06-68260	21-25640	0.0–0.5	Soil	—	0.0686 (J)	0.16 (J)	0.0573 (J)	—	—	0.103	—	—	—
RE21-06-68261	21-25640	1.5–2.0	Soil	—	—	—	—	0.00119	—	—	1.10E-05	1.55E-06 (J)	3.47E-07 (J)
RE21-06-68264	21-25642	0.0–0.5	Soil	—	—	—	—	—	—	0.0353 (J)	—	—	—
RE21-06-68265	21-25642	1.5–2.0	Soil	0.0149 (J)	—	—	—	—	—	—	—	—	—

Table 6.3-16 (continued)

Sample ID	Location ID	Depth (ft)	Media	Hexachlorodibenzodioxin[1,2,3,6,7,8-]	Hexachlorodibenzodioxin[1,2,3,7,8,9-]	Hexachlorodibenzofuran[1,2,3,6,7,8-]	Hexachlorodibenzofuran[2,3,4,6,7,8-]	Octachlorodibenzodioxin[1,2,3,4,6,7,8,9-]	Octachlorodibenzofuran[1,2,3,4,6,7,8,9-]	Pentachlorodibenzodioxin[1,2,3,7,8-]	Pyrene	Tetrachlorodibenzofuran[2,3,7,8-]	Tetrachloroethene
Residential SSL [a]				**na**	**na**	**na**	**na**	**na**	**na**	**na**	**2290**	**na**	**12.5**
Industrial SSL [a]				**na**	**na**	**na**	**na**	**na**	**na**	**na**	**30900**	**na**	**31.6**
Construction SSL [a]				**na**	**na**	**na**	**na**	**na**	**na**	**na**	**9010**	**na**	**134**
RE21-06-68252	21-25636	0.0–0.5	Soil	—	—	—	—	—	—	—	0.0238 (J)	—	—
RE21-06-68253	21-25636	1.5–2.0	Soil	—	—	—	—	—	—	—	—	—	0.000683 (J)
RE21-06-68254	21-25637	0.0–0.5	Soil	—	—	—	—	—	—	—	0.0149 (J)	—	—
RE21-06-68255	21-25637	1.5–2.0	Soil	—	—	—	—	—	—	—	—	—	—
RE21-06-68260	21-25640	0.0–0.5	Soil	—	—	—	—	—	—	—	0.162	—	—
RE21-06-68261	21-25640	1.5–2.0	Soil	6.74E-07 (J)	5.52E-07 (J)	1.07E-07 (J)	1.45E-07 (J)	8.70E-05	3.66E-06 (J)	1.77E-07 (J)	0.0145 (J)	—	—
RE21-06-68264	21-25642	0.0–0.5	Soil	—	—	—	—	—	—	—	0.0305 (J)	1.47E-07 (J)	—
RE21-06-68265	21-25642	1.5–2.0	Soil	—	—	—	—	—	—	—	—	—	—

Note: Units are mg/kg.

[a] SSLs from NMED (2006, 092513).

[b] na = Not available.

[c] — = Not detected.

Table 6.3-17
Radionuclides Detected or Detected above FVs in Soil at SWMU 21-009

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Plutonium-239	Tritium
Soil FV [a]				**0.013**	**0.054**	**na [b]**
Residential SAL [c]				**30**	**33**	**750**
Industrial SAL [c]				**180**	**210**	**4.4E+05**
Construction Worker SAL [c]				**34**	**36**	**3.2E+05**
RE21-06-68252	21-25636	0.0–0.5	0.0336	— [d]	0.131	0.0336
RE21-06-68253	21-25636	1.5–2.0	0.0285	0.0472	0.23	0.0285
RE21-06-68254	21-25637	0.0–0.5	0.0333	—	0.131	0.0333
RE21-06-68255	21-25637	1.5–2.0	0.0513	—	—	0.0513
RE21-06-68256	21-25638	0.0–0.5	0.0362	—	0.166	0.0362
RE21-06-68258	21-25639	0.0–0.5	0.0499	—	—	0.0499
RE21-06-68259	21-25639	1.5–2.0	0.0607	—	—	0.0607
RE21-06-68260	21-25640	0.0–0.5	0.0291	0.0488	1.15	0.0291
RE21-06-68261	21-25640	1.5–2.0	—	—	0.423	—
RE21-06-68262	21-25641	0.0–0.5	0.0241	0.108	0.304	0.0241
RE21-06-68263	21-25641	1.5–2.0	0.0352	—	0.233	0.0352
RE21-06-68264	21-25642	0.0–0.5	0.0569	0.0381	0.11	0.0569
RE21-06-68265	21-25642	1.5–2.0	0.0606	—	0.0216	0.0606
RE21-06-68266	21-25643	0.0–0.5	0.0343	—	0.211	0.0343

Note: Units are pCi/g.

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

[b] na = Not available.

[c] SALs from LANL (2005, 088493).

[d] — = Not detected or not detected above FV.

Table 6.3-18
Radionuclides Detected in Tuff at SWMU 21-009

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Plutonium-239	Tritium
Qbt 2,3,4 FV [a]				**na[b]**	**na**	**na**
Residential SAL [c]				**30**	**33**	**750**
Industrial SAL [c]				**180**	**210**	**4.4E+05**
Construction Worker SAL [c]				**34**	**36**	**3.2E+05**
RE21-06-68257	21-25638	1.5–2.0	Qbt3	— [d]	0.0257	0.0152
RE21-06-68267	21-25643	1.5–2.0	Qbt3	0.31	0.0368	0.0293

Note: Units are pCi/g.

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

[b] na = Not available.

[c] SALs from LANL (2005, 088493).

[d] — = Not detected.

Table 6.3-19
Inorganic Chemicals above BVs in Soil at SWMU 21-013(c)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Iron	Lead	Magnesium	Mercury	Nitrate	Perchlorate	Selenium	Sodium	Thallium	Uranium	Zinc
Soil BV [a]				**29200**	**1.83**	**0.4**	**6120**	**19.3**	**8.64**	**21500**	**22.3**	**4610**	**0.1**	**na [b]**	**na**	**1.52**	**915**	**0.73**	**1.82**	**48.8**
Residential SSL [c]				**77800**	**156**	**39**	**na**	**2100 [d]**	**1520**	**23500**	**400**	**na**	**23 [d]**	**100000**	**55 [d]**	**391**	**na**	**5.16**	**16 [e]**	**23500**
Industrial SSL [c]				**100000**	**2250**	**564**	**na**	**5000 [d]**	**20500**	**100000**	**800**	**na**	**610 [d]**	**100000**	**790 [d]**	**5680**	**na**	**74.9**	**200 [e]**	**100000**
Construction SSL [c]				**14400**	**56.2**	**154**	**na**	**26.1**	**61**	**92900**	**800**	**na**	**927**	**100000**	**na**	**1550**	**na**	**20.4**	**na**	**92900**
AAB7101 [f]	21-01908	0.0–0.5	Soil	— [g]	—	—	—	—	—	—	—	—	—	—	—	—	—	0.85 (U)	2.25 (J)	—
AAB7102	21-01908	0.0–2.5	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.87 (U)	2.14 (J)	—
AAB7105	21-01909	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.88 (U)	—	—
AAB7106	21-01909	0.0–2.5	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1 (J)	2.13 (J)	—
AAB7109	21-01910	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.87 (U)	3.37 (J)	—
AAB7110	21-01910	0.0–2.5	Soil	—	—	—	9400	—	—	—	—	—	—	—	—	—	—	1.4 (J)	1.84 (J)	—
AAB7113	21-01911	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1 (J)	1.88 (J)	—
AAB7114	21-01911	0.0–2.5	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.9 (U)	2.71 (J)	—
AAB7117	21-01912	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.1 (J)	2.15 (J)	—
AAB7118	21-01912	0.0–2.5	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.89 (U)	2.74 (J)	—
AAB7121	21-01913	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.84 (U)	2.96 (J)	—
AAB7122	21-01913	0.0–2.5	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.93 (J)	4.35 (J)	—
AAB7125	21-01914	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.8 (J)	2.56 (J)	—
AAB7126	21-01914	0.0–2.5	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.89 (U)	2.78 (J)	—
AAB7129	21-01915	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.91 (J)	2.18 (J)	—
AAB7130	21-01915	0.0–2.5	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.91 (U)	1.98 (J)	—
AAB7133	21-01916	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.84 (U)	1.85 (J)	—
AAB7134	21-01916	0.0–2.5	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.86 (U)	2.12 (J)	—
AAB7137	21-01917	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.85 (U)	2.18 (J)	—
AAB7138	21-01917	0.0–2.5	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.89 (U)	2.28 (J)	—
RE21-06-68282	21-25647	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	2.49	1.19 (J-)	0.00054 (J)	—	—	—	—	—
RE21-06-68283	21-25647	2.5–3.0	Soil	—	—	—	—	—	—	—	—	—	0.228	—	0.00157 (J)	—	—	—	—	—
RE21-06-68284	21-25648	0.0–0.5	Soil	—	—	—	—	—	—	—	26.2	—	—	2.68 (J-)	0.00145 (J)	1.54 (U)	—	—	—	—
RE21-06-68285	21-25648	2.5–3.0	Soil	—	—	—	9230	—	—	—	—	—	—	0.863 (J-)	0.002 (J)	1.58 (U)	—	—	—	—
RE21-06-68287	21-25649	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	4.22 (J-)	0.000606 (J)	1.53 (U)	—	—	—	—
RE21-06-68289	21-25650	0.0–0.5	Soil	—	—	—	—	—	8.72	—	—	—	—	1.16 (J-)	0.00218	1.54 (U)	—	—	—	—
RE21-06-68290	21-25650	2.5–3.0	Soil	—	—	—	—	—	—	—	—	—	—	—	0.00336	1.58 (U)	—	—	—	—
RE21-06-68292	21-25651	0.0–0.5	Soil	—	—	0.527 (U)	—	—	—	—	—	—	—	1.75	0.000645 (J)	3.81	—	—	—	—

Table 6.3-19 (continued)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Iron	Lead	Magnesium	Mercury	Nitrate	Perchlorate	Selenium	Sodium	Thallium	Uranium	Zinc
Soil BV [a]				**29200**	**1.83**	**0.4**	**6120**	**19.3**	**8.64**	**21500**	**22.3**	**4610**	**0.1**	**na [b]**	**na**	**1.52**	**915**	**0.73**	**1.82**	**48.8**
Residential SSL [c]				**77800**	**156**	**39**	**na**	**2100 [d]**	**1520**	**23500**	**400**	**na**	**23 [d]**	**100000**	**55 [d]**	**391**	**na**	**5.16**	**16 [e]**	**23500**
Industrial SSL [c]				**100000**	**2250**	**564**	**na**	**5000 [d]**	**20500**	**100000**	**800**	**na**	**610 [d]**	**100000**	**790 [d]**	**5680**	**na**	**74.9**	**200 [e]**	**100000**
Construction SSL [c]				**14400**	**56.2**	**154**	**na**	**26.1**	**61**	**92900**	**800**	**na**	**927**	**100000**	**na**	**1550**	**na**	**20.4**	**na**	**92900**
RE21-06-68293	21-25651	2.5–3.0	Soil	—	—	2.73 (U)	6240	—	—	—	—	—	—	0.839 (J)	0.00285	5.21	—	—	—	—
RE21-06-68294	21-25652	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	—	—	1.58 (U)	—	—	—	—
RE21-06-68297	21-25653	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	3.16 (J-)	—	1.54 (U)	—	—	—	—
RE21-06-68302	21-25655	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	0.954 (J-)	—	—	—	—	5.56 (J+)	—
RE21-06-68304	21-25656	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	—	—	1.53 (U)	—	—	—	—
RE21-06-68312	21-25657	0.0–0.5	Soil	—	—	2.5 (U)	—	—	—	—	—	—	—	—	—	5.62	—	—	—	—
RE21-06-68314	21-25658	0.0–0.5	Soil	—	—	2.49 (U)	—	—	—	—	—	—	—	0.781 (J-)	—	4.52	—	—	—	—
RE21-06-68316	21-25659	0.0–0.5	Soil	—	—	0.525 (U)	—	—	—	—	—	—	—	—	—	3.83	—	—	—	—
RE21-06-68318	21-25660	0.0–0.5	Soil	—	—	2.45 (U)	—	—	—	—	—	—	—	1.91 (J-)	—	6.14	—	—	—	—
RE21-06-68320	21-25661	0.0–0.5	Soil	—	—	2.53 (U)	—	—	—	—	—	—	—	2.85 (J-)	—	5.99	—	—	—	—
RE21-06-68322	21-25662	0.0–0.5	Soil	29300	—	2.59 (U)	—	—	—	—	—	—	—	1.19 (J-)	—	5.84	—	—	—	—
RE21-06-68324	21-25663	0.0–0.5	Soil	—	—	0.542 (U)	—	—	—	—	—	—	—	3.51	—	—	—	—	—	—
RE21-06-68326	21-25664	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	5.07	0.00119 (J)	1.59 (U)	—	—	—	49.6
RE21-06-68328	21-25665	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	0.95 (J)	0.000648 (J)	—	—	—	—	—
RE21-06-68329	21-25665	2.5–3.0	Soil	34800 (J+)	2.39	—	—	20.1	—	21900	—	5970	0.123	0.959 (J)	0.00356	1.7 (U)	1950	—	2.02 (J-)	—
RE21-06-68330	21-25666	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	5.7	—	1.63 (U)	—	—	—	—
RE21-06-68331	21-25666	2.5–3.0	Soil	—	—	0.533 (U)	—	—	—	—	—	—	—	2.57	—	—	—	—	—	—
RE21-06-68332	21-25667	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	3.46	—	1.67 (U)	—	—	—	—
RE21-06-68334	21-25668	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	1.87 (J-)	—	1.56 (U)	—	—	—	—
RE21-06-68336	21-25669	0.0–0.5	Soil	—	—	—	10200	—	—	—	—	—	—	1.32 (J-)	—	—	—	—	—	—

Note: Units are mg/kg.

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

[b] na = Not available.

[c] SSLs from NMED (2006, 092513).

[d] Value from EPA Region 6 (2007, 095866).

[e] Value from EPA Region 9 (http://www.epa.gov/region9/waste/sfund/prg/files/04prgtable.pdf).

[f] Sample IDs AAB indicate historical data.

[g] — = Not detected or not detected above BV.

Table 6.3-20
Inorganic Chemicals above BVs in Tuff at SWMU 21-013(c)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Arsenic	Barium	Calcium	Chromium	Copper	Iron	Lead	Magnesium	Nickel	Nitrate	Perchlorate	Selenium	Vanadium
Qbt 2,3,4 BV [a]				**7340**	**2.79**	**46**	**2200**	**7.14**	**4.66**	**14500**	**11.2**	**1690**	**6.58**	**na [b]**	**na**	**0.3**	**17**
Residential SSL [c]				**77800**	**3.9**	**15600**	**na**	**2100 [d]**	**3130**	**23500**	**400**	**na**	**1560**	**100000**	**55 [d]**	**391**	**78.2**
Industrial SSL [c]				**100000**	**17.7**	**100000**	**na**	**5000 [d]**	**45400**	**100000**	**800**	**na**	**22700**	**100000**	**790 [d]**	**5680**	**1140**
Construction SSL [c]				**14400**	**85.2**	**60200**	**na**	**26.1**	**12400**	**92900**	**800**	**na**	**6190**	**100000**	**na**	**1550**	**310**
RE21-06-68288	21-25649	2.5–3.0	Tuff	14800 (J+)	— [e]	95	2570	23.8	—	—	—	2590	7.06	4.2 (J-)	0.00261	1.6 (U)	—
RE21-06-68295	21-25652	2.5–3.0	Tuff	—	—	—	3750	—	—	—	—	—	—	—	—	1.55 (U)	—
RE21-06-68298	21-25653	2.5–3.0	Tuff	7850 (J+)	—	58.8	—	—	—	—	—	—	—	—	—	1.5 (U)	—
RE21-06-68299	21-25654	0.0–0.5	Tuff	—	—	—	—	—	—	—	—	—	—	—	—	1.55 (U)	—
RE21-06-68300	21-25654	2.5–3.0	Tuff	—	—	—	—	—	—	—	—	—	—	—	—	1.54 (U)	—
RE21-06-68303	21-25655	2.5–3.0	Tuff	—	—	—	—	—	—	—	—	—	—	—	—	1.55 (U)	—
RE21-06-68305	21-25656	0.5–1.0	Tuff	—	—	—	—	7.68	—	—	—	—	—	—	—	1.51 (U)	—
RE21-06-68313	21-25657	2.5–3.0	Tuff	8490	4.38	68.6	2790	—	5.09	—	11.7	1700	6.65	—	—	2.85	—
RE21-06-68315	21-25658	2.5–3.0	Tuff	—	3.94	—	—	—	—	—	—	—	—	—	—	1.61	—
RE21-06-68317	21-25659	0.5–1.0	Tuff	—	—	—	—	—	—	—	—	—	—	1.03 (J-)	—	2.72	—
RE21-06-68319	21-25660	2.5–3.0	Tuff	8350	4.69	108	6030	—	—	—	—	—	—	1.06 (J-)	0.00242	2.04	—
RE21-06-68321	21-25661	2.5–3.0	Tuff	—	3.18	—	—	—	—	—	—	—	—	—	—	1.32 (J)	—
RE21-06-68323	21-25662	2.5–3.0	Tuff	—	3.1	—	—	—	—	—	—	—	—	—	—	1.77	—
RE21-06-68325	21-25663	2.5–3.0	Tuff	17100 (J+)	—	159	4990	9.78	5.86	—	—	2960	—	0.792 (J)	0.000929 (J)	1.55 (U)	—
RE21-06-68327	21-25664	2.5–3.0	Tuff	22100 (J+)	7.05	109	3990	12.5	5.47	15000	26.5	3580	8.93	0.986 (J)	0.00726	0.809 (J)	24.2
RE21-06-68333	21-25667	2.5–3.0	Tuff	—	—	—	2930	9.06	—	—	—	—	—	0.776 (J)	0.000603 (J)	1.53 (U)	—
RE21-06-68335	21-25668	2.5–3.0	Tuff	—	—	—	—	—	—	—	—	—	—	—	—	1.55 (U)	—
RE21-06-68337	21-25669	2.5–3.0	Tuff	—	4.42	—	—	—	—	—	—	—	—	—	—	1.57 (U)	—

Note: Units are mg/kg.

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

[b] na = Not available.

[c] SSLs from NMED (2006, 092513).

[d] Value from EPA Region 6 (2007, 095866).

[e] — = Not detected or not detected above BV.

Table 6.3-21
Organic Chemicals Detected in Soil at SWMU 21-013(c)

Sample ID	Location ID	Depth (ft)	Media	Acenaphthene	Anthracene	Aroclor-1254	Aroclor-1260	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Benzoic Acid	Bis(2-ethylhexyl)phthalate	Chrysene	Dibenzofuran	Di-n-butylphthalate	Fluoranthene	Fluorene	Heptachlorodibenzodioxin[1,2,3,4,6,7,8-]
Residential SSL [a]				**3730**	**22000**	**1.12**	**1.12**	**6.21**	**0.621**	**6.21**	**2290 [b]**	**62.1**	**100000 [c]**	**347**	**615**	**142**	**6110**	**2290**	**2660**	**na [d]**
Industrial SSL [a]				**33500**	**100000**	**8.26**	**8.26**	**23.4**	**2.34**	**23.4**	**30900 [b]**	**234**	**100000 [c]**	**1370**	**2310**	**1620**	**68400**	**24400**	**26500**	**na**
Construction SSL [a]				**14100**	**86000**	**4.28**	**4.28**	**212**	**21.2**	**212**	**9010 [b]**	**2120**	**100000 [c]**	**4660**	**21200**	**552**	**23300**	**8730**	**10200**	**na**
AAB7101 [e]	21-01908	0.0–0.5	Soil	— [f]	—	—	—	—	—	—	—	—	—	0.21 (J)	—	—	—	—	—	—
AAB7102	21-01908	0.0–2.5	Soil	—	—	—	—	—	—	—	—	—	—	0.24 (J)	—	—	—	—	—	—
AAB7105	21-01909	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	1.2	—	—	—	0.051 (J)	—	—
AAB7106	21-01909	0.0–2.5	Soil	—	—	—	—	—	—	—	—	—	—	6.4	—	—	—	—	—	—
AAB7109	21-01910	0.0–0.5	Soil	—	—	—	—	0.072 (J)	—	0.073 (J)	—	—	—	1.3	0.081 (J)	—	—	0.19 (J)	—	—
AAB7110	21-01910	0.0–2.5	Soil	—	—	—	—	—	—	—	—	—	—	0.5	—	—	—	—	—	—
AAB7113	21-01911	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.084 (J)	—	—
AAB7114	21-01911	0.0–2.5	Soil	—	—	—	—	—	—	—	—	—	—	6.5	—	—	—	0.062 (J)	—	—
AAB7117	21-01912	0.0–0.5	Soil	—	0.041 (J)	—	—	—	—	0.17 (J)	—	—	—	0.14 (J)	—	—	—	0.25 (J)	—	—
AAB7118	21-01912	0.0–2.5	Soil	—	—	—	—	—	—	—	—	—	—	0.2 (J)	—	—	0.29 (J)	—	—	—
AAB7121	21-01913	0.0–0.5	Soil	0.4	0.57 (J)	—	—	1.1	1	1.5 (J)	0.42	—	—	0.12 (J)	1.1	0.12 (J)	—	3	—	—
AAB7122	21-01913	0.0–2.5	Soil	—	—	—	—	—	—	—	—	—	—	0.53	—	—	—	—	—	—
AAB7125	21-01914	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	0.22 (J)	—	—	—	—	—	—
AAB7126	21-01914	0.0–2.5	Soil	—	—	—	—	—	—	—	—	—	—	1.3	—	—	—	—	—	—
AAB7129	21-01915	0.0–0.5	Soil	—	0.041 (J)	—	—	0.14 (J)	0.18 (J)	0.24 (J)	—	0.11 (J)	—	2.9	0.17 (J)	—	—	0.3 (J)	—	—
AAB7130	21-01915	0.0–2.5	Soil	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—
AAB7133	21-01916	0.0–0.5	Soil	—	0.054 (J)	—	—	0.12 (J)	0.12 (J)	0.16 (J)	—	0.066 (J)	—	0.1 (J)	0.13 (J)	—	—	0.28 (J)	—	—
AAB7134	21-01916	0.0–2.5	Soil	—	—	—	—	—	—	—	—	—	—	2.4	—	—	—	—	—	—
AAB7137	21-01917	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	0.064 (J)	—	—	—	0.082 (J)	—	—
AAB7138	21-01917	0.0–2.5	Soil	—	—	—	—	—	—	—	—	—	—	0.94	—	—	—	—	—	—
RE21-06-68282	21-25647	0.0–0.5	Soil	—	—	—	—	—	0.0528	0.0907 (J+)	0.044 (J)	—	—	—	0.0479	—	—	0.0685	—	—
RE21-06-68283	21-25647	2.5–3.0	Soil	—	0.00703 (J)	—	—	—	0.036	0.053 (J)	—	—	—	—	0.0421	—	—	0.0595	—	—
RE21-06-68284	21-25648	0.0–0.5	Soil	0.0172 (J)	0.024 (J)	—	—	—	—	0.108 (J)	—	—	—	—	0.0711	—	—	0.118	0.013 (J)	—

Table 6.3-21 (continued)

Sample ID	Location ID	Depth (ft)	Media	Acenaphthene	Anthracene	Aroclor-1254	Aroclor-1260	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Benzoic Acid	Bis(2-ethylhexyl)phthalate	Chrysene	Dibenzofuran	Di-n-butylphthalate	Fluoranthene	Fluorene	Heptachlorodibenzodioxin[1,2,3,4,6,7,8-]
Residential SSL [a]				**3730**	**22000**	**1.12**	**1.12**	**6.21**	**0.621**	**6.21**	**2290 [b]**	**62.1**	**100000 [c]**	**347**	**615**	**142**	**6110**	**2290**	**2660**	**na [d]**
Industrial SSL [a]				**33500**	**100000**	**8.26**	**8.26**	**23.4**	**2.34**	**23.4**	**30900 [b]**	**234**	**100000 [c]**	**1370**	**2310**	**1620**	**68400**	**24400**	**26500**	**na**
Construction SSL [a]				**14100**	**86000**	**4.28**	**4.28**	**212**	**21.2**	**212**	**9010 [b]**	**2120**	**100000 [c]**	**4660**	**21200**	**552**	**23300**	**8730**	**10200**	**na**
RE21-06-68287	21-25649	0.0–0.5	Soil	0.0366	0.0497	—	0.0022 (J)	—	0.145	0.236 (J)	0.12	—	—	—	0.168	—	—	0.374	0.0214 (J)	—
RE21-06-68289	21-25650	0.0–0.5	Soil	—	—	—	—	—	—	0.0197 (J)	—	—	—	—	—	—	—	0.0205 (J)	—	—
RE21-06-68292	21-25651	0.0–0.5	Soil	0.0145 (J)	0.0232 (J)	—	—	—	0.0792	0.133	0.0583	—	—	—	0.0853	—	—	0.144	0.0105 (J)	0.0000132
RE21-06-68293	21-25651	2.5–3.0	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.20E-06 (J)
RE21-06-68294	21-25652	0.0–0.5	Soil	—	—	0.0016 (J)	—	—	—	0.0226 (J)	—	—	—	—	—	—	—	0.0194 (J)	—	—
RE21-06-68297	21-25653	0.0–0.5	Soil	—	—	—	0.0014 (J)	—	0.0182 (J)	0.035 (J)	—	—	—	—	—	—	—	0.0341 (J)	—	—
RE21-06-68302	21-25655	0.0–0.5	Soil	—	0.0195 (J)	0.0036	0.0019 (J)	—	0.0242 (J)	0.0365 (J)	—	—	—	—	—	—	—	0.0355	—	—
RE21-06-68304	21-25656	0.0–0.5	Soil	—	—	0.0039	0.0023 (J)	—	—	0.0233 (J)	—	—	—	—	—	—	—	0.0219 (J)	—	—
RE21-06-68312	21-25657	0.0–0.5	Soil	—	—	—	0.0016 (J)	—	0.024 (J)	0.0528	0.0192 (J)	—	—	—	0.0249 (J)	—	—	0.0545	—	—
RE21-06-68314	21-25658	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	0.435 (J)	—	—	—	—	—	—	—
RE21-06-68316	21-25659	0.0–0.5	Soil	—	—	—	0.0024 (J)	—	0.0172 (J)	0.0316 (J)	0.0114 (J)	—	0.471 (J)	—	0.0172 (J)	—	—	0.0328 (J)	—	—
RE21-06-68318	21-25660	0.0–0.5	Soil	—	—	—	0.00194 (J)	—	—	0.0125 (J)	—	—	0.435 (J)	—	—	—	—	0.0149 (J)	—	—
RE21-06-68320	21-25661	0.0–0.5	Soil	—	—	—	0.00132 (J)	—	—	—	—	—	0.432 (J)	0.355	—	—	—	—	—	—
RE21-06-68322	21-25662	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	0.471 (J)	—	—	—	—	—	—	—
RE21-06-68324	21-25663	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.0205 (J)	—	—
RE21-06-68326	21-25664	0.0–0.5	Soil	—	0.0227 (J)	0.0062	0.0029 (J)	—	0.0474	—	0.0344 (J)	—	—	—	0.0653	—	—	0.159	—	—
RE21-06-68328	21-25665	0.0–0.5	Soil	—	—	—	0.0014 (J)	—	0.021 (J)	—	—	—	—	—	0.0297 (J)	—	—	0.056	—	—
RE21-06-68330	21-25666	0.0–0.5	Soil	0.0173 (J)	0.0248 (J)	0.0062	0.0041	—	0.0665	—	0.0512 (J)	—	—	—	0.076	—	—	0.182	—	—
RE21-06-68331	21-25666	2.5–3.0	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.012 (J)	—	—
RE21-06-68332	21-25667	0.0–0.5	Soil	—	0.0105 (J)	—	—	—	0.0675	0.174	0.0882 (J)	0.0622	—	—	0.0856	—	—	0.107	—	—

Table 6.3-21 (continued)

Sample ID	Location ID	Depth (ft)	Media	Heptachlorodibenzofuran[1,2,3,4,6,7,8-]	Hexachlorodibenzodioxin[1,2,3,6,7,8-]	Hexachlorodibenzodioxin[1,2,3,7,8,9-]	Hexachlorodibenzofuran[1,2,3,4,7,8-]	Hexachlorodibenzofuran[1,2,3,6,7,8-]	Hexachlorodibenzofuran[2,3,4,6,7,8-]	Indeno(1,2,3-cd)pyrene	Methylnaphthalene[2-]	Octachlorodibenzodioxin[1,2,3,4,6,7,8,9-]	Octachlorodibenzofuran[1,2,3,4,6,7,8,9-]	Pentachlorodibenzofuran[2,3,4,7,8-]	Phenanthrene	Pyrene	Tetrachlorodibenzofuran[2,3,7,8-]	Toluene	Trichlorofluoromethane	Xylene (Total)
Residential SSL [a]				**na**	**na**	**na**	**na**	**na**	**na**	**6.21**	**79.5 [g]**	**na**	**na**	**na**	**1830**	**2290**	**na**	**252**	**588**	**82**
Industrial SSL [a]				**na**	**na**	**na**	**na**	**na**	**na**	**23.4**	**300 [g]**	**na**	**na**	**na**	**20500**	**30900**	**na**	**252**	**983**	**82**
Construction SSL [a]				**na**	**na**	**na**	**na**	**na**	**na**	**212**	**262 [g]**	**na**	**na**	**na**	**6990**	**9010**	**na**	**252**	**983**	**82**
AAB7101	21-01908	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
AAB7102	21-01908	0.0–2.5	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01 (J)	—
AAB7105	21-01909	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	—	0.038 (J)	0.064 (J)	—	—	—	—
AAB7106	21-01909	0.0–2.5	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.003 (J)	—	—
AAB7109	21-01910	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	—	0.1 (J)	0.18 (J)	—	—	—	—
AAB7110	21-01910	0.0–2.5	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
AAB7113	21-01911	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	—	0.051 (J)	0.093 (J)	—	—	—	—
AAB7114	21-01911	0.0–2.5	Soil	—	—	—	—	—	—	—	—	—	—	—	0.056 (J)	0.066 (J)	—	—	—	—
AAB7117	21-01912	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	—	0.18 (J)	0.25 (J)	—	—	—	—
AAB7118	21-01912	0.0–2.5	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
AAB7121	21-01913	0.0–0.5	Soil	—	—	—	—	—	—	0.42	0.049 (J)	—	—	—	2.6	3.3	—	—	—	—
AAB7122	21-01913	0.0–2.5	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
AAB7125	21-01914	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.007	—	0.001 (J)
AAB7126	21-01914	0.0–2.5	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.017	—
AAB7129	21-01915	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	—	0.15 (J)	0.48	—	—	0.006	—
AAB7130	21-01915	0.0–2.5	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.016	—
AAB7133	21-01916	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	—	—	0.36	—	—	0.017	—
AAB7134	21-01916	0.0–2.5	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.012	—
AAB7137	21-01917	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	—	—	0.14 (J)	—	—	0.006	—
AAB7138	21-01917	0.0–2.5	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.014	—
RE21-06-68282	21-25647	0.0–0.5	Soil	—	—	—	—	—	—	0.0315 (J)	—	—	—	—	0.0146 (J)	0.0732	—	—	—	—
RE21-06-68283	21-25647	2.5–3.0	Soil	—	—	—	—	—	—	—	—	—	—	—	0.03 (J)	0.088	—	—	—	—
RE21-06-68284	21-25648	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	—	0.0804	0.146	—	—	—	—

Table 6.3-21 (continued)

Sample ID	Location ID	Depth (ft)	Media	Heptachlorodibenzofuran[1,2,3,4,6,7,8-]	Hexachlorodibenzodioxin[1,2,3,6,7,8-]	Hexachlorodibenzodioxin[1,2,3,7,8,9-]	Hexachlorodibenzofuran[1,2,3,4,7,8-]	Hexachlorodibenzofuran[1,2,3,6,7,8-]	Hexachlorodibenzofuran[2,3,4,6,7,8-]	Indeno(1,2,3-cd)pyrene	Methylnaphthalene[2-]	Octachlorodibenzodioxin[1,2,3,4,6,7,8,9-]	Octachlorodibenzofuran[1,2,3,4,6,7,8,9-]	Pentachlorodibenzofuran[2,3,4,7,8-]	Phenanthrene	Pyrene	Tetrachlorodibenzofuran[2,3,7,8-]	Toluene	Trichlorofluoromethane	Xylene (Total)
Residential SSL [a]				**na**	**na**	**na**	**na**	**na**	**na**	**6.21**	**79.5 [g]**	**na**	**na**	**na**	**1830**	**2290**	**na**	**252**	**588**	**82**
Industrial SSL [a]				**na**	**na**	**na**	**na**	**na**	**na**	**23.4**	**300 [g]**	**na**	**na**	**na**	**20500**	**30900**	**na**	**252**	**983**	**82**
Construction SSL [a]				**na**	**na**	**na**	**na**	**na**	**na**	**212**	**262 [g]**	**na**	**na**	**na**	**6990**	**9010**	**na**	**252**	**983**	**82**
RE21-06-68287	21-25649	0.0–0.5	Soil	—	—	—	—	—	—	0.103	—	—	—	—	0.253	0.384	—	—	—	—
RE21-06-68289	21-25650	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	—	0.0145 (J)	0.0295 (J)	—	—	—	—
RE21-06-68292	21-25651	0.0–0.5	Soil	2.40E-06 (J)	5.37E-07 (J)	4.87E-07 (J)	3.93E-07 (J)	2.14E-07 (J)	2.25E-07 (J)	0.0492	—	0.000112	5.21E-06 (J)	2.69E-07 (J)	0.108	0.184 (J)	2.56E-07 (J)	—	—	—
RE21-06-68293	21-25651	2.5–3.0	Soil	2.55E-07 (J)	—	—	7.54E-08 (J)	—	—	—	—	0.0000108	–	–	—	—	—	—	—	—
RE21-06-68294	21-25652	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	—	—	0.022 (J)	—	—	—	—
RE21-06-68297	21-25653	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	—	0.0173 (J)	0.0419	—	—	—	—
RE21-06-68302	21-25655	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	—	0.0196 (J)	0.0516	—	—	—	—
RE21-06-68304	21-25656	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	—	0.0117 (J)	0.0279 (J)	—	—	—	—
RE21-06-68312	21-25657	0.0–0.5	Soil	—	—	—	—	—	—	0.017 (J)	—	—	—	—	0.0267 (J)	0.0478	—	—	—	—
RE21-06-68314	21-25658	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE21-06-68316	21-25659	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	—	0.0213 (J)	0.0449	—	—	—	—
RE21-06-68318	21-25660	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	—	—	0.011 (J)	—	—	—	—
RE21-06-68320	21-25661	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	—	—	0.0133 (J)	—	—	—	—
RE21-06-68322	21-25662	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE21-06-68324	21-25663	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	—	0.013 (J)	0.0189 (J)	—	—	—	—
RE21-06-68326	21-25664	0.0–0.5	Soil	—	—	—	—	—	—	0.0296 (J)	—	—	—	—	0.103	0.161	—	—	—	—
RE21-06-68328	21-25665	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	—	0.0231 (J)	0.0551	—	—	—	—
RE21-06-68330	21-25666	0.0–0.5	Soil	—	—	—	—	—	—	0.0446	—	—	—	—	0.119	0.198	—	—	—	—
RE21-06-68331	21-25666	2.5–3.0	Soil	—	—	—	—	—	—	—	—	—	—	—	—	0.0125 (J)	—	—	—	—
RE21-06-68332	21-25667	0.0–0.5	Soil	—	—	—	—	—	—	0.071	—	—	—	—	0.0484	0.108	—	—	—	—

Note: Units are mg/kg.

[a] SSLs from NMED (2006, 092513).

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

[c] Value from EPA Region 6 (2007, 095866).

[d] na = Not available.

[e] Sample IDs AAB indicate historical data

[f] — = Not detected.

[g] Naphthalene used as a surrogate based on structural similarity.

Table 6.3-22
Organic Chemicals Detected in Tuff at SWMU 21-013(c)

Sample ID	Location ID	Depth (ft)	Media	Benzo(b)fluoranthene	Benzoic Acid	Chloroform	Fluoranthene	Pyrene
Residential SSL [a]				**6.21**	**100000 [b]**	**4**	**2290**	**2290**
Industrial SSL [a]				**23.4**	**100000 [b]**	**9.59**	**24400**	**30900**
Construction SSL [a]				**212**	**100000 [b]**	**216**	**8730**	**9010**
RE21-06-68298	21-25653	2.5–3.0	Tuff	0.0111 (J)	— [c]	—	0.0117 (J)	0.0172 (J)
RE21-06-68317	21-25659	0.5–1.0	Tuff	—	0.462 (J)	0.000287 (J)	—	—
RE21-06-68321	21-25661	2.5–3.0	Tuff	—	0.44 (J)	—	—	—
RE21-06-68323	21-25662	2.5–3.0	Tuff	—	0.437 (J)	—	—	—

Note: Units are mg/kg.
[a] SSLs from NMED (2006, 092513).
[b] Value from EPA Region 6 (2007, 095866).
[c] — = Not detected.

Table 6.3-23
Radionuclides Detected or Detected above FVs in Soil at SWMU 21-013(c)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Plutonium-239	Strontium-90	Tritium
Soil FV [a]				**0.013**	**0.054**	**1.31**	**na [b]**
Residential SAL [c]				**30**	**33**	**5.7**	**750**
Industrial SAL [c]				**180**	**210**	**1900**	**4.4E+05**
Construction Worker SAL [c]				**34**	**36**	**800**	**3.2E+05**
AAB7101 [d]	21-01908	0.0–0.5	Soil	— [e]	—	—	0.0584
AAB7102	21-01908	0.0–2.5	Soil	—	0.0529	—	0.0818
AAB7105	21-01909	0.0–0.5	Soil	—	—	—	0.157
AAB7106	21-01909	0.0–2.5	Soil	—	0.0547	0.56	0.144
AAB7109	21-01910	0.0–0.5	Soil	—	0.0905	—	—
AAB7110	21-01910	0.0–2.5	Soil	—	—	—	0.103
AAB7113	21-01911	0.0–0.5	Soil	—	—	—	0.286
AAB7114	21-01911	0.0–2.5	Soil	—	0.0928	—	0.230
AAB7117	21-01912	0.0–0.5	Soil	—	0.0934	—	0.191
AAB7118	21-01912	0.0–2.5	Soil	—	0.0146	—	0.0963
AAB7121	21-01913	0.0–0.5	Soil	—	0.224	—	0.0829
AAB7122	21-01913	0.0–2.5	Soil	—	—	—	0.199
AAB7125	21-01914	0.0–0.5	Soil	—	—	—	0.157
AAB7126	21-01914	0.0–2.5	Soil	—	—	0.59	0.169
AAB7129	21-01915	0.0–0.5	Soil	—	0.164	—	0.191
AAB7130	21-01915	0.0–2.5	Soil	—	—	—	0.186
AAB7133	21-01916	0.0–0.5	Soil	—	0.0656	—	0.168
AAB7134	21-01916	0.0–2.5	Soil	—	0.0099	—	0.0996
AAB7137	21-01917	0.0–0.5	Soil	—	0.223	—	0.154
AAB7138	21-01917	0.0–2.5	Soil	—	0.0132	—	0.255
RE21-06-68282	21-25647	0.0–0.5	Soil	—	0.28	—	0.0386
RE21-06-68283	21-25647	2.5–3.0	Soil	—	0.125	—	0.106
RE21-06-68284	21-25648	0.0–0.5	Soil	0.0402	0.728	—	0.0695
RE21-06-68285	21-25648	2.5–3.0	Soil	—	—	—	0.0763
RE21-06-68287	21-25649	0.0–0.5	Soil	0.025	0.0643	—	0.0438
RE21-06-68289	21-25650	0.0–0.5	Soil	—	—	—	0.0347
RE21-06-68290	21-25650	2.5–3.0	Soil	—	—	—	0.0575
RE21-06-68292	21-25651	0.0–0.5	Soil	—	—	—	0.0161
RE21-06-68293	21-25651	2.5–3.0	Soil	—	—	—	0.0545
RE21-06-68294	21-25652	0.0–0.5	Soil	—	0.0576	—	0.0794

Table 6.3-23 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Plutonium-239	Strontium-90	Tritium
Soil FV [a]				**0.013**	**0.054**	**1.31**	**na [b]**
Residential SAL [c]				**30**	**33**	**5.7**	**750**
Industrial SAL [c]				**180**	**210**	**1900**	**4.4E+05**
Construction Worker SAL [c]				**34**	**36**	**800**	**3.2E+05**
RE21-06-68297	21-25653	0.0–0.5	Soil	—	0.201	—	0.0313
RE21-06-68302	21-25655	0.0–0.5	Soil	—	0.144	—	0.202
RE21-06-68304	21-25656	0.0–0.5	Soil	0.0857	0.549	—	0.0624
RE21-06-68312	21-25657	0.0–0.5	Soil	—	0.0564	—	0.0667
RE21-06-68314	21-25658	0.0–0.5	Soil	—	—	—	0.0829
RE21-06-68316	21-25659	0.0–0.5	Soil	0.0519	0.121	—	0.0365
RE21-06-68318	21-25660	0.0–0.5	Soil	—	0.062	—	0.0441
RE21-06-68320	21-25661	0.0–0.5	Soil	—	—	—	0.0689
RE21-06-68322	21-25662	0.0–0.5	Soil	—	—	—	0.129
RE21-06-68324	21-25663	0.0–0.5	Soil	0.051	—	—	0.248
RE21-06-68326	21-25664	0.0–0.5	Soil	0.0687	0.0561	—	0.165
RE21-06-68328	21-25665	0.0–0.5	Soil	—	0.168	—	0.215
RE21-06-68329	21-25665	2.5–3.0	Soil	—	—	—	0.102
RE21-06-68330	21-25666	0.0–0.5	Soil	0.0375	0.162	—	0.402
RE21-06-68331	21-25666	2.5–3.0	Soil	—	—	—	0.0844
RE21-06-68332	21-25667	0.0–0.5	Soil	0.0568	0.137	—	0.248
RE21-06-68334	21-25668	0.0–0.5	Soil	0.0271	0.129	—	0.111
RE21-06-68336	21-25669	0.0–0.5	Soil	0.043	0.0742	—	0.178

Note: Units are pCi/g.

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

[b] na = not available.

[c] SALs from LANL (2005, 088493).

[d] Sample IDs AAB indicate historical data.

[e] — = Not detected or not detected above FV.

Table 6.3-24
Radionuclides Detected or Detected above BVs/FVs in Tuff at SWMU 21-013(c)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cesium-137	Plutonium-239	Tritium	Uranium-235
Qbt 2,3,4 BV/FV [a]				**na [b]**	**na**	**na**	**na**	**0.09**
Residential SAL [c]				**30**	**5.6**	**33**	**750**	**17**
Industrial SAL [c]				**180**	**23**	**210**	**4.4E+05**	**87**
Construction Worker SAL [c]				**34**	**18**	**36**	**3.2E+05**	**43**
RE21-06-68288	21-25649	2.5–3.0	Tuff	— [d]	—	—	0.171	—
RE21-06-68295	21-25652	2.5–3.0	Tuff	—	—	—	0.0168	—
RE21-06-68298	21-25653	2.5–3.0	Tuff	0.0424	0.33	0.243	0.0262	—
RE21-06-68299	21-25654	0.0–0.5	Tuff	—	—	—	0.03221	—
RE21-06-68300	21-25654	2.5–3.0	Tuff	—	—	—	0.0564	—
RE21-06-68303	21-25655	2.5–3.0	Tuff	—	—	—	0.0296	—
RE21-06-68305	21-25656	0.5–1.0	Tuff	—	—	—	0.0198	—
RE21-06-68313	21-25657	2.5–3.0	Tuff	—	—	—	0.0896	—
RE21-06-68315	21-25658	2.5–3.0	Tuff	—	—	—	0.0743	—
RE21-06-68317	21-25659	0.5–1.0	Tuff	—	—	—	0.170	—
RE21-06-68319	21-25660	2.5–3.0	Tuff	—	—	—	0.104	—
RE21-06-68321	21-25661	2.5–3.0	Tuff	—	—	—	0.0393	—
RE21-06-68323	21-25662	2.5–3.0	Tuff	—	—	—	0.0554	—
RE21-06-68325	21-25663	2.5–3.0	Tuff	—	—	—	0.0929	—
RE21-06-68327	21-25664	2.5–3.0	Tuff	—	—	—	0.232	—
RE21-06-68333	21-25667	2.5–3.0	Tuff	—	—	—	0.0372	—
RE21-06-68335	21-25668	2.5–3.0	Tuff	—	—	—	0.0555	—
RE21-06-68337	21-25669	2.5–3.0	Tuff	—	—	—	0.0463	0.0937

Note: Units are pCi/g.

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

[b] na = Not available.

[c] SALs from LANL (2005, 088493).

[d] — = Not detected or not detected above BV/FV.

Table 6.3-25
Inorganic Chemicals above BVs in Soil at SWMU 21-024(c)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Arsenic	Barium	Cadmium	Calcium	Chromium	Copper	Cyanide (Total)	Iron	Lead	Magnesium
Soil BV [a]				**29200**	**8.17**	**295**	**0.4**	**6120**	**19.3**	**14.7**	**0.5**	**21500**	**22.3**	**4610**
Residential SSL [b]				**77800**	**3.9**	**15600**	**39**	**na [c]**	**2100 [d]**	**3130**	**1220**	**23500**	**400**	**na**
Industrial SSL [b]				**100000**	**17.7**	**100000**	**564**	**na**	**5000 [d]**	**45400**	**13700**	**100000**	**800**	**na**
Construction SSL [b]				**14400**	**85.2**	**60200**	**154**	**na**	**26.1**	**12400**	**4760**	**92900**	**800**	**na**
MD21-07-74339	21-25750	2.5–3.0	Soil	— [e]	—	—	—	—	—	—	—	—	23.6(J+)	—
MD21-07-74340	21-25750	4.0–4.5	Soil	—	—	—	—	—	—	—	—	—	—	—
MD21-07-74343	21-25752	2.3–3.3	Soil	—	—	—	—	12700(J)	—	—	—	—	—	—
MD21-07-74345	21-25753	2.3–3.3	Soil	—	—	—	—	—	—	—	—	—	41.4(J-)	—
MD21-07-74347	21-25754	2.0–3.0	Soil	—	—	—	0.438(J)	16400(J)	—	21.4	—	—	36.7	—
MD21-07-74349	21-25755	2.0–3.0	Soil	34800	10.1	311(J-)	—	—	107	87.6	0.565	24600	278	4680
MD21-07-74350	21-25755	4.0–5.0	Soil	—	—	—	—	—	71.5	48.8	—	—	138	—
RE21-06-68637	21-25757	0.0–0.5	Soil	—	**23.2(J-)**	—	5.39	8280	545	1480	1.19(J+)	—	**3640**	—
RE21-06-68639	21-25758	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	—
RE21-06-68641	21-25759	0.0–0.5	Soil	—	—	—	2.28	—	—	96.9	—	—	83.3	—
RE21-06-68643	21-25760	0.0–0.5	Soil	—	—	—	0.929	—	105	296	NA [f]	—	456	—
RE21-06-68645	21-25761	0.0–0.5	Soil	—	—	—	0.963	6640	—	64	NA	—	83.2	—
RE21-06-68647	21-25762	0.0–0.5	Soil	—	—	—	0.581	—	—	31.9	NA	—	41.9	—
RE21-06-68648	21-25762	1.5–2.0	Soil	—	—	—	—	—	—	—	NA	—	—	—
RE21-06-68649	21-25763	0.0–0.5	Soil	—	—	—	0.662	—	106	169	NA	—	344	—
RE21-06-68650	21-25763	1.5–2.0	Soil	—	8.35(J-)	—	0.91	—	117	242	NA	—	523	—
RE21-06-68651	21-25764	0.0–0.5	Soil	—	—	—	0.996	8750	—	48.4	NA	—	79.1	—
RE21-06-68652	21-25764	1.5–2.0	Soil	—	—	—	0.542(U)	—	—	—	NA	—	—	—

Table 6.3-25 (continued)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Arsenic	Barium	Cadmium	Calcium	Chromium	Copper	Cyanide (Total)	Iron	Lead	Magnesium
Soil BV [a]				**29200**	**8.17**	**295**	**0.4**	**6120**	**19.3**	**14.7**	**0.5**	**21500**	**22.3**	**4610**
Residential SSL [b]				**77800**	**3.9**	**15600**	**39**	**na**	**2100 [d]**	**3130**	**1220**	**23500**	**400**	**na**
Industrial SSL [b]				**100000**	**17.7**	**100000**	**564**	**na**	**5000 [d]**	**45400**	**13700**	**100000**	**800**	**na**
Construction SSL [b]				**14400**	**85.2**	**60200**	**154**	**na**	**26.1**	**12400**	**4760**	**92900**	**800**	**na**
RE21-06-68653	21-25765	0.0–0.5	Soil	—	—	—	—	—	—	—	NA	—	—	—
RE21-06-68655	21-25766	0.0–0.5	Soil	—	—	—	—	—	—	—	NA	—	—	—
RE21-06-68657	21-25767	0.0–0.5	Soil	—	—	—	—	—	—	—	NA	—	—	—
RE21-06-68659	21-25768	0.0–0.5	Soil	—	—	—	—	—	—	—	NA	—	—	—
RE21-06-68661	21-25769	0.0–0.5	Soil	—	—	—	—	—	—	—	NA	—	—	—
RE21-06-68663	21-25770	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	—
RE21-06-68665	21-25771	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	—

Table 6.3-25 (continued)

Sample ID	Location ID	Depth (ft)	Media	Mercury	Nickel	Nitrate	Perchlorate	Potassium	Selenium	Silver	Uranium	Vanadium	Zinc
Soil BV [a]				**0.1**	**15.4**	**na**	**na**	**3460**	**1.52**	**1**	**1.82**	**39.6**	**48.8**
Residential SSL [b]				**23 [d]**	**1560**	**100000**	**55 [d]**	**na**	**391**	**391**	**16 [f]**	**78.2**	**23500**
Industrial SSL [b]				**610 [d]**	**22700**	**100000**	**790 [d]**	**na**	**5680**	**5680**	**200 [f]**	**1140**	**100000**
Construction SSL [b]				**927**	**6190**	**100000**	**na**	**na**	**1550**	**1550**	**na**	**310**	**92900**
MD21-07-74339	21-25750	2.5–3.0	Soil	0.111	—	—	0.000882(J)	—	1.72(U)	—	—	—	64
MD21-07-74340	21-25750	4.0–4.5	Soil	—	—	—	0.000821(J)	—	—	—	—	—	49.9
MD21-07-74343	21-25752	2.3–3.3	Soil	0.399	—	0.611(J)	0.000799(J)	—	1.96	—	4.88(J-)	—	—
MD21-07-74345	21-25753	2.3–3.3	Soil	0.315	—	0.652(J)	0.000569(J)	—	1.63(U)	—	—	—	49.2(J-)
MD21-07-74347	21-25754	2.0–3.0	Soil	1.17	—	1.42	0.00112(J)	—	—	—	6.82	—	56.1
MD21-07-74349	21-25755	2.0–3.0	Soil	3.05	15.5(J-)	0.718(J)	0.000856(J)	4150	3.27	1.72	3.9	48.1	164
MD21-07-74350	21-25755	4.0–5.0	Soil	1.13	—	2.43	—	—	1.83	—	1.98	—	71.8
RE21-06-68637	21-25757	0.0–0.5	Soil	72.4	21.8	20.6	0.00136(J)	—	NA	36.2	67(J)	161(J-)	240
RE21-06-68639	21-25758	0.0–0.5	Soil	0.195	—	3.83	—	—	NA	—	—	—	—
RE21-06-68641	21-25759	0.0–0.5	Soil	0.834	—	10.6	0.000887(J)	—	NA	—	3.34	—	85.2
RE21-06-68643	21-25760	0.0–0.5	Soil	14	—	1.6	0.000783(J)	—	NA	9.03	48.1	—	77.1
RE21-06-68645	21-25761	0.0–0.5	Soil	1.32	—	65.3	0.00122(J)	—	NA	1.51	7.84	—	76.6
RE21-06-68647	21-25762	0.0–0.5	Soil	1.06	—	18.2	0.00221	—	NA	—	2.96	—	53.3
RE21-06-68648	21-25762	1.5–2.0	Soil	0.119	—	4.9	0.00111(J)	—	NA	—	—	—	—
RE21-06-68649	21-25763	0.0–0.5	Soil	13.2	—	22.1	0.00146(J)	—	NA	4.4	16.3	—	87.6
RE21-06-68650	21-25763	1.5–2.0	Soil	11.1	—	14.4	0.000679(J)	—	NA	6.86	17.6	—	111
RE21-06-68651	21-25764	0.0–0.5	Soil	5.09	—	18.1	0.00129(J)	—	NA	—	6.14	—	114
RE21-06-68652	21-25764	1.5–2.0	Soil	—	—	3.73	—	—	NA	—	2.01	—	—
RE21-06-68653	21-25765	0.0–0.5	Soil	0.147	—	12.7	—	—	NA	—	—	—	—

Table 6.3-25 (continued)

Sample ID	Location ID	Depth (ft)	Media	Mercury	Nickel	Nitrate	Perchlorate	Potassium	Selenium	Silver	Uranium	Vanadium	Zinc
Soil BV [a]				**0.1**	**15.4**	**na**	**na**	**3460**	**1.52**	**1**	**1.82**	**39.6**	**48.8**
Residential SSL [b]				**23 [d]**	**1560**	**100000**	**55 [d]**	**na**	**391**	**391**	**16 [f]**	**78.2**	**23500**
Industrial SSL [b]				**610 [d]**	**22700**	**100000**	**790 [d]**	**na**	**5680**	**5680**	**200 [f]**	**1140**	**100000**
Construction SSL [b]				**927**	**6190**	**100000**	**na**	**na**	**1550**	**1550**	**na**	**310**	**92900**
RE21-06-68655	21-25766	0.0–0.5	Soil	—	—	26.4	0.00184(J)	—	NA	—	4.27	—	—
RE21-06-68657	21-25767	0.0–0.5	Soil	—	—	24.8	—	—	1.58(U)	—	2.05(J)	—	—
RE21-06-68659	21-25768	0.0–0.5	Soil	—	—	31.5	0.00224	—	—	—	2.1(J)	—	—
RE21-06-68661	21-25769	0.0–0.5	Soil	—	—	8	0.000557(J)	—	—	—	—	—	—
RE21-06-68663	21-25770	0.0–0.5	Soil	—	—	3.92	—	—	—	—	—	—	—
RE21-06-68665	21-25771	0.0–0.5	Soil	—	—	6.87	0.000562(J)	—	—	—	2.54(J)	—	—

Note: Units are mg/kg.

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

[b] SSLs from NMED (2006, 092513).

[c] na = Not available.

[d] Value from EPA Region 6 (2007, 095866)

[e] — = Not above BV.

[f] Value from EPA Region 9 (http://www.epa.gov/region9/waste/sfund/prg/files/04prgtable.pdf).

Table 6.3-26
Inorganic Chemicals above BVs in Tuff at SWMU 21-024(c)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Arsenic	Barium	Calcium	Chromium	Copper	Iron	Lead	Magnesium
Qbt 2,3,4 BV [a]				**7340**	**2.79**	**46**	**2200**	**7.14**	**4.66**	**14500**	**11.2**	**1690**
Residential SSL [b]				**77800**	**3.9**	**15600**	**na [c]**	**2100 [d]**	**3130**	**23500**	**400**	**na**
Industrial SSL [b]				**100000**	**17.7**	**100000**	**na**	**5000 [d]**	**45400**	**100000**	**800**	**na**
Construction SSL [b]				**14400**	**85.2**	**60200**	**na**	**26.1**	**12400**	**92900**	**800**	**na**
MD21-07-74337	21-25748	4.0–5.0	Tuff	— [e]	3.22	72	8310	12.9	24.8(J)	—	26.2(J)	2040(J+)
MD21-07-74338	21-25748	14.0–15.0	Tuff	—	—	67.7	10400	18.4	30.8(J)	—	35.9(J)	1980(J+)
MD21-07-74341	21-25751	4.0–4.5	Tuff	7680(J+)	2.88	135	3010(J)	7.42	24.3	15400	32.4(J+)	—
MD21-07-74342	21-25751	6.0–6.5	Tuff	—	—	80.2	3600(J)	—	11.2	—	14(J+)	—
MD21-07-74344	21-25752	3.8–4.8	Tuff	—	—	—	5290(J)	—	—	—	—	—
MD21-07-74346	21-25753	3.8–4.8	Tuff	—	—	—	—	12	—	—	—	—
MD21-07-74348	21-25754	4.0–5.0	Tuff	11800	3.26	81.5(J-)	3480(J)	19.2	14.5	—	39.9	1940
MD21-07-74351	21-25760	5.0–5.5	Tuff	—	—	—	—	7.96	20.3(J)	—	33.1(J)	—
RE21-06-68638	21-25757	1.5–2.0	Tuff	—	—	—	—	16.5	8.24	—	—	—
RE21-06-68640	21-25758	1.5–2.0	Tuff	—	—	—	—	8.58	—	—	—	—
RE21-06-68642	21-25759	1.5–2.0	Tuff	7630(J+)	3.98(J-)	48.7	—	12.6	20.6	—	16.9	—
RE21-06-68644	21-25760	1.5–2.0	Tuff	—	3.02(J-)	—	—	29	82.6	—	133	—
RE21-06-68646	21-25761	1.5–2.0	Tuff	9820(J+)	—	51.8	—	13.8	7	—	—	—
RE21-06-68654	21-25765	1.5–2.0	Tuff	11200(J+)	3.01(J-)	50.8	2380	11.6	5.86	—	11.5	—
RE21-06-68656	21-25766	1.5–2.0	Tuff	—	—	—	—	—	—	—	—	—
RE21-06-68658	21-25767	1.5–2.0	Tuff	—	—	—	—	—	—	—	—	—
RE21-06-68660	21-25768	1.5–2.0	Tuff	—	—	—	4900	7.28	—	—	—	—
RE21-06-68662	21-25769	1.5–2.0	Tuff	—	—	—	2500	9.91	—	—	11.5	—
RE21-06-68664	21-25770	1.5–2.0	Tuff	—	—	—	—	—	—	—	—	—
RE21-06-68666	21-25771	1.5–2.0	Tuff	—	—	—	—	—	—	—	—	—
RE21-06-72609	21-25757	3.0–3.5	Tuff	—	—	—	2420	37.2	43.6	—	62.8	—

Table 6.3-26 (continued)

Sample ID	Location ID	Depth (ft)	Media	Mercury	Nickel	Nitrate	Perchlorate	Selenium	Silver	Uranium	Vanadium	Zinc
Qbt 2,3,4 BV [a]				**0.1**	**6.58**	**na**	**na**	**0.3**	**1**	**2.4**	**17**	**63.5**
Residential SSL [b]				**23 [d]**	**1560**	**100000**	**55 [d]**	**391**	**391**	**16 [f]**	**78.2**	**23500**
Industrial SSL [b]				**610 [d]**	**22700**	**100000**	**790 [d]**	**5680**	**5680**	**200 [f]**	**1140**	**100000**
Construction SSL [b]				**927**	**6190**	**100000**	**na**	**1550**	**1550**	**na**	**310**	**92900**
MD21-07-74337	21-25748	4.0–5.0	Tuff	0.938(J)	—	2.32	0.000786(J)	0.834(J)	—	6.68	17.6	—
MD21-07-74338	21-25748	14.0–15.0	Tuff	1.77(J)	—	2.35	0.000568(J)	1.53(U)	1.22	8.56	—	—
MD21-07-74341	21-25751	4.0–4.5	Tuff	1.7	—	1.47	0.000885(J)	0.897(J)	—	9.56(J+)	—	105
MD21-07-74342	21-25751	6.0–6.5	Tuff	1.64	—	1.18	0.000978(J)	1.61(U)	—	10.2(J+)	—	69.3
MD21-07-74344	21-25752	3.8–4.8	Tuff	—	—	0.535(J)	—	0.838(J)	—	2.93(J-)	—	—
MD21-07-74346	21-25753	3.8–4.8	Tuff	—	—	—	—	1.47(U)	—	—	—	—
MD21-07-74348	21-25754	4.0–5.0	Tuff	0.246	7.31(J-)	0.76(J)	0.00064(J)	0.844(J)	—	—	—	—
MD21-07-74351	21-25760	5.0–5.5	Tuff	1.83(J)	—	1.21	—	1.46(U)	1.22	7.51	—	—
RE21-06-68638	21-25757	1.5–2.0	Tuff	1.34	—	0.801(J)	—	—	—	—	—	—
RE21-06-68640	21-25758	1.5–2.0	Tuff	—	—	1.11	—	—	—	—	—	—
RE21-06-68642	21-25759	1.5–2.0	Tuff	0.124	—	—	0.000938(J)	—	—	—	—	—
RE21-06-68644	21-25760	1.5–2.0	Tuff	3.76	—	1.08	0.000734(J)	—	2.01	19.5	—	—
RE21-06-68646	21-25761	1.5–2.0	Tuff	—	—	4.37	0.000728(J)	—	—	—	—	—
RE21-06-68654	21-25765	1.5–2.0	Tuff	—	—	3.54	—	—	—	—	—	—
RE21-06-68656	21-25766	1.5–2.0	Tuff	—	—	3.83	0.000608(J)	—	—	—	—	—
RE21-06-68658	21-25767	1.5–2.0	Tuff	—	—	3.54	0.000937(J)	1.48(U)	—	—	—	—
RE21-06-68660	21-25768	1.5–2.0	Tuff	—	—	8.41	0.000607(J)	1.49(U)	—	—	—	—
RE21-06-68662	21-25769	1.5–2.0	Tuff	—	—	2.08	—	1.47(U)	—	—	—	—
RE21-06-68664	21-25770	1.5–2.0	Tuff	—	—	0.939(J)	—	1.49(U)	—	—	—	—

Table 6.3-26 (continued)

Sample ID	Location ID	Depth (ft)	Media	Mercury	Nickel	Nitrate	Perchlorate	Selenium	Silver	Uranium	Vanadium	Zinc
Qbt 2,3,4 BV [a]				**0.1**	**6.58**	**na**	**na**	**0.3**	**1**	**2.4**	**17**	**63.5**
Residential SSL [b]				**23 [d]**	**1560**	**100000**	**55 [d]**	**391**	**391**	**16 [f]**	**78.2**	**23500**
Industrial SSL [b]				**610 [d]**	**22700**	**100000**	**790 [d]**	**5680**	**5680**	**200 [f]**	**1140**	**100000**
Construction SSL [b]				**927**	**6190**	**100000**	**na**	**1550**	**1550**	**na**	**310**	**92900**
RE21-06-68666	21-25771	1.5–2.0	Tuff	—	—	0.995(J)	—	1.53(U)	—	—	—	—
RE21-06-72609	21-25757	3.0–3.5	Tuff	1.45	8	1.94	0.00105(J)	1.53(U)	1.48	—	—	—

Note: Units are mg/kg.

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

[b] SSLs from NMED (2006, 092513).

[c] na = Not available .

[d] Value from EPA Region 6 (2007, 095866).

[e] — = Not detected or not detected above BV.

[f] Value from EPA Region 9 (http://www.epa.gov/region9/waste/sfund/prg/files/04prgtable.pdf).

Table 6.3-27
Organic Chemicals Detected in Soil at SWMU 21-024(c)

Sample ID	Location ID	Depth (ft)	Media	Acenaphthylene	Anthracene	Aroclor-1242	Aroclor-1254	Aroclor-1260	Benzene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Bis(2-ethylhexyl)phthalate	Carbon Disulfide
Residential SSL [a]				**2290 [b]**	**22000**	**1.12**	**1.12**	**1.12**	**10.3**	**6.21**	**0.621**	**6.21**	**62.1**	**347**	**460**
Industrial SSL [a]				**30900 [b]**	**100000**	**8.26**	**8.26**	**8.26**	**25.8**	**23.4**	**2.34**	**23.4**	**234**	**1370**	**460**
Construction SSL [a]				**9010 [b]**	**86000**	**4.28**	**4.28**	**4.28**	**174**	**212**	**21.2**	**212**	**2120**	**4660**	**460**
MD21-07-144	21-25754	2.0–3.0	Soil	NA [c]	NA	NA	NA	NA	0.00109(J+)	NA	NA	NA	NA	NA	0.00615(J+)
MD21-07-74339	21-25750	2.5–3.0	Soil	— [d]	0.0196(J)	0.0532(J-)	0.0801(J)	0.041(J-)	—	—	0.0384	0.039	0.0317(J)	—	—
MD21-07-74340	21-25750	4.0–4.5	Soil	—	—	—	—	—	—	—	—	—	—	—	—
MD21-07-74343	21-25752	2.3–3.3	Soil	—	—	NA	NA	NA	NA	—	—	—	—	—	NA
MD21-07-74347	21-25754	2.0–3.0	Soil	—	—	—	0.889	0.941	NA	—	—	—	—	—	NA
MD21-07-74349	21-25755	2.0–3.0	Soil	—	—	—	1.05	1.21	NA	0.0675	—	—	—	0.687(J)	NA
MD21-07-74350	21-25755	4.0–5.0	Soil	—	—	—	0.598	0.784	—	—	—	—	—	—	—
RE21-06-68637	21-25757	0.0–0.5	Soil	0.0118(J)	—	—	**435**	142	NA	—	0.678(J)	—	—	0.887(J)	NA
RE21-06-68639	21-25758	0.0–0.5	Soil	—	—	—	0.9	0.998	NA	—	—	—	—	—	NA
RE21-06-68641	21-25759	0.0–0.5	Soil	—	—	—	1.26	0.679	NA	—	—	—	—	—	NA
RE21-06-68643	21-25760	0.0–0.5	Soil	—	—	—	**9.98**	3.04	NA	—	—	—	—	—	NA
RE21-06-68645	21-25761	0.0–0.5	Soil	—	—	—	3.3	1.91	NA	—	—	—	—	—	NA
RE21-06-68647	21-25762	0.0–0.5	Soil	—	—	—	0.774	0.376	NA	—	—	—	—	—	NA
RE21-06-68648	21-25762	1.5–2.0	Soil	—	—	—	0.506	0.0718	—	—	—	—	—	—	—
RE21-06-68649	21-25763	0.0–0.5	Soil	—	—	—	**212**	**62.4**	NA	—	—	—	—	—	NA
RE21-06-68650	21-25763	1.5–2.0	Soil	—	—	—	**40.1**	**11.8**	—	—	—	—	—	0.699	—
RE21-06-68651	21-25764	0.0–0.5	Soil	—	0.00907(J)	—	5.3	2.04	NA	—	—	—	—	—	NA
RE21-06-68652	21-25764	1.5–2.0	Soil	—	—	—	0.169	0.0644	—	—	—	—	—	—	—
RE21-06-68653	21-25765	0.0–0.5	Soil	—	—	—	0.0999	0.0631	NA	—	—	—	—	—	NA
RE21-06-68655	21-25766	0.0–0.5	Soil	—	—	—	0.0356	0.0213	NA	—	—	—	—	—	NA
RE21-06-68657	21-25767	0.0–0.5	Soil	—	—	—	0.0952	0.0828	NA	—	—	—	—	—	NA
RE21-06-68659	21-25768	0.0–0.5	Soil	—	—	—	0.0204	0.0194	NA	—	—	—	—	—	NA
RE21-06-68661	21-25769	0.0–0.5	Soil	—	—	—	0.0151	0.0238	NA	—	—	—	—	—	NA
RE21-06-68663	21-25770	0.0–0.5	Soil	—	—	—	—	0.002(J)	NA	—	—	—	—	—	NA
RE21-06-68665	21-25771	0.0–0.5	Soil	—	—	—	—	0.0075	NA	—	—	—	—	—	NA

Table 6.3-27 (continued

Sample ID	Location ID	Depth (ft)	Media	Chlorobenzene	Chrysene	Di-n-butyl phthalate	Dichlorobenzene[1,4-]	Dichloroethane[1,1-]	Dichloroethene[1,1-]	Ethylbenzene	Fluoranthene	Heptachlorodibenzodioxin [1,2,3,4,6,7,8-]	Heptachlorodibenzofuran [1,2,3,4,6,7,8-]	Heptachlorodibenzofuran [1,2,3,4,7,8,9-]	Hexachlorobenzene
Residential SSL [a]				**194**	**615**	**6110**	**39.5**	**1400**	**206**	**128**	**2290**	**na [e]**	**na**	**na**	**3.04**
Industrial SSL [a]				**245**	**2310**	**68400**	**103**	**1420**	**777**	**128**	**24400**	**na**	**na**	**na**	**12**
Construction SSL [a]				**245**	**21200**	**23300**	**1960**	**1420**	**678**	**128**	**8730**	**na**	**na**	**na**	**102**
MD21-07-144	21-25754	2.0–3.0	Soil	0.0334(J+)	NA	NA	5.54	0.00186(J+)	0.000538(J+)	0.00577(J+)	NA	NA	NA	NA	NA
MD21-07-74339	21-25750	2.5–3.0	Soil	0.000394(J)	0.0355(J)	—	0.0248	—	—	—	0.114	NA	NA	NA	—
MD21-07-74340	21-25750	4.0–4.5	Soil	0.000443(J)	—	—	0.162(J)	—	—	—	0.0127(J)	NA	NA	NA	—
MD21-07-74343	21-25752	2.3–3.3	Soil	NA	—	—	—	NA	NA	NA	0.0173(J)	NA	NA	NA	—
MD21-07-74347	21-25754	2.0–3.0	Soil	NA	—	—	—	NA	NA	NA	0.0135(J)	NA	NA	NA	—
MD21-07-74349	21-25755	2.0–3.0	Soil	NA	0.0831	—	—	NA	NA	NA	0.0655	NA	NA	NA	—
MD21-07-74350	21-25755	4.0–5.0	Soil	—	—	0.089(J)	0.000409(J)	—	—	—	—	NA	NA	NA	—
RE21-06-68637	21-25757	0.0–0.5	Soil	NA	—	2.73	—	NA	NA	NA	—	NA	NA	NA	0.114(J)
RE21-06-68639	21-25758	0.0–0.5	Soil	NA	—	—	—	NA	NA	NA	0.0384	NA	NA	NA	—
RE21-06-68641	21-25759	0.0–0.5	Soil	NA	—	0.043(J)	—	NA	NA	NA	0.0677	NA	NA	NA	—
RE21-06-68643	21-25760	0.0–0.5	Soil	NA	—	1.12	—	NA	NA	NA	—	0.000187	8.16E-05	1.13E-05	—
RE21-06-68645	21-25761	0.0–0.5	Soil	NA	—	0.183(J)	—	NA	NA	NA	0.0798	NA	NA	NA	—
RE21-06-68647	21-25762	0.0–0.5	Soil	NA	—	0.0483(J)	—	NA	NA	NA	0.0526	NA	NA	NA	—
RE21-06-68648	21-25762	1.5–2.0	Soil	—	—	—	—	—	—	—	—	NA	NA	NA	—
RE21-06-68649	21-25763	0.0–0.5	Soil	NA	—	0.617	—	NA	NA	NA	—	NA	NA	NA	—
RE21-06-68650	21-25763	1.5–2.0	Soil	—	—	0.338(J)	—	—	—	—	—	NA	NA	NA	—
RE21-06-68651	21-25764	0.0–0.5	Soil	NA	—	0.0948(J)	—	NA	NA	NA	0.161	NA	NA	NA	—
RE21-06-68652	21-25764	1.5–2.0	Soil	—	—	—	—	—	—	—	—	NA	NA	NA	—
RE21-06-68653	21-25765	0.0–0.5	Soil	NA	—	—	—	NA	NA	NA	0.026(J)	NA	NA	NA	—
RE21-06-68655	21-25766	0.0–0.5	Soil	NA	—	—	—	NA	NA	NA	—	NA	NA	NA	—
RE21-06-68657	21-25767	0.0–0.5	Soil	NA	—	—	—	NA	NA	NA	0.0207(J)	NA	NA	NA	—
RE21-06-68659	21-25768	0.0–0.5	Soil	NA	—	—	—	NA	NA	NA	0.0183(J)	NA	NA	NA	—
RE21-06-68661	21-25769	0.0–0.5	Soil	NA	—	—	—	NA	NA	NA	—	NA	NA	NA	—
RE21-06-68663	21-25770	0.0–0.5	Soil	NA	—	—	—	NA	NA	NA	—	NA	NA	NA	—
RE21-06-68665	21-25771	0.0–0.5	Soil	NA	—	—	—	NA	NA	NA	0.0227(J)	NA	NA	NA	—

Table 6.3-27 (continued)

Sample ID	Location ID	Depth (ft)	Media	Hexachlorodibenzodioxin [1,2,3,4,7,8-]	Hexachlorodibenzodioxin [1,2,3,6,7,8-]	Hexachlorodibenzodioxin [1,2,3,7,8,9-]	Hexachlorodibenzofuran [1,2,3,4,7,8-]	Hexachlorodibenzofuran [1,2,3,6,7,8-]	Hexachlorodibenzofuran [1,2,3,7,8,9-]	Hexachlorodibenzofuran [2,3,4,6,7,8-]	Isopropyltoluene[4-]	Octachlorodibenzodioxin [1,2,3,4,6,7,8,9-]	Octachlorodibenzofuran [1,2,3,4,6,7,8,9-]	Pentachlorodibenzofuran [1,2,3,7,8-]	Pentachlorodibenzofuran [2,3,4,7,8-]
Residential SSL [a]				**na**	**na**	**na**	**na**	**na**	**na**	**na**	**271 [f]**	**na**	**na**	**na**	**na**
Industrial SSL [a]				**na**	**na**	**na**	**na**	**na**	**na**	**na**	**389 [f]**	**na**	**na**	**na**	**na**
Construction SSL [a]				**na**	**na**	**na**	**na**	**na**	**na**	**na**	**389 [f]**	**na**	**na**	**na**	**na**
MD21-07-144	21-25754	2.0–3.0	Soil	NA	NA	NA	NA	NA	NA	NA	7.37	NA	NA	NA	NA
MD21-07-74339	21-25750	2.5–3.0	Soil	NA	NA	NA	NA	NA	NA	NA	—	NA	NA	NA	NA
MD21-07-74340	21-25750	4.0–4.5	Soil	NA	NA	NA	NA	NA	NA	NA	0.00085(J)	NA	NA	NA	NA
MD21-07-74343	21-25752	2.3–3.3	Soil	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MD21-07-74347	21-25754	2.0–3.0	Soil	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MD21-07-74349	21-25755	2.0–3.0	Soil	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MD21-07-74350	21-25755	4.0–5.0	Soil	NA	NA	NA	NA	NA	NA	NA	—	NA	NA	NA	NA
RE21-06-68637	21-25757	0.0–0.5	Soil	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE21-06-68639	21-25758	0.0–0.5	Soil	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE21-06-68641	21-25759	0.0–0.5	Soil	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE21-06-68643	21-25760	0.0–0.5	Soil	4.01E-06	7.18E-06	5.19E-06	2.27E-05	6.77E-06	4.51E-06	4.95E-06	NA	0.00142	0.000353(J)	9.83E-06	1.31E-05
RE21-06-68645	21-25761	0.0–0.5	Soil	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE21-06-68647	21-25762	0.0–0.5	Soil	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE21-06-68648	21-25762	1.5–2.0	Soil	NA	NA	NA	NA	NA	NA	NA	—	NA	NA	NA	NA
RE21-06-68649	21-25763	0.0–0.5	Soil	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE21-06-68650	21-25763	1.5–2.0	Soil	NA	NA	NA	NA	NA	NA	NA	0.000434(J)	NA	NA	NA	NA
RE21-06-68651	21-25764	0.0–0.5	Soil	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE21-06-68652	21-25764	1.5–2.0	Soil	NA	NA	NA	NA	NA	NA	NA	—	NA	NA	NA	NA
RE21-06-68653	21-25765	0.0–0.5	Soil	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE21-06-68655	21-25766	0.0–0.5	Soil	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE21-06-68657	21-25767	0.0–0.5	Soil	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE21-06-68659	21-25768	0.0–0.5	Soil	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE21-06-68661	21-25769	0.0–0.5	Soil	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE21-06-68663	21-25770	0.0–0.5	Soil	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE21-06-68665	21-25771	0.0–0.5	Soil	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 6.3-27 (continued

Sample ID	Location ID	Depth (ft)	Media	Phenanthrene	Propylbenzene[1-]	Pyrene	Tetrachlorodibenzodioxin [2,3,7,8-]	Tetrachlorodibenzofuran [2,3,7,8-]	Tetrachloroethene	Toluene	Trichloroethene	Trimethylbenzene[1,2,4-]	Trimethylbenzene[1,3,5-]	Xylene[1,2-]	Xylene[1,3-]+Xylene[1,4-]
Residential SSL [a]				**1830**	**62.1**	**2290**	**3.9E-05 [e]**	**na**	**12.5**	**252**	**0.638**	**58**	**24.8**	**99.5**	**82**
Industrial SSL [a]				**20500**	**62.1**	**30900**	**1.8E-04 [e]**	**na**	**31.6**	**252**	**1.56**	**213**	**69.2**	**99.5**	**82**
Construction SSL [a]				**6990**	**62.1**	**9010**	**na**	**na**	**134**	**252**	**33.6**	**190**	**69.2**	**99.5**	**82**
MD21-07-144	21-25754	2.0–3.0	Soil	NA	0.00558(J+)	NA	NA	NA	0.0301(J+)	4.11	20.1	0.03(J+)	0.0115(J+)	0.0177(J+)	0.0437(J+)
MD21-07-74339	21-25750	2.5–3.0	Soil	0.102	—	0.0888	NA	NA	—	0.00587	0.0383	—	—	—	—
MD21-07-74340	21-25750	4.0–4.5	Soil	—	—	—	NA	NA	—	0.0159	0.0496	—	—	—	—
MD21-07-74343	21-25752	2.3–3.3	Soil	—	NA	0.0198(J)	NA	NA	NA	NA	NA	NA	NA	NA	NA
MD21-07-74347	21-25754	2.0–3.0	Soil	—	NA	0.0126(J)	NA	NA	NA	NA	NA	NA	NA	NA	NA
MD21-07-74349	21-25755	2.0–3.0	Soil	—	NA	0.0844	NA	NA	NA	NA	NA	NA	NA	NA	NA
MD21-07-74350	21-25755	4.0–5.0	Soil	—	—	—	NA	NA	—	0.000899(J)	0.000646(J)	—	—	—	—
RE21-06-68637	21-25757	0.0–0.5	Soil	—	NA	—	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE21-06-68639	21-25758	0.0–0.5	Soil	0.0163(J)	NA	0.0327(J)	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE21-06-68641	21-25759	0.0–0.5	Soil	0.0373	NA	0.069	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE21-06-68643	21-25760	0.0–0.5	Soil	—	NA	—	4.13E-07(J)	0.03	NA	NA	NA	NA	NA	NA	NA
RE21-06-68645	21-25761	0.0–0.5	Soil	0.0406	NA	0.0823	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE21-06-68647	21-25762	0.0–0.5	Soil	0.0241(J)	NA	0.0442	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE21-06-68648	21-25762	1.5–2.0	Soil	—	—	—	NA	NA	—	0.000673(J)	—	—	—	—	—
RE21-06-68649	21-25763	0.0–0.5	Soil	—	NA	—	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE21-06-68650	21-25763	1.5–2.0	Soil	—	—	—	NA	NA	—	0.00261	—	—	—	—	—
RE21-06-68651	21-25764	0.0–0.5	Soil	0.0582	NA	0.166	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE21-06-68652	21-25764	1.5–2.0	Soil	—	—	—	NA	NA	—	0.000679(J)	—	—	—	—	—
RE21-06-68653	21-25765	0.0–0.5	Soil	0.0125(J)	NA	0.0201(J)	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE21-06-68655	21-25766	0.0–0.5	Soil	—	NA	—	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE21-06-68657	21-25767	0.0–0.5	Soil	0.0131(J)	NA	—	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE21-06-68659	21-25768	0.0–0.5	Soil	0.0105(J)	NA	0.027(J)	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE21-06-68661	21-25769	0.0–0.5	Soil	—	NA	—	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE21-06-68663	21-25770	0.0–0.5	Soil	—	NA	—	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE21-06-68665	21-25771	0.0–0.5	Soil	0.0118(J)	NA	0.0318(J)	NA	NA	NA	NA	NA	NA	NA	NA	NA

Note: Units are mg/kg.

[a] SSLs from NMED (2006, 092513).

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

[c] NA = Not analyzed.

[d] – = Not detected.

[e] na = Not available.

[f] Isopropylbenzene used as a surrogate based on structural similarity.

Table 6.3-28
Organic Chemicals Detected in Tuff at SWMU 21-024(c)

Sample ID	Location ID	Depth (ft)	Media	Anthracene	Aroclor-1254	Aroclor-1260	Bis(2-ethylhexyl) phthalate	Chloroform	Di-n-butyl phthalate	Dichlorobenzene[1,4-]
Residential SSL [a]				**22000**	**1.12**	**1.12**	**347**	**4**	**6110**	**39.5**
Industrial SSL [a]				**100000**	**8.26**	**8.26**	**1370**	**9.59**	**68400**	**103**
Construction SSL [a]				**86000**	**4.28**	**4.28**	**4660**	**216**	**23300**	**1960**
MD21-07-74337	21-25748	4.0–5.0	Tuff	— [b]	1.62	1.36	0.791	0.000225(J)	0.139(J)	0.00344
MD21-07-74338	21-25748	14.0–15.0	Tuff	—	2.98	1.16	0.252	—	0.0592(J)	—
MD21-07-74341	21-25751	4.0–4.5	Tuff	—	0.0553(J)	0.095(J-)	—	—	—	0.007
MD21-07-74342	21-25751	6.0–6.5	Tuff	—	0.0621(J)	0.0674(J-)	—	—	—	0.00882
MD21-07-74346	21-25753	3.8–4.8	Tuff	0.00737(J)	NA	NA	—	—	—	—
MD21-07-74348	21-25754	4.0–5.0	Tuff	—	0.173	0.247	—	—	—	0.000599(J)
MD21-07-74351	21-25760	5.0–5.5	Tuff	—	0.923	0.268	—	—	0.243(J)	—
RE21-06-68638	21-25757	1.5–2.0	Tuff	—	0.402	0.132	—	—	—	—
RE21-06-68640	21-25758	1.5–2.0	Tuff	—	0.166	0.0906	—	—	—	—
RE21-06-68642	21-25759	1.5–2.0	Tuff	—	0.0996	0.0406	—	—	—	—
RE21-06-68644	21-25760	1.5–2.0	Tuff	—	3.04	0.803	—	—	0.326(J)	—
RE21-06-68646	21-25761	1.5–2.0	Tuff	—	0.0752	0.057	—	—	—	—
RE21-06-68654	21-25765	1.5–2.0	Tuff	—	0.01	0.0098	—	—	—	—
RE21-06-68656	21-25766	1.5–2.0	Tuff	—	0.0027(J)	—	—	—	—	—
RE21-06-68658	21-25767	1.5–2.0	Tuff	—	0.0037	0.0026(J)	—	—	—	—
RE21-06-68660	21-25768	1.5–2.0	Tuff	—	0.0064	0.0073	—	—	—	—
RE21-06-68662	21-25769	1.5–2.0	Tuff	—	—	0.0023(J)	—	—	—	—
RE21-06-72609	21-25757	3.0–3.5	Tuff	—	0.581	0.195	—	—	—	—

Table 6.3-28 (continued)

Sample ID	Location ID	Depth (ft)	Media	Fluoranthene	Isopropyltoluene[4-]	Methylene Chloride	Pyrene	Styrene	Tetrachloroethene	Toluene	Trichloroethene
Residential SSL [a]				**2290**	**271 [c]**	**182**	**2290**	**100**	**12.5**	**252**	**0.638**
Industrial SSL [a]				**24400**	**389 [c]**	**490**	**30900**	**100**	**31.6**	**252**	**1.56**
Construction SSL [a]				**8730**	**389 [c]**	**2630**	**9010**	**100**	**134**	**252**	**33.6**
MD21-07-74337	21-25748	4.0–5.0	Tuff	0.0332(J)	—	0.00969	0.0386	—	0.000508(J)	—	0.0372
MD21-07-74338	21-25748	14.0–15.0	Tuff	—	—	0.00735	—	—	—	0.000321(J)	0.00323
MD21-07-74341	21-25751	4.0–4.5	Tuff	0.0344(J)	0.00047(J)	—	0.0318(J)	—	—	—	0.012
MD21-07-74342	21-25751	6.0–6.5	Tuff	0.0244(J)	0.000524(J)	—	0.0194(J)	—	—	—	—
MD21-07-74346	21-25753	3.8–4.8	Tuff	0.0112(J)	—	—	—	—	—	—	—
MD21-07-74348	21-25754	4.0–5.0	Tuff	—	—	—	—	0.000408(J)	—	—	0.000411(J)
MD21-07-74351	21-25760	5.0–5.5	Tuff	—	—	0.00634	—	—	—	0.000672(J)	—
RE21-06-68638	21-25757	1.5–2.0	Tuff	—	—	—	—	—	—	—	—
RE21-06-68640	21-25758	1.5–2.0	Tuff	—	—	—	—	—	—	—	—
RE21-06-68642	21-25759	1.5–2.0	Tuff	—	—	—	—	—	—	—	—
RE21-06-68644	21-25760	1.5–2.0	Tuff	—	—	—	—	—	—	0.000742(J)	—
RE21-06-68646	21-25761	1.5–2.0	Tuff	—	—	—	—	—	—	—	—
RE21-06-68654	21-25765	1.5–2.0	Tuff	—	—	—	—	—	—	—	—
RE21-06-68656	21-25766	1.5–2.0	Tuff	—	—	—	—	—	—	—	—
RE21-06-68658	21-25767	1.5–2.0	Tuff	—	—	—	—	—	—	—	—
RE21-06-68660	21-25768	1.5–2.0	Tuff	—	—	—	—	—	—	0.000344(J)	—
RE21-06-68662	21-25769	1.5–2.0	Tuff	—	—	—	—	—	—	—	—
RE21-06-72609	21-25757	3.0–3.5	Tuff	—	—	—	—	—	—	—	—

Note: Units are mg/kg.

[a] SSLs from NMED (2006, 092513).

[b] – = Not detected.

[c] Isopropylbenzene used as a surrogate based on structural similarity.

Table 6.3-29
Radionuclides Detected or Detected above BVs/FVs in Soil at SWMU 21-024(c)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cesium-137	Plutonium-238	Plutonium-239	Tritium	Uranium-234	Uranium-235	Uranium-238
Soil FV/BV [a]				**0.013**	**1.65**	**0.023**	**0.054**	**na [b]**	**2.59**	**0.2**	**2.29**
Residential SAL [c]				**30**	**5.6**	**37**	**33**	**750**	**170**	**17**	**86**
Industrial SAL [c]				**180**	**23**	**240**	**210**	**4.4E+05**	**1500**	**87**	**430**
Construction Worker SAL [c]				**34**	**18**	**40**	**36**	**3.2E+05**	**220**	**43**	**160**
MD21-07-74339	21-25750	2.5–3.0	Soil	— [d]	—	—	0.0818	0.0756	—	—	—
MD21-07-74340	21-25750	4.0–4.5	Soil	—	—	—	0.0902	0.0500	—	—	—
MD21-07-74343	21-25752	2.3–3.3	Soil	—	—	—	0.105	0.107	—	—	—
MD21-07-74345	21-25753	2.3–3.3	Soil	—	—	—	0.0606	0.0650	—	—	—
MD21-07-74347	21-25754	2.0–3.0	Soil	—	NA	—	0.0621	0.785	3.24	0.22	3.22
MD21-07-74349	21-25755	2.0–3.0	Soil	0.124	—	0.0542	0.432	0.884	4.11	0.212	2.51
MD21-07-74350	21-25755	4.0–5.0	Soil	0.115	—	0.0308	0.527	0.373	2.7	—	—
RE21-06-68637	21-25757	0.0–0.5	Soil	1.99	1.95	0.218	12.4	6.76	62.9	2.91	18.3
RE21-06-68639	21-25758	0.0–0.5	Soil	0.105	—	—	1.3	0.181	—	—	—
RE21-06-68641	21-25759	0.0–0.5	Soil	0.219	—	0.0416	1.48	0.0949	3.21	0.215	—
RE21-06-68643	21-25760	0.0–0.5	Soil	1.36	—	0.14	9.55	2.47	32.8	2.1	23.5
RE21-06-68645	21-25761	0.0–0.5	Soil	0.327	2.39	0.0559	5.66	0.760	5.59	0.402	4.19
RE21-06-68647	21-25762	0.0–0.5	Soil	0.233	—	0.0328	1.35	0.320	3.06	—	—
RE21-06-68648	21-25762	1.5–2.0	Soil	—	—	—	0.0551	0.162	—	—	—
RE21-06-68649	21-25763	0.0–0.5	Soil	2.58(J-)	—	0.213	15	0.152	22.4	1.12	10.8
RE21-06-68650	21-25763	1.5–2.0	Soil	1.66(J-)	0.399	0.165	11.5	0.905	18.3	0.969	7.52
RE21-06-68651	21-25764	0.0–0.5	Soil	0.371	3.54	—	2.5	2.82	4.46	0.308	4.13
RE21-06-68652	21-25764	1.5–2.0	Soil	—	0.145	—	0.101	0.350	—	—	—
RE21-06-68653	21-25765	0.0–0.5	Soil	0.173	—	0.0424	3.53	0.0334	—	—	—
RE21-06-68655	21-25766	0.0–0.5	Soil	0.128	—	—	3.22	0.0476	—	0.213	—
RE21-06-68657	21-25767	0.0–0.5	Soil	0.0944	1.81	0.0294	0.754	0.137	—	—	—
RE21-06-68659	21-25768	0.0–0.5	Soil	0.121	—	—	2.14	0.0571	—	—	—
RE21-06-68661	21-25769	0.0–0.5	Soil	—	—	0.035	0.332	—	—	—	—
RE21-06-68663	21-25770	0.0–0.5	Soil	—	—	—	0.194	0.0400	—	—	—
RE21-06-68665	21-25771	0.0–0.5	Soil	—	1.84	—	1	0.0248	—	—	—

Note: Units are pCi/g.

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

[b] na = not available.

[c] SALs from LANL (2005, 088493).

[d] — = Not detected or not detected above FV/BV.

Table 6.3-30
Radionuclides Detected or Detected above BVs/FVs in Tuff at SWMU 21-024(c)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cesium-137	Plutonium-238	Plutonium-239	Tritium	Uranium-234	Uranium-235	Uranium-238
Qbt 2,3,4 BV/FV [a]				**na [b]**	**na**	**na**	**na**	**na**	**1.98**	**0.09**	**1.93**
Residential SAL [c]				**30**	**5.6**	**37**	**33**	**750**	**170**	**17**	**86**
Industrial SAL [c]				**180**	**23**	**240**	**210**	**4.4E+05**	**1500**	**87**	**430**
Construction Worker SAL [c]				**34**	**18**	**40**	**36**	**3.2E+05**	**220**	**43**	**160**
MD21-07-74337	21-25748	4.0-5.0	Tuff	0.0779	— [d]	—	0.168	1.82	3.41	0.216	3.09
MD21-07-74338	21-25748	14.0-15.0	Tuff	0.0832	—	—	0.445	0.389	4.13	0.26	3.67
MD21-07-74341	21-25751	4.0-4.5	Tuff	—	—	—	0.221	0.0661	6.74	0.457	4.85
MD21-07-74342	21-25751	6.0-6.5	Tuff	—	—	—	0.15	0.0627	4.46	0.259	3.24
MD21-07-74344	21-25752	3.8-4.8	Tuff	—	—	—	—	0.0792	—	—	—
MD21-07-74346	21-25753	3.8-4.8	Tuff	—	—	—	—	0.106	—	—	—
MD21-07-74348	21-25754	4.0-5.0	Tuff	—	—	—	—	0.880	—	0.105	—
MD21-07-74351	21-25760	5.0-5.5	Tuff	0.308	—	0.0355	2.02	3.03	4.8	0.315	3.6
RE21-06-68638	21-25757	1.5-2.0	Tuff	—	—	—	0.185	—	—	0.0966	—
RE21-06-68640	21-25758	1.5-2.0	Tuff	—	—	—	0.0637	0.164	—	—	—
RE21-06-68642	21-25759	1.5-2.0	Tuff	—	—	—	0.0865	0.577	2.48	0.137	—
RE21-06-68644	21-25760	1.5-2.0	Tuff	0.246	—	0.0295	2.3	1.90	9.81	0.641	7.92
RE21-06-68646	21-25761	1.5-2.0	Tuff	—	0.128	—	0.268	0.0721	—	—	—
RE21-06-68654	21-25765	1.5-2.0	Tuff	—	—	—	—	0.108	—	—	—
RE21-06-68656	21-25766	1.5-2.0	Tuff	—	—	—	0.112	0.0523	—	0.108	—
RE21-06-68658	21-25767	1.5-2.0	Tuff	—	—	—	—	0.0337	—	—	—
RE21-06-68660	21-25768	1.5-2.0	Tuff	—	0.231	—	0.295	0.0454	—	—	—
RE21-06-68662	21-25769	1.5-2.0	Tuff	—	—	—	0.0457	0.0200	—	—	—
RE21-06-68666	21-25771	1.5-2.0	Tuff	—	0.12	—	0.0852	0.0151	—	—	—
RE21-06-72609	21-25757	3.0-3.5	Tuff	—	—	—	0.157	0.156	—	—	—

Note: Units are pCi/g.

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

[b] na = Not available.

[c] SALs from LANL (2005, 088493).

[d] — = Not detected or not detected above BV.

Table 6.3-31
Inorganic Chemicals above BVs in Soil at the Suspected PCB Contaminated Outfall

Sample ID	Location ID	Depth (ft)	Media	Copper	Lead	Mercury	Selenium	Zinc
Soil BV [a]				**14.7**	**22.3**	**0.1**	**1.52**	**48.8**
Residential SSL [b]				**3130**	**400**	**23 [c]**	**391**	**23500**
Industrial SSL [b]				**45400**	**800**	**610 [c]**	**5680**	**100000**
Construction SSL [b]				**12400**	**800**	**927**	**1550**	**92900**
RE21-07-563	21-600093	0.5-1.0	Soil	73.6	39	0.109	1.58 (U)	96.8

Note: Units are mg/kg.

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

[b] SSLs from NMED (2006, 092513) unless otherwise noted.

[c] Value from EPA Region 6 (2007, 096866).

Table 6.3-32
Organic Chemicals Detected in Soil at the Suspected PCB Contaminated Outfall

Sample ID	Location ID	Depth (ft)	Media	Acenaphthene	Acenaphthylene	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	Di-n-butylphthalate	Dibenzofuran	Fluoranthene	Fluorene	Heptachlorodibenzodioxin [1,2,3,4,6,7,8-]	Heptachlorodibenzofuran [1,2,3,4,6,7,8-]	Heptachlorodibenzofuran [1,2,3,4,7,8,9-]
Residential SSL [a]				**3730**	**2290 [b]**	**22000**	**1.12**	**1.12**	**1.12**	**6.21**	**0.621**	**6.21**	**2290 [b]**	**1370**	**615**	**68400**	**142**	**2290**	**2660**	**na [c]**	**na**	**na**
Industrial SSL [a]				**33500**	**30900 [b]**	**100000**	**8.26**	**8.26**	**8.26**	**23.4**	**2.34**	**23.4**	**30900 [b]**	**4660**	**2310**	**23300**	**1620**	**24400**	**26500**	**na**	**na**	**na**
Construction SSL [a]				**14100**	**9010 [b]**	**86000**	**4.28**	**4.28**	**4.28**	**212**	**21.2**	**212**	**9010 [b]**	**347**	**21200**	**6110**	**552**	**8730**	**10200**	**na**	**na**	**na**
RE21-07-4359	21-600094	0.0–0.5	Soil	5.72	0.125 (J)	8.39	NA [d]	NA	NA	14.1	— [e]	15.4	6.21	—	13.3	—	3.49	49.1	5.92	2.27E-03	2.29E-04	1.30E-05
RE21-07-4361	21-600095	0.0–0.5	Soil	—	—	—	NA	NA	NA	—	—	—	—	—	0.0435	—	—	0.0774	—	2.3E-05	1.2E-05	9.51E-07 (J)
RE21-07-4363	21-600096	0.0–0.5	Soil	0.0117 (J)	—	0.0201 (J)	NA	NA	NA	—	0.113 (J)	—	—	—	0.0701	—	—	0.116	—	3.4E-05	1.6E-05	1.36E-06 (J)
RE21-07-4580	21-600088	0.0–0.5	Soil	—	—	—	NA	NA	NA	—	—	—	—	—	—	—	—	0.0124 (J)	—	NA	NA	NA
RE21-07-4581	21-600089	0.0–0.5	Soil	—	—	0.028 (J)	NA	NA	NA	0.229	—	0.593 (J)	0.186 (J)	—	0.307	0.0407 (J)	—	0.457	—	NA	NA	NA
RE21-07-4582	21-600090	0.0–0.5	Soil	0.0148 (J)	0.0126 (J)	0.0283 (J)	NA	NA	NA	—	—	0.507	0.13	0.127 (J)	0.305	—	—	0.488	—	NA	NA	NA
RE21-07-4583	21-600091	0.0–0.5	Soil	—	—	0.0146 (J)	NA	NA	NA	—	0.159 (J)	0.233 (J)	0.0691 (J)	8.58	0.138	—	—	0.201	—	NA	NA	NA
RE21-07-4584	21-600092	0.0–0.5	Soil	0.0739	—	0.113	NA	NA	NA	—	—	0.365 (J)	0.118 (J)	0.0713 (J)	0.213	—	—	0.464	0.0607	NA	NA	NA
RE21-07-4723	21-600091	0.0–0.5	Soil	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.5E-05	5.5E-05	5.98E-06
RE21-07-551	21-600088	0.0–0.5	Soil	NA	NA	NA	—	0.0258 (J)	0.0303 (J)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE21-07-552	21-600089	0.0–0.5	Soil	NA	NA	NA	—	1.16	0.475	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE21-07-553	21-600090	0.0–0.5	Soil	NA	NA	NA	—	0.122	0.0975	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE21-07-554	21-600091	0.0–0.5	Soil	NA	NA	NA	0.357	0.224	0.105	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE21-07-555	21-600092	0.0–0.5	Soil	NA	NA	NA	—	0.0537 (J)	—	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE21-07-556	21-600093	0.0–0.5	Soil	NA	NA	NA	—	0.958	0.362	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE21-07-557	21-600094	0.0–0.5	Soil	NA	NA	NA	—	0.293	0.12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE21-07-558	21-600095	0.0–0.5	Soil	NA	NA	NA	—	0.0317 (J)	—	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE21-07-563	21-600093	0.5–1.0	Soil	27.5 (J-)	—	47	NA	NA	NA	60.4	55.3	82.1 (J)	30.2	—	60.3	—	15.9	347	30.1	4.39E-03	4.10E-04	2.32E-05
RE21-07-565	21-600094	0.5–1.0	Soil	NA	NA	NA	—	0.257	0.12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE21-07-567	21-600096	0.5–1.0	Soil	NA	NA	NA	—	0.017 (J)	—	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE21-07-571	21-600093	0.5–1.0	Soil	NA	NA	NA	—	0.408	0.156	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 6.3-32 (continued)

Sample ID	Location ID	Depth (ft)	Media	Hexachlorodibenzodioxin [1,2,3,4,7,8-]	Hexachlorodibenzodioxin [1,2,3,6,7,8-]	Hexachlorodibenzodioxin [1,2,3,7,8,9-]	Hexachlorodibenzofuran [1,2,3,4,7,8-]	Hexachlorodibenzofuran [1,2,3,6,7,8-]	Hexachlorodibenzofuran [1,2,3,7,8,9-]	Hexachlorodibenzofuran [2,3,4,6,7,8-]	Indeno(1,2,3-cd)pyrene	Methylnaphthalene[2-]	Naphthalene	Octachlorodibenzodioxin [1,2,3,4,6,7,8,9-]	Octachlorodibenzofuran [1,2,3,4,6,7,8,9-]	Pentachlorodibenzodioxin [1,2,3,7,8-]	Pentachlorodibenzofuran [1,2,3,7,8-]	Pentachlorodibenzofuran [2,3,4,7,8-]	Phenanthrene	Pyrene	Tetrachlorodibenzodioxin [2,3,7,8-]	Tetrachlorodibenzofuran [2,3,7,8-]
Residential SSL [a]				**na**	**na**	**na**	**na**	**na**	**na**	**na**	**6.21**	**79.5[f]**	**79.5**	**na**	**na**	**na**	**na**	**na**	**1830**	**2290**	**3.9E-05 [g]**	**na**
Industrial SSL [a]				**na**	**na**	**na**	**na**	**na**	**na**	**na**	**23.4**	**300[f]**	**300**	**na**	**na**	**na**	**na**	**na**	**20500**	**30900**	**1.8E-04 [g]**	**na**
Construction SSL [a]				**na**	**na**	**na**	**na**	**na**	**na**	**na**	**212**	**262[f]**	**262**	**na**	**na**	**na**	**na**	**na**	**6990**	**9010**	**na**	**na**
RE21-07-4359	21-600094	0.0–0.5	Soil	8.78E-06	8.38E-05	2.58E-05	0.000014	9.9E-06	3.68E-06	1.22E-05	5.97	1.88	6.22	0.0193 (J)	7.86E-04	6.22E-06	4.09E-06	1.01E-05	46.9	54.8	1.07E-06	1.08E-05
RE21-07-4361	21-600095	0.0–0.5	Soil	0.000000504 (J)	0.00000129 (J)	0.000000912 (J)	0.00000158 (J)	0.000000927 (J)	—	0.000000814 (J)	—	—	—	0.000166 (J)	0.0000486	0.000000278 (J)	0.000000812 (J)	0.000000841 (J)	0.0511	0.104	—	9.93E-07
RE21-07-4363	21-600096	0.0–0.5	Soil	0.000000547 (J)	0.00000157 (J)	0.00000128 (J)	0.00000193 (J)	0.00000116 (J)	0.000000384 (J)	0.000000933 (J)	—	—	—	0.000254 (J)	0.0000552	0.000000479 (J)	0.00000101 (J)	0.00000108 (J)	0.0931	0.168	0.000000149 (J)	1.61E-06
RE21-07-4580	21-600088	0.0–0.5	Soil	NA	NA	NA	NA	NA	NA	NA	—	—	—	NA	NA	NA	NA	NA	—	0.0149 (J)	NA	NA
RE21-07-4581	21-600089	0.0–0.5	Soil	NA	NA	NA	NA	NA	NA	NA	0.204 (J)	—	—	NA	NA	NA	NA	NA	0.177	0.602	NA	NA
RE21-07-4582	21-600090	0.0–0.5	Soil	NA	NA	NA	NA	NA	NA	NA	0.158	0.0159 (J)	0.055	NA	NA	NA	NA	NA	0.346	0.697	NA	NA
RE21-07-4583	21-600091	0.0–0.5	Soil	NA	NA	NA	NA	NA	NA	NA	0.108 (J)	—	—	NA	NA	NA	NA	NA	0.1	0.279	NA	NA
RE21-07-4584	21-600092	0.0–0.5	Soil	NA	NA	NA	NA	NA	NA	NA	0.152 (J)	—	0.0438	NA	NA	NA	NA	NA	0.467	0.646	NA	NA
RE21-07-4723	21-600091	0.0–0.5	Soil	0.000000901 (J)	0.00000197 (J)	0.00000177 (J)	9.08E-06	3.95E-06	0.00000166 (J)	2.52E-06	NA	NA	NA	3.97E-04	3.68E-04	0.000000446 (J)	4.44E-06	2.49E-06	NA	NA	0.000000338 (J)	2.38E-06
RE21-07-551	21-600088	0.0–0.5	Soil	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE21-07-552	21-600089	0.0–0.5	Soil	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE21-07-553	21-600090	0.0–0.5	Soil	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE21-07-554	21-600091	0.0–0.5	Soil	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE21-07-555	21-600092	0.0–0.5	Soil	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE21-07-556	21-600093	0.0–0.5	Soil	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE21-07-557	21-600094	0.0–0.5	Soil	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE21-07-558	21-600095	0.0–0.5	Soil	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE21-07-563	21-600093	0.5–1.0	Soil	1.34E-05	0.00015	4.15E-05	1.89E-05	1.50E-05	4.84E-06	1.90E-05	27.6 (J)	10	45	3.24E-02	1.63E-03	7.35E-06	5.05E-06	1.19E-05	377	299	1.01E-06	1.10E-05
RE21-07-565	21-600094	0.5–1.0	Soil	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE21-07-567	21-600096	0.5–1.0	Soil	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE21-07-571	21-600093	0.5–1.0	Soil	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Note: Units are mg/kg.

[a] SSLs from NMED (2006, 092513).

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

[c] na = Not available.

[d] NA = Not analyzed.

[e] — = Not detected.

[f] Naphthalene used as a surrogate based on structural similarity.

Table 6.3-33
Radionuclides Detected or Detected above FVs in Soil
at the Suspected PCB Contaminated Outfall

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cesium-137	Plutonium-239	Tritium
Soil FV [a]				**0.013**	**1.65**	**0.054**	**na [b]**
Residential SAL [c]				**30**	**5.6**	**33**	**750**
Industrial SAL [c]				**180**	**23**	**210**	**4.4E+05**
Construction Worker SAL [c]				**34**	**18**	**36**	**3.2E+05**
RE21-07-563	21-600093	0.5-1.0	Soil	0.218	0.306	1.39	0.111

Note: Units are pCi/g.

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

[b] na = Not available.

[c] SALs from LANL (2005, 088493).

Table 6.4-1
Facility-unimpacted Corrective Action Site COPCs

SWMU 21-012(b)	SWMU 21-024(a)	SWMU 21-024(e)	SWMU 21-024(g)	Consolidated Unit 21-024(l)-99	SWMU 21-024(o)	Consolidated Unit 21-026(a)-99	SWMU 21-027(c)
Acetone	Acetone	Acenaphthene	Acenaphthene	Acenaphthene	Acenaphthene	Acenaphthene	Acenaphthene
Aluminum	Aluminum	Acenaphthylene	Acenaphthylene	Acenaphthylene	Acetone	Aluminum	Acenaphthylene
Americium-241	Americium-241	Acetone	Acetone	Acetone	Aluminum	Americium-241	Acetone
Antimony	Anthracene	Americium-241	Aluminum	Aluminum	Americium-241	Anthracene	Americium-241
Arsenic	Barium	Anthracene	Americium-241	Americium-241	Anthracene	Antimony	Anthracene
Barium	Benzo(a)anthracene	Antimony	Anthracene	Anthracene	Benzo(a)anthracene	Arsenic	Barium
Benzo(a)anthracene	Benzo(b)fluoranthene	Barium	Arsenic	Barium	Benzo(a)pyrene	Barium	Benzo(a)anthracene
Benzo(b)fluoranthene	Benzoic Acid	Benzo(a)anthracene	Barium	Benzo(a)anthracene	Benzo(b)fluoranthene	Benzo(a)anthracene	Benzo(a)pyrene
Benzoic Acid	Bis(2-ethylhexyl)phthalate	Benzo(a)pyrene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(g,h,i)perylene	Benzo(a)pyrene	Benzo(b)fluoranthene
Beryllium	Cesium-137	Benzo(b)fluoranthene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene
Cesium-134	Chloroaniline[4-]	Benzo(g,h,i)perylene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzoic Acid	Benzo(g,h,i)perylene	Benzo(k)fluoranthene
Cesium-137	Chloroform	Benzo(k)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Bis(2-ethylhexyl)phthalate	Benzo(k)fluoranthene	Benzoic Acid
Chloroform	Chromium	Bis(2-ethylhexyl)phthalate	Benzo(k)fluoranthene	Bis(2-ethylhexyl)phthalate	Cescium-137	Benzoic Acid	Bis(2-ethylhexyl)phthalate
Chromium	Chrysene	Butanone[2-]	Benzoic Acid	Cadmium	Chromium	Bis(2-ethylhexyl)phthalate	Cesium-134
Chrysene	Cobalt	Cadmium	Bis(2-ethylhexyl)phthalate	Cesium-137	Chrysene	Butylbenzylphthalate	Cesium-137
Cobalt	Copper	Cesium-137	Cadmium	Chloroform	Cyanide (Total)	Cadmium	Chromium
Copper	Dichlorobenzene[1,4-]	Chloroaniline[4-]	Cesium-137	Chromium	Fluoranthene	Calcium	Chrysene
Cyanide (Total)	Fluoranthene	Chromium	Chloroform	Chrysene	Fluorene	Cesium-137	Cobalt
Dichlorobenzene[1,4-]	Isopropyltoluene[4-]	Chrysene	Chromium	Cobalt	Hexachlorobenzene	Chloroform	Copper
Fluoranthene	Lead	Copper	Chrysene	Copper	Lead	Chromium	Dibenzofuran
Iron	Mercury	Cyanide (Total)	Cobalt	Dibenzofuran	Methylnaphthalene[2-]	Chrysene	Dichlorobenzene[1,4-]
Isopropyltoluene[4-]	Methylene Chloride	Dichlorobenzene[1,4-]	Copper	Dichlorobenzene[1,4-]	Naphthalene	Copper	Di-n-butylphthalate
Lead	Nickel	Di-n-butylphthalate	Cyanide (Total)	Fluoranthene	Nitrate	Cyanide (Total)	Fluoranthene
Lithium	Nitrate	Ethylbenzene	Di-n-butylphthalate	Fluorene	Perchlorate	Dibenz(a,h)anthracene	Fluorene
Mercury	Perchlorate	Fluoranthene	Ethylbenzene	Indeno(1,2,3-cd)pyrene	Phenanthrene	Dibenzofuran	Indeno(1,2,3-cd)pyrene
Methylene Chloride	Phenanthrene	Fluorene	Fluoranthene	Isopropyltoluene[4-]	Plutonium-238	Dichlorobenzene[1,4-]	Isopropyltoluene[4-]
Methylnaphthalene[2-]	Plutonium-238	Indeno(1,2,3-cd)pyrene	Fluorene	Lead	Plutonium-239	Dimethylphenol[2,4-]	Lead
Molybdenum	Plutonium-239	Isopropyltoluene[4-]	Indeno(1,2,3-cd)pyrene	Lithium	Pyrene	Di-n-butylphthalate	Mercury
Nickel	Pyrene	Lead	Iron	Mercury	Selenium	Di-n-octylphthalate	Methylene Chloride
Nitrate	Selenium	Mercury	Isopropyltoluene[4-]	Methylene Chloride	Toluene	Ethylbenzene	Methylnaphthalene[2-]
Perchlorate	Strontium-90	Methylene Chloride	Lead	Methylnaphthalene[2-]	Tritium	Fluoranthene	Naphthalene
Phenanthrene	Toluene	Methylnaphthalene[2-]	Mercury	Naphthalene	Uranium	Fluorene	Nitrate
Plutonium-238	Trichloroethene	Molybdenum	Methylnaphthalene[2-]	Nitrate	Zinc	Indeno(1,2,3-cd)pyrene	Perchlorate
Plutonium-239	Tritium	Naphthalene	Naphthalene	Perchlorate	— *	Lead	Phenanthrene
Pyrene	Uranium	Nitrate	Nickel	Phenanthrene	—	Mercury	Plutonium-238
Selenium	Uranium-234	Perchlorate	Nitrate	Plutonium-238	—	Nickel	Plutonium-239

Table 6.4-1 (continued)

SWMU 21-012(b)	SWMU 21-024(a)	SWMU 21-024(e)	SWMU 21-024(g)	Consolidated Unit 21-024(l)-99	SWMU 21-024(o)	Consolidated Unit 21-026(a)-99	SWMU 21-027(c)
Strontium	Uranium-235	Phenanthrene	Perchlorate	Plutonium-239	—	Nitrate	Pyrene
Toluene	Uranium-238	Plutonium-238	Phenanthrene	Pyrene	—	Perchlorate	Selenium
Trichloroethene	Vanadium	Plutonium-239	Plutonium-238	Selenium	—	Phenanthrene	Strontium-90
Trimethylbenzene[1,2,4-]	Xylene[1,3-]+Xylene[1,4-]	Pyrene	Plutonium-239	Toluene	—	Plutonium-238	Toluene
Tritium	Zinc	Selenium	Pyrene	Tritium	—	Plutonium-239	Trichloroethene
Uranium	—	Silver	Selenium	Uranium-234	—	Pyrene	Tritium
Uranium-234	—	Strontium-90	Toluene	Uranium-235	—	Selenium	Uranium
Uranium-235	—	Toluene	Tritium	Xylene[1,3-]+Xylene[1,4-]	—	Silver	Uranium-234
Uranium-238	—	Trichloroethene	Uranium	Zinc	—	Toluene	Zinc
Vanadium	—	Trimethylbenzene[1,2,4-]	Uranium-234	—	—	Trimethylbenzene[1,2,4-]	—
Xylene[1,3-]+Xylene[1,4-]	—	Tritium	Uranium-235	—	—	Tritium	—
Zinc	—	Uranium	Uranium-238	—	—	Uranium	—
—	—	Uranium-234	Xylene[1,3-]+Xylene[1,4-]	—	—	Uranium-234	—
—	—	Uranium-235	Zinc	—	—	Uranium-235	—
—	—	Uranium-238		—	—	Uranium-238	—
—	—	Xylene[1,2-]		—	—	Xylene[1,3-]+Xylene[1,4-]	—
—	—	Xylene[1,3-]+Xylene[1,4-]		—	—	Zinc	—
—	—	Zinc		—	—	—	—

* — = Not a COPC.

Table 6.4-2
Inorganic Chemicals above BVs in Soil at SWMU 21-012(b)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Cadmium	Calcium	Copper	Cyanide (Total)	Iron	Lead	Lithium	Mercury	Molybdenum	Nitrate	Perchlorate	Selenium	Sodium	Strontium	Uranium	Zinc
Soil BV [a]				**29200**	**0.4**	**6120**	**14.7**	**0.5**	**21500**	**22.3**	**na [b]**	**0.1**	**na**	**na**	**na**	**1.52**	**915**	**na**	**1.82**	**48.8**
Industrial SSL [c]				**100000**	**564**	**na**	**45400**	**13700**	**100000**	**800**	**23000 [d]**	**610 [d]**	**5680**	**100000**	**790 [d]**	**5680**	**na**	**100000**	**200 [e]**	**100000**
Construction Worker SSL [c]				**14400**	**154**	**na**	**12400**	**4760**	**92900**	**800**	**na**	**927**	**1550**	**100000**	**na**	**1550**	**na**	**100000**	**na**	**92900**
Residential SSL [c]				**77800**	**39**	**na**	**3130**	**1220**	**23500**	**400**	**1600 [d]**	**23 [d]**	**391**	**100000**	**55 [d]**	**391**	**na**	**46900**	**16 [e]**	**23500**
MD21-07-74366	21-25778	0.0–0.5	Soil	— [f]	—	—	35.3	—	—	—	NA [g]	2.53	NA	6.69	0.00343 (J-)	1.59 (U)	—	23.1	—	182
MD21-07-74367	21-25778	2.0–2.5	Soil	—	—	—	34.7	—	—	—	NA	2.96	NA	2.68	0.000993 (J-)	1.6 (U)	—	22.8	—	163
MD21-07-74369	21-25779	0.0–0.5	Soil	—	—	—	32.2	—	—	—	NA	4.03	NA	5.41	0.00119 (J-)	1.63 (U)	—	22.1	—	209
MD21-07-74370	21-25779	2.0–2.5	Soil	—	—	—	44.1	—	—	—	NA	2.82	NA	2.24	0.000818 (J-)	—	1350	18.6	—	127
MD21-07-74372	21-25780	0.0–0.5	Soil	—	—	—	23.8	—	—	—	NA	—	NA	1.67	0.000897 (J-)	—	—	17.8	—	57.3
MD21-07-74373	21-25780	2.0–2.5	Soil	—	—	—	22.6	—	—	—	NA	—	NA	1.19	—	1.61 (U)	—	19.1	—	—
MD21-07-74375	21-25781	0.0–0.5	Soil	—	—	—	22.4	—	—	—	NA	0.126	NA	—	0.000934 (J-)	1.64 (U)	—	17.6	—	59.5
MD21-07-74376	21-25781	2.0–2.5	Soil	—	—	—	39.5	—	—	—	NA	0.137	NA	—	0.000537 (J-)	1.55 (U)	—	22	—	57.9
MD21-07-74378	21-25782	0.0–0.5	Soil	—	—	—	22.4	—	—	—	NA	0.149	NA	1.57	0.00112 (J-)	1.64 (U)	—	16.9	—	—
MD21-07-74379	21-25782	2.0–2.5	Soil	—	—	—	15.8	—	—	—	NA	—	NA	1.39	0.000854 (J-)	1.7 (U)	—	23.5	—	—
MD21-07-74381	21-25783	0.0–0.5	Soil	—	0.401 (J)	—	127	—	—	42.7	NA	0.433	NA	1.48	0.00397 (J-)	—	—	44.8	3.33	90.4
MD21-07-74382	21-25783	2.0–2.5	Soil	—	0.423 (J)	—	124	—	—	50.9	NA	0.251	NA	2.03	0.00143 (J-)	1.58 (U)	—	43.3	2.5	85.6
MD21-07-74384	21-25784	0.0–0.5	Soil	—	—	—	17.9	1.56	—	23	NA	—	NA	12.9	—	—	—	25	3.74	—
MD21-07-74385	21-25784	2.0–2.5	Soil	—	0.524 (U)	—	—	—	—	—	NA	—	NA	6.55	0.000599 (J-)	1.57 (U)	—	7.64	—	—
MD21-07-74387	21-25785	0.0–0.5	Soil	—	—	—	19.9	—	—	—	NA	—	NA	—	0.00102 (J-)	1.66 (U)	—	11	—	—
MD21-07-74388	21-25785	2.0–2.5	Soil	—	0.529 (U)	—	—	—	—	—	NA	—	NA	—	—	1.59 (U)	—	9.02	—	—
MD21-07-74390	21-25786	0.0–0.5	Soil	—	0.712	7350	218	—	—	69.5	NA	0.157	NA	—	—	—	—	101	8.01	132
MD21-07-74391	21-25786	2.0–2.5	Soil	—	—	—	80.8	—	—	29.3	NA	0.135	NA	—	0.000881 (J-)	1.7 (U)	2370	45.2	3.38	64
MD21-07-74393	21-25787	0.0–0.5	Soil	—	—	—	134	—	—	23.4	NA	0.137	NA	0.803 (J)	0.00171 (J-)	1.6 (U)	—	22.3	—	120
MD21-07-74394	21-25787	2.0–2.5	Soil	—	1.4 (J)	—	1320	—	36700 (J-)	108	NA	1.22	NA	1.33	—	7.49 (U)	—	25.2	2.77	354
MD21-07-74396	21-25788	0.0–0.5	Soil	—	0.423 (J)	—	103	—	—	29.2	10.5 (J+)	—	0.88	3.43 (J-)	0.00361	1.62 (U)	—	31.8	1.88	314
MD21-07-74397	21-25788	2.0–2.5	Soil	—	—	—	150	—	—	—	9 (J+)	0.164	0.949	2.49 (J-)	0.00143 (J)	1.64 (U)	—	34.4	—	142
MD21-07-74399	21-25789	0.0–0.5	Soil	—	0.534 (U)	—	34.2	—	—	—	7.89 (J+)	—	0.903	—	—	1.6 (U)	—	12.2	—	—
MD21-07-74400	21-25789	2.0–2.5	Soil	—	0.51 (U)	—	24.4	—	—	—	8.74 (J+)	—	1.43	—	—	1.53 (U)	—	13.2	—	—
MD21-07-74402	21-25790	0.0–0.5	Soil	—	0.586 (U)	—	20.8	—	—	—	7.17 (J+)	—	1.04	0.818 (J-)	0.000669 (J)	—	—	11.6	—	—
MD21-07-74403	21-25790	2.0–2.5	Soil	—	0.566 (U)	—	—	—	—	—	13.5 (J+)	—	1.76	—	0.000624 (J)	1.7 (U)	—	18.5	—	—
MD21-07-74405	21-25791	0.0–0.5	Soil	—	—	—	134	—	—	—	9.33 (J+)	0.136	1.02	1.69 (J-)	0.00151 (J)	1.71 (U)	—	31.7	2.24	72.2
MD21-07-74406	21-25791	2.0–2.5	Soil	—	—	—	93.8	—	—	—	7.76 (J+)	—	1.16	1.32 (J-)	0.000705 (J)	1.67 (U)	—	20.5	—	—

Table 6.4-2 (continued)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Cadmium	Calcium	Copper	Cyanide (Total)	Iron	Lead	Lithium	Mercury	Molybdenum	Nitrate	Perchlorate	Selenium	Sodium	Strontium	Uranium	Zinc
Soil BV [a]				**29200**	**0.4**	**6120**	**14.7**	**0.5**	**21500**	**22.3**	**na [b]**	**0.1**	**na**	**na**	**na**	**1.52**	**915**	**na**	**1.82**	**48.8**
Industrial SSL [c]				**100000**	**564**	**na**	**45400**	**13700**	**100000**	**800**	**23000 [d]**	**610 [d]**	**5680**	**100000**	**790 [d]**	**5680**	**na**	**100000**	**200 [e]**	**100000**
Construction Worker SSL [c]				**14400**	**154**	**na**	**12400**	**4760**	**92900**	**800**	**na**	**927**	**1550**	**100000**	**na**	**1550**	**na**	**100000**	**na**	**92900**
Residential SSL [c]				**77800**	**39**	**na**	**3130**	**1220**	**23500**	**400**	**1600 [d]**	**23 [d]**	**391**	**100000**	**55 [d]**	**391**	**na**	**46900**	**16 [e]**	**23500**
MD21-07-74408	21-25792	0.0–0.5	Soil	—	—	—	43.4	—	—	—	7.58 (J+)	—	0.669	1.39 (J-)	0.0012 (J)	—	—	23.3	—	—
MD21-07-74409	21-25792	2.0–2.5	Soil	—	0.522 (U)	—	19.1	—	—	—	9.89 (J+)	—	0.896	0.995 (J-)	0.000595 (J)	—	—	16.9	—	—
MD21-07-74411	21-25793	0.0–0.5	Soil	—	—	—	130	—	—	—	10.8 (J+)	—	0.587	1.19 (J-)	0.000729 (J)	—	—	36.7	2.08	70.5
MD21-07-74412	21-25793	2.0–2.5	Soil	—	—	—	92.9	—	—	—	10.7 (J+)	—	0.595	0.798 (J-)	—	1.53 (U)	—	26	2.23	57.8
MD21-07-74414	21-25794	0.0–0.5	Soil	—	0.589 (U)	—	—	—	—	—	5.9	—	2.15	1.37	—	—	—	9.55	—	—
MD21-07-74415	21-25794	2.0–2.5	Soil	—	0.556 (U)	—	—	—	—	—	11.1	—	3.81	0.759 (J)	—	1.67 (U)	—	6.82	—	—
MD21-07-74416	21-25796	0.0–0.5	Soil	—	0.543 (U)	—	17.8	—	—	—	7.5	—	0.597	1.32	—	—	—	11.5	—	—
MD21-07-74418	21-25795	0.0–0.5	Soil	30800 (J+)	0.608 (U)	—	31.7	—	22500	—	27	—	0.881	1.24	—	1.65 (J)	—	29.7	—	76.5
MD21-07-74419	21-25795	2.0–2.5	Soil	—	0.556 (U)	—	14.9	—	—	—	15.8	—	1.5	0.901 (J)	—	1.67 (U)	—	12.2	—	—
MD21-07-74433	21-25810	0.0–0.5	Soil	—	0.523 (U)	10800 (J)	32.5	—	—	—	18 (J+)	0.435 (J+)	1.37 (J)	2.2	0.00122 (J)	—	—	59.2 (J)	2.06 (J+)	188 (J+)
MD21-07-74436	21-25797	0.0–0.5	Soil	—	—	—	82.1	—	—	23.5 (J)	NA	—	NA	3.05	0.000834 (J-)	—	—	24.2	—	269
MD21-07-74439	21-25798	0.0–0.5	Soil	—	—	—	202	—	—	32	12 (J+)	0.163 (J+)	1.25 (J)	0.918 (J)	0.00151 (J)	—	—	29.9 (J)	—	147 (J+)
MD21-07-74449	21-25802	2.0–3.0	Soil	—	0.532 (U)	—	20.8 (J-)	—	—	—	9 (J+)	—	0.419	—	—	—	—	9.97	—	—
MD21-07-74451	21-25803	2.33–3.33	Soil	—	0.6 (U)	—	—	—	22000	—	12.5	—	0.75	—	—	2.01	—	20.5	—	—
MD21-07-74453	21-25804	2.0–3.0	Soil	—	0.539 (U)	—	—	—	—	—	14.7 (J+)	—	0.562	—	—	—	—	13.5	—	—
MD21-07-74455	21-25805	2.67–3.67	Soil	—	0.588 (U)	—	51.5 (J)	—	—	—	9.4 (J+)	—	0.746	—	—	1.76 (U)	—	21.2	—	—

Note: Units are mg/kg.

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

[b] na = Not available.

[c] SSLs from NMED (2006, 092513).

[d] Value from EPA Region 6 (2007, 095866).

[e] Value from EPA Region 9 (http://www.epa.gov/region9/waste/sfund/prg/files/04prgtable.pdf).

[f] — = Not detected or not detected above BV.

[g] NA = Not analyzed.

Table 6.4-3
Inorganic Chemicals above BVs in Tuff at SWMU 21-012(b)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Beryllium	Calcium	Chromium	Cobalt	Copper	Cyanide (Total)	Iron	Lead	Lithium
Qbt 2,3,4 BV [a]				**7340**	**0.5**	**2.79**	**46**	**1.21**	**2200**	**7.14**	**3.14**	**4.66**	**0.5**	**14500**	**11.2**	**na [b]**
Industrial SSL [c]				**100000**	**454**	**17.7**	**100000**	**2250**	**na**	**5000 [d]**	**20500**	**45400**	**13700**	**100000**	**800**	**23000 [d]**
Construction Worker SSL [c]				**14400**	**124**	**85.2**	**60200**	**56.2**	**na**	**26.1**	**61**	**12400**	**4760**	**92900**	**800**	**na**
Residential SSL [c]				**77800**	**31.3**	**3.9**	**15600**	**156**	**na**	**2100 [d]**	**1520**	**3130**	**1220**	**23500**	**400**	**1600 [d]**
MD21-07-74417	21-25796	2.0–2.5	Tuff	— [e]	—	—	—	—	—	—	—	—	—	—	—	4.2
MD21-07-74434	21-25810	2.0–3.0	Tuff	15600 (J+)	—	3.09	83.2	—	5900 (J)	9.59	—	26.4	—	—	12.2	20.7 (J+)
MD21-07-74435	21-25810	5.0–6.0	Tuff	—	—	2.85	98.7	—	39300 (J)	7.7	—	11	—	—	—	10.2 (J+)
MD21-07-74437	21-25797	2.0–3.0	Tuff	29800 (J+)	—	5.51	222	2.01	3540	19.1	5.06	156	—	22600	23.4	NA [f]
MD21-07-74438	21-25797	5.0–6.0	Tuff	12300 (J+)	—	6.58	177	—	37400	7.57	—	47.1	—	—	12.8	NA
MD21-07-74440	21-25798	2.0–3.0	Tuff	9440 (J+)	—	3.32	58.7	—	—	7.54	—	28.8	—	—	—	10.4 (J+)
MD21-07-74441	21-25798	5.0–6.0	Tuff	—	—	3.07	46.1	—	—	8.36	—	46.6	—	—	—	9.37 (J+)
MD21-07-74445	21-25800	2.33–3.33	Tuff	11500	—	4.32	95 (J-)	—	—	9.38	3.6 (J)	107 (J-)	—	15800	20.3	4.9 (J+)
MD21-07-74446	21-25800	4.33–5.33	Tuff	—	—	—	—	—	4090	51.7	—	40.1 (J-)	—	—	—	6.8 (J+)
MD21-07-74447	21-25801	2.33–3.33	Tuff	10700	—	3.09	58.6 (J-)	—	—	8.25	—	16 (J-)	—	—	—	3.4 (J+)
MD21-07-74448	21-25801	4.33–5.33	Tuff	—	—	—	—	—	—	—	—	7.71 (J-)	—	—	—	5 (J+)
MD21-07-74450	21-25802	4.0–5.0	Tuff	—	—	—	—	—	—	—	—	—	—	—	—	2.5 (J+)
MD21-07-74452	21-25803	4.33–5.33	Tuff	—	—	—	65.5 (J-)	—	NA	—	—	5.43	—	—	—	5.68
MD21-07-74454	21-25804	4.0–5.0	Tuff	—	—	2.82	—	—	—	—	—	5.81 (J-)	—	—	—	7.5 (J+)
MD21-07-74456	21-25805	4.67–5.67	Tuff	—	—	—	—	—	—	—	—	5.06 (J)	—	—	—	8.2 (J+)
MD21-07-74457	21-25806	2.0–3.0	Tuff	—	0.507 (U)	—	—	—	2270	12.4	—	13.4	—	—	—	9.13 (J-)
MD21-07-74458	21-25806	4.0–5.0	Tuff	—	—	—	—	—	4870	25.5	—	4.84	—	—	—	20.1 (J-)
MD21-07-74459	21-25807	2.5–3.5	Tuff	8000 (J-)	—	2.9	68.3	—	3690	7.64	—	78.2	—	—	28.6	10.7 (J-)
MD21-07-74460	21-25807	4.5–5.5	Tuff	—	—	—	—	—	—	—	—	15.4	—	—	—	7.13 (J-)
MD21-07-74461	21-25808	2.5–3.5	Tuff	—	—	3.28	—	—	—	8.8	—	—	—	—	—	4.37 (J-)
MD21-07-74462	21-25808	4.5–5.5	Tuff	—	—	3.58	56.2	—	—	—	—	68.7	—	—	—	10 (J-)
MD21-07-74463	21-25809	2.0–3.0	Tuff	16200	—	3.77	134 (J-)	—	13700 (J)	10.4	—	25.5	—	—	—	10.5 (J+)
MD21-07-74464	21-25809	4.0–5.0	Tuff	13400	—	—	114 (J-)	—	14700 (J)	9.76	—	15.3	—	—	—	27.6 (J+)
MD21-07-74467	21-25811	3.0–4.0	Tuff	—	—	—	—	—	—	21.1	—	47	—	—	—	7.07 (J-)
MD21-07-74468	21-25811	5.0–6.0	Tuff	—	—	—	—	—	—	61.1	—	7.7	—	—	—	6.54 (J-)
MD21-07-74469	21-25812	2.0–3.0	Tuff	16400	—	3.98	165 (J-)	—	3840 (J)	8.86	—	9.35	—	—	—	20.5 (J+)
MD21-07-74470	21-25812	4.0–5.0	Tuff	9220	—	3.12	97 (J-)	—	3430 (J)	—	—	5.35	—	—	—	15.6 (J+)
MD21-07-74471	21-25813	3.0–4.0	Tuff	—	—	2.94	—	—	4410 (J)	11.5	—	19.4	—	—	—	5.76 (J+)

Table 6.4-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Beryllium	Calcium	Chromium	Cobalt	Copper	Cyanide (Total)	Iron	Lead	Lithium
Qbt 2,3,4 BV [a]				**7340**	**0.5**	**2.79**	**46**	**1.21**	**2200**	**7.14**	**3.14**	**4.66**	**0.5**	**14500**	**11.2**	**na [b]**
Industrial SSL [c]				**100000**	**454**	**17.7**	**100000**	**2250**	**na**	**5000 [d]**	**20500**	**45400**	**13700**	**100000**	**800**	**23000 [d]**
Construction Worker SSL [c]				**14400**	**124**	**85.2**	**60200**	**56.2**	**na**	**26.1**	**61**	**12400**	**4760**	**92900**	**800**	**na**
Residential SSL [c]				**77800**	**31.3**	**3.9**	**15600**	**156**	**na**	**2100 [d]**	**1520**	**3130**	**1220**	**23500**	**400**	**1600 [d]**
MD21-07-74472	21-25813	5.0–6.0	Tuff	—	—	—	—	—	—	20	—	10.1	—	—	—	6.69 (J+)
MD21-07-74473	21-25814	1.6–2.6	Tuff	—	—	—	—	—	—	17.5	—	10.2	—	—	—	7.55 (J-)
MD21-07-74474	21-25814	3.5–4.5	Tuff	—	—	—	—	—	—	23.6	—	—	—	—	—	5.91 (J-)
MD21-07-74475	21-25815	2.0–3.0	Tuff	13900	—	2.88	116 (J-)	—	2880 (J)	7.88	—	6.31	—	—	—	14.2 (J+)
MD21-07-74476	21-25815	4.0–5.0	Tuff	10600	—	2.83	100 (J-)	—	2450 (J)	—	—	8.28	—	—	—	11.3 (J+)
MD21-07-74477	21-25816	6.0–7.0	Tuff	14000 (J-)	—	2.98	84.5	—	4250	17.6	—	22.5	—	—	—	21.4 (J-)
MD21-07-74478	21-25816	4.0–5.0	Tuff	14400 (J-)	—	3.21	88.3	—	4740	90	—	28.7	—	—	—	17.4 (J-)
MD21-07-74479	21-25817	2.5–3.5	Tuff	—	—	—	—	—	—	7.61	—	5.37	—	—	—	4.37
MD21-07-74480	21-25817	4.5–5.5	Tuff	—	—	4.01	97.5	—	3480	23.9	—	—	—	—	—	4.24
RE21-07-76274	21-27671	55.0–56.0	Tuff	—	—	—	—	—	—	—	—	—	—	—	—	3.49
RE21-07-76275	21-27671	60.0–61.0	Tuff	—	—	—	—	—	4670 (J+)	—	—	—	—	—	—	3.47
RE21-07-76276	21-27671	65.0–66.0	Tuff	—	—	—	—	—	—	—	—	—	—	—	—	9.24
RE21-07-76277	21-27671	70.0–71.0	Tuff	—	—	—	—	—	—	—	—	—	—	—	—	3.96
RE21-07-76278	21-27671	75.0–76.0	Tuff	—	—	—	—	—	—	—	—	—	2.01	—	—	2.92
RE21-07-76280	21-27672	5.0–6.0	Tuff	—	—	4.71	54.9 (J+)	—	6130 (J+)	—	—	—	—	—	—	4.44
RE21-07-76281	21-27672	10.0–11.0	Tuff	—	—	—	—	—	—	—	—	—	—	—	15.9	2.9
RE21-07-76282	21-27672	15.0–16.0	Tuff	—	—	—	—	—	—	—	—	—	—	—	—	2 (J)
RE21-07-76283	21-27672	20.0–21.0	Tuff	—	—	—	—	—	2640 (J+)	7.36	—	—	—	—	—	2.9
RE21-07-76284	21-27672	25.0–26.0	Tuff	—	—	—	—	—	—	—	—	—	—	—	—	4.89
RE21-07-76286	21-27673	5.0–6.0	Tuff	—	—	—	—	—	—	—	—	—	—	—	—	5.87
RE21-07-76287	21-27673	10.0–11.0	Tuff	—	—	—	—	—	—	—	—	—	0.733	—	—	3.92
RE21-07-76288	21-27673	15.0–16.0	Tuff	—	—	—	—	—	—	—	—	—	—	—	—	1.95 (J)
RE21-07-76289	21-27673	20.0–21.0	Tuff	—	—	—	—	—	—	—	—	—	—	—	23	4.15
RE21-07-76290	21-27673	25.0–26.0	Tuff	—	—	—	—	—	—	—	—	—	—	—	—	5.8
RE21-07-76292	21-27674	5.0–6.0	Tuff	—	—	—	—	—	—	—	—	—	—	—	—	4.83
RE21-07-76293	21-27674	10.0–11.0	Tuff	—	—	—	—	—	—	—	—	—	—	—	—	2.25
RE21-07-76294	21-27674	18.0–19.0	Tuff	—	—	—	—	—	—	—	—	10.2	—	—	—	18.4
RE21-07-76295	21-27674	20.0–21.0	Tuff	—	—	—	—	—	—	—	—	—	—	—	—	2.79
RE21-07-76296	21-27674	25.0–26.0	Tuff	—	—	—	—	—	—	—	—	—	—	—	—	2.96

Table 6.4-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Magnesium	Manganese	Mercury	Molybdenum	Nickel	Nitrate	Perchlorate	Selenium	Strontium	Uranium	Vanadium	Zinc
Qbt 2,3,4 BV [a]				**1690**	**482**	**0.1**	**na**	**6.58**	**na**	**na**	**0.3**	**na**	**2.4**	**17**	**63.5**
Industrial SSL [c]				**na**	**48400**	**610 [d]**	**5680**	**22700**	**100000**	**790 [d]**	**5680**	**100000**	**200 [g]**	**1140**	**100000**
Construction Worker SSL [c]				**na**	**150**	**927**	**1550**	**6190**	**100000**	**na**	**1550**	**100000**	**na**	**310**	**92900**
Residential SSL [c]				**na**	**3590**	**23 [d]**	**391**	**1560**	**100000**	**55 [d]**	**391**	**46900**	**16 [g]**	**78.2**	**23500**
MD21-07-74417	21-25796	2.0–2.5	Tuff	—	—	—	0.371	—	0.668 (J)	—	1.48 (U)	2.2	—	—	—
MD21-07-74434	21-25810	2.0–3.0	Tuff	2540	—	1.3 (J+)	0.697 (J)	—	1.91	0.000976 (J)	1.1 (J)	33.1 (J)	3.29 (J+)	18.4	170 (J+)
MD21-07-74435	21-25810	5.0–6.0	Tuff	2360	—	0.359 (J+)	1.02 (J)	—	3.72	—	1.66 (U)	86.9 (J)	—	—	—
MD21-07-74437	21-25797	2.0–3.0	Tuff	4110	—	0.114	NA	11.6	0.85 (J)	0.00124 (J-)	1.29 (J)	35.4	—	29.4	102
MD21-07-74438	21-25797	5.0–6.0	Tuff	3260	—	—	NA	9.79	1.53	0.00161 (J-)	1.76 (U)	93.6	—	22.7	—
MD21-07-74440	21-25798	2.0–3.0	Tuff	—	—	—	1.59 (J)	—	0.851 (J)	0.00154 (J)	1.62 (U)	9.8 (J)	—	—	—
MD21-07-74441	21-25798	5.0–6.0	Tuff	—	—	—	2.26 (J)	—	0.704 (J)	0.000985 (J)	1.61 (U)	8.26 (J)	—	—	—
MD21-07-74445	21-25800	2.33–3.33	Tuff	—	551 (J)	9.68	1.44	—	5.12	—	0.983 (J)	20.8	—	—	76.2 (J-)
MD21-07-74446	21-25800	4.33–5.33	Tuff	—	—	2.53	1.18	—	1.82	—	1.49 (U)	17.9	—	—	—
MD21-07-74447	21-25801	2.33–3.33	Tuff	—	—	—	0.427	—	0.678 (J)	—	1.59 (U)	14.9	—	—	—
MD21-07-74448	21-25801	4.33–5.33	Tuff	—	—	—	0.347	—	—	—	1.48 (U)	6.66	—	—	—
MD21-07-74450	21-25802	4.0–5.0	Tuff	—	—	—	—	—	—	—	1.48 (U)	1.56	—	—	—
MD21-07-74452	21-25803	4.33–5.33	Tuff	—	—	—	1.68	—	0.615 (J)	—	1.77 (U)	14.4	—	—	—
MD21-07-74454	21-25804	4.0–5.0	Tuff	—	—	—	0.469	—	0.509 (J)	—	1.47 (U)	10.1	—	—	—
MD21-07-74456	21-25805	4.67–5.67	Tuff	—	—	—	0.966	—	—	—	1.76 (U)	8.91	—	—	—
MD21-07-74457	21-25806	2.0–3.0	Tuff	—	—	—	1.2	—	—	—	1.83 (U)	19.6	3.31	—	—
MD21-07-74458	21-25806	4.0–5.0	Tuff	—	—	—	0.48	—	—	—	1.74 (U)	27.1	5.54	—	—
MD21-07-74459	21-25807	2.5–3.5	Tuff	—	—	—	0.974	—	1.31	—	1.83 (U)	43	—	—	—
MD21-07-74460	21-25807	4.5–5.5	Tuff	—	—	—	1.67	—	1.47	—	1.73 (U)	10.8	—	—	—
MD21-07-74461	21-25808	2.5–3.5	Tuff	—	—	—	1.07	—	0.934 (J)	—	1.68 (U)	5.31	—	—	—
MD21-07-74462	21-25808	4.5–5.5	Tuff	—	—	—	0.564	—	0.726 (J)	—	1.79 (U)	24.7	—	19.3	615
MD21-07-74463	21-25809	2.0–3.0	Tuff	3640	—	—	0.589	—	2.03	—	1.19 (J)	73.9 (J-)	4.16	26.5	120 (J-)
MD21-07-74464	21-25809	4.0–5.0	Tuff	3700	—	—	0.954	—	2	0.000633 (J)	1.2 (J)	73.5 (J-)	5.53	26.8	111 (J-)
MD21-07-74467	21-25811	3.0–4.0	Tuff	—	—	—	1.27	—	3.91	—	0.665 (J)	17.8	—	—	—
MD21-07-74468	21-25811	5.0–6.0	Tuff	—	—	—	1.06	—	2.55	—	1.63 (U)	12.2	—	—	—
MD21-07-74469	21-25812	2.0–3.0	Tuff	2230	—	—	0.496	—	2.55	—	1.79 (U)	32.3 (J-)	—	—	—
MD21-07-74470	21-25812	4.0–5.0	Tuff	—	—	—	0.748	—	2.4	—	0.883 (J)	23.5 (J-)	—	—	—
MD21-07-74471	21-25813	3.0–4.0	Tuff	—	—	—	1.88	—	2.67	—	0.853 (J)	29.1 (J-)	—	—	—
MD21-07-74472	21-25813	5.0–6.0	Tuff	—	—	—	1.88	—	2.34	—	0.645 (J)	14.8 (J-)	—	—	—

Table 6.4-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Magnesium	Manganese	Mercury	Molybdenum	Nickel	Nitrate	Perchlorate	Selenium	Strontium	Uranium	Vanadium	Zinc
Qbt 2,3,4 BV [a]				**1690**	**482**	**0.1**	**na**	**6.58**	**na**	**na**	**0.3**	**na**	**2.4**	**17**	**63.5**
Industrial SSL [c]				**na**	**48400**	**610 [d]**	**5680**	**22700**	**100000**	**790 [d]**	**5680**	**100000**	**200 [g]**	**1140**	**100000**
Construction Worker SSL [c]				**na**	**150**	**927**	**1550**	**6190**	**100000**	**na**	**1550**	**100000**	**na**	**310**	**92900**
Residential SSL [c]				**na**	**3590**	**23 [d]**	**391**	**1560**	**100000**	**55 [d]**	**391**	**46900**	**16 [g]**	**78.2**	**23500**
MD21-07-74473	21-25814	1.6–2.6	Tuff	—	—	—	1.15	—	0.589 (J)	—	1.77 (U)	7.7	—	—	—
MD21-07-74474	21-25814	3.5–4.5	Tuff	—	—	—	1.71	—	0.944 (J)	—	1.64 (U)	1.24	—	—	—
MD21-07-74475	21-25815	2.0–3.0	Tuff	1900	—	—	0.726	—	1.99	—	0.965 (J)	27.9 (J-)	—	—	—
MD21-07-74476	21-25815	4.0–5.0	Tuff	—	—	—	0.952	—	2.66	—	1.1 (J)	25.4 (J-)	—	—	—
MD21-07-74477	21-25816	6.0–7.0	Tuff	2470	—	—	1.14	10.1	1.54	—	1.78 (U)	31.8	—	—	—
MD21-07-74478	21-25816	4.0–5.0	Tuff	2660	—	—	0.986	11	1.48	—	0.738 (J)	34.2	—	—	—
MD21-07-74479	21-25817	2.5–3.5	Tuff	—	—	—	0.367	—	12.7 (J-)	—	1.6 (U)	11.5	—	—	—
MD21-07-74480	21-25817	4.5–5.5	Tuff	—	—	—	0.601	—	19.5 (J-)	—	1.63 (U)	13.5	—	—	—
RE21-07-76274	21-27671	55.0–56.0	Tuff	—	—	—	0.28	—	1.36 (J-)	—	0.781 (J)	14.4 (J)	—	—	—
RE21-07-76275	21-27671	60.0–61.0	Tuff	—	—	—	0.396	—	1.47 (J-)	—	1.63 (U)	14.4 (J)	—	—	—
RE21-07-76276	21-27671	65.0–66.0	Tuff	—	—	—	0.334	—	1.23 (J-)	—	0.829 (J)	0.748 (J)	—	—	—
RE21-07-76277	21-27671	70.0–71.0	Tuff	—	—	—	0.25	—	1.44 (J-)	—	1.55 (U)	1.07 (J)	—	—	—
RE21-07-76278	21-27671	75.0–76.0	Tuff	—	—	—	0.251	—	1.53 (J-)	—	1.56 (U)	0.472 (J)	—	—	—
RE21-07-76280	21-27672	5.0–6.0	Tuff	—	—	—	0.931	—	34.2 (J-)	0.000684 (J)	0.715 (J)	36.9 (J)	—	—	—
RE21-07-76281	21-27672	10.0–11.0	Tuff	—	—	—	1.32	—	9.29 (J-)	—	1.6 (U)	7.26 (J)	—	—	131
RE21-07-76282	21-27672	15.0–16.0	Tuff	—	—	—	0.938	—	4.08 (J-)	—	1.63 (U)	4.68 (J)	—	—	—
RE21-07-76283	21-27672	20.0–21.0	Tuff	—	—	—	0.628	—	1.52 (J-)	—	1.62 (U)	8.36 (J)	—	—	—
RE21-07-76284	21-27672	25.0–26.0	Tuff	—	—	—	0.664	—	1.53 (J-)	—	1.6 (U)	4.28 (J)	—	—	—
RE21-07-76286	21-27673	5.0–6.0	Tuff	—	—	—	1.62	—	1.98	—	1.69 (U)	4.82	—	—	—
RE21-07-76287	21-27673	10.0–11.0	Tuff	—	—	—	2.34	—	1.94 (J-)	—	1.62 (U)	2.07	—	—	—
RE21-07-76288	21-27673	15.0–16.0	Tuff	—	—	—	0.478	—	2.11 (J-)	—	0.604 (J)	1.53	—	—	—
RE21-07-76289	21-27673	20.0–21.0	Tuff	—	—	—	0.353	—	1.7 (J-)	—	0.603 (J)	2.02	—	—	—
RE21-07-76290	21-27673	25.0–26.0	Tuff	—	—	—	0.481	—	1.34 (J-)	—	1.58 (U)	1.14	—	—	—
RE21-07-76292	21-27674	5.0–6.0	Tuff	—	—	—	2.53	—	2.18 (J-)	—	1.6 (U)	3.05	—	—	—
RE21-07-76293	21-27674	10.0–11.0	Tuff	—	—	—	0.738	—	1.77 (J-)	—	0.97 (J)	2.26	—	—	—
RE21-07-76294	21-27674	18.0–19.0	Tuff	—	—	—	0.5	—	1.46 (J-)	—	1.64 (U)	21.1	—	—	—

Table 6.4-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Magnesium	Manganese	Mercury	Molybdenum	Nickel	Nitrate	Perchlorate	Selenium	Strontium	Uranium	Vanadium	Zinc
Qbt 2,3,4 BV [a]				**1690**	**482**	**0.1**	**na**	**6.58**	**na**	**na**	**0.3**	**na**	**2.4**	**17**	**63.5**
Industrial SSL [c]				**na**	**48400**	**610 [d]**	**5680**	**22700**	**100000**	**790 [d]**	**5680**	**100000**	**200 [g]**	**1140**	**100000**
Construction Worker SSL [c]				**na**	**150**	**927**	**1550**	**6190**	**100000**	**na**	**1550**	**100000**	**na**	**310**	**92900**
Residential SSL [c]				**na**	**3590**	**23 [d]**	**391**	**1560**	**100000**	**55 [d]**	**391**	**46900**	**16 [g]**	**78.2**	**23500**
RE21-07-76295	21-27674	20.0–21.0	Tuff	—	—	—	0.581	—	1.37 (J-)	—	0.587 (J)	1.1	—	—	—
RE21-07-76296	21-27674	25.0–26.0	Tuff	—	—	—	0.182	—	1.21 (J-)	—	1.62 (U)	2.2	—	—	—

Note: Units are mg/kg.

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

[b] na = Not available.

[c] SSLs from NMED (2006, 092513).

[d] Value from EPA Region 6 (2007, 095866).

[e] — = Not detected or detected above BV.

[f] NA = Not analyzed.

[g] Value from EPA Region 9 (http://www.epa.gov/region9/waste/sfund/prg/files/04prgtable.pdf).

Table 6.4-4
Organic Chemicals Detected in Soil at SWMU 21-012(b)

Sample ID	Location ID	Depth (ft)	Media	Acetone	Benzo(a)anthracene	Benzo(b)fluoranthene	Benzoic Acid	Chloroform	Chrysene	Dichlorobenzene[1,4-]	Fluoranthene	Isopropyltoluene[4-]	Methylene Chloride	Phenanthrene	Pyrene	Toluene	Trichloroethene	Xylene[1,3-]+Xylene[1,4-]
Industrial SSL [a]				**100000**	**23.4**	**23.4**	**100000 [b]**	**9.59**	**2310**	**103**	**24400**	**389 [c]**	**490**	**20500**	**30900**	**252**	**1.56**	**82**
Construction Worker SSL [a]				**98500**	**212**	**212**	**na [d]**	**216**	**21200**	**1960**	**8730**	**389 [c]**	**2630**	**6990**	**9010**	**252**	**33.6**	**82**
Residential SSL [a]				**28100**	**6.21**	**6.21**	**100000 [b]**	**4**	**615**	**39.5**	**2290**	**271 [c]**	**182**	**1830**	**2290**	**252**	**0.638**	**82**
MD21-07-74367	21-25778	2.0–2.5	Soil	— [e]	—	—	—	—	—	—	0.0157 (J)	—	—	—	0.0167 (J)	0.00343	—	—
MD21-07-74370	21-25779	2.0–2.5	Soil	—	—	—	—	—	—	—	0.0129 (J)	—	—	—	0.0154 (J)	0.00613	—	—
MD21-07-74372	21-25780	0.0–0.5	Soil	NA [f]	—	—	—	NA	—	—	0.0186 (J)	NA	NA	—	0.0184 (J)	NA	NA	NA
MD21-07-74373	21-25780	2.0–2.5	Soil	—	—	—	—	—	—	—	0.0133 (J)	—	—	—	0.019 (J)	0.00239	—	—
MD21-07-74376	21-25781	2.0–2.5	Soil	—	—	—	0.629 (J)	—	—	—	—	0.00153	—	—	—	0.00901	—	—
MD21-07-74379	21-25782	2.0–2.5	Soil	—	—	—	—	—	—	—	—	—	—	—	—	0.00526	—	—
MD21-07-74381	21-25783	0.0–0.5	Soil	NA	—	—	—	NA	—	—	—	NA	NA	—	0.0149 (J)	NA	NA	NA
MD21-07-74382	21-25783	2.0–2.5	Soil	—	—	—	—	—	—	—	—	0.000623 (J)	—	—	—	0.0101	—	—
MD21-07-74385	21-25784	2.0–2.5	Soil	—	—	—	—	—	—	—	—	—	—	—	—	0.00374	—	—
MD21-07-74387	21-25785	0.0–0.5	Soil	NA	0.024 (J)	—	—	NA	0.0306 (J)	—	0.0522	NA	NA	0.0264 (J)	0.0596	NA	NA	NA
MD21-07-74388	21-25785	2.0–2.5	Soil	—	—	—	—	—	—	—	—	—	—	—	—	0.00202	—	—
MD21-07-74391	21-25786	2.0–2.5	Soil	—	—	—	—	—	—	—	—	—	—	—	—	0.00263	—	—
MD21-07-74393	21-25787	0.0–0.5	Soil	NA	—	—	—	NA	—	—	0.0164 (J)	NA	NA	—	0.0199 (J)	NA	NA	NA
MD21-07-74394	21-25787	2.0–2.5	Soil	—	—	—	—	—	—	—	—	—	—	—	0.0267 (J)	0.0219 (J+)	—	—
MD21-07-74396	21-25788	0.0–0.5	Soil	NA	—	—	—	NA	—	—	0.0137 (J)	NA	NA	—	0.0134 (J)	NA	NA	NA
MD21-07-74400	21-25789	2.0–2.5	Soil	—	—	—	—	—	—	—	—	—	—	—	—	0.00291	—	—
MD21-07-74403	21-25790	2.0–2.5	Soil	—	—	—	—	—	—	—	—	0.000503 (J)	—	—	—	0.0291	0.000322 (J)	—
MD21-07-74405	21-25791	0.0–0.5	Soil	NA	—	—	—	NA	—	—	0.0138 (J)	NA	NA	—	0.0141 (J)	NA	NA	NA
MD21-07-74409	21-25792	2.0–2.5	Soil	0.0226	—	—	—	—	—	—	—	—	—	—	—	0.00564	—	—
MD21-07-74412	21-25793	2.0–2.5	Soil	—	—	—	—	—	—	—	—	—	—	—	—	0.0325	—	—
MD21-07-74433	21-25810	0.0–0.5	Soil	NA	—	0.0161 (J)	—	NA	—	—	0.0155 (J)	NA	NA	0.016 (J)	0.015 (J)	NA	NA	NA
MD21-07-74439	21-25798	0.0–0.5	Soil	NA	—	—	—	NA	—	—	—	NA	NA	—	0.0176 (J)	NA	NA	NA
MD21-07-74455	21-25805	2.67–3.67	Soil	—	—	—	—	0.000365 (J)	—	0.00042 (J)	—	—	0.00476 (J)	—	—	—	—	0.000553 (J)

Note: Units are mg/kg.

[a] SSLs from NMED (2006, 092513).

[b] Value from EPA Region 6 (2007, 095866).

[c] Isopropylbenzene used as a surrogate based on structural similarity.

[d] na = Not available.

[e] — = Not detected.

[f] NA = Not analyzed.

Table 6.4-5
Organic Chemicals Detected in Tuff at SWMU 21-012(b)

Sample ID	Location ID	Depth (ft)	Media	Acetone	Aroclor-1260	Chloroform	Methylene Chloride	Methylnaphthalene[2-]	Octachlorodibenzodioxin [1,2,3,4,6,7,8,9-]	Phenanthrene	Toluene	Trimethylbenzene[1,2,4-]	Xylene[1,3-]+Xylene[1,4-]
Industrial SSL [a]				**100000**	**8.26**	**9.59**	**490**	**300 [b]**	**na [c]**	**20500**	**252**	**213**	**82**
Construction Worker SSL [a]				**98500**	**4.28**	**216**	**2630**	**262 [b]**	**na [c]**	**6990**	**252**	**190**	**82**
Residential SSL [a]				**28100**	**1.12**	**4**	**182**	**79.5 [b]**	**na [c]**	**1830**	**252**	**58**	**82**
MD21-07-74434	21-25810	2.0–3.0	Tuff	— [d]	—	—	—	—	NA [e]	—	0.000485 (J)	—	—
MD21-07-74435	21-25810	5.0–6.0	Tuff	0.00319 (J)	—	—	—	—	NA	—	0.000401 (J)	—	—
MD21-07-74437	21-25797	2.0–3.0	Tuff	—	—	—	—	—	NA	—	0.000687 (J)	—	—
MD21-07-74441	21-25798	5.0–6.0	Tuff	0.00889	—	—	—	—	NA	—	—	—	—
MD21-07-74456	21-25805	4.67–5.67	Tuff	0.0639	NA	0.000256 (J)	0.00315 (J)	—	NA	—	—	—	—
MD21-07-74457	21-25806	2.0–3.0	Tuff	—	NA	—	—	—	NA	—	—	0.000281 (J)	—
MD21-07-74458	21-25806	4.0–5.0	Tuff	—	NA	—	—	—	NA	—	0.000749 (J)	—	—
MD21-07-74459	21-25807	2.5–3.5	Tuff	—	—	—	—	—	NA	—	0.000838 (J)	0.000262 (J)	0.000374 (J)
MD21-07-74461	21-25808	2.5–3.5	Tuff	0.00618	—	—	—	—	NA	—	0.000363 (J)	—	—
MD21-07-74462	21-25808	4.5–5.5	Tuff	—	—	—	—	—	NA	—	0.000868 (J)	—	—
MD21-07-74463	21-25809	2.0–3.0	Tuff	—	NA	—	—	—	NA	—	0.00258	—	—
MD21-07-74464	21-25809	4.0–5.0	Tuff	—	NA	—	—	—	NA	—	0.0024	—	—
MD21-07-74467	21-25811	3.0–4.0	Tuff	—	—	—	—	—	NA	—	0.000967 (J)	—	—
MD21-07-74468	21-25811	5.0–6.0	Tuff	—	—	0.000235 (J)	—	—	NA	—	0.0043	—	—
MD21-07-74469	21-25812	2.0–3.0	Tuff	—	NA	—	—	—	NA	—	0.00681	—	0.000539 (J)
MD21-07-74470	21-25812	4.0–5.0	Tuff	0.00398 (J)	NA	—	—	—	NA	—	0.0013	—	—
MD21-07-74471	21-25813	3.0–4.0	Tuff	—	NA	0.000219 (J)	—	—	NA	—	0.000645 (J)	—	—
MD21-07-74472	21-25813	5.0–6.0	Tuff	—	NA	—	—	—	NA	—	0.00119	—	—
MD21-07-74473	21-25814	1.6–2.6	Tuff	—	0.0015 (J)	—	—	—	NA	—	—	—	—
MD21-07-74474	21-25814	3.5–4.5	Tuff	0.0036 (J)	—	—	—	—	NA	—	0.000821 (J)	—	—
MD21-07-74475	21-25815	2.0–3.0	Tuff	—	NA	—	—	—	NA	—	0.00103 (J)	—	—
MD21-07-74476	21-25815	4.0–5.0	Tuff	—	NA	—	—	—	NA	—	0.00183	—	—
MD21-07-74477	21-25816	6.0–7.0	Tuff	—	—	—	—	—	NA	—	0.00071 (J)	—	—
MD21-07-74478	21-25816	4.0–5.0	Tuff	—	—	—	—	—	NA	—	0.000534 (J)	—	—
MD21-07-74479	21-25817	2.5–3.5	Tuff	0.00496 (J)	NA	—	—	—	NA	—	—	—	—

Table 6.4-5 (continued)

Sample ID	Location ID	Depth (ft)	Media	Acetone	Aroclor-1260	Chloroform	Methylene Chloride	Methylnaphthalene[2-]	Octachlorodibenzodioxin [1,2,3,4,6,7,8,9-]	Phenanthrene	Toluene	Trimethylbenzene[1,2,4-]	Xylene[1,3-]+Xylene[1,4-]
Industrial SSL [a]				**100000**	**8.26**	**9.59**	**490**	**300 [b]**	**na [c]**	**20500**	**252**	**213**	**82**
Construction Worker SSL [a]				**98500**	**4.28**	**216**	**2630**	**262 [b]**	**na [c]**	**6990**	**252**	**190**	**82**
Residential SSL [a]				**28100**	**1.12**	**4**	**182**	**79.5 [b]**	**na [c]**	**1830**	**252**	**58**	**82**
MD21-07-74480	21-25817	4.5–5.5	Tuff	0.014	NA	—	—	—	NA	—	—	—	—
RE21-07-76274	21-27671	55.0–56.0	Tuff	0.00304 (J)	NA	—	—	—	NA	—	—	—	—
RE21-07-76277	21-27671	70.0–71.0	Tuff	0.0049 (J)	—	—	—	—	0.00000034 (J)	—	—	—	—
RE21-07-76278	21-27671	75.0–76.0	Tuff	0.00344 (J)	NA	—	—	—	NA	—	—	—	—
RE21-07-76280	21-27672	5.0–6.0	Tuff	0.00346 (J)	NA	—	—	—	NA	—	—	—	—
RE21-07-76281	21-27672	10.0–11.0	Tuff	0.00351 (J-)	NA	—	—	—	NA	—	—	—	—
RE21-07-76282	21-27672	15.0–16.0	Tuff	0.0072	NA	—	—	0.0152 (J)	NA	0.0127 (J)	—	—	—
RE21-07-76283	21-27672	20.0–21.0	Tuff	—	NA	—	0.00284 (J)	—	NA	—	—	0.000243 (J)	—
RE21-07-76284	21-27672	25.0–26.0	Tuff	0.0036 (J)	NA	—	—	—	NA	—	—	—	—

Note: Units are mg/kg.

[a] SSLs from NMED (2006, 092513).

[b] Naphthalene used as a surrogate based on structural similarity.

[c] na = Not available.

[d] — = Not detected.

[e] NA = Not analyzed.

Table 6.4-6
Radionuclides Detected or Detected above FVs/BVs in Soil at SWMU 21-012(b)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cesium-134	Cesium-137	Plutonium-238	Plutonium-239	Tritium	Uranium-234	Uranium-238
Soil FV/BV [a]				**0.013**	**na [b]**	**1.65**	**0.023**	**0.054**	**na**	**2.59**	**2.29**
Industrial SAL [c]				**180**	**9.7**	**23**	**240**	**210**	**440000**	**1500**	**430**
Construction Worker SAL [c]				**34**	**7.7**	**18**	**40**	**36**	**320000**	**220**	**160**
Residential SAL [c]				**30**	**2.4**	**5.6**	**37**	**33**	**750**	**170**	**86**
MD21-07-74366	21-25778	0.0–0.5	Soil	0.143	— [d]	—	0.0289	1.02	0.0549	—	—
MD21-07-74367	21-25778	2.0–2.5	Soil	0.0346	—	0.338	—	0.265	0.0354	—	—
MD21-07-74369	21-25779	0.0–0.5	Soil	0.0759	—	—	—	1.49	0.0584	—	—
MD21-07-74370	21-25779	2.0–2.5	Soil	—	—	—	—	0.147	0.185	—	—
MD21-07-74372	21-25780	0.0–0.5	Soil	0.169	—	—	—	0.751	0.0436	—	—
MD21-07-74373	21-25780	2.0–2.5	Soil	0.0801	—	0.523	—	1.48	0.0353	—	—
MD21-07-74375	21-25781	0.0–0.5	Soil	0.177	—	—	—	1.5	0.0493	—	—
MD21-07-74376	21-25781	2.0–2.5	Soil	0.0727	—	0.173	—	0.784	0.0308	—	—
MD21-07-74378	21-25782	0.0–0.5	Soil	0.15	—	—	0.0235	1.33	0.0456	—	—
MD21-07-74379	21-25782	2.0–2.5	Soil	0.0426	—	0.206	—	0.463	0.0692	—	—
MD21-07-74381	21-25783	0.0–0.5	Soil	0.127	—	—	—	0.941	0.0646	—	2.37
MD21-07-74382	21-25783	2.0–2.5	Soil	0.0504	—	0.341	—	1.54	0.0412	—	—
MD21-07-74384	21-25784	0.0–0.5	Soil	0.521	—	2.2	0.0971	2	0.0410	—	—
MD21-07-74385	21-25784	2.0–2.5	Soil	0.0444	—	0.319	—	0.519	0.0566	—	—
MD21-07-74387	21-25785	0.0–0.5	Soil	0.129	—	—	—	1.25	0.0425	—	—
MD21-07-74388	21-25785	2.0–2.5	Soil	—	—	—	—	0.124	0.0460	—	—
MD21-07-74390	21-25786	0.0–0.5	Soil	0.0236	—	—	—	0.525	0.0502	3.39	2.68

Table 6.4-6 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cesium-134	Cesium-137	Plutonium-238	Plutonium-239	Tritium	Uranium-234	Uranium-238
Soil FV/BV [a]				**0.013**	**na [b]**	**1.65**	**0.023**	**0.054**	**na**	**2.59**	**2.29**
Industrial SAL [c]				**180**	**9.7**	**23**	**240**	**210**	**440000**	**1500**	**430**
Construction Worker SAL [c]				**34**	**7.7**	**18**	**40**	**36**	**320000**	**220**	**160**
Residential SAL [c]				**30**	**2.4**	**5.6**	**37**	**33**	**750**	**170**	**86**
MD21-07-74391	21-25786	2.0–2.5	Soil	—	—	—	—	0.0712	0.12	—	—
MD21-07-74393	21-25787	0.0–0.5	Soil	0.129	—	—	—	0.331	0.0436	—	—
MD21-07-74394	21-25787	2.0–2.5	Soil	0.044	—	0.201	—	0.608	0.0477	—	—
MD21-07-74396	21-25788	0.0–0.5	Soil	0.103	—	—	—	0.218 (J)	0.0390	—	—
MD21-07-74397	21-25788	2.0–2.5	Soil	0.0558	—	0.228	—	0.132 (J)	0.0286	—	—
MD21-07-74399	21-25789	0.0–0.5	Soil	0.0992	—	—	—	0.701 (J)	—	—	—
MD21-07-74400	21-25789	2.0–2.5	Soil	—	—	—	—	0.887 (J)	0.0258	—	—
MD21-07-74402	21-25790	0.0–0.5	Soil	0.0486	0.128	—	—	0.332 (J)	0.0707	—	—
MD21-07-74403	21-25790	2.0–2.5	Soil	—	—	—	—	0.0924 (J)	0.0535	—	—
MD21-07-74405	21-25791	0.0–0.5	Soil	—	—	—	—	0.163 (J)	0.0378	—	—
MD21-07-74406	21-25791	2.0–2.5	Soil	0.0559	—	0.144	—	0.186 (J)	—	—	—
MD21-07-74408	21-25792	0.0–0.5	Soil	0.0758	—	—	—	0.217 (J)	0.0458	—	—
MD21-07-74409	21-25792	2.0–2.5	Soil	—	—	—	—	0.0367 (J)	0.0337	—	—
MD21-07-74411	21-25793	0.0–0.5	Soil	0.0426	—	—	—	0.492 (J)	0.0349	—	—
MD21-07-74412	21-25793	2.0–2.5	Soil	—	—	0.326	—	0.351 (J)	0.0311	—	—
MD21-07-74414	21-25794	0.0–0.5	Soil	0.0927	—	—	—	0.265	0.0404	—	—
MD21-07-74415	21-25794	2.0–2.5	Soil	—	—	—	—	0.129	0.0397	—	—
MD21-07-74416	21-25796	0.0–0.5	Soil	—	—	—	—	0.341	0.0261	—	—
MD21-07-74418	21-25795	0.0–0.5	Soil	—	—	—	—	0.213	0.0560	—	—

Table 6.4-6 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cesium-134	Cesium-137	Plutonium-238	Plutonium-239	Tritium	Uranium-234	Uranium-238
Soil FV/BV [a]				**0.013**	**na [b]**	**1.65**	**0.023**	**0.054**	**na**	**2.59**	**2.29**
Industrial SAL [c]				**180**	**9.7**	**23**	**240**	**210**	**440000**	**1500**	**430**
Construction Worker SAL [c]				**34**	**7.7**	**18**	**40**	**36**	**320000**	**220**	**160**
Residential SAL [c]				**30**	**2.4**	**5.6**	**37**	**33**	**750**	**170**	**86**
MD21-07-74419	21-25795	2.0–2.5	Soil	—	—	—	—	0.0407	0.0704	—	—
MD21-07-74433	21-25810	0.0–0.5	Soil	—	—	—	—	0.414	0.0578	—	—
MD21-07-74436	21-25797	0.0–0.5	Soil	0.206	—	—	—	0.462	0.0685 (J-)	—	—
MD21-07-74439	21-25798	0.0–0.5	Soil	0.299	—	—	—	0.797	0.0718	—	—
MD21-07-74449	21-25802	2.0–3.0	Soil	—	—	—	—	0.0739	0.0613	—	—
MD21-07-74451	21-25803	2.33–3.33	Soil	—	—	—	—	0.0448	0.128	—	—
MD21-07-74453	21-25804	2.0–3.0	Soil	—	—	—	0.107	0.158	0.0507	—	—
MD21-07-74455	21-25805	2.67–3.67	Soil	—	—	—	—	0.0761	—	—	—

Note: Units are pCi/g.

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

[b] na = Not available.

[c] SALs from LANL (2005, 088493).

[d] — = Not detected.

Table 6.4-7
Radionuclides Detected or Detected above BVs in Tuff at SWMU 21-012(b)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cesium-137	Plutonium-238	Plutonium-239	Tritium	Uranium-234	Uranium-235	Uranium-238
Qbt 2,3,4 FV/BV [a]				**na [b]**	**na**	**na**	**na**	**na**	**1.98**	**0.09**	**1.93**
Industrial SAL[c]				**180**	**23**	**240**	**210**	**440000**	**1500**	**87**	**430**
Construction Worker SAL[c]				**34**	**18**	**40**	**36**	**320000**	**220**	**43**	**160**
Residential SAL[c]				**30**	**5.6**	**37**	**33**	**750**	**170**	**17**	**86**
MD21-07-74417	21-25796	2.0–2.5	Tuff	—[d]	—	—	—	0.0186	—	—	—
MD21-07-74434	21-25810	2.0–3.0	Tuff	—	0.133	—	0.367	0.0392	2.06	0.0978	2.08
MD21-07-74435	21-25810	5.0–6.0	Tuff	—	—	—	0.0894	0.0273	—	—	—
MD21-07-74437	21-25797	2.0–3.0	Tuff	—	—	—	0.0818	0.172(J-)	—	—	—
MD21-07-74438	21-25797	5.0–6.0	Tuff	—	0.135	0.0575	0.0661	0.182 (J-)	—	—	—
MD21-07-74440	21-25798	2.0–3.0	Tuff	—	—	—	—	0.136	—	—	—
MD21-07-74441	21-25798	5.0–6.0	Tuff	—	—	—	0.0506	0.0595	—	—	—
MD21-07-74445	21-25800	2.33–3.33	Tuff	—	—	—	—	0.0543	—	—	—
MD21-07-74446	21-25800	4.33–5.33	Tuff	—	—	—	—	0.0380	—	—	—
MD21-07-74447	21-25801	2.33–3.33	Tuff	—	—	—	0.093	0.0370	—	—	—
MD21-07-74448	21-25801	4.33–5.33	Tuff	—	—	—	0.0526	0.0260	—	—	—
MD21-07-74450	21-25802	4.0–5.0	Tuff	—	—	—	—	0.0462	—	—	—
MD21-07-74452	21-25803	4.33–5.33	Tuff	—	—	—	—	0.0801	—	—	—
MD21-07-74454	21-25804	4.0–5.0	Tuff	—	—	0.301	0.0304	0.0346	—	—	—
MD21-07-74456	21-25805	4.67–5.67	Tuff	—	—	—	—	0.0709	—	—	—
MD21-07-74457	21-25806	2.0–3.0	Tuff	—	—	—	—	0.0606	2.23	0.125	1.95

Table 6.4-7 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cesium-137	Plutonium-238	Plutonium-239	Tritium	Uranium-234	Uranium-235	Uranium-238
Qbt 2,3,4 FV/BV [a]				**na [b]**	**na**	**na**	**na**	**na**	**1.98**	**0.09**	**1.93**
Industrial SAL[c]				**180**	**23**	**240**	**210**	**440000**	**1500**	**87**	**430**
Construction Worker SAL[c]				**34**	**18**	**40**	**36**	**320000**	**220**	**43**	**160**
Residential SAL[c]				**30**	**5.6**	**37**	**33**	**750**	**170**	**17**	**86**
MD21-07-74458	21-25806	4.0–5.0	Tuff	—	—	—	—	—	—	0.0922	—
MD21-07-74459	21-25807	2.5–3.5	Tuff	—	—	—	—	0.124	2.03	0.112	—
MD21-07-74460	21-25807	4.5–5.5	Tuff	—	—	—	—	0.120	—	—	—
MD21-07-74461	21-25808	2.5–3.5	Tuff	—	—	—	—	0.0877	—	0.1	—
MD21-07-74462	21-25808	4.5–5.5	Tuff	—	—	—	—	0.0875	—	—	—
MD21-07-74463	21-25809	2.0–3.0	Tuff	—	—	—	—	0.117	2.32	0.119	2.18
MD21-07-74464	21-25809	4.0–5.0	Tuff	—	—	—	—	0.0864	2.86	0.182	3.08
MD21-07-74467	21-25811	3.0–4.0	Tuff	—	—	—	—	0.0942	—	—	—
MD21-07-74468	21-25811	5.0–6.0	Tuff	—	—	—	—	0.159	—	—	—
MD21-07-74469	21-25812	2.0–3.0	Tuff	—	—	—	—	0.190	—	—	—
MD21-07-74470	21-25812	4.0–5.0	Tuff	—	—	—	—	0.198	—	—	—
MD21-07-74471	21-25813	3.0–4.0	Tuff	6.41	—	0.144	0.287	0.0334	—	—	—
MD21-07-74472	21-25813	5.0–6.0	Tuff	2.38	—	0.0474	0.149	0.0505	—	—	—
MD21-07-74473	21-25814	1.6–2.6	Tuff	—	—	—	—	0.110	—	0.111	—
MD21-07-74474	21-25814	3.5–4.5	Tuff	—	—	—	—	0.0919	—	—	—
MD21-07-74475	21-25815	2.0–3.0	Tuff	—	—	—	0.0469	0.171	—	—	—
MD21-07-74476	21-25815	4.0–5.0	Tuff	—	—	—	—	0.137	—	—	—
MD21-07-74477	21-25816	6.0–7.0	Tuff	—	—	—	—	0.224	—	—	—
MD21-07-74478	21-25816	4.0–5.0	Tuff	—	—	—	—	0.110	—	—	—

Table 6.4-7 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cesium-137	Plutonium-238	Plutonium-239	Tritium	Uranium-234	Uranium-235	Uranium-238
Qbt 2,3,4 FV/BV [a]				**na [b]**	**na**	**na**	**na**	**na**	**1.98**	**0.09**	**1.93**
Industrial SAL[c]				**180**	**23**	**240**	**210**	**440000**	**1500**	**87**	**430**
Construction Worker SAL[c]				**34**	**18**	**40**	**36**	**320000**	**220**	**43**	**160**
Residential SAL[c]				**30**	**5.6**	**37**	**33**	**750**	**170**	**17**	**86**
MD21-07-74479	21-25817	2.5–3.5	Tuff	0.581	—	—	0.11	0.0415	—	—	—
MD21-07-74480	21-25817	4.5–5.5	Tuff	0.144	—	—	—	0.0653	—	—	—
RE21-07-76274	21-27671	55.0–56.0	Tuff	—	—	—	—	0.0302	—	—	—
RE21-07-76275	21-27671	60.0–61.0	Tuff	—	—	—	—	0.0335	—	—	—
RE21-07-76276	21-27671	65.0–66.0	Tuff	—	—	—	—	0.0345	—	—	—
RE21-07-76277	21-27671	70.0–71.0	Tuff	—	—	—	—	0.0413	—	—	—
RE21-07-76278	21-27671	75.0–76.0	Tuff	—	—	—	—	0.0369	—	—	—
RE21-07-76280	21-27672	5.0–6.0	Tuff	—	—	—	—	0.0949	—	—	—
RE21-07-76281	21-27672	10.0–11.0	Tuff	—	—	—	—	0.0716	—	—	—
RE21-07-76282	21-27672	15.0–16.0	Tuff	—	—	—	—	0.0380	—	—	—
RE21-07-76283	21-27672	20.0–21.0	Tuff	—	—	—	—	0.0627	—	—	—
RE21-07-76284	21-27672	25.0–26.0	Tuff	—	—	—	—	0.0640	—	—	—
RE21-07-76286	21-27673	5.0–6.0	Tuff	—	—	—	—	0.108	—	—	—
RE21-07-76287	21-27673	10.0–11.0	Tuff	—	—	—	—	0.0760	—	—	—
RE21-07-76288	21-27673	15.0–16.0	Tuff	—	—	—	—	0.0524	—	0.1	—
RE21-07-76289	21-27673	20.0–21.0	Tuff	—	—	—	—	0.0298	—	—	—
RE21-07-76292	21-27674	5.0–6.0	Tuff	—	—	—	—	0.0767	—	—	—
RE21-07-76293	21-27674	10.0–11.0	Tuff	—	—	—	—	0.0310	—	—	—
RE21-07-76294	21-27674	18.0–19.0	Tuff	—	—	—	—	0.0331	—	—	—

Table 6.4-7 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cesium-137	Plutonium-238	Plutonium-239	Tritium	Uranium-234	Uranium-235	Uranium-238
Qbt 2,3,4 FV/BV [a]				**na [b]**	**na**	**na**	**na**	**na**	**1.98**	**0.09**	**1.93**
Industrial SAL[c]				**180**	**23**	**240**	**210**	**440000**	**1500**	**87**	**430**
Construction Worker SAL[c]				**34**	**18**	**40**	**36**	**320000**	**220**	**43**	**160**
Residential SAL[c]				**30**	**5.6**	**37**	**33**	**750**	**170**	**17**	**86**
RE21-07-76295	21-27674	20.0–21.0	Tuff	—	—	—	—	0.0254	—	—	—
RE21-07-76296	21-27674	25.0–26.0	Tuff	—	—	—	—	0.0333	—	—	—

Note: Units are pCi/g.

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

[b] na = Not available.

[c] SALs from LANL (2005, 088493).

[d] — = Not detected.

Table 6.4-8
Inorganic Chemicals above BVs in Soil at SWMU 21-024(a)

Sample ID	Location ID	Depth (ft)	Media	Cadmium	Calcium	Copper	Cyanide (Total)	Lead	Mercury	Nitrate	Perchlorate	Selenium	Uranium	Zinc
Soil BV [a]				**0.4**	**6120**	**14.7**	**0.5**	**22.3**	**0.1**	**na [b]**	**na**	**1.52**	**1.82**	**48.8**
Industrial SSL[c]				**564**	**na**	**45400**	**13700**	**800**	**610 [d]**	**100000**	**790 [d]**	**5680**	**200 [e]**	**100000**
Construction Worker SSL[c]				**154**	**na**	**12400**	**4760**	**800**	**927**	**100000**	**na**	**1550**	**na**	**92900**
Residential SSL[c]				**39**	**na**	**3130**	**1220**	**400**	**23 [d]**	**100000**	**55 [d]**	**391**	**16 [e]**	**23500**
RE21-07-74874	21-27320	0.0–0.5	Soil	— [f]	—	20.3	—	—	0.149	0.965 (J)	—	1.59 (U)	—	51.2
RE21-07-74877	21-27321	0.0–0.5	Soil	—	—	16.6	—	—	—	6.31	0.000616 (J-)	1.59 (U)	—	—
RE21-07-74880	21-27322	0.0–0.5	Soil	—	—	25.6	—	—	0.309	2.51	—	1.55 (U)	—	57.7
RE21-07-74881	21-27322	2.0–2.5	Soil	0.472 (J)	—	36.3	—	30.7	0.34	2.12	—	1.59 (U)	—	116
RE21-07-74883	21-27323	0.0–0.5	Soil	0.548 (J)	—	62.4	—	26	0.47	1.23	0.000959 (J-)	1.66 (U)	2.95	91.3
RE21-07-74884	21-27323	2.0–2.5	Soil	0.414 (J)	—	48.9	—	22.7	0.408	0.856 (J)	—	1.53 (U)	—	69.8
RE21-07-74887	21-27325	0.0–0.5	Soil	—	—	—	—	—	—	1.59	—	2.23 (U)	1.87	—
RE21-07-74889	21-27326	0.0–0.5	Soil	0.558	—	82.5	—	40.3	0.201	2.14	—	1.65 (U)	4.05	96.2
RE21-07-74890	21-27326	2.0–2.5	Soil	—	—	14.9	—	—	—	0.655 (J)	—	—	—	—
RE21-07-74891	21-27327	0.0–0.5	Soil	—	—	93.9	—	25.6	0.112	1.58	—	1.63 (U)	2.53	56.2
RE21-07-74892	21-27327	2.0–2.5	Soil	—	—	23.1	—	—	—	0.836 (J)	0.00177 (J-)	—	—	—
RE21-07-74893	21-27328	0.0–0.5	Soil	—	—	—	—	22.6	—	1.27	—	1.57 (U)	—	—
RE21-07-74895	21-27329	0.0–0.5	Soil	—	—	—	—	—	—	1.07	—	—	—	—
RE21-07-74896	21-27329	2.0–2.5	Soil	0.504 (U)	—	—	—	—	—	0.746 (J)	—	—	—	—
RE21-07-74901	21-27332	0.0–0.5	Soil	0.522 (U)	—	—	—	—	—	1.3	—	1.57 (U)	—	—
RE21-07-74903	21-27333	0.0–0.5	Soil	0.516 (U)	—	—	—	—	—	0.834 (J)	—	1.55 (U)	—	—
RE21-07-74904	21-27333	2.0–2.5	Soil	0.498 (U)	—	—	—	—	—	0.849 (J)	—	—	—	—
RE21-07-74907	21-27335	2.67–3.67	Soil	—	7530	—	—	43.5 (J-)	0.798	0.905 (J)	—	—	—	123

Table 6.4-8 (continued)

Sample ID	Location ID	Depth (ft)	Media	Cadmium	Calcium	Copper	Cyanide (Total)	Lead	Mercury	Nitrate	Perchlorate	Selenium	Uranium	Zinc
Soil BV [a]				**0.4**	**6120**	**14.7**	**0.5**	**22.3**	**0.1**	**na [b]**	**na**	**1.52**	**1.82**	**48.8**
Industrial SSL[c]				**564**	**na**	**45400**	**13700**	**800**	**610 [d]**	**100000**	**790 [d]**	**5680**	**200 [e]**	**100000**
Construction Worker SSL[c]				**154**	**na**	**12400**	**4760**	**800**	**927**	**100000**	**na**	**1550**	**na**	**92900**
Residential SSL[c]				**39**	**na**	**3130**	**1220**	**400**	**23 [d]**	**100000**	**55 [d]**	**391**	**16 [e]**	**23500**
RE21-07-74925	21-27338	2.67–3.67	Soil	0.585 (U)	—	—	—	—	0.431	—	—	1.63 (J)	1.94 (J)	—
RE21-07-74926	21-27338	4.67–5.67	Soil	0.56 (U)	—	—	—	—	—	—	—	—	—	—
RE21-07-74934	21-27342	0.0–0.5	Soil	0.586 (U)	—	—	0.542	—	0.14 (J)	0.699 (J)	0.000719 (J)	—	—	—

Note: Units are mg/kg.

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

[b] na = Not available.

[c] SSLs from NMED (2006, 092513).

[d] Value from EPA Region 6 (2007, 095866).

[e] Value from EPA Region 9 (http://www.epa.gov/region9/waste/sfund/prg/files/04prgtable.pdf).

[f] — = Not detected or not detected above BV.

Table 6.4-9
Inorganic Chemicals above BVs in Tuff at SWMU 21-024(a)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Arsenic	Barium	Beryllium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Magnesium	Mercury	Nickel	Nitrate	Perchlorate	Selenium	Uranium	Vanadium
Qbt 2,3,4 BV [a]				**7340**	**2.79**	**46**	**1.21**	**2200**	**7.14**	**3.14**	**4.66**	**14500**	**11.2**	**1690**	**0.1**	**6.58**	**na [b]**	**na**	**0.3**	**2.4**	**17**
Industrial SSL[c]				**100000**	**17.7**	**100000**	**2250**	**na**	**5000 [d]**	**20500**	**45400**	**100000**	**800**	**na**	**610 [d]**	**22700**	**100000**	**790 [d]**	**5680**	**200 [e]**	**1140**
Construction Worker SSL[c]				**14400**	**85.2**	**60200**	**56.2**	**na**	**26.1**	**61**	**12400**	**92900**	**800**	**na**	**927**	**6190**	**100000**	**na**	**1550**	**na**	**310**
Residential SSL[c]				**77800**	**3.9**	**15600**	**156**	**na**	**2100 [d]**	**1520**	**3130**	**23500**	**400**	**na**	**23 [d]**	**1560**	**100000**	**55 [d]**	**391**	**16 [e]**	**78.2**
RE21-07-74875	21-27320	2.0–2.5	Tuff	— [f]	—	—	—	—	8.1	—	10	—	—	—	—	—	0.727 (J)	—	1.57 (U)	—	—
RE21-07-74878	21-27321	2.0–2.5	Tuff	—	—	—	—	—	—	—	—	—	—	—	—	—	1.46	—	1.5 (U)	—	—
RE21-07-74888	21-27325	2.0–2.5	Tuff	24000	4.72	166	1.64	3820	18.7	4	10.9	16600	28.5	3390	—	10.5	—	0.000755 (J-)	1.57 (U)	—	23
RE21-07-74894	21-27328	2.0–2.5	Tuff	—	—	—	—	—	—	—	—	—	13.5	—	—	—	0.752 (J)	—	1.53 (U)	—	—
RE21-07-74897	21-27330	0.0–0.5	Tuff	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.5 (U)	—	—
RE21-07-74898	21-27330	2.0–2.5	Tuff	—	—	—	—	2270	32.4	—	—	—	—	—	—	—	—	—	1.49 (U)	—	—
RE21-07-74899	21-27331	0.0–0.5	Tuff	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.5 (U)	—	—
RE21-07-74900	21-27331	2.0–2.5	Tuff	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.5 (U)	—	—
RE21-07-74902	21-27332	2.0–2.5	Tuff	—	—	—	—	—	—	—	—	—	18.5	—	—	—	1.2	—	1.52 (U)	—	—
RE21-07-74908	21-27335	4.67–5.67	Tuff	—	—	46.9	—	—	7.21	—	5.46	—	14 (J-)	—	0.205	—	0.772 (J)	—	1.13 (J)	—	—
RE21-07-74909	21-27336	2.0–3.0	Tuff	—	—	60.5	—	—	9.36	—	—	—	—	—	0.162	—	0.651 (J)	0.000787 (J)	0.835 (J)	—	—
RE21-07-74910	21-27336	4.0–5.0	Tuff	—	—	—	—	—	9.73	—	—	—	—	—	—	—	0.511 (J)	—	1.54 (U)	—	—
RE21-07-74927	21-27339	6.1–7.1	Tuff	—	—	—	—	—	7.2	—	11	—	12.8	—	0.114	—	6.67	—	1.76 (U)	—	—
RE21-07-74928	21-27339	8.1–9.1	Tuff	—	—	—	—	—	10.5	—	—	—	—	—	—	—	4.97	—	1.82 (U)	—	—
RE21-07-74929	21-27340	5.0–6.0	Tuff	—	—	—	—	—	10.1	—	—	—	—	—	—	—	—	—	1.6 (U)	—	—
RE21-07-74930	21-27340	7.0–8.0	Tuff	—	—	—	—	3530 (J+)	8.07	—	—	—	—	—	—	—	—	—	1.61 (U)	—	—
RE21-07-74931	21-27341	5.0–6.0	Tuff	—	2.87	71.5	—	34000	8.73	4.09	10.8	—	—	4010 (J+)	0.95	9.53	4.53	0.000903 (J)	16 (U)	13.3	23.2
RE21-07-74932	21-27341	10.0–11.0	Tuff	—	2.85	—	—	3880	13.9	—	—	—	—	—	0.519	—	3.93	—	15.4 (U)	—	—
RE21-07-74933	21-27341	15.0–16.0	Tuff	—	3.55	—	—	5500	—	—	—	—	—	—	—	—	2.75	—	15.6 (U)	3.05	—
RE21-07-74935	21-27342	2.0–3.0	Tuff	—	—	—	—	—	12.7 (J)	—	—	—	—	—	—	—	—	—	0.988 (U)	—	—
RE21-07-74936	21-27342	5.0–6.0	Tuff	—	—	—	—	2570	13.3 (J)	—	—	—	—	—	—	—	0.492 (J)	—	0.642 (U)	—	—

Note: Units are mg/kg.

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

[b] na = Not available.

[c] SSLs from NMED (2006, 092513).

[d] Value from EPA Region 6 (2007, 095866).

[e] Value from EPA Region 9 (http://www.epa.gov/region9/waste/sfund/prg/files/04prgtable.pdf).

[f] — = Not detected or not detected above BV.

Table 6.4-10
Organic Chemicals Detected in Soil at SWMU 21-024(a)

Sample ID	Location ID	Depth (ft)	Media	Acetone	Anthracene	Benzo(a)anthracene	Benzo(b)fluoranthene	Benzoic Acid	Bis(2-ethylhexyl)phthalate	Chloroaniline[4-]	Chloroform	Chrysene	Fluoranthene	Methylene Chloride	Phenanthrene	Pyrene	Toluene	Trichloroethene
Residential SSL [a]				**100000**	**100000**	**23.4**	**23.4**	**100000 [b]**	**1370**	**2736 [b]**	**9.59**	**2310**	**24400**	**490**	**20500**	**30900**	**252**	**1.56**
Industrial SSL [a]				**98500**	**86000**	**212**	**212**	**100000 [b]**	**4660**	**na [c]**	**216**	**21200**	**8730**	**2630**	**6990**	**9010**	**252**	**33.6**
Construction SSL [a]				**28100**	**22000**	**6.21**	**6.21**	**na**	**347**	**244.4 [b]**	**4**	**615**	**2290**	**182**	**1830**	**2290**	**252**	**0.638**
MD21-07-62	21-27335	2.67–4.67	Soil	— [d]	NA [e]	NA	NA	NA	NA	NA	—	NA	NA	—	NA	NA	5.13E-4(J)	7.29E-4(J)
RE21-07-74874	21-27320	0.0–0.5	Soil	NA	—	—	—	0.567 (J)	—	—	NA	—	0.0121 (J)	NA	—	0.0131 (J)	NA	NA
RE21-07-74877	21-27321	0.0–0.5	Soil	NA	—	—	0.0159 (J)	—	—	—	NA	—	0.0142 (J)	NA	—	0.0141 (J)	NA	NA
RE21-07-74880	21-27322	0.0–0.5	Soil	NA	0.00916 (J)	—	0.0164 (J)	—	—	—	NA	—	0.0166 (J)	NA	—	0.0142 (J)	NA	NA
RE21-07-74881	21-27322	2.0–2.5	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00223	—
RE21-07-74883	21-27323	0.0–0.5	Soil	NA	—	—	—	0.621 (J)	—	0.0804 (J)	NA	—	—	NA	—	—	NA	NA
RE21-07-74884	21-27323	2.0–2.5	Soil	—	—	—	—	—	—	0.462	—	—	—	—	—	—	0.00712	—
RE21-07-74889	21-27326	0.0–0.5	Soil	NA	—	0.0146 (J)	—	—	—	—	NA	0.0148 (J)	0.0209 (J)	NA	—	0.0241 (J)	NA	NA
RE21-07-74890	21-27326	2.0–2.5	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00273	—
RE21-07-74892	21-27327	2.0–2.5	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	8.95E-4(J)	—
RE21-07-74893	21-27328	0.0–0.5	Soil	NA	—	—	—	—	0.116 (J)	—	NA	—	0.0283 (J)	NA	0.0115 (J)	0.0489	NA	NA
RE21-07-74895	21-27329	0.0–0.5	Soil	NA	0.00721 (J)	—	—	—	—	—	NA	—	0.0157 (J)	NA	—	0.0158 (J)	NA	NA
RE21-07-74896	21-27329	2.0–2.5	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00503	0.00286
RE21-07-74907	21-27335	2.67–3.67	Soil	NA	—	—	—	—	—	—	NA	—	0.0159 (J)	NA	—	0.0171 (J)	NA	NA
RE21-07-74926	21-27338	4.67–5.67	Soil	0.26	—	—	—	—	—	—	2.48E-4(J)	—	—	0.0055 (J)	—	—	7.09E-4(J)	—

Note: Units are mg/kg.

[a] SSLs from NMED (2006, 092513).

[b] Values from EPA Region 6 (2007, 095866).

[c] na = Not available.

[d] — = Not detected.

[e] NA = Not analyzed.

Table 6.4-11
Organic Chemicals Detected in Tuff at SWMU 21-024(a)

Sample ID	Location ID	Depth (ft)	Media	Acetone	Chloroform	Dichlorobenzene[1,4-]	Heptachlorodibenzodioxin [1,2,3,4,6,7,8-]	Heptachlorodibenzofuran [1,2,3,4,6,7,8-]	Hexachlorodibenzofuran [2,3,4,6,7,8-]	Isopropyltoluene[4-]	Octachlorodibenzodioxin [1,2,3,4,6,7,8,9-]	Octachlorodibenzofuran [1,2,3,4,6,7,8,9-]	Tetrachlorodibenzofuran [2,3,7,8-]	Toluene	Trichloroethene	Xylene[1,3-]+Xylene[1,4-]
Residential SSL [a]				**100000**	**9.59**	**103**	**na [b]**	**na**	**na**	**389 [c]**	**na**	**na**	**na**	**252**	**1.56**	**82**
Industrial SSL [a]				**98500**	**216**	**1960**	**na**	**na**	**na**	**389 [c]**	**na**	**na**	**na**	**252**	**33.6**	**82**
Construction SSL [a]				**28100**	**4**	**39.5**	**na**	**na**	**na**	**271 [c]**	**na**	**na**	**na**	**252**	**0.638**	**82**
RE21-07-515	21-27340	5.5–6.5	Tuff	NA [d]	NA	NA	1.47E-6(J)	5.14E-7(J)	5.17E-8(J)	NA	1.3E-5(J)	1.11E-6(J)	7.73E-8(J)	NA	NA	NA
RE21-07-74875	21-27320	2.0–2.5	Tuff	— [e]	—	—	NA	NA	NA	—	NA	NA	NA	0.00107	—	—
RE21-07-74878	21-27321	2.0–2.5	Tuff	—	—	—	NA	NA	NA	—	NA	NA	NA	0.00128	—	—
RE21-07-74888	21-27325	2.0–2.5	Tuff	—	—	—	NA	NA	NA	—	NA	NA	NA	0.00338	—	—
RE21-07-74894	21-27328	2.0–2.5	Tuff	—	—	—	NA	NA	NA	4.88E-4(J)	NA	NA	NA	0.00126	7.69E-4(J)	—
RE21-07-74898	21-27330	2.0–2.5	Tuff	—	—	—	NA	NA	NA	—	NA	NA	NA	7.71E-4(J)	3.35E-4(J)	—
RE21-07-74900	21-27331	2.0–2.5	Tuff	—	—	—	NA	NA	NA	—	NA	NA	NA	4.52E-4(J)	—	—
RE21-07-74902	21-27332	2.0–2.5	Tuff	—	—	4.42E-4(J)	NA	NA	NA	—	NA	NA	NA	8.87E-4(J)	—	—
RE21-07-74908	21-27335	4.67–5.67	Tuff	—	—	—	NA	NA	NA	—	NA	NA	NA	7.65E-4(J)	—	—
RE21-07-74927	21-27339	6.1–7.1	Tuff	—	2.51E-4(J)	—	NA	NA	NA	—	NA	NA	NA	0.00189	—	3.33E-4(J)
RE21-07-74928	21-27339	8.1–9.1	Tuff	0.0404	—	—	NA	NA	NA	—	NA	NA	NA	8.31E-4(J)	—	—
RE21-07-74930	21-27340	7.0–8.0	Tuff	—	2.33E-4(J)	—	NA	NA	NA	—	NA	NA	NA	7.48E-4(J)	—	—
RE21-07-74936	21-27342	5.0–6.0	Tuff	—	—	—	NA	NA	NA	—	NA	NA	NA	3.62E-4(J)	—	—

Note: Units are mg/kg.

[a] SSLs from NMED (2006, 092513).

[b] na = Not available.

[c] Isopropylbenzene value used as surrogate based on structural similarity.

[d] NA = Not analyzed.

[e] — = Not detected.

Table 6.4-12
Radionuclides Detected or Detected above BVs/FVs in Soil at SWMU 21-024(a)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cesium-137	Plutonium-238	Plutonium-239	Tritium	Uranium-234	Uranium-238
Soil BV/FV [a]				**0.013**	**1.65**	**0.023**	**0.054**	**na [b]**	**2.59**	**2.29**
Industrial SAL[c]				**180**	**23**	**240**	**210**	**440000**	**1500**	**430**
Construction Worker SAL[c]				**34**	**18**	**40**	**36**	**320000**	**220**	**160**
Residential SAL[c]				**30**	**5.6**	**37**	**33**	**750**	**170**	**86**
RE21-07-74874	21-27320	0.0–0.5	Soil	0.0947	—[d]	—	0.504	0.0159	—	—
RE21-07-74877	21-27321	0.0–0.5	Soil	0.0932	—	—	1.75	0.0383	—	—
RE21-07-74880	21-27322	0.0–0.5	Soil	0.0672	—	—	0.567	0.0269	—	—
RE21-07-74881	21-27322	2.0–2.5	Soil	—	0.33	—	1.27	0.0149	—	—
RE21-07-74883	21-27323	0.0–0.5	Soil	0.0953	—	—	0.934	0.0249	—	—
RE21-07-74884	21-27323	2.0–2.5	Soil	—	—	—	0.248	0.0214	—	—
RE21-07-74887	21-27325	0.0–0.5	Soil	—	—	—	0.151	0.0353	—	—
RE21-07-74889	21-27326	0.0–0.5	Soil	0.173	—	0.0268	2.32	—	2.61	2.31
RE21-07-74890	21-27326	2.0–2.5	Soil	—	0.275	—	0.172	—	—	—
RE21-07-74891	21-27327	0.0–0.5	Soil	—	—	—	0.554	0.0232	—	—
RE21-07-74892	21-27327	2.0–2.5	Soil	—	—	—	0.0292	0.0477	—	—
RE21-07-74893	21-27328	0.0–0.5	Soil	—	—	—	0.212	0.0127	—	—
RE21-07-74895	21-27329	0.0–0.5	Soil	—	—	—	0.233	0.0191	—	—
RE21-07-74896	21-27329	2.0–2.5	Soil	—	—	—	0.0487	0.0142	—	—
RE21-07-74901	21-27332	0.0–0.5	Soil	—	—	—	0.363	—	—	—
RE21-07-74903	21-27333	0.0–0.5	Soil	—	—	—	0.099	—	—	—
RE21-07-74907	21-27335	2.67–3.67	Soil	—	—	—	1.2	0.0648	—	—
RE21-07-74925	21-27338	2.67–3.67	Soil	—	—	—	0.0299	0.0969	—	—
RE21-07-74926	21-27338	4.67–5.67	Soil	—	—	—	—	0.0502	—	—
RE21-07-74934	21-27342	0.0–0.5	Soil	—	—	—	0.601	0.07848 (J-)	—	—

Note: Units are pCi/g.

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

[b] na = Not available.

[c] SALs from LANL (2005, 088493).

[d] — = Not detected or not detected above BV.

Table 6.4-13
Radionuclides Detected or Detected above BVs/FVs in Tuff at SWMU 21-024(a)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cesium-137	Plutonium-238	Plutonium-239	Strontium-90	Tritium	Uranium-234	Uranium-235	Uranium-238
Qbt 2,3,4 BV/FV [a]				**na [b]**	**na**	**na**	**na**	**na**	**na**	**1.98**	**0.09**	**1.93**
Industrial SAL[c]				**180**	**23**	**240**	**210**	**1900**	**440000**	**1500**	**87**	**430**
Construction Worker SAL[c]				**34**	**18**	**40**	**36**	**800**	**320000**	**220**	**43**	**160**
Residential SAL[c]				**30**	**5.6**	**37**	**33**	**5.7**	**750**	**170**	**17**	**86**
RE21-07-74875	21-27320	2.0–2.5	Tuff	— [d]	0.0845	—	0.063	—	0.0360	—	—	—
RE21-07-74878	21-27321	2.0–2.5	Tuff	—	0.119	—	0.267	—	0.0276	—	—	—
RE21-07-74888	21-27325	2.0–2.5	Tuff	—	—	—	—	—	0.0587	—	—	—
RE21-07-74894	21-27328	2.0–2.5	Tuff	—	—	—	0.111	—	0.623	—	—	—
RE21-07-74897	21-27330	0.0–0.5	Tuff	—	NA	—	0.038	0.104	0.0186	—	—	—
RE21-07-74898	21-27330	2.0–2.5	Tuff	—	—	—	—	—	0.537	—	—	—
RE21-07-74899	21-27331	0.0–0.5	Tuff	—	—	—	—	—	0.0158	—	—	—
RE21-07-749	21-27331	2.0–2.5	Tuff	—	—	—	—	—	0.447	—	—	—
RE21-07-74902	21-27332	2.0–2.5	Tuff	—	0.0819	—	0.0786	—	—	—	—	—
RE21-07-74908	21-27335	4.67–5.67	Tuff	—	—	—	0.753	—	0.0412	—	—	—
RE21-07-74909	21-27336	2.0–3.0	Tuff	—	—	—	0.199	—	0.0438	—	—	—
RE21-07-74910	21-27336	4.0–5.0	Tuff	—	—	—	0.0574	—	0.0448	—	—	—
RE21-07-74927	21-27339	6.1–7.1	Tuff	0.0951	0.159	—	0.0765	—	—	—	—	—
RE21-07-74928	21-27339	8.1–9.1	Tuff	—	—	—	0.0428	—	—	—	—	—
RE21-07-74929	21-27340	5.0–6.0	Tuff	—	—	—	—	—	0.0271	—	—	—
RE21-07-74931	21-27341	5.0–6.0	Tuff	—	—	—	0.0586	—	0.0335	4.11	0.246	4.26
RE21-07-74932	21-27341	10.0–11.0	Tuff	—	—	0.0846	0.167	—	0.0203	—	—	—
RE21-07-74933	21-27341	15.0–16.0	Tuff	—	—	—	—	—	0.0353	2.02	0.106	1.95

Table 6.4-13 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cesium-137	Plutonium-238	Plutonium-239	Strontium-90	Tritium	Uranium-234	Uranium-235	Uranium-238
Qbt 2,3,4 BV/FV[a]				**na [b]**	**na**	**na**	**na**	**na**	**na**	**1.98**	**0.09**	**1.93**
Industrial SAL[c]				**180**	**23**	**240**	**210**	**1900**	**440000**	**1500**	**87**	**430**
Construction Worker SAL[c]				**34**	**18**	**40**	**36**	**800**	**320000**	**220**	**43**	**160**
Residential SAL[c]				**30**	**5.6**	**37**	**33**	**5.7**	**750**	**170**	**17**	**86**
RE21-07-74935	21-27342	2.0–3.0	Tuff	—	—	—	—	—	0.0470 (J-)	—	—	—
RE21-07-74936	21-27342	5.0–6.0	Tuff	—	—	—	—	—	0.0384 (J-)	—	—	—

Note: Units are pCi/g.

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

[b] na = Not available.

[c] SALs from LANL (2005, 088493).

[d] — = Not detected or not detected above BV.

Table 6.4-14
Inorganic Chemicals above BVs in Soil at SWMU 21-024(e)

Sample ID	Location ID	Depth (ft)	Media	Antimony	Cadmium	Chromium	Copper	Cyanide (Total)	Lead	Mercury	Molybdenum	Nickel	Nitrate	Perchlorate	Selenium	Silver	Uranium	Zinc
Soil BV [a]				**0.83**	**0.4**	**19.3**	**14.7**	**0.5**	**22.3**	**0.1**	**na [b]**	**15.4**	**na**	**na**	**1.52**	**1**	**1.82**	**48.8**
Industrial SSL [c]				**454**	**564**	**5000 [d]**	**45400**	**13700**	**800**	**610 [d]**	**5680**	**22700**	**100000**	**790 [d]**	**5680**	**5680**	**200 [e]**	**100000**
Construction Worker SSL [c]				**124**	**154**	**26.1**	**12400**	**4760**	**800**	**927**	**1550**	**6190**	**100000**	**na**	**1550**	**1550**	**na**	**92900**
Residential SSL [c]				**31.3**	**39**	**2100 [d]**	**3130**	**1220**	**400**	**23 [d]**	**391**	**1560**	**100000**	**55 [d]**	**391**	**391**	**16 [e]**	**23500**
RE21-07-74568	21-27242	0.0–0.5	Soil	— [f]	—	—	—	—	—	—	0.848	—	1.7	0.00284 (J+)	—	—	2.22	—
RE21-07-74569	21-27243	0.0–0.5	Soil	—	—	—	—	—	—	—	0.658	—	1.68	—	1.6 (U)	—	—	—
RE21-07-74570	21-27246	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	1.17	—	1.6 (U)	—	2.3	50.1
RE21-07-74571	21-27245	0.0–0.5	Soil	3.23	2.32	21.4	26.5	—	72.1	0.595	1.23	—	1.28	—	1.75 (U)	1.1	22.5	124
RE21-07-74572	21-27244	0.0–0.5	Soil	—	—	—	—	—	—	—	0.563	—	1.34	—	1.57 (U)	—	8.54	71.6
RE21-07-74573	21-27249	0.0–0.5	Soil	—	—	—	—	—	—	—	0.599	—	2.29	—	1.67 (U)	—	3.1	—
RE21-07-74574	21-27248	0.0–0.5	Soil	—	—	—	—	—	—	—	0.592	—	13.3	—	1.56 (U)	—	—	58.2
RE21-07-74575	21-27247	0.0–0.5	Soil	—	—	—	—	—	—	—	0.579	—	4.03	0.000866 (J)	1.63 (U)	—	—	—
RE21-07-74583	21-27243	2.0–3.0	Soil	—	0.564 (U)	—	—	—	—	—	—	—	—	—	1.69 (U)	—	—	—
RE21-07-74584	21-27250	0.0–0.5	Soil	—	—	—	—	—	—	—	NA [g]	—	2.51	—	1.6 (U)	—	2.71 (J+)	—
RE21-07-74586	21-27251	0.0–0.5	Soil	—	—	—	—	—	—	—	NA	—	2.2	—	1.62 (U)	—	1.98 (J+)	50.1
RE21-07-74588	21-27252	0.0–0.5	Soil	—	—	—	—	—	—	—	NA	—	2.54	0.000609 (J)	1.54 (U)	—	3.62 (J+)	—
RE21-07-74590	21-27253	0.0–0.5	Soil	—	0.506 (U)	—	—	—	—	—	NA	—	—	—	—	—	—	—
RE21-07-74592	21-27254	0.0–0.5	Soil	—	0.564 (U)	—	—	—	—	—	NA	—	—	—	—	—	—	—
RE21-07-74594	21-27255	0.0–0.5	Soil	—	—	—	—	—	—	—	NA	—	—	—	1.68 (U)	—	1.92 (J+)	—
RE21-07-74618	21-27260	0.0–0.5	Soil	—	0.655	—	—	—	28.1	—	0.479 (J)	—	9.72	0.0012 (J)	—	—	3.49	78.9
RE21-07-74627	21-27263	3.0–4.0	Soil	—	0.557 (U)	—	—	0.777	—	—	0.351	—	1.3 (J-)	—	—	—	—	—
RE21-07-74628	21-27263	5.0–6.0	Soil	—	0.557 (U)	—	—	—	—	—	0.487	15.5	—	—	—	—	—	—
RE21-07-74629	21-27264	4.0–5.0	Soil	—	—	—	29.2	30.3	28.2	0.267 (J+)	0.755	—	—	0.000891 (J)	—	1.24	62	84.7
RE21-07-74630	21-27264	6.0–7.0	Soil	—	0.526 (U)	—	—	—	—	—	0.32	—	2.12 (J-)	0.00177 (J)	1.58 (U)	—	—	—
RE21-07-74631	21-27265	4.25–5.25	Soil	—	—	—	—	—	65.8	0.127 (J+)	0.541	—	1.4 (J-)	—	—	—	2.08	66.1
RE21-07-74633	21-27266	4.5–5.5	Soil	—	0.531 (U)	—	—	—	—	—	0.684	—	1.55	0.00136 (J)	—	—	2.02	—
RE21-07-74635	21-27267	5.0–6.0	Soil	—	0.498 (U)	—	—	—	—	—	0.684	—	—	0.00114 (J)	—	—	—	—
RE21-07-74637	21-27268	3.75–4.75	Soil	—	0.508 (U)	—	—	—	—	—	0.829	—	—	—	—	—	—	—
RE21-07-74639	21-27269	1.25–2.25	Soil	—	2.93	—	130	—	161	2.95	1.94	—	1.47	—	—	1.52	9.02	102 (J+)
RE21-07-74641	21-27270	2.0–3.0	Soil	—	15	—	25.9	—	23	0.485	0.776	—	1.54	—	—	—	2.2	82.6 (J+)
RE21-07-74642	21-27270	4.0–5.0	Soil	—	6.55	—	—	—	—	0.219	0.507	—	1.62	—	1.55 (U)	—	—	67.1 (J+)
RE21-07-74643	21-27271	6.0–7.0	Soil	—	0.517 (U)	—	—	—	—	—	0.502 (J)	—	6.11	0.000667 (J)	—	—	—	—

Table 6.4-14 (continued)

Sample ID	Location ID	Depth (ft)	Media	Antimony	Cadmium	Chromium	Copper	Cyanide (Total)	Lead	Mercury	Molybdenum	Nickel	Nitrate	Perchlorate	Selenium	Silver	Uranium	Zinc
Soil BV [a]				**0.83**	**0.4**	**19.3**	**14.7**	**0.5**	**22.3**	**0.1**	**na**	**15.4**	**na**	**na**	**1.52**	**1**	**1.82**	**48.8**
Industrial SSL [c]				**454**	**564**	**5000 [d]**	**45400**	**13700**	**800**	**610 [d]**	**5680**	**22700**	**100000**	**790 [d]**	**5680**	**5680**	**200 [e]**	**100000**
Construction Worker SSL [c]				**124**	**154**	**26.1**	**12400**	**4760**	**800**	**927**	**1550**	**6190**	**100000**	**na**	**1550**	**1550**	**na**	**92900**
Residential SSL [c]				**31.3**	**39**	**2100 [d]**	**3130**	**1220**	**400**	**23 [d]**	**391**	**1560**	**100000**	**55 [d]**	**391**	**391**	**16 [e]**	**23500**
RE21-07-74645	21-27272	6.0–7.0	Soil	—	0.564 (U)	—	—	—	—	—	0.597 (J)	—	2.2	—	—	—	—	52.9
RE21-07-74647	21-27273	3.5–4.0	Soil	—	0.566 (U)	—	—	—	31.7	—	0.368 (J)	—	2.83	—	—	—	—	—

Note: Units are mg/kg.

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

[b] na = Not available.

[c] SSLs from NMED (2006, 092513).

[d] Value from EPA Region 6 (2007, 095866).

[e] Value from EPA Region 9 (http://www.epa.gov/region9/waste/sfund/prg/files/04prgtable.pdf).

[f] — = Not detected or not detected above BV.

[g] NA = Not analyzed.

Table 6.4-15
Inorganic Chemicals above BVs in Tuff at SWMU 21-024(e)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Arsenic	Barium	Cadmium	Calcium	Chromium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nitrate	Perchlorate	Selenium	Uranium	Vanadium	Zinc
Qbt 2,3,4 BV [a]				**7340**	**2.79**	**46**	**1.63**	**2200**	**7.14**	**3.14**	**4.66**	**11.2**	**0.1**	**na [b]**	**na**	**na**	**0.3**	**2.4**	**17**	**63.5**
Industrial SSL [c]				**100000**	**17.7**	**100000**	**564**	**na**	**5000 [d]**	**20500**	**45400**	**800**	**610 [d]**	**5680**	**100000**	**790 [d]**	**5680**	**200 [e]**	**1140**	**100000**
Construction Worker SSL [c]				**14400**	**85.2**	**60200**	**154**	**na**	**26.1**	**61**	**12400**	**800**	**927**	**1550**	**100000**	**na**	**1550**	**na**	**310**	**92900**
Residential SSL [c]				**77800**	**3.9**	**15600**	**39**	**na**	**2100 [d]**	**1520**	**3130**	**400**	**23 [d]**	**391**	**100000**	**55 [d]**	**391**	**16 [e]**	**78.2**	**23500**
RE21-07-74576	21-27249	2.0–3.0	Tuff	— [f]	—	—	—	—	18.4	—	5.11	—	—	2.24	—	—	1.49 (U)	—	—	—
RE21-07-74577	21-27244	2.0–3.0	Tuff	—	—	—	—	—	7.66	—	—	—	—	1.5	—	—	1.53 (U)	—	—	—
RE21-07-74578	21-27247	2.0–3.0	Tuff	—	—	—	—	—	—	—	—	—	—	0.605	2.3	—	1.56 (U)	—	—	—
RE21-07-74579	21-27248	2.0–3.0	Tuff	—	—	—	—	—	—	—	—	—	—	0.933	1.36	—	1.51 (U)	—	—	—
RE21-07-74580	21-27245	2.0–3.0	Tuff	8150 (J+)	3.31	47.1	—	—	11.1	—	6.25	—	—	1.46	—	—	1.65 (U)	—	—	—
RE21-07-74581	21-27246	2.0–3.0	Tuff	—	—	—	—	—	11.2	—	—	—	—	1.67	—	—	1.61 (U)	—	—	—
RE21-07-74582	21-27242	2.0–3.0	Tuff	—	—	—	—	—	7.87	—	—	—	—	0.993	—	—	1.68 (U)	—	—	—
RE21-07-74585	21-27250	2.0–2.5	Tuff	—	—	—	—	—	—	—	—	—	—	0.292	1.06	—	1.54 (U)	—	—	—
RE21-07-74587	21-27251	2.0–2.5	Tuff	—	—	—	—	—	—	—	—	—	—	0.245	1.95	—	1.51 (U)	—	—	—
RE21-07-74589	21-27252	2.0–2.5	Tuff	—	—	—	—	—	—	—	—	—	—	0.354	0.929 (J)	—	1.6 (U)	—	—	—
RE21-07-74591	21-27253	1.0–1.5	Tuff	—	—	—	—	—	—	—	—	20.9	—	0.289	—	—	1.55 (U)	—	—	—
RE21-07-74593	21-27254	2.0–2.5	Tuff	—	—	—	—	—	—	—	—	—	—	0.319	—	—	1.61 (U)	—	—	—
RE21-07-74595	21-27255	2.0–2.5	Tuff	—	—	—	—	—	—	—	—	—	—	0.311	—	—	1.69 (U)	—	—	—
RE21-07-74615	21-27259	10.0–11.0	Tuff	—	—	—	—	—	—	—	—	—	—	0.983 (J)	—	—	0.566 (J)	—	—	—
RE21-07-74616	21-27259	15.0–16.0	Tuff	—	—	—	—	—	9.12 (J)	—	4.75	—	—	0.973 (J)	—	—	1.04 (J)	—	—	—
RE21-07-74617	21-27259	20.0–21.0	Tuff	—	—	—	—	—	14 (J)	—	5.29	—	—	1.73 (J)	—	—	0.962 (J)	—	—	—
RE21-07-74619	21-27260	2.0–3.0	Tuff	—	4.98	58.6	—	—	8.81 (J)	3.23	8.23	25.8	—	0.66 (J)	2.34	—	1.55	—	21.1	—
RE21-07-74620	21-27260	5.0–6.0	Tuff	—	—	—	—	—	7.35 (J)	—	—	—	—	1.02 (J)	2.04	—	1.02 (J)	—	—	—
RE21-07-74632	21-27265	6.25–7.25	Tuff	—	—	—	—	6260	8.55	—	—	86.8	—	0.956	1.41 (J-)	—	0.933 (J)	—	—	—
RE21-07-74634	21-27266	6.5–7.5	Tuff	—	—	—	—	—	—	—	—	—	—	1.61	1.83	0.000564 (J)	1.6 (U)	—	—	—
RE21-07-74636	21-27267	7.0–8.0	Tuff	—	—	—	—	—	10.3	—	—	—	—	0.644	9.27	—	1.53 (U)	—	—	—
RE21-07-74638	21-27268	5.75–6.75	Tuff	—	—	—	—	—	8.6	—	—	—	—	1.25	1.44	—	1.62 (U)	—	—	—
RE21-07-74640	21-27269	3.25–4.25	Tuff	—	—	47.8 (J+)	2.4	—	9.6	—	29.7	17.8	1.02	0.46	23.8	—	1.68 (U)	5.08	—	72.3 (J+)
RE21-07-74644	21-27271	8.0–9.0	Tuff	—	—	—	—	—	9.95 (J)	—	—	—	—	1.8 (J)	2.71	0.000704 (J)	0.691 (J)	—	—	—
RE21-07-74646	21-27272	9.0–10.0	Tuff	—	—	—	—	—	—	—	5.72	—	—	0.516 (J)	2.43	—	0.608 (J)	—	—	—
RE21-07-74648	21-27273	5.0–6.0	Tuff	—	—	—	—	—	12.4 (J)	—	—	—	—	1.37 (J)	2.58	—	0.607 (J)	—	—	—

Note: Units are mg/kg.
[a] BVs from LANL (1998, 059730).
[b] na = Not available.
[c] SSLs from NMED (2006, 092513).
[d] Value from EPA Region 6 (2007, 095866).
[e] Value from EPA Region 9 (http://www.epa.gov/region9/waste/sfund/prg/files/04prgtable.pdf).
[f] — = Not detected or not detected above BV.

Table 6.4-16
Organic Chemicals Detected in Soil at SWMU 21-024(e)

Sample ID	Location ID	Depth (ft)	Media	Acenaphthene	Acenaphthylene	Acetone	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Bis(2-ethylhexyl)phthalate	Chloroaniline[4-]	Chrysene	Di-n-butylphthalate	Dichlorobenzene[1,4-]	Ethylbenzene
Industrial SSL [a]				**33500**	**30900 [b]**	**100000**	**100000**	**23.4**	**2.34**	**23.4**	**30900 [b]**	**234**	**1370**	**2736 [c]**	**2310**	**68400**	**103**	**128**
Construction Worker SSL [a]				**14100**	**9010 [b]**	**98500**	**86000**	**212**	**21.2**	**212**	**9010 [b]**	**2120**	**4660**	**na [d]**	**21200**	**23300**	**1960**	**128**
Residential SSL [a]				**3730**	**2290 [b]**	**28100**	**22000**	**6.21**	**0.621**	**6.21**	**2290 [b]**	**62.1**	**347**	**244.4 [c]**	**615**	**6110**	**39.5**	**128**
RE21-07-74568	21-27242	0.0–0.5	Soil	— [e]	—	—	0.00711 (J)	—	—	—	—	—	—	—	—	—	—	—
RE21-07-74569	21-27243	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE21-07-74570	21-27246	0.0–0.5	Soil	—	—	0.00437 (J)	—	—	—	—	—	—	—	—	—	—	—	—
RE21-07-74571	21-27245	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE21-07-74572	21-27244	0.0–0.5	Soil	—	—	—	—	0.0131 (J)	—	0.0364	—	—	—	—	0.0196 (J)	—	—	—
RE21-07-74573	21-27249	0.0–0.5	Soil	0.0188 (J)	—	—	0.0349 (J)	0.117	0.125	0.203	—	0.0786	—	—	0.144	—	—	—
RE21-07-74574	21-27248	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE21-07-74575	21-27247	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE21-07-74583	21-27243	2.0–3.0	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE21-07-74584	21-27250	0.0–0.5	Soil	—	—	NA [f]	—	—	—	—	—	—	—	—	—	0.0622 (J)	—	NA
RE21-07-74586	21-27251	0.0–0.5	Soil	—	—	NA	—	—	—	—	—	—	—	—	—	—	—	NA
RE21-07-74592	21-27254	0.0–0.5	Soil	—	—	NA	—	—	—	—	—	—	—	—	—	0.0404 (J)	—	NA
RE21-07-74618	21-27260	0.0–0.5	Soil	—	—	NA	—	—	—	—	—	—	—	—	—	0.0497 (J)	—	NA
RE21-07-74628	21-27263	5.0–6.0	Soil	—	—	0.00385 (J)	—	—	—	—	—	—	—	—	—	—	—	—
RE21-07-74629	21-27264	4.0–5.0	Soil	—	0.0261 (J)	0.00904 (J)	0.0108 (J)	—	—	—	—	—	—	—	—	—	—	0.000663 (J)
RE21-07-74631	21-27265	4.25–5.25	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE21-07-74635	21-27267	5.0–6.0	Soil	—	—	—	0.00753 (J)	0.0784	—	0.165	0.0291 (J)	—	—	—	0.0792	—	—	—
RE21-07-74637	21-27268	3.75–4.75	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE21-07-74639	21-27269	1.25–2.25	Soil	—	—	—	—	—	—	—	0.125	—	—	0.263 (J)	—	0.121 (J)	0.000635 (J)	—
RE21-07-74641	21-27270	2.0–3.0	Soil	—	—	—	—	—	—	—	—	—	—	—	—	0.0822 (J)	—	—
RE21-07-74642	21-27270	4.0–5.0	Soil	—	—	—	—	—	—	—	—	—	0.383	0.407 (J)	—	0.326 (J)	—	—
RE21-07-74643	21-27271	6.0–7.0	Soil	0.0223 (J)	—	—	0.117	0.498	0.406	0.738	0.184	—	—	—	0.48	—	—	—
RE21-07-74645	21-27272	6.0–7.0	Soil	—	—	—	0.0177 (J)	0.111	—	0.193	—	—	—	—	0.108	—	—	—
RE21-07-74647	21-27273	3.5–4.0	Soil	0.0142 (J)	—	—	0.0741	0.242 (J)	0.197 (J)	0.315 (J)	0.0946 (J)	—	0.0801 (J)	—	0.239 (J)	—	—	—

Table 6.4-16 (continued)

Sample ID	Location ID	Depth (ft)	Media	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Isopropyltoluene[4-]	Methylene Chloride	Methylnaphthalene[2-]	Naphthalene	Phenanthrene	Pyrene	Toluene	Trichloroethene	Trimethylbenzene [1,2,4-]	Xylene[1,2-]	Xylene[1,3-]+ Xylene[1,4-]
Industrial SSL [a]				**24400**	**26500**	**23.4**	**389 [g]**	**490**	**300 [h]**	**300**	**20500**	**30900**	**252**	**1.56**	**213**	**99.5**	**82**
Construction Worker SSL [a]				**8730**	**10200**	**212**	**389 [g]**	**2630**	**262 [h]**	**262**	**6990**	**9010**	**252**	**33.6**	**190**	**99.5**	**82**
Residential SSL [a]				**2290**	**2660**	**6.21**	**271 [g]**	**182**	**79.5 [h]**	**79.5**	**1830**	**2290**	**252**	**0.638**	**58**	**99.5**	**82**
RE21-07-74568	21-27242	0.0–0.5	Soil	0.0143 (J)	—	—	—	—	—	—	—	0.0119 (J)	0.00373	—	—	—	—
RE21-07-74569	21-27243	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	0.00506	0.00118	—	—	—
RE21-07-74570	21-27246	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	0.00145	—	—	—	—
RE21-07-74571	21-27245	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	0.01	—	—	—	—
RE21-07-74572	21-27244	0.0–0.5	Soil	0.0275 (J)	—	—	—	—	—	—	0.0114 (J)	0.0231 (J)	0.00145	0.00062 (J)	—	—	—
RE21-07-74573	21-27249	0.0–0.5	Soil	0.278	0.0306 (J)	—	—	—	0.0113 (J)	0.0209 (J)	0.22	0.212	0.00141	0.00408	—	—	—
RE21-07-74574	21-27248	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	0.0249	0.0164	—	—	—
RE21-07-74575	21-27247	0.0–0.5	Soil	0.0162 (J)	—	—	—	—	—	—	—	0.0129 (J)	0.00747	0.00515	—	—	—
RE21-07-74583	21-27243	2.0–3.0	Soil	—	—	—	—	—	—	—	—	—	0.000466 (J)	—	—	—	—
RE21-07-74584	21-27250	0.0–0.5	Soil	0.0122 (J)	—	—	NA	NA	—	—	—	0.0121 (J)	NA	NA	NA	NA	NA
RE21-07-74586	21-27251	0.0–0.5	Soil	0.0268 (J)	—	—	NA	NA	—	—	—	0.022 (J)	NA	NA	NA	NA	NA
RE21-07-74592	21-27254	0.0–0.5	Soil	0.0181 (J)	—	—	NA	NA	—	—	—	0.0312 (J)	NA	NA	NA	NA	NA
RE21-07-74618	21-27260	0.0–0.5	Soil	0.0143 (J)	—	—	NA	NA	—	—	—	0.0148 (J)	NA	NA	NA	NA	NA
RE21-07-74628	21-27263	5.0–6.0	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE21-07-74629	21-27264	4.0–5.0	Soil	0.0162 (J)	—	—	—	—	—	—	0.0176 (J)	—	0.00402	—	0.00034 (J)	0.00157	0.00411
RE21-07-74631	21-27265	4.25–5.25	Soil	0.0192 (J)	—	—	—	0.00251 (J+)	—	—	—	0.0235 (J)	—	—	—	—	—
RE21-07-74635	21-27267	5.0–6.0	Soil	0.0913	—	—	—	—	—	—	0.0228 (J)	0.0841	—	—	—	—	—
RE21-07-74637	21-27268	3.75–4.75	Soil	—	—	—	0.000419 (J)	—	—	—	—	—	0.000426 (J)	—	—	—	—
RE21-07-74639	21-27269	1.25–2.25	Soil	0.0411	—	—	—	—	—	—	0.0154 (J)	0.0487	—	—	—	—	—
RE21-07-74641	21-27270	2.0–3.0	Soil	—	—	—	—	—	—	—	—	0.0114 (J)	0.00044 (J)	—	—	—	—
RE21-07-74642	21-27270	4.0–5.0	Soil	0.0207 (J)	—	—	—	—	—	—	0.0108 (J)	0.0255 (J)	—	—	—	—	—
RE21-07-74643	21-27271	6.0–7.0	Soil	0.781	0.0205 (J)	—	—	—	—	—	0.316	0.768	—	—	—	—	—
RE21-07-74645	21-27272	6.0–7.0	Soil	0.182	—	—	—	—	—	—	0.064	0.179	—	—	—	—	—
RE21-07-74647	21-27273	3.5–4.0	Soil	0.512	0.0192 (J)	0.168 (J)	—	—	—	—	0.257	0.555 (J)	—	—	—	—	—

Note: Units are mg/kg.
[a] SSLs from NMED (2006, 092513).
[b] Pyrene used as a surrogate based on structural similarity.
[c] Value from EPA Region 6 (2007, 095866).
[d] na = Not available.
[e] — = Not detected.
[f] NA = Not analyzed.
[g] Isopropylbenzene used as a surrogate based on structural similarity.
[h] Naphthlene used as a surrogate based on structural similarity.

Table 6.4-17
Organic Chemicals Detected in Tuff at 21-024(e)

Sample ID	Location ID	Depth (ft)	Media	Acetone	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Bis(2-ethylhexyl)phthalate	Butanone[2-]	Chrysene	Di-n-butylphthalate	Fluoranthene	Isopropyltoluene[4-]	Octachlorodibenzodioxin [1,2,3,4,6,7,8,9-]	Octachlorodibenzofuran [1,2,3,4,6,7,8,9-]	Phenanthrene	Pyrene	Toluene
Industrial SSL [a]				**100000**	**23.4**	**30900**	**234**	**1370**	**48700**	**2310**	**68400**	**24400**	**389 [b]**	**na [c]**	**na**	**20500**	**30900**	**252**
Construction Worker SSL [a]				**98500**	**212**	**9010**	**2120**	**4660**	**48700**	**21200**	**23300**	**8730**	**389 [b]**	**na**	**na**	**6990**	**9010**	**252**
Residential SSL [a]				**28100**	**6.21**	**2290**	**62.1**	**347**	**31800**	**615**	**6110**	**2290**	**271 [b]**	**na**	**na**	**1830**	**2290**	**252**
RE21-07-4045	21-27253	1.0–1.5	Tuff	NA [d]	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00000478 (J)	0.000000411 (J)	NA	NA	NA
RE21-07-74576	21-27249	2.0–3.0	Tuff	— [e]	—	—	—	—	—	—	—	—	—	NA	NA	—	—	0.000795 (J)
RE21-07-74577	21-27244	2.0–3.0	Tuff	—	—	—	—	—	—	—	—	—	—	NA	NA	—	—	0.000448 (J)
RE21-07-74578	21-27247	2.0–3.0	Tuff	—	—	—	—	—	—	—	—	—	—	NA	NA	—	—	0.0025
RE21-07-74579	21-27248	2.0–3.0	Tuff	—	—	—	—	—	—	—	—	—	—	NA	NA	—	0.0121 (J)	0.00561
RE21-07-74580	21-27245	2.0–3.0	Tuff	—	—	—	—	—	—	—	—	—	—	NA	NA	—	—	0.00222
RE21-07-74581	21-27246	2.0–3.0	Tuff	—	—	—	—	—	—	—	—	—	—	NA	NA	—	—	0.000448 (J)
RE21-07-74582	21-27242	2.0–3.0	Tuff	—	—	—	—	—	—	—	—	—	—	NA	NA	—	—	0.00206
RE21-07-74585	21-27250	2.0–2.5	Tuff	—	—	—	—	—	—	—	0.0925 (J)	—	—	NA	NA	—	—	0.00495
RE21-07-74587	21-27251	2.0–2.5	Tuff	—	—	—	—	—	—	—	0.0828 (J)	—	—	NA	NA	—	—	0.00391
RE21-07-74589	21-27252	2.0–2.5	Tuff	—	—	—	—	—	—	—	0.0839 (J)	—	—	NA	NA	—	—	0.00262
RE21-07-74591	21-27253	1.0–1.5	Tuff	0.00284 (J)	—	—	—	—	—	—	0.0735 (J)	—	0.0508 (J)	NA	NA	—	—	0.00849
RE21-07-74593	21-27254	2.0–2.5	Tuff	—	—	—	—	—	—	—	0.1 (J)	—	0.00106 (J)	NA	NA	—	—	0.00899
RE21-07-74595	21-27255	2.0–2.5	Tuff	—	—	—	—	—	—	—	0.0992 (J)	—	0.000685 (J)	NA	NA	—	—	0.0209
RE21-07-74616	21-27259	15.0–16.0	Tuff	—	—	—	—	—	—	—	0.0443 (J)	—	—	NA	NA	—	—	—
RE21-07-74617	21-27259	20.0–21.0	Tuff	0.0252 (J)	—	—	—	—	0.00471 (J)	—	—	—	—	NA	NA	—	—	—
RE21-07-74619	21-27260	2.0–3.0	Tuff	—	—	—	—	—	—	—	—	—	0.000915 (J)	NA	NA	—	—	—
RE21-07-74640	21-27269	3.25–4.25	Tuff	—	—	0.0386	—	0.115 (J)	—	—	0.0987 (J)	—	—	NA	NA	—	—	—
RE21-07-74644	21-27271	8.0–9.0	Tuff	—	0.0224 (J)	—	0.0107 (J)	—	—	0.0186 (J)	—	0.0351	—	NA	NA	0.0162 (J)	0.0303 (J)	—
RE21-07-74646	21-27272	9.0–10.0	Tuff	—	—	—	—	—	—	0.0268 (J)	—	0.0458	—	NA	NA	0.0184 (J)	0.0434	—

Note: Units are mg/kg.

[a] SSLs from NMED (2006, 092513).

[b] Isopropylbenzene used as a surrogate based on structural similarity.

[c] na = Not available.

[d] NA = Not analyzed.

[e] — = Not detected.

Table 6.4-18
Radionuclides Detected or Detected above BVs/FVs in Soil at SWMU 21-024(e)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cesium-137	Plutonium-238	Plutonium-239	Tritium	Uranium-234	Uranium-235	Uranium-238
Soil FV/BV [a]				**0.013**	**1.65**	**0.023**	**0.054**	**na [b]**	**2.59**	**0.2**	**2.29**
Industrial SAL[c]				**180**	**23**	**240**	**210**	**440000**	**1500**	**87**	**430**
Construction Worker SAL[c]				**34**	**18**	**40**	**36**	**320000**	**220**	**43**	**160**
Residential SAL[c]				**30**	**5.6**	**37**	**33**	**750**	**170**	**17**	**86**
RE21-07-74568	21-27242	0.0–0.5	Soil	0.0407	— [d]	—	0.561	0.01487	—	—	—
RE21-07-74569	21-27243	0.0–0.5	Soil	—	—	—	0.303	0.0366	—	—	—
RE21-07-74570	21-27246	0.0–0.5	Soil	0.0802	—	—	0.934	—	—	—	—
RE21-07-74571	21-27245	0.0–0.5	Soil	1.86	—	0.329	56.6	—	12.3	0.589	8.96
RE21-07-74572	21-27244	0.0–0.5	Soil	—	—	—	0.893	—	—	—	—
RE21-07-74573	21-27249	0.0–0.5	Soil	0.0949	—	—	1.7	—	—	—	—
RE21-07-74574	21-27248	0.0–0.5	Soil	0.1	—	—	2.54	0.0169	—	—	—
RE21-07-74575	21-27247	0.0–0.5	Soil	—	—	—	6.66	0.0289	—	—	—
RE21-07-74583	21-27243	2.0–3.0	Soil	—	—	—	0.111	—	—	—	—
RE21-07-74584	21-27250	0.0–0.5	Soil	0.135	—	—	2.52	0.0178	—	—	—
RE21-07-74586	21-27251	0.0–0.5	Soil	0.191	—	—	4.23	—	—	—	—
RE21-07-74588	21-27252	0.0–0.5	Soil	—	—	—	0.393	—	—	—	—
RE21-07-74592	21-27254	0.0–0.5	Soil	—	—	—	0.0988	—	—	—	—
RE21-07-74594	21-27255	0.0–0.5	Soil	—	—	—	0.3	—	—	—	—
RE21-07-74618	21-27260	0.0–0.5	Soil	0.133	—	—	4.03	0.00589	—	—	—
RE21-07-74627	21-27263	3.0–4.0	Soil	—	—	—	0.12 (J-)	0.108	—	—	—
RE21-07-74628	21-27263	5.0–6.0	Soil	—	—	—	—	0.0451	—	—	—

Table 6.4-18 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cesium-137	Plutonium-238	Plutonium-239	Tritium	Uranium-234	Uranium-235	Uranium-238
Soil FV/BV [a]				**0.013**	**1.65**	**0.023**	**0.054**	**na [b]**	**2.59**	**0.2**	**2.29**
Industrial SAL[c]				**180**	**23**	**240**	**210**	**440000**	**1500**	**87**	**430**
Construction Worker SAL[c]				**34**	**18**	**40**	**36**	**320000**	**220**	**43**	**160**
Residential SAL[c]				**30**	**5.6**	**37**	**33**	**750**	**170**	**17**	**86**
RE21-07-74629	21-27264	4.0–5.0	Soil	—	—	—	0.0581 (J-)	0.0454	3.54	—	—
RE21-07-74630	21-27264	6.0–7.0	Soil	—	—	—	—	0.0493	—	—	—
RE21-07-74631	21-27265	4.25–5.25	Soil	0.393	—	0.0265 (J-)	3.03 (J-)	—	2.96	—	—
RE21-07-74633	21-27266	4.5–5.5	Soil	0.221	—	0.0208	2.03	—	3.41	0.232	2.45
RE21-07-74635	21-27267	5.0–6.0	Soil	—	0.0814	—	0.379	—	—	—	—
RE21-07-74637	21-27268	3.75–4.75	Soil	—	—	—	0.262	—	—	—	—
RE21-07-74639	21-27269	1.25–2.25	Soil	0.169	0.231	—	2.85	—	6.28	0.335	4.83
RE21-07-74641	21-27270	2.0–3.0	Soil	0.0857	0.227	—	0.612	0.0189	—	—	—
RE21-07-74642	21-27270	4.0–5.0	Soil	0.0313	0.179	—	0.207	0.0249	—	—	—
RE21-07-74643	21-27271	6.0–7.0	Soil	—	—	—	0.111	—	—	—	—
RE21-07-74645	21-27272	6.0–7.0	Soil	—	—	—	0.153	—	—	—	—

Note: Units are pCi/g.

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

[b] na = Not available.

[c] SALs from LANL (2005, 088493).

[d] — = Not detected.

Table 6.4-19
Radionuclides Detected or Detected above BVs/FVs in Tuff at SWMU 21-024(e)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cesium-137	Plutonium-239	Strontium-90	Tritium	Uranium-234	Uranium-235	Uranium-238
Qbt 2,3,4 FV/BV [a]				**na[b]**	**na**	**na**	**na**	**na**	**1.98**	**0.09**	**1.93**
Industrial SAL[c]				**180**	**23**	**210**	**1900**	**440000**	**1500**	**87**	**430**
Construction Worker SAL[c]				**34**	**18**	**36**	**800**	**320000**	**220**	**43**	**160**
Residential SAL[c]				**30**	**5.6**	**33**	**5.7**	**750**	**170**	**17**	**86**
RE21-07-74576	21-27249	2.0–3.0	Tuff	— [d]	—	0.0484	—	—	—	—	—
RE21-07-74578	21-27247	2.0–3.0	Tuff	—	—	0.12	—	—	—	—	—
RE21-07-74579	21-27248	2.0–3.0	Tuff	0.0242	—	1.26	—	—	—	—	—
RE21-07-74580	21-27245	2.0–3.0	Tuff	0.105	—	2.52	—	—	—	—	—
RE21-07-74581	21-27246	2.0–3.0	Tuff	—	—	—	—	0.0274	—	—	—
RE21-07-74582	21-27242	2.0–3.0	Tuff	—	—	0.0643	—	0.0386	—	—	—
RE21-07-74585	21-27250	2.0–2.5	Tuff	—	0.158	0.437	0.111	0.0109	—	—	—
RE21-07-74587	21-27251	2.0–2.5	Tuff	—	—	0.15	—	0.0143	—	—	—
RE21-07-74589	21-27252	2.0–2.5	Tuff	—	0.0856	—	—	—	—	—	—
RE21-07-74591	21-27253	1.0–1.5	Tuff	—	—	0.0457	—	0.00713	—	—	—
RE21-07-74593	21-27254	2.0–2.5	Tuff	—	0.207	0.0449	—	0.0158	—	—	—
RE21-07-74615	21-27259	10.0–11.0	Tuff	—	—	0.0416	—	—	—	—	—
RE21-07-74619	21-27260	2.0–3.0	Tuff	0.0749	—	1.51	—	—	—	0.103	—
RE21-07-74620	21-27260	5.0–6.0	Tuff	—	—	0.333	—	—	—	—	—
RE21-07-74632	21-27265	6.25–7.25	Tuff	—	—	0.112 (J-)	—	—	—	—	—
RE21-07-74634	21-27266	6.5–7.5	Tuff	—	—	0.279	—	—	—	—	—
RE21-07-74636	21-27267	7.0–8.0	Tuff	—	—	0.0524	—	0.0239	—	—	—

Table 6.4-19 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cesium-137	Plutonium-239	Strontium-90	Tritium	Uranium-234	Uranium-235	Uranium-238
Qbt 2,3,4 FV/BV [a]				**na[b]**	**na**	**na**	**na**	**na**	**1.98**	**0.09**	**1.93**
Industrial SAL[c]				**180**	**23**	**210**	**1900**	**440000**	**1500**	**87**	**430**
Construction Worker SAL[c]				**34**	**18**	**36**	**800**	**320000**	**220**	**43**	**160**
Residential SAL[c]				**30**	**5.6**	**33**	**5.7**	**750**	**170**	**17**	**86**
RE21-07-74638	21-27268	5.75–6.75	Tuff	—	—	0.0987	—	—	—	0.102	—
RE21-07-74640	21-27269	3.25–4.25	Tuff	0.0904	—	0.633	—	—	3.26	0.22	3.12
RE21-07-74644	21-27271	8.0–9.0	Tuff	—	—	—	—	0.0164	—	—	—
RE21-07-74646	21-27272	9.0–10.0	Tuff	—	—	0.0249	—	—	—	—	—

Note: Units are pCi/g.

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

[b] na = Not available.

[c] SALs from LANL (2005, 088493).

[d] — = Not detected or not detected above BV.

Table 6.4-20
Inorganic Chemicals above BVs in Soil at SWMU 21-024(g)

Sample ID	Location ID	Depth (ft)	Media	Cadmium	Chromium	Copper	Cyanide (Total)	Lead	Mercury	Nitrate	Perchlorate	Selenium	Sodium	Uranium	Zinc
Soil BV [a]				**0.4**	**19.3**	**14.7**	**0.5**	**22.3**	**0.1**	**na [b]**	**na**	**1.52**	**915**	**1.82**	**48.8**
Industrial SSL[c]				**564**	**5000 [d]**	**45400**	**13700**	**800**	**610 [d]**	**100000**	**790 [d]**	**5680**	**na**	**200 [e]**	**100000**
Construction Worker SSL[c]				**154**	**26.1**	**12400**	**4760**	**800**	**927**	**100000**	**na**	**1550**	**na**	**na**	**92900**
Residential SSL[c]				**39**	**2100 [d]**	**3130**	**1220**	**400**	**23 [d]**	**100000**	**55 [d]**	**391**	**na**	**16 [e]**	**23500**
RE21-07-75871	21-27592	0.0–0.5	Soil	0.541 (U)	— [f]	—	—	—	—	—	—	—	—	—	—
RE21-07-75873	21-27593	0.0–0.5	Soil	0.506 (U)	—	—	—	—	—	—	—	—	—	—	—
RE21-07-75875	21-27594	0.0–0.5	Soil	—	—	—	0.844	—	0.139	—	—	—	—	2.43	69.9
RE21-07-75876	21-27594	2.0–2.5	Soil	0.556 (U)	—	—	—	—	—	—	0.00062 (J-)	—	—	—	57.8
RE21-07-75877	21-27595	0.0–0.5	Soil	0.807	—	23.1	1.25	37.7	0.786	3.26	—	—	—	5.79	156
RE21-07-75879	21-27596	0.0–0.5	Soil	0.537 (U)	—	—	—	22.5	—	—	—	—	—	—	—
RE21-07-75881	21-27597	0.0–0.5	Soil	0.609 (U)	—	—	—	23	—	1.66	—	—	—	2	—
RE21-07-75883	21-27598	0.0–0.5	Soil	1.14	—	25.4	1.17	35.1	1.14	3.58	—	—	—	6.83	221
RE21-07-75884	21-27598	2.0–2.5	Soil	0.803	—	16.2	0.685	—	0.525	1.94	—	1.69 (U)	—	4.37	181
RE21-07-75885	21-27599	0.0–0.5	Soil	0.571 (U)	—	—	—	28.1	—	—	—	1.71 (U)	—	—	—
RE21-07-75887	21-27600	0.0–0.5	Soil	0.591 (U)	—	—	—	—	—	—	—	1.77 (U)	—	—	—
RE21-07-75889	21-27601	0.0–0.5	Soil	0.563 (U)	—	—	—	36.2	—	0.865 (J)	0.000745 (J-)	—	937	2	65.2
RE21-07-75891	21-27602	0.0–0.5	Soil	0.554 (U)	—	—	—	—	—	0.962 (J)	—	—	—	—	—
RE21-07-75893	21-27603	0.0–0.5	Soil	0.543 (U)	—	—	—	—	—	0.88 (J)	—	—	—	—	—
RE21-07-75894	21-27603	2.0–2.5	Soil	0.522 (U)	—	—	—	—	—	—	—	—	—	—	—
RE21-07-75895	21-27604	0.0–0.5	Soil	0.57 (U)	—	—	—	—	—	—	—	1.71 (U)	—	—	110
RE21-07-75896	21-27604	2.0–2.5	Soil	0.543 (U)	—	—	—	—	—	—	—	1.63 (U)	—	—	—
RE21-07-75911	21-27606	0.0–1.0	Soil	0.561 (U)	—	—	—	—	—	1.15	—	1.68 (U)	—	—	57.5

Table 6.4-20 (continued)

Sample ID	Location ID	Depth (ft)	Media	Cadmium	Chromium	Copper	Cyanide (Total)	Lead	Mercury	Nitrate	Perchlorate	Selenium	Sodium	Uranium	Zinc
Soil BV [a]				**0.4**	**19.3**	**14.7**	**0.5**	**22.3**	**0.1**	**na [b]**	**na**	**1.52**	**915**	**1.82**	**48.8**
Industrial SSL[c]				**564**	**5000[d]**	**45400**	**13700**	**800**	**610 [d]**	**100000**	**790 [d]**	**5680**	**na**	**200 [e]**	**100000**
Construction Worker SSL[c]				**154**	**26.1**	**12400**	**4760**	**800**	**927**	**100000**	**na**	**1550**	**na**	**na**	**92900**
Residential SSL[c]				**39**	**2100 [d]**	**3130**	**1220**	**400**	**23 [d]**	**100000**	**55 [d]**	**391**	**na**	**16 [e]**	**23500**
RE21-07-75912	21-27606	5.0–6.0	Soil	0.54 (U)	31.6	—	—	—	—	1.63	—	1.62 (U)	—	—	53.6
RE21-07-75914	21-27607	0.0–1.0	Soil	0.533 (U)	—	—	—	—	—	1.44	—	1.6 (U)	—	—	—
RE21-07-75917	21-27608	0.0–0.5	Soil	0.537 (U)	—	—	—	—	—	1.56	—	1.61 (U)	—	—	—
RE21-07-75920	21-27609	3.2–4.2	Soil	0.597 (U)	—	—	—	—	—	—	—	1.79 (U)	—	16.6	64.5
RE21-07-75923	21-27610	0.0–0.5	Soil	0.574 (U)	—	—	—	—	—	—	—	1.72 (U)	—	—	—
RE21-07-75926	21-27611	0.0–0.5	Soil	0.532 (U)	—	—	—	35	—	1.26	—	1.6 (U)	—	—	86.1
RE21-07-75929	21-27612	0.0–0.5	Soil	0.576 (U)	—	—	—	—	—	—	—	1.73 (U)	—	—	60.6
RE21-07-75931	21-27613	0.0–0.5	Soil	0.619 (U)	—	—	—	24.5	—	—	—	—	—	—	80.3
RE21-07-75932	21-27613	2.0–2.5	Soil	0.606 (U)	—	—	—	—	—	—	—	1.82 (U)	—	—	—
RE21-07-75937	21-27616	0.0–0.5	Soil	0.565 (U)	—	—	—	—	—	—	—	1.7 (U)	—	6.25	—
RE21-07-75973	21-27626	0.0–0.5	Soil	0.549 (U)	—	—	—	—	—	4.6	—	16.5 (U)	—	—	—
RE21-07-75979	21-27628	0.0–0.5	Soil	0.537 (U)	—	—	—	—	—	2.77	—	16.1 (U)	—	—	51.7
RE21-07-75981	21-27629	0.0–0.5	Soil	—	—	—	—	—	—	4.15	—	17.1 (U)	—	—	—
RE21-07-75983	21-27630	0.0–0.5	Soil	—	—	—	—	—	—	1.79	—	17.1 (U)	—	1.84	—

Note: Units are mg/kg.

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

[b] na = Not available.

[c] SSLs from NMED (2006, 092513).

[d] Value from EPA Region 6 (2007, 095866).

[e] Value from EPA Region 9 (http://www.epa.gov/region9/waste/sfund/prg/files/04prgtable.pdf).

[f] — = Not detected or not detected above BV.

Table 6.4-21
Inorganic Chemicals above BVs in Tuff at SWMU 21-024(g)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Magnesium	Mercury	Nickel	Nitrate	Perchlorate	Selenium	Uranium	Vanadium	Zinc
Qbt 2,3,4 BV[a]				**7340**	**0.5**	**2.79**	**46**	**1.21**	**1.63**	**2200**	**7.14**	**3.14**	**4.66**	**14500**	**11.2**	**1690**	**0.1**	**6.58**	**na [b]**	**na**	**0.3**	**2.4**	**17**	**63.5**
Industrial SSL[c]				**100000**	**454**	**17.7**	**100000**	**2250**	**564**	**na**	**5000 [d]**	**20500**	**45400**	**100000**	**800**	**na**	**610 [d]**	**22700**	**100000**	**790[d]**	**5680**	**200 [e]**	**1140**	**100000**
Construction Worker SSL[c]				**14400**	**124**	**85.2**	**60200**	**56.2**	**154**	**na**	**26.1**	**61**	**12400**	**92900**	**800**	**na**	**927**	**6190**	**100000**	**na**	**1550**	**na**	**310**	**92900**
Residential SSL[c]				**77800**	**31.3**	**3.9**	**15600**	**156**	**39**	**na**	**2100 [d]**	**1520**	**3130**	**23500**	**400**	**na**	**23 [d]**	**1560**	**100000**	**55 [d]**	**391**	**16 [e]**	**78.2**	**23500**
RE21-07-75872	21-27592	2.0–2.5	Tuff	— [f]	—	—	—	—	—	—	18.7	—	—	—	—	—	—	—	—	—	1.59 (U)	—	—	—
RE21-07-75874	21-27593	2.0–2.5	Tuff	—	—	3.34	53.5	—	—	—	—	—	4.82	—	17.2	—	—	—	1.16	—	1.66 (U)	—	—	—
RE21-07-75878	21-27595	2.0–2.5	Tuff	—	—	6.22	—	—	—	2240 (J+)	11.7	—	11.4	—	12.1	—	0.249	—	1.42	—	1.75 (U)	2.55	—	131
RE21-07-75880	21-27596	2.0–2.5	Tuff	—	—	—	—	—	—	—	11.6	—	—	—	13	—	—	—	—	—	1.53 (U)	—	—	—
RE21-07-75882	21-27597	2.0–2.5	Tuff	10800 (J+)	—	—	—	—	—	—	23.7	—	—	—	16.1	—	—	—	—	—	0.757 (J)	—	—	—
RE21-07-75886	21-27599	2.0–2.5	Tuff	—	—	—	—	—	—	—	37.5	—	—	—	12.1	—	—	—	—	—	1.63 (U)	—	—	—
RE21-07-75888	21-27600	2.0–2.5	Tuff	—	—	—	—	—	—	—	19.2	—	—	—	—	—	—	—	—	—	1.63 (U)	—	—	—
RE21-07-75890	21-27601	2.0–2.5	Tuff	15000 (J+)	—	3.98	130	—	—	—	10.6	—	7.51	—	20.8	2070	—	—	0.612 (J)	0.00138 (J-)	1.82 (U)	—	21.3	—
RE21-07-75892	21-27602	2.0–2.5	Tuff	10900 (J+)	—	3.49	73.8	—	—	2290	—	—	—	—	—	—	—	—	0.609 (J)	—	1.59 (U)	—	—	—
RE21-07-75897	21-27605	0.0–0.5	Tuff	—	—	—	—	—	—	—	8.36	—	—	—	—	—	—	—	0.604 (J)	—	1.66 (U)	—	—	—
RE21-07-75898	21-27605	2.0–2.5	Tuff	—	—	—	—	—	—	—	11.9	—	—	—	—	—	—	—	—	—	1.61 (U)	—	—	—
RE21-07-75913	21-27606	10.0–11.0	Tuff	—	—	—	—	—	—	—	15.2	—	—	—	—	—	—	—	1.29	—	1.59 (U)	—	—	—
RE21-07-75915	21-27607	5.0–6.0	Tuff	—	—	—	—	—	—	—	12.4	—	—	—	—	—	—	—	1.24	—	1.58 (U)	—	—	—
RE21-07-75916	21-27607	10.0–11.0	Tuff	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.14	0.00119 (J+)	1.44 (U)	—	—	—
RE21-07-75918	21-27608	2.0–3.0	Tuff	—	—	6.93	—	—	—	—	11	—	—	—	—	—	—	—	—	—	1.66 (U)	—	—	—
RE21-07-75919	21-27608	5.0–6.0	Tuff	—	—	5.21	—	—	—	—	13.8	—	4.67	—	—	—	0.13	—	—	—	1.6 (U)	—	—	—
RE21-07-75921	21-27609	8.2–9.2	Tuff	—	—	—	—	—	—	—	28.3	—	—	—	—	—	—	—	—	—	1.61 (U)	—	—	—
RE21-07-75922	21-27609	13.2–14.2	Tuff	—	—	—	—	—	—	4600	—	—	—	—	—	—	—	—	1.32	—	1.66 (U)	—	—	—
RE21-07-75924	21-27610	5.0–6.0	Tuff	—	—	—	—	—	—	—	7.79	—	—	—	—	—	—	—	—	—	1.66 (U)	—	—	—
RE21-07-75925	21-27610	10.0–11.0	Tuff	—	—	—	—	—	—	—	45.6	—	—	—	—	—	—	—	—	—	1.63 (U)	—	—	—
RE21-07-75927	21-27611	2.0–3.0	Tuff	—	—	—	50.4	—	—	—	12.3	—	6.81	—	27.5	—	—	—	—	—	1.66 (U)	—	—	—
RE21-07-75928	21-27611	5.0–6.0	Tuff	—	—	—	—	—	—	—	7.15	—	—	—	17.9	—	—	—	1.69	—	1.61 (U)	—	—	—
RE21-07-75930	21-27612	2.0–2.5	Tuff	—	—	—	—	—	—	—	—	—	—	—	20.3	—	—	—	—	—	1.55 (U)	—	—	—
RE21-07-75933	21-27614	1.8–2.8	Tuff	—	—	—	—	—	—	—	—	—	—	—	41.9 (J+)	—	—	—	1.21	—	1.85 (U)	2.89	—	—
RE21-07-75934	21-27614	3.8–4.8	Tuff	—	0.511 (UJ)	—	—	—	—	—	26.2	—	—	—	109 (J+)	—	—	8.75	—	—	1.84 (U)	4.23	—	—
RE21-07-75935	21-27615	2.5–3.5	Tuff	—	—	—	—	—	—	—	—	—	—	—	—	—	0.109	—	—	—	1.04 (J)	4.73	—	—
RE21-07-75936	21-27615	4.5–5.5	Tuff	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.71 (U)	2.45	—	—
RE21-07-75938	21-27616	2.0–3.0	Tuff	—	—	—	—	—	—	—	21.4	—	—	—	—	—	—	—	—	—	1.75 (U)	3.02	—	—
RE21-07-75939	21-27617	0.0–1.0	Tuff	—	—	—	—	—	—	—	10.2	5.49	—	—	—	—	—	—	—	—	1.71 (U)	—	—	—

Table 6.4-21 (continued)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Magnesium	Mercury	Nickel	Nitrate	Perchlorate	Selenium	Uranium	Vanadium	Zinc
Qbt 2,3,4 BV[a]				**7340**	**0.5**	**2.79**	**46**	**1.21**	**1.63**	**2200**	**7.14**	**3.14**	**4.66**	**14500**	**11.2**	**1690**	**0.1**	**6.58**	**na [b]**	**na**	**0.3**	**2.4**	**17**	**63.5**
Industrial SSL[c]				**100000**	**454**	**17.7**	**100000**	**2250**	**564**	**na**	**5000 [d]**	**20500**	**45400**	**100000**	**800**	**na**	**610 [d]**	**22700**	**100000**	**790 [d]**	**5680**	**200 [e]**	**1140**	**100000**
Construction Worker SSL[c]				**14400**	**124**	**85.2**	**60200**	**56.2**	**154**	**na**	**26.1**	**61**	**12400**	**92900**	**800**	**na**	**927**	**6190**	**100000**	**na**	**1550**	**na**	**310**	**92900**
Residential SSL[c]				**77800**	**31.3**	**3.9**	**15600**	**156**	**39**	**na**	**2100 [d]**	**1520**	**3130**	**23500**	**400**	**na**	**23 [d]**	**1560**	**100000**	**55 [d]**	**391**	**16 [e]**	**78.2**	**23500**
RE21-07-75940	21-27617	2.0–3.0	Tuff	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.81 (U)	—	—	—
RE21-07-75941	21-27618	0.0–1.0	Tuff	—	—	—	—	—	—	—	24	—	—	—	—	—	—	—	0.922(J)	—	1.67 (U)	—	—	—
RE21-07-75942	21-27618	2.0–3.0	Tuff	—	—	—	—	—	—	—	16.8	—	—	—	—	—	—	—	—	—	1.59 (U)	—	—	—
RE21-07-75943	21-27619	4.0–5.0	Tuff	—	—	—	—	—	0.585 (U)	—	—	—	—	—	—	—	—	—	—	—	1.75 (U)	—	—	—
RE21-07-75944	21-27619	6.0–7.0	Tuff	—	—	—	—	—	—	8450 (J-)	—	—	—	—	—	—	—	—	1.12	—	1.64 (U)	—	—	—
RE21-07-75945	21-27620	4.6–5.6	Tuff	—	—	3.47	—	—	—	—	—	—	—	—	20.9 (J)	—	—	—	—	—	1.74 (U)	—	—	—
RE21-07-75946	21-27620	6.6–7.6	Tuff	8670 (J+)	0.548 (U)	10.8	79	1.44	—	2580 (J+)	13.4 (J)	—	5.19	—	32.5 (J)	—	—	—	—	—	2.08 (U)	—	—	—
RE21-07-75947	21-27621	3.6–4.6	Tuff	—	—	2.85	—	—	—	—	12.9 (J)	—	—	—	—	—	—	—	—	—	1.71 (U)	—	—	—
RE21-07-75948	21-27621	5.6–6.6	Tuff	—	—	—	—	—	—	—	10.8 (J)	—	—	—	—	—	—	—	—	—	1.68 (U)	—	—	—
RE21-07-75949	21-27622	4.0–5.0	Tuff	8440	—	3.89	96	1.41 (J)	3.05 (U)	6570	14.5	—	7.32	25800 (J+)	16.8	1940 (J+)	0.392	11.1	1.39	—	9.14 (U)	—	—	—
RE21-07-75950	21-27622	6.0–7.0	Tuff	—	—	—	—	—	—	—	11.7	—	—	—	—	—	—	—	1.6	—	0.658 (J)	—	—	—
RE21-07-75951	21-27623	4.0–5.0	Tuff	—	—	—	54.3	—	—	—	11.8	—	—	—	—	—	—	—	2.19	—	1 (J)	—	—	—
RE21-07-75952	21-27623	6.0–7.0	Tuff	—	—	—	—	—	—	3260 (J-)	—	—	—	—	—	—	—	—	1.38	—	1.66 (U)	—	—	—
RE21-07-75970	21-27625	0.0–0.5	Tuff	—	—	3.88	67.6	—	—	—	—	—	—	—	—	—	—	—	1.88	—	16.9 (U)	—	—	—
RE21-07-75971	21-27625	5.0–6.0	Tuff	—	—	4.35	55.9	—	—	2500	11	—	5.39	—	—	—	—	—	—	0.00248	15.6 (U)	—	—	—
RE21-07-75972	21-27625	10.0–11.0	Tuff	—	—	—	—	—	—	—	26.4	—	—	—	—	—	—	—	—	0.000838 (J)	1.52 (U)	—	—	—
RE21-07-75974	21-27626	5.0–6.0	Tuff	—	—	—	—	—	—	—	28.8	—	—	—	—	—	—	—	1.36	—	15.4 (U)	—	—	—
RE21-07-75975	21-27626	10.0–11.0	Tuff	—	—	—	—	—	—	—	18.3	—	—	—	—	—	—	—	1.28	—	15 (U)	—	—	—
RE21-07-75976	21-27627	10.0–11.0	Tuff	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.93	—	0.641 (J)	—	—	—
RE21-07-75977	21-27627	15.0–16.0	Tuff	—	—	—	—	—	—	—	—	—	—	—	15.7	—	—	—	2.44	—	1.52 (U)	—	—	—
RE21-07-75978	21-27627	20.0–21.0	Tuff	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.84	—	1.5 (U)	—	—	—
RE21-07-75980	21-27628	2.0–3.0	Tuff	—	—	—	—	—	—	—	20.8	—	—	—	—	—	—	—	—	—	1.77 (U)	—	—	—
RE21-07-75982	21-27629	2.0–3.0	Tuff	—	—	3.4	65.8	—	—	—	8.43	—	—	—	—	—	—	—	1.24	—	16.9 (U)	—	—	—
RE21-07-75984	21-27630	2.0–3.0	Tuff	—	—	—	—	—	—	—	21.2	—	—	—	—	—	—	—	—	—	1.74 (U)	—	—	—

Note: Units are mg/kg.

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

[b] na = Not available.

[c] SSLs from NMED (2006, 092513).

[d] Value from EPA Region 6 (2007, 095866).

[e] Value from EPA Region 9 (http://www.epa.gov/region9/waste/sfund/prg/files/04prgtable.pdf).

[f] — = Not detected or not detected above BV.

Table 6.4-22
Organic Chemicals Detected in Soil at SWMU 21-024(g)

Sample ID	Location ID	Depth (ft)	Media	Acenaphthene	Acenaphthylene	Acetone	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Bis(2-ethylhexyl)phthalate	Chrysene
Industrial SSL[a]				**33500**	**30900[b]**	**100000**	**100000**	**23.4**	**2.34**	**23.4**	**30900[b]**	**234**	**1370**	**2310**
Construction Worker SSL[a]				**14100**	**9010[b]**	**98500**	**86000**	**212**	**21.2**	**212**	**9010[b]**	**2120**	**4660**	**21200**
Residential SSL[a]				**3730**	**2290[b]**	**28100**	**22000**	**6.21**	**0.621**	**6.21**	**2290[b]**	**62.1**	**347**	**615**
RE21-07-75875	21-27594	0.0–0.5	Soil	—[c]	—	NA[d]	—	—	—	0.0141 (J)	—	—	—	—
RE21-07-75879	21-27596	0.0–0.5	Soil	—	—	NA	—	—	—	—	—	—	—	—
RE21-07-75881	21-27597	0.0–0.5	Soil	—	—	NA	—	0.0239 (J)	0.0213 (J)	0.0457	—	—	—	0.0292 (J)
RE21-07-75883	21-27598	0.0–0.5	Soil	—	—	NA	—	—	—	—	—	—	—	—
RE21-07-75884	21-27598	2.0–2.5	Soil	—	—	—	—	—	—	0.0207 (J)	—	—	—	—
RE21-07-75885	21-27599	0.0–0.5	Soil	—	—	NA	—	—	—	—	—	—	—	0.0203 (J)
RE21-07-75887	21-27600	0.0–0.5	Soil	—	—	NA	—	—	0.0409 (J)	0.0547 (J)	—	—	—	0.0458
RE21-07-75889	21-27601	0.0–0.5	Soil	—	—	NA	—	—	—	—	—	—	—	0.0289 (J)
RE21-07-75891	21-27602	0.0–0.5	Soil	—	—	NA	—	—	—	—	—	—	—	—
RE21-07-75893	21-27603	0.0–0.5	Soil	—	—	NA	—	—	—	0.0405	—	0.0191 (J)	—	0.0295 (J)
RE21-07-75895	21-27604	0.0–0.5	Soil	—	—	NA	—	—	—	—	—	—	—	—
RE21-07-75912	21-27606	5.0–6.0	Soil	—	0.0265 (J)	—	0.0409	0.82	2.17	3.53 (J)	2.49	—	0.0863 (J)	—
RE21-07-75914	21-27607	0.0–1.0	Soil	—	—	NA	—	0.0196 (J)	—	—	—	0.0446	—	0.0267 (J)
RE21-07-75923	21-27610	0.0–0.5	Soil	—	—	0.0846	—	—	—	—	—	—	—	—
RE21-07-75926	21-27611	0.0–0.5	Soil	—	—	NA	0.0157 (J)	0.14	—	0.36 (J)	0.0975 (J)	—	0.11 (J)	0.17
RE21-07-75929	21-27612	0.0–0.5	Soil	—	—	NA	—	—	—	—	—	—	—	0.0322 (J)
RE21-07-75931	21-27613	0.0–0.5	Soil	0.0369 (J)	—	NA	0.0551	0.227	0.222 (J)	0.401 (J)	0.127 (J)	—	—	0.255
RE21-07-75937	21-27616	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	—
RE21-07-75943	21-27619	0.0–1.0	Soil	—	—	—	—	—	—	—	—	—	—	—
RE21-07-75973	21-27626	0.0–0.5	Soil	—	—	NA	—	—	—	—	—	—	—	—
RE21-07-75979	21-27628	0.0–0.5	Soil	—	—	NA	—	—	—	0.186 (J)	—	—	—	—
RE21-07-75981	21-27629	0.0–0.5	Soil	—	—	NA	—	0.0374 (J)	—	0.24 (J)	—	—	—	0.0521
RE21-07-75983	21-27630	0.0–0.5	Soil	—	—	NA	0.0116 (J)	—	—	—	—	0.0251 (J)	—	0.0209 (J)

Table 6.4-22 (continued)

Sample ID	Location ID	Depth (ft)	Media	Ethylbenzene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Isopropyltoluene[4-]	Methylnaphthalene[2-]	Naphthalene	Phenanthrene	Pyrene	Toluene	Xylene[1,3-]+Xylene[1,4-]
Industrial SSL[a]				**128**	**24400**	**26500**	**23.4**	**389 [e]**	**300 [f]**	**300**	**20500**	**30900**	**252**	**82**
Construction Worker SSL[a]				**128**	**8730**	**10200**	**212**	**389 [e]**	**262 [f]**	**262**	**6990**	**9010**	**252**	**82**
Residential SSL[a]				**128**	**2290**	**2660**	**6.21**	**271 [e]**	**79.5 [f]**	**79.5**	**1830**	**2290**	**252**	**82**
RE21-07-75875	21-27594	0.0–0.5	Soil	NA	0.0142 (J)	—	—	NA	—	—	—	—	NA	NA
RE21-07-75879	21-27596	0.0–0.5	Soil	NA	0.0267 (J)	—	—	NA	—	—	—	0.0319 (J)	NA	NA
RE21-07-75881	21-27597	0.0–0.5	Soil	NA	0.0436	—	—	NA	—	—	—	0.038 (J)	NA	NA
RE21-07-75883	21-27598	0.0–0.5	Soil	NA	0.0205 (J)	—	—	NA	—	—	—	0.0173 (J)	NA	NA
RE21-07-75884	21-27598	2.0–2.5	Soil	0.000265 (J)	0.0145 (J)	—	—	—	—	—	—	—	0.00329	0.000319 (J)
RE21-07-75885	21-27599	0.0–0.5	Soil	NA	0.0194 (J)	—	—	NA	—	—	—	0.0263 (J)	NA	NA
RE21-07-75887	21-27600	0.0–0.5	Soil	NA	0.0703	—	—	NA	—	—	0.0342 (J)	0.0984	NA	NA
RE21-07-75889	21-27601	0.0–0.5	Soil	NA	0.0392	—	—	NA	—	—	0.0276 (J)	0.0594	NA	NA
RE21-07-75891	21-27602	0.0–0.5	Soil	NA	0.0115 (J)	—	—	NA	—	—	—	—	NA	NA
RE21-07-75893	21-27603	0.0–0.5	Soil	NA	0.0439	—	—	NA	—	—	0.0221 (J)	0.0398	NA	NA
RE21-07-75895	21-27604	0.0–0.5	Soil	NA	0.0139 (J)	—	—	NA	—	—	—	—	NA	NA
RE21-07-75912	21-27606	5.0–6.0	Soil	—	0.0628	—	1.7 (J)	—	—	—	0.0126 (J)	0.382	0.000409 (J)	—
RE21-07-75914	21-27607	0.0–1.0	Soil	NA	0.0253 (J)	—	—	NA	—	—	0.0117 (J)	0.0325 (J)	NA	NA
RE21-07-75923	21-27610	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	0.000478 (J)	—
RE21-07-75926	21-27611	0.0–0.5	Soil	NA	0.222	—	—	NA	—	—	0.0856	0.288	NA	NA
RE21-07-75929	21-27612	0.0–0.5	Soil	NA	0.0499	—	—	NA	—	—	0.0312 (J)	0.0711	NA	NA
RE21-07-75931	21-27613	0.0–0.5	Soil	NA	0.52	0.041 (J)	0.104 (J)	NA	0.029 (J)	0.0435	0.403	0.633	NA	NA
RE21-07-75937	21-27616	0.0–0.5	Soil	—	—	—	—	0.00038 (J)	—	—	—	—	0.000804 (J)	—
RE21-07-75943	21-27619	0.0–1.0	Soil	—	—	—	—	—	—	—	—	—	0.00127	—
RE21-07-75973	21-27626	0.0–0.5	Soil	NA	0.0252 (J)	—	—	NA	—	—	—	0.0243 (J)	NA	NA
RE21-07-75979	21-27628	0.0–0.5	Soil	NA	0.0265 (J)	—	—	NA	—	—	0.0131 (J)	0.0321 (J)	NA	NA
RE21-07-75981	21-27629	0.0–0.5	Soil	NA	0.0503	—	—	NA	—	—	0.0195 (J)	0.0482	NA	NA
RE21-07-75983	21-27630	0.0–0.5	Soil	NA	0.0245 (J)	—	—	NA	—	—	—	0.0265 (J)	NA	NA

Note: Units are mg/kg.

[a] SSLs from NMED (2006, 092513).

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

[c] — = Not detected.

[d] NA = Not analyzed.

[e] Isopropylbenzene used as a surrogate based on structural similarity.

[f] Naphthalene used as a surrogate based on structural similarity.

Table 6.4-23
Organic Chemicals Detected in Tuff at SWMU 21-024(g)

Sample ID	Location ID	Depth (ft)	Media	Acetone	Anthracene	Aroclor-1254	Aroclor-1260	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Benzoic Acid	Bis(2-ethylhexyl)phthalate	Chloroform
Industrial SSL[a]				**100000**	**100000**	**8.26**	**8.26**	**23.4**	**2.34**	**23.4**	**30900[b]**	**234**	**100000[c]**	**1370**	**9.59**
Construction Worker SSL[a]				**98500**	**86000**	**4.28**	**4.28**	**212**	**21.2**	**212**	**9010[b]**	**2120**	**na[d]**	**4660**	**216**
Residential SSL[a]				**28100**	**22000**	**1.12**	**1.12**	**6.21**	**0.621**	**6.21**	**2290[b]**	**62.1**	**100000[c]**	**347**	**4**
RE21-07-582	21-27596	2.0–3.0	Tuff	NA[e]	NA	0.0025 (J)	0.0022 (J)	NA	NA	NA	NA	NA	NA	NA	NA
RE21-07-75874	21-27593	2.0–2.5	Tuff	—[f]	—	NA	NA	—	—	—	—	—	0.224 (J)	—	—
RE21-07-75878	21-27595	2.0–2.5	Tuff	—	—	NA	NA	—	—	—	—	—	—	—	—
RE21-07-75890	21-27601	2.0–2.5	Tuff	—	—	NA	NA	—	—	—	—	—	—	—	—
RE21-07-75892	21-27602	2.0–2.5	Tuff	—	—	NA	NA	—	—	—	—	—	—	—	—
RE21-07-75897	21-27605	0.0–0.5	Tuff	NA	—	NA	NA	—	—	—	—	—	—	—	NA
RE21-07-75913	21-27606	10.0–11.0	Tuff	—	—	NA	NA	—	0.241	—	0.22	0.242	—	—	—
RE21-07-75922	21-27609	13.2–14.2	Tuff	0.00541 (J)	—	NA	NA	—	—	—	—	—	—	—	—
RE21-07-75924	21-27610	5.0–6.0	Tuff	0.0501	—	NA	NA	—	—	—	—	—	—	0.136 (J)	—
RE21-07-75925	21-27610	10.0–11.0	Tuff	—	—	NA	NA	—	—	—	—	—	—	0.0754 (J)	—
RE21-07-75927	21-27611	2.0–3.0	Tuff	—	—	NA	NA	—	—	—	—	—	—	0.0779 (J)	—
RE21-07-75928	21-27611	5.0–6.0	Tuff	—	—	NA	NA	—	—	—	—	—	—	0.0784 (J)	—
RE21-07-75930	21-27612	2.0–2.5	Tuff	—	—	NA	NA	—	—	—	—	—	—	—	—
RE21-07-75938	21-27616	2.0–3.0	Tuff	—	—	NA	NA	—	—	0.0703 (J)	—	—	—	—	—
RE21-07-75939	21-27617	0.0–1.0	Tuff	—	—	NA	NA	—	—	—	—	—	—	—	—
RE21-07-75941	21-27618	0.0–1.0	Tuff	0.00392 (J)	—	NA	NA	—	—	—	—	—	—	—	—
RE21-07-75942	21-27618	2.0–3.0	Tuff	—	—	NA	NA	—	—	—	—	—	—	—	—
RE21-07-75944	21-27619	6.0–7.0	Tuff	—	—	NA	NA	—	—	—	—	—	—	—	0.000233 (J)
RE21-07-75945	21-27620	4.6–5.6	Tuff	—	—	NA	NA	—	—	—	—	—	—	—	—
RE21-07-75948	21-27621	5.6–6.6	Tuff	0.00308 (J)	—	NA	NA	—	—	—	—	—	—	—	—
RE21-07-75949	21-27622	4.0–5.0	Tuff	0.0033 (J)	0.105	NA	NA	0.502	0.359	0.813	0.22 (J)	—	—	—	—
RE21-07-75951	21-27623	4.0–5.0	Tuff	0.00479 (J)	—	NA	NA	—	—	0.0129 (J)	—	—	—	—	—
RE21-07-75982	21-27629	2.0–3.0	Tuff	—	—	NA	NA	—	—	—	—	0.0202 (J)	—	—	—

Table 6.4-23 (continued)

Sample ID	Location ID	Depth (ft)	Media	Chrysene	Di-n-butylphthalate	Fluoranthene	Heptachlorodibenzodioxin [1,2,3,4,6,7,8-]	Heptachlorodibenzofuran [1,2,3,4,6,7,8-]	Indeno(1,2,3-cd)pyrene	Isopropyltoluene[4-]	Octachlorodibenzodioxin [1,2,3,4,6,7,8,9-]	Octachlorodibenzofuran [1,2,3,4,6,7,8,9-]	Phenanthrene	Pyrene	Toluene
Industrial SSL[a]				**2310**	**68400**	**24400**	**na [f]**	**na**	**23.4**	**389 [g]**	**na**	**na**	**20500**	**30900**	**252**
Construction Worker SSL[a]				**21200**	**23300**	**8730**	**na**	**na**	**212**	**389 [g]**	**na**	**na**	**6990**	**9010**	**252**
Residential SSL[a]				**615**	**6110**	**2290**	**na**	**na**	**6.21**	**271 [g]**	**na**	**na**	**1830**	**2290**	**252**
RE21-07-582	21-27596	2.0–3.0	Tuff	NA	NA	NA	0.0000013 (J)	0.000000546 (J)	NA	NA	8.79E-06	0.000000714 (J)	NA	NA	NA
RE21-07-75874	21-27593	2.0–2.5	Tuff	—	—	0.0487	NA	NA	—	—	NA	NA	-	0.0565	-
RE21-07-75878	21-27595	2.0–2.5	Tuff	—	—	—	NA	NA	—	0.00205 (J)	NA	NA	-	-	0.00273
RE21-07-75890	21-27601	2.0–2.5	Tuff	—	—	0.0128 (J)	NA	NA	—	—	NA	NA	-	0.0164 (J)	-
RE21-07-75892	21-27602	2.0–2.5	Tuff	—	—	—	NA	NA	—	—	NA	NA	-	-	0.000408 (J)
RE21-07-75897	21-27605	0.0–0.5	Tuff	—	0.327 (J)	—	NA	NA	—	NA	NA	NA	-	-	NA
RE21-07-75913	21-27606	10.0–11.0	Tuff	—	—	—	NA	NA	—	—	NA	NA	-	0.0181 (J)	-
RE21-07-75922	21-27609	13.2–14.2	Tuff	—	—	—	NA	NA	—	—	NA	NA	-	-	-
RE21-07-75924	21-27610	5.0–6.0	Tuff	—	—	—	NA	NA	—	—	NA	NA	-	-	-
RE21-07-75925	21-27610	10.0–11.0	Tuff	—	—	—	NA	NA	—	—	NA	NA	-	-	-
RE21-07-75927	21-27611	2.0–3.0	Tuff	—	—	0.0194 (J)	NA	NA	—	—	NA	NA	0.0151 (J)	0.0253 (J)	-
RE21-07-75928	21-27611	5.0–6.0	Tuff	0.0167 (J)	—	0.022 (J)	NA	NA	—	—	NA	NA	0.011 (J)	0.033 (J)	-
RE21-07-75930	21-27612	2.0–2.5	Tuff	—	—	0.0111 (J)	NA	NA	—	—	NA	NA	-	0.0132 (J)	-
RE21-07-75938	21-27616	2.0–3.0	Tuff	0.0489 (J)	—	0.0973 (J)	NA	NA	—	—	NA	NA	0.0588 (J)	0.124 (J)	0.000425 (J)
RE21-07-75939	21-27617	0.0–1.0	Tuff	—	—	—	NA	NA	—	—	NA	NA	-	-	0.000563 (J)
RE21-07-75941	21-27618	0.0–1.0	Tuff	—	—	—	NA	NA	—	—	NA	NA	-	-	0.00101 (J)
RE21-07-75942	21-27618	2.0–3.0	Tuff	—	—	—	NA	NA	—	—	NA	NA	-	-	0.00101 (J)
RE21-07-75944	21-27619	6.0–7.0	Tuff	—	—	—	NA	NA	—	—	NA	NA	-	-	-
RE21-07-75945	21-27620	4.6–5.6	Tuff	0.0132 (J)	—	0.0214 (J)	NA	NA	—	—	NA	NA	-	0.0204 (J)	-
RE21-07-75948	21-27621	5.6–6.6	Tuff	—	—	—	NA	NA	—	—	NA	NA	-	-	-
RE21-07-75949	21-27622	4.0–5.0	Tuff	0.62	—	1.47	NA	NA	0.204 (J)	—	NA	NA	0.36	0.964	0.00184
RE21-07-75951	21-27623	4.0–5.0	Tuff	—	—	0.0195 (J)	NA	NA	—	—	NA	NA	-	0.0144 (J)	-
RE21-07-75982	21-27629	2.0–3.0	Tuff	—	—	—	NA	NA	—	—	NA	NA	-	-	-

Note: Units are mg/kg.

[a] SSLs from NMED (2006, 092513).

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

[c] Value from EPA Region 6 (2007, 095866).

[d] na = Not available.

[e] NA = Not analyzed.

[f] — = Not detected.

[g] Isopropylbenzene value used as surrogate based on structural similarity.

Table 6.4-24
Radionuclides Detected or Detected above BVs/FVs in Soil at SWMU 21-024(g)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cesium-137	Plutonium-238	Plutonium-239	Tritium	Uranium-234	Uranium-235	Uranium-238
Soil BV/FV [a]				**0.013**	**1.65**	**0.023**	**0.054**	**na [b]**	**2.59**	**0.2**	**2.29**
Industrial SAL[c]				**180**	**23**	**240**	**210**	**440000**	**1500**	**87**	**430**
Construction Worker SAL[c]				**34**	**18**	**40**	**36**	**320000**	**220**	**43**	**160**
Residential SAL[c]				**30**	**5.6**	**37**	**33**	**750**	**170**	**17**	**86**
RE21-07-75871	21-27592	0.0–0.5	Soil	—[d]	—	—	0.268	—	—	—	—
RE21-07-75873	21-27593	0.0–0.5	Soil	—	—	—	0.136	0.00847	—	—	—
RE21-07-75875	21-27594	0.0–0.5	Soil	0.0881	—	—	1.18	—	—	—	—
RE21-07-75876	21-27594	2.0–2.5	Soil	—	0.17	—	0.205	0.0249	—	—	—
RE21-07-75877	21-27595	0.0–0.5	Soil	0.146	—	0.0439	3.92	0.199	—	—	—
RE21-07-75879	21-27596	0.0–0.5	Soil	0.0475	—	—	1.2	—	—	—	—
RE21-07-75881	21-27597	0.0–0.5	Soil	—	—	—	1.87	—	—	—	—
RE21-07-75883	21-27598	0.0–0.5	Soil	0.181	—	0.0327	3.79	0.159	3.71	—	3.32
RE21-07-75884	21-27598	2.0–2.5	Soil	0.0766	0.608	—	1.5	0.114	2.74	—	2.58
RE21-07-75885	21-27599	0.0–0.5	Soil	0.0612	—	—	0.887	0.0282	—	—	—
RE21-07-75887	21-27600	0.0–0.5	Soil	0.0301	—	—	0.176	—	—	—	—
RE21-07-75889	21-27601	0.0–0.5	Soil	0.0697	—	—	1.18	0.036	—	—	—
RE21-07-75891	21-27602	0.0–0.5	Soil	—	—	—	0.36	0.0616	—	—	—
RE21-07-75893	21-27603	0.0–0.5	Soil	—	—	—	0.235	0.0253	—	—	—
RE21-07-75894	21-27603	2.0–2.5	Soil	—	—	—	0.162	0.0243	—	—	—
RE21-07-75895	21-27604	0.0–0.5	Soil	0.0335	—	—	0.341	—	—	—	—
RE21-07-75896	21-27604	2.0–2.5	Soil	—	—	—	0.205	0.027562	—	—	—
RE21-07-75911	21-27606	0.0–1.0	Soil	—	0.135	—	0.179	—	—	—	—

Table 6.4-24 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cesium-137	Plutonium-238	Plutonium-239	Tritium	Uranium-234	Uranium-235	Uranium-238
Soil BV/FV[a]				**0.013**	**1.65**	**0.023**	**0.054**	**na[b]**	**2.59**	**0.2**	**2.29**
Industrial SSL[c]				**180**	**23**	**240**	**210**	**440000**	**1500**	**87**	**430**
Construction Worker SSL[c]				**34**	**18**	**40**	**36**	**320000**	**220**	**43**	**160**
Residential SSL[c]				**30**	**5.6**	**37**	**33**	**750**	**170**	**17**	**86**
RE21-07-75912	21-27606	5.0–6.0	Soil	—	—	—	0.348	—	—	—	—
RE21-07-75914	21-27607	0.0–1.0	Soil	—	0.192	—	0.524	—	—	—	—
RE21-07-75917	21-27608	0.0–0.5	Soil	—	—	—	0.356	—	—	—	—
RE21-07-75920	21-27609	3.2–4.2	Soil	—	—	—	0.0941	—	4.43	0.256	4.31
RE21-07-75923	21-27610	0.0–0.5	Soil	—	—	—	1.58	—	—	—	—
RE21-07-75926	21-27611	0.0–0.5	Soil	—	—	—	0.202	—	—	—	—
RE21-07-75929	21-27612	0.0–0.5	Soil	0.0501	—	—	0.127	—	—	—	—
RE21-07-75931	21-27613	0.0–0.5	Soil	—	—	—	0.178	—	—	—	—
RE21-07-75932	21-27613	2.0–2.5	Soil	—	—	—	0.0865	0.0385	—	—	—
RE21-07-75937	21-27616	0.0–0.5	Soil	—	—	—	—	—	2.99	0.23	3.15
RE21-07-75943	21-27619	0.0–1.0	Soil	—	0.105	—	0.12 (J+)	—	—	—	—
RE21-07-75973	21-27626	0.0–0.5	Soil	—	—	—	0.141	—	—	—	—
RE21-07-75979	21-27628	0.0–0.5	Soil	—	—	—	0.188	—	—	—	—
RE21-07-75981	21-27629	0.0–0.5	Soil	—	—	—	0.395	—	—	—	—
RE21-07-75983	21-27630	0.0–0.5	Soil	0.0493	—	—	0.601	—	—	—	—

Note: Units are pCi/g.

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

[b] na = Not available.

[c] SALs from LANL (2005, 088493).

[d] — = Not detected or not detected above BV.

Table 6.4-25
Radionuclides Detected or Detected above BVs/FVs in Tuff at SWMU 21-024(g)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cesium-137	Plutonium-239	Tritium	Uranium-234	Uranium-235	Uranium-238
Qbt 2,3,4 BV/FV [a]				**na [b]**	**na**	**na**	**na**	**1.98**	**0.09**	**1.93**
Industrial SAL[c]				**180**	**23**	**210**	**440000**	**1500**	**87**	**430**
Construction Worker SAL[c]				**34**	**18**	**36**	**320000**	**220**	**43**	**160**
Residential SAL[c]				**30**	**5.6**	**33**	**750**	**170**	**17**	**86**
RE21-07-75872	21-27592	2.0–2.5	Tuff	— [d]	—	—	0.0431	—	—	—
RE21-07-75874	21-27593	2.0–2.5	Tuff	0.0818	0.679	0.709	0.0276	—	—	—
RE21-07-75878	21-27595	2.0–2.5	Tuff	—	0.307	0.526	0.126	—	—	—
RE21-07-75880	21-27596	2.0–2.5	Tuff	—	0.111	0.236	0.0111	—	—	—
RE21-07-75882	21-27597	2.0–2.5	Tuff	—	—	0.0214	0.0367	—	—	—
RE21-07-75886	21-27599	2.0–2.5	Tuff	—	—	0.11	0.0201	—	—	—
RE21-07-75888	21-27600	2.0–2.5	Tuff	—	—	0.0504	—	—	0.0919	—
RE21-07-75890	21-27601	2.0–2.5	Tuff	0.0509	—	1.41	—	—	—	—
RE21-07-75892	21-27602	2.0–2.5	Tuff	—	—	0.182	0.0223	—	—	—
RE21-07-75897	21-27605	0.0–0.5	Tuff	—	—	0.0452	—	—	—	—
RE21-07-75898	21-27605	2.0–2.5	Tuff	—	—	—	0.0230	—	—	—
RE21-07-75913	21-27606	10.0–11.0	Tuff	—	—	1.72	0.0636	—	—	—
RE21-07-75915	21-27607	5.0–6.0	Tuff	—	—	—	0.0218	—	—	—
RE21-07-75916	21-27607	10.0–11.0	Tuff	—	—	—	0.00283	—	—	—
RE21-07-75919	21-27608	5.0–6.0	Tuff	—	—	0.131	—	—	0.0961	—
RE21-07-75921	21-27609	8.2–9.2	Tuff	—	—	—	—	—	0.122	—
RE21-07-75922	21-27609	13.2–14.2	Tuff	—	—	0.0365	0.196	—	—	—
RE21-07-75924	21-27610	5.0–6.0	Tuff	—	—	0.0515	—	—	—	—

Table 6.4-25 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cesium-137	Plutonium-239	Tritium	Uranium-234	Uranium-235	Uranium-238
Qbt 2,3,4 BV/FV[a]				**na[b]**	**na**	**na**	**na**	**1.98**	**0.09**	**1.93**
Industrial SSL[c]				**180**	**23**	**210**	**440000**	**1500**	**87**	**430**
Construction Worker SSL[c]				**34**	**18**	**36**	**320000**	**220**	**43**	**160**
Residential SSL[c]				**30**	**5.6**	**33**	**750**	**170**	**17**	**86**
RE21-07-75925	21-27610	10.0–11.0	Tuff	—	—	0.0317	0.0233	—	—	—
RE21-07-75927	21-27611	2.0–3.0	Tuff	—	0.0858	0.477	—	—	—	—
RE21-07-75928	21-27611	5.0–6.0	Tuff	—	—	0.106	—	—	—	—
RE21-07-75930	21-27612	2.0–2.5	Tuff	—	—	0.0806	0.0146	—	—	—
RE21-07-75933	21-27614	1.8–2.8	Tuff	—	—	—	—	—	0.162	—
RE21-07-75934	21-27614	3.8–4.8	Tuff	—	—	—	0.0413	2.56	0.176	2.76
RE21-07-75935	21-27615	2.5–3.5	Tuff	—	—	—	0.0352	2.22	0.167	2.17
RE21-07-75938	21-27616	2.0–3.0	Tuff	—	—	—	—	—	0.161	1.97
RE21-07-75939	21-27617	0.0–1.0	Tuff	—	—	0.0911 (J+)	—	2.22	0.109	2.21
RE21-07-75940	21-27617	2.0–3.0	Tuff	—	—	0.0496 (J+)	—	—	—	—
RE21-07-75941	21-27618	0.0–1.0	Tuff	—	—	—	0.0577	—	—	—
RE21-07-75942	21-27618	2.0–3.0	Tuff	—	—	—	0.0547	—	—	—
RE21-07-75945	21-27620	4.6–5.6	Tuff	—	—	0.198 (J+)	—	—	—	—
RE21-07-75947	21-27621	3.6–4.6	Tuff	—	—	0.162 (J+)	—	—	0.109	—
RE21-07-75949	21-27622	4.0–5.0	Tuff	—	—	0.0587	0.101	—	—	—
RE21-07-75950	21-27622	6.0–7.0	Tuff	—	—	—	0.0783	—	—	—
RE21-07-75970	21-27625	0.0–0.5	Tuff	—	—	0.106	—	—	—	—
RE21-07-75971	21-27625	5.0–6.0	Tuff	—	—	0.0573	0.0507	—	—	—
RE21-07-75972	21-27625	10.0–11.0	Tuff	—	—	—	0.00633	—	—	—
RE21-07-75974	21-27626	5.0–6.0	Tuff	—	—	—	0.00948	—	—	—

Table 6.4-25 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cesium-137	Plutonium-239	Tritium	Uranium-234	Uranium-235	Uranium-238
Qbt 2,3,4 BV/FV[a]				**na[b]**	**na**	**na**	**na**	**1.98**	**0.09**	**1.93**
Industrial SSL[c]				**180**	**23**	**210**	**440000**	**1500**	**87**	**430**
Construction Worker SSL[c]				**34**	**18**	**36**	**320000**	**220**	**43**	**160**
Residential SSL[c]				**30**	**5.6**	**33**	**750**	**170**	**17**	**86**
RE21-07-75975	21-27626	10.0–11.0	Tuff	—	—	0.0475	—	—	—	—
RE21-07-75976	21-27627	10.0–11.0	Tuff	—	—	—	0.577	—	—	—
RE21-07-75977	21-27627	15.0–16.0	Tuff	—	—	—	0.0125	—	—	—
RE21-07-75978	21-27627	20.0–21.0	Tuff	—	—	—	0.0488	—	—	—
RE21-07-75982	21-27629	2.0–3.0	Tuff	—	—	0.045	—	—	—	—

Note: Units are pCi/g.

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

[b] na = Not available.

[c] SALs from LANL (2005, 088493).

[d] — = Not detected or not detected above BV.

Table 6.4-26
Inorganic Chemicals above BVs in Soil at Consolidated Unit 21-024(l)-99

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Barium	Cadmium	Calcium	Chromium	Copper	Iron	Lead	Lithium	Magnesium	Mercury	Nitrate	Perchlorate	Potassium	Selenium	Uranium	Vanadium	Zinc
Soil BV [a]				**29200**	**295**	**0.4**	**6120**	**19.3**	**14.7**	**21500**	**22.3**	**na [b]**	**4610**	**0.1**	**na**	**na**	**3460**	**1.52**	**1.82**	**39.6**	**48.8**
Industrial SSL [c]				**100000**	**100000**	**564**	**na**	**5000 [d]**	**45400**	**100000**	**800**	**23000 [d]**	**na**	**610 [d]**	**100000**	**790 [d]**	**na**	**5680**	**200 [e]**	**1140**	**100000**
Construction Worker SSL [c]				**14400**	**60200**	**154**	**na**	**26.1**	**12400**	**92900**	**800**	**na**	**na**	**927**	**100000**	**na**	**na**	**1550**	**na**	**310**	**92900**
Residential SSL [c]				**77800**	**15600**	**39**	**na**	**2100 [d]**	**3130**	**23500**	**400**	**1600 [d]**	**na**	**23 [d]**	**100000**	**55 [d]**	**na**	**391**	**16 [e]**	**78.2**	**23500**
RE21-07-75339	21-27439	0.0–0.5	Soil	— [f]	—	—	—	—	—	—	—	13.6	—	—	—	0.00144 (J+)	—	1.55 (U)	—	—	—
RE21-07-75340	21-27439	3.5–4.0	Soil	—	—	—	—	—	—	—	225 (J)	13.7	—	0.179	6.1 (J-)	0.00492 (J+)	—	—	—	—	50 (J)
RE21-07-75341	21-27439	5.0–5.5	Soil	46800 (J+)	—	2.74 (U)	—	24.9 (J)	—	27900	24.2 (J)	16.2	5470	—	2.12 (J-)	0.0057 (J+)	4300	8.22 (U)	—	50	61.6 (J)
RE21-07-75342	21-27440	3.5–4.0	Soil	—	—	—	—	—	—	—	—	12.1	—	—	—	0.00199 (J+)	—	—	—	—	—
RE21-07-75343	21-27440	5.0–5.5	Soil	—	—	0.519 (U)	—	—	—	—	—	3.98	—	—	—	0.000626 (J+)	—	1.56 (U)	—	—	—
RE21-07-75344	21-27441	3.5–4.0	Soil	—	—	0.526 (U)	—	—	—	—	—	10	—	—	0.864 (J-)	0.00632 (J+)	—	1.58 (U)	—	—	—
RE21-07-75345	21-27441	5.0–5.5	Soil	—	—	0.549 (U)	—	—	—	—	—	3.52	—	—	—	—	—	1.65 (U)	—	—	—
RE21-07-75346	21-27442	3.5–4.0	Soil	—	—	0.536 (U)	—	—	—	—	—	12.2	—	0.628	—	0.00325 (J+)	—	—	—	—	—
RE21-07-75347	21-27442	5.0–5.5	Soil	—	—	0.501 (U)	—	—	—	—	—	7.25	—	—	2.76 (J-)	0.00307 (J+)	—	—	—	—	—
RE21-07-75348	21-27443	3.5–4.0	Soil	—	—	0.522 (U)	—	—	—	—	—	11.7	—	—	0.694 (J-)	0.00244 (J+)	—	—	—	—	—
RE21-07-75349	21-27443	5.5–6.0	Soil	—	—	0.544 (U)	—	—	—	—	42.1 (J)	14	—	—	—	0.00273 (J+)	—	1.63 (U)	—	—	—
RE21-07-75622	21-27516	2.0–3.0	Soil	—	—	0.526 (U)	—	—	—	—	—	11.6	—	—	—	0.00131 (J)	—	—	—	—	—
RE21-07-75625	21-27517	0.0–0.5	Soil	—	—	0.545 (U)	—	—	—	—	35	10.5	—	—	—	—	—	—	—	—	75
RE21-07-75626	21-27517	2.0–2.5	Soil	—	—	0.549 (U)	—	—	—	—	53.8	12.4	—	0.192	—	—	—	—	—	—	104
RE21-07-75627	21-27518	0.0–0.5	Soil	—	—	0.565 (U)	—	—	—	—	—	12.6	—	—	1.58	—	—	—	—	—	—
RE21-07-75628	21-27518	2.0–2.5	Soil	—	—	0.539 (U)	—	—	—	—	—	5.29	—	—	0.996 (J)	—	—	—	—	—	—
RE21-07-75629	21-27519	0.0–0.5	Soil	—	—	0.562 (U)	—	—	—	—	—	13.2	—	—	1.13	—	—	—	—	—	—
RE21-07-75630	21-27519	2.0–2.5	Soil	—	—	0.572 (U)	—	—	—	—	—	14.4	—	—	1.21	—	—	—	—	—	—
RE21-07-75631	21-27520	2.0–3.0	Soil	—	—	0.55 (U)	—	—	32.7	—	45.3	9.45 (J+)	—	—	1.34	—	—	—	—	—	108
RE21-07-75632	21-27520	4.0–5.0	Soil	—	—	0.618 (U)	—	—	—	—	—	17.8 (J+)	—	—	1.58	—	—	—	—	—	53.5
RE21-07-75633	21-27521	2.5–3.5	Soil	—	—	0.549 (U)	—	—	—	—	—	10.3 (J+)	—	—	1.5 (J-)	—	—	—	—	—	53.9
RE21-07-75634	21-27521	4.5–5.5	Soil	—	—	0.523 (U)	—	—	—	—	—	7.72 (J+)	—	—	1.26 (J-)	—	—	1.79	—	—	384
RE21-07-75635	21-27522	5.0–6.0	Soil	—	342	0.703	—	—	—	—	41.1	12 (J+)	—	—	—	0.000609 (J)	—	1.74	—	—	949
RE21-07-75637	21-27523	3.0–4.0	Soil	—	—	0.556 (U)	—	—	—	—	53.6 (J)	11.8 (J+)	—	—	1.53	0.000948 (J)	—	1.53 (J)	—	—	59.2 (J)
RE21-07-75638	21-27523	5.0–6.0	Soil	—	—	0.563 (U)	—	—	—	—	—	9.67 (J+)	—	—	—	0.00119 (J)	—	—	—	—	—
RE21-07-75639	21-27524	2.0–3.0	Soil	—	—	0.578 (U)	—	—	36.4	—	312	10.9 (J+)	—	—	1.06	—	—	—	—	—	192
RE21-07-75640	21-27524	4.0–5.0	Soil	—	—	0.562 (U)	6130	—	30.9	—	—	10.8 (J+)	—	—	1.15	—	—	—	—	—	—
RE21-07-75643	21-27526	4.0–5.0	Soil	—	—	0.553 (U)	—	—	—	—	970 (J)	10.5 (J+)	—	—	—	—	—	—	—	—	56.3 (J)
RE21-07-75663	21-27530	0.0–0.5	Soil	—	—	—	—	—	—	—	—	10.9 (J+)	—	—	—	—	—	—	—	—	74.2 (J)

Table 6.4-26 (continued)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Barium	Cadmium	Calcium	Chromium	Copper	Iron	Lead	Lithium	Magnesium	Mercury	Nitrate	Perchlorate	Potassium	Selenium	Uranium	Vanadium	Zinc
Soil BV [a]				**29200**	**295**	**0.4**	**6120**	**19.3**	**14.7**	**21500**	**22.3**	**na [b]**	**4610**	**0.1**	**na**	**na**	**3460**	**1.52**	**1.82**	**39.6**	**48.8**
Industrial SSL [c]				**100000**	**100000**	**564**	**na**	**5000 [d]**	**45400**	**100000**	**800**	**23000 [d]**	**na**	**610 [d]**	**100000**	**790 [d]**	**na**	**5680**	**200 [e]**	**1140**	**100000**
Construction Worker SSL [c]				**14400**	**60200**	**154**	**na**	**26.1**	**12400**	**92900**	**800**	**na**	**na**	**927**	**100000**	**na**	**na**	**1550**	**na**	**310**	**92900**
Residential SSL [c]				**77800**	**15600**	**39**	**na**	**2100 [d]**	**3130**	**23500**	**400**	**1600 [d]**	**na**	**23 [d]**	**100000**	**55 [d]**	**na**	**391**	**16 [e]**	**78.2**	**23500**
RE21-07-75664	21-27530	2.0–3.0	Soil	—	—	0.537 (U)	—	—	—	—	—	7.49 (J+)	—	—	1.19	—	—	—	—	—	115 (J)
RE21-07-75665	21-27530	5.0–6.0	Soil	—	—	0.55 (U)	—	—	—	—	—	10.1 (J+)	—	—	1.3	0.0012 (J)	—	—	—	—	65.7 (J)
RE21-07-75674	21-27534	0.0–0.5	Soil	—	—	0.449 (J)	9590	—	—	—	—	11.6 (J+)	—	—	2.02	—	—	—	—	—	91.5
RE21-07-75675	21-27534	2.0–3.0	Soil	—	—	0.527 (U)	—	—	—	—	—	7.1 (J+)	—	—	1.25	0.000867 (J-)	—	1.58 (U)	—	—	—
RE21-07-75676	21-27535	0.0–0.5	Soil	—	—	0.486 (U)	—	—	—	—	—	8.7 (J+)	—	—	1.65	0.00154 (J-)	—	—	—	—	53.2
RE21-07-75677	21-27535	2.0–3.0	Soil	—	—	0.54 (U)	—	—	—	—	—	10.5 (J+)	—	—	1.26	—	—	—	—	—	—
RE21-07-75678	21-27536	0.0–0.5	Soil	—	—	0.526 (U)	—	—	—	—	—	15.3 (J+)	—	—	1.57	0.000823 (J-)	—	—	—	—	—
RE21-07-75680	21-27537	0.0–0.5	Soil	—	—	0.531 (U)	—	—	—	—	—	9.64 (J+)	—	—	2.27	0.000628 (J-)	—	—	—	—	—
RE21-07-75682	21-27538	0.0–0.5	Soil	—	—	0.55 (U)	—	—	—	—	24.6	11.3 (J+)	—	—	—	—	—	—	—	—	—
RE21-07-75683	21-27538	2.0–3.0	Soil	—	—	0.518 (U)	—	—	—	—	—	13.5 (J+)	—	—	—	0.00128 (J-)	—	1.59	—	—	—
RE21-07-75684	21-27539	2.0–3.0	Soil	—	—	0.542 (U)	—	—	—	—	—	11 (J+)	—	—	—	—	—	—	—	—	—
RE21-07-75686	21-27540	0.0–0.5	Soil	—	—	0.546 (U)	—	—	—	—	22.8	9.5 (J+)	—	—	—	—	—	—	—	—	77.4
RE21-07-75687	21-27540	2.0–3.0	Soil	—	—	0.511 (U)	—	—	—	—	—	12 (J+)	—	—	—	—	—	—	—	—	—
RE21-07-75690	21-27542	0.0–0.5	Soil	—	—	0.551 (U)	—	—	—	—	—	12.7 (J+)	—	—	2.21	—	—	—	—	—	—
RE21-07-75692	21-27543	0.0–0.5	Soil	—	—	0.531 (U)	—	—	—	—	38	10.6 (J+)	—	—	—	—	—	—	2.03	—	—
RE21-07-75696	21-27545	3.0–4.0	Soil	—	—	0.991	9710 (J)	—	—	—	488 (J)	12.8 (J+)	—	—	1.51	—	—	1.67 (U)	—	—	552 (J)
RE21-07-75698	21-27546	1.0–2.0	Soil	—	—	0.546 (U)	—	—	—	—	34.3 (J)	12.4 (J+)	—	—	1.31	—	—	—	—	—	84.9 (J)
RE21-07-75699	21-27546	4.0–5.0	Soil	—	—	0.549 (U)	—	—	—	—	34.3 (J)	13.4 (J+)	—	—	—	0.000731 (J)	—	—	—	—	92.4 (J)
RE21-07-75700	21-27547	0.5–1.5	Soil	—	—	0.526 (U)	—	—	—	—	—	11.6 (J+)	—	—	1.28	—	—	—	—	—	—
RE21-07-75701	21-27547	2.5–3.5	Soil	—	—	0.566 (U)	6370 (J)	—	—	—	—	11.9 (J+)	—	—	1.43	—	—	1.59 (J)	—	—	—

Note: Units are mg/kg.

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

[b] na = Not available.

[c] SSLs from NMED (2006, 092513).

[d] Value from EPA Region 6 (2007, 095866).

[e] Value from EPA Region 9 (http://www.epa.gov/region9/waste/sfund/prg/files/04prgtable.pdf).

[f] — = Not detected or not detected above BV.

Table 6.4-27
Inorganic Chemicals above BVs in Tuff at Consolidated Unit 21-024(I)-99

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Arsenic	Barium	Calcium	Chromium	Cobalt	Copper	Lead	Lithium	Magnesium	Manganese	Nickel	Nitrate	Perchlorate	Selenium	Vanadium	Zinc
Qbt 2,3,4 BV [a]				**7340**	**2.79**	**46**	**2200**	**7.14**	**3.14**	**4.66**	**11.2**	**na [b]**	**1690**	**482**	**6.58**	**na**	**na**	**0.3**	**17**	**63.5**
Industrial SSL [c]				**100000**	**17.7**	**100000**	**na**	**5000 [d]**	**20500**	**45400**	**800**	**23000 [d]**	**na**	**48400**	**22700**	**100000**	**790 [d]**	**5680**	**1140**	**100000**
Construction Worker SSL [c]				**14400**	**85.2**	**60200**	**na**	**26.1 [d]**	**61**	**12400**	**800**	**na**	**na**	**150**	**6190**	**100000**	**na**	**1550**	**310**	**92900**
Residential SSL [c]				**77800**	**3.9**	**15600**	**na**	**2100 [d]**	**1520**	**3130**	**400**	**1600 [d]**	**na**	**3590**	**1560**	**100000**	**55 [d]**	**391**	**78.2**	**23500**
RE21-07-75616	21-27514	10.0–11.0	Tuff	— [e]	—	—	—	10.3	—	—	13 (J)	5.4 (J+)	—	—	—	—	—	1.19 (J)	—	—
RE21-07-75617	21-27514	15.0–16.0	Tuff	—	—	—	—	7.64	—	—	13.9 (J)	29.6 (J+)	—	—	—	1.41	—	0.935 (J)	—	—
RE21-07-75618	21-27514	20.0–21.0	Tuff	—	—	—	—	8.1	—	—	25.1 (J)	9.7 (J+)	—	—	—	3.8	—	0.953 (J)	—	—
RE21-07-75619	21-27515	10.0–11.0	Tuff	—	—	—	—	7.72	—	—	—	13	—	—	—	—	—	1.54 (U)	—	—
RE21-07-75620	21-27515	15.0–16.0	Tuff	—	—	—	—	—	—	—	—	14.7	—	—	—	2.2 (J-)	—	1.58 (U)	—	—
RE21-07-75621	21-27515	20.0–21.0	Tuff	—	—	—	—	7.38	—	—	—	6.61	—	—	—	—	—	1.59 (U)	—	—
RE21-07-75623	21-27516	4.0–5.0	Tuff	—	—	—	—	—	—	—	16.8	2.3	—	—	—	1.17 (J-)	—	1.57 (U)	—	—
RE21-07-75624	21-27516	6.0–7.0	Tuff	—	2.85	—	—	7.18	—	—	—	3.07	—	—	—	1.56 (J-)	—	1.58 (U)	—	—
RE21-07-75636	21-27522	7.0–8.0	Tuff	—	3.09	—	—	13.6	—	—	59.8	6.24 (J+)	—	—	—	1 (J-)	—	1.13 (J)	—	97
RE21-07-75641	21-27525	5.0–6.0	Tuff	8950	3.56	137	2800	7.53	3.43	6.74	23.5	12.4 (J+)	1720 (J+)	—	6.78	—	—	1.09 (J)	18.1	222
RE21-07-75642	21-27525	7.0–8.0	Tuff	—	3.09	66.4	—	—	—	—	11.4	11.2 (J+)	—	—	—	1.1 (J-)	—	1.21 (J)	—	227
RE21-07-75644	21-27526	6.0–7.0	Tuff	—	—	—	—	11.3	—	—	—	8.9 (J+)	—	—	—	1.38	—	1.64 (U)	—	—
RE21-07-75672	21-27533	0.0–0.5	Tuff	—	—	48.7	—	11.3	—	11.8	12	5.1 (J+)	—	—	—	1.72	—	1 (J)	—	—
RE21-07-75673	21-27533	2.0–3.0	Tuff	—	—	—	—	7.81	—	—	—	3.4 (J+)	—	—	—	—	—	0.764 (J)	—	—
RE21-07-75679	21-27536	2.0–3.0	Tuff	—	—	—	—	8.32	—	—	—	12.4 (J+)	—	—	—	—	—	0.669 (J)	—	—
RE21-07-75681	21-27537	2.0–3.0	Tuff	—	—	—	—	—	—	—	—	12.5 (J+)	—	—	—	1.12 (J)	—	1.7 (U)	—	—
RE21-07-75685	21-27539	5.0–6.0	Tuff	—	—	—	2940	15	4.03	6.9	23.6	13.6 (J+)	—	549	—	—	—	0.726 (J)	—	117
RE21-07-75691	21-27542	2.0–3.0	Tuff	—	—	—	—	12	—	—	—	3.7 (J+)	—	—	—	1.26	—	1.57 (U)	—	—
RE21-07-75693	21-27543	2.0–3.0	Tuff	—	—	51.4	—	13.6	—	4.96	—	8.6 (J+)	—	—	—	—	—	1.55 (U)	—	—
RE21-07-75694	21-27544	2.0–3.0	Tuff	8930	2.97	104	3540	7.97	4.03	7.64	11.7	12.9 (J+)	1850 (J+)	—	—	NA [f]	0.00106 (J-)	0.962 (J)	19.3	—
RE21-07-75695	21-27544	4.0–5.0	Tuff	—	—	—	—	16.8	—	—	—	14.3 (J+)	—	—	—	NA	—	1.56 (U)	—	—
RE21-07-75697	21-27545	5.0–6.0	Tuff	—	—	68.6 (J-)	2330 (J)	14.4	—	5.48	—	9.72 (J+)	—	—	—	1.57	—	1.67 (U)	—	—

Note: Units are mg/kg.

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

[b] na = Not available.

[c] SSLs from NMED (2006, 092513).

[d] Value from EPA Region 6 (2007, 095866).

[e] — = Not detected or not detected above BV.

[f] NA = Not analyzed.

Table 6.4-28
Organic Chemicals Detected in Soil at Consolidated Unit 21-024(l)-99

Sample ID	Location ID	Depth (ft)	Media	Acenaphthene	Acenaphthylene	Acetone	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Bis(2-ethylhexyl)phthalate	Chloroform	Chrysene
Industrial SSL[a]				**33500**	**30900[b]**	**100000**	**100000**	**23.4**	**2.34**	**23.4**	**30900[b]**	**234**	**1370**	**9.59**	**2310**
Construction Worker SSL[a]				**14100**	**9010[b]**	**98500**	**86000**	**212**	**21.2**	**212**	**9010[b]**	**2120**	**4660**	**216**	**21200**
Residential SSL[a]				**3730**	**2290[b]**	**28100**	**22000**	**6.21**	**0.621**	**6.21**	**2290[b]**	**62.1**	**347**	**4**	**615**
RE21-07-75339	21-27439	0.0–0.5	Soil	—[c]	—	—	—	—	0.0429 (J)	0.0163 (J)	—	—	—	—	0.0187 (J)
RE21-07-75340	21-27439	3.5–4.0	Soil	—	—	—	0.0172 (J)	—	0.0879	0.15	0.106	—	—	—	0.122
RE21-07-75341	21-27439	5.0–5.5	Soil	—	—	—	0.0142 (J)	—	0.0848 (J)	0.098 (J)	—	—	—	—	0.0732
RE21-07-75342	21-27440	3.5–4.0	Soil	—	—	—	0.00847 (J)	—	0.078	0.0681	—	0.0559	—	0.000215 (J)	0.0874
RE21-07-75343	21-27440	5.0–5.5	Soil	—	—	—	—	—	—	—	—	—	—	—	—
RE21-07-75344	21-27441	3.5–4.0	Soil	—	—	0.00613	0.00868 (J)	0.17	0.148	0.158	0.118	0.117	—	—	0.157
RE21-07-75346	21-27442	3.5–4.0	Soil	0.204	—	0.00532 (J)	0.382	1.47	0.995	1.61	0.449	0.591	—	—	1.48
RE21-07-75347	21-27442	5.0–5.5	Soil	—	—	—	—	—	—	—	—	—	—	—	—
RE21-07-75348	21-27443	3.5–4.0	Soil	—	—	0.00891	—	—	0.0514	0.0179 (J)	—	0.0403	—	—	0.0371
RE21-07-75349	21-27443	5.5–6.0	Soil	—	—	—	—	—	—	—	—	—	—	—	—
RE21-07-75622	21-27516	2.0–3.0	Soil	—	—	—	—	—	—	0.033 (J)	—	—	—	—	0.0202 (J)
RE21-07-75625	21-27517	0.0–0.5	Soil	—	—	NA[d]	0.00773 (J)	0.0621	0.0518 (J)	0.121 (J)	0.0381 (J)	—	—	NA	0.0684
RE21-07-75626	21-27517	2.0–2.5	Soil	—	—	—	0.0149 (J)	0.0746 (J)	0.0627 (J)	0.163 (J)	—	—	—	—	0.0831 (J)
RE21-07-75627	21-27518	0.0–0.5	Soil	—	—	NA	—	0.0249 (J)	0.031 (J)	0.0631	0.0246 (J)	—	—	NA	0.0278 (J)
RE21-07-75628	21-27518	2.0–2.5	Soil	—	—	—	—	—	—	—	—	—	—	—	—
RE21-07-75629	21-27519	0.0–0.5	Soil	—	—	NA	—	—	—	—	—	—	0.0876 (J)	NA	—
RE21-07-75630	21-27519	2.0–2.5	Soil	—	—	—	0.0104 (J)	—	0.0373 (J)	0.0761	0.0173 (J)	—	—	—	0.0496
RE21-07-75631	21-27520	2.0–3.0	Soil	0.833	—	—	1.37	3.2	2.99	3.92	1.24	1.8 (J)	—	—	3.24
RE21-07-75632	21-27520	4.0–5.0	Soil	0.102	—	—	0.217	0.598	0.577	0.713	0.318	—	—	—	0.529
RE21-07-75633	21-27521	2.5–3.5	Soil	1.02	—	—	1.49	3.19	3.12 (J)	4.8 (J)	1.29 (J)	—	—	—	3
RE21-07-75634	21-27521	4.5–5.5	Soil	—	—	0.35	0.0195 (J)	0.0517	0.0498	0.0758	0.0264 (J)	—	—	—	0.0581
RE21-07-75635	21-27522	5.0–6.0	Soil	0.0367 (J)	—	—	0.0494	0.158	0.162 (J)	0.279 (J)	0.0947 (J)	—	—	—	0.194
RE21-07-75637	21-27523	3.0–4.0	Soil	0.0535	—	—	0.0896	0.217	0.227	0.304	0.2 (J)	0.126	—	—	0.227
RE21-07-75638	21-27523	5.0–6.0	Soil	—	—	—	0.0201 (J)	—	0.0647 (J)	0.0868 (J)	0.145 (J)	0.0376 (J)	—	—	0.0679 (J)
RE21-07-75639	21-27524	2.0–3.0	Soil	0.0199 (J)	—	—	0.0342 (J)	0.106	0.168	0.228	0.0379 (J)	0.0721 (J)	—	—	0.101
RE21-07-75640	21-27524	4.0–5.0	Soil	0.0324 (J)	—	—	0.0551	0.163	0.217	0.337	0.0756	—	—	—	0.152

Table 6.4-28 (continued)

Sample ID	Location ID	Depth (ft)	Media	Acenaphthene	Acenaphthylene	Acetone	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Bis(2-ethylhexyl)phthalate	Chloroform	Chrysene
Industrial SSL[a]				**33500**	**30900[b]**	**100000**	**100000**	**23.4**	**2.34**	**23.4**	**30900 [b]**	**234**	**1370**	**9.59**	**2310**
Construction Worker SSL[a]				**14100**	**9010[b]**	**98500**	**86000**	**212**	**21.2**	**212**	**9010 [b]**	**2120**	**4660**	**216**	**21200**
Residential SSL[a]				**3730**	**2290[b]**	**28100**	**22000**	**6.21**	**0.621**	**6.21**	**2290 [b]**	**62.1**	**347**	**4**	**615**
RE21-07-75643	21-27526	4.0–5.0	Soil	0.293	—	—	0.509	1.59	1.69	2.57	0.797 (J)	0.898	—	—	1.78
RE21-07-75663	21-27530	0.0–0.5	Soil	0.0377	—	NA	0.0712	0.236	0.257	0.315	0.257 (J)	0.142	—	NA	0.242
RE21-07-75664	21-27530	2.0–3.0	Soil	0.0124 (J)	—	—	0.0227 (J)	—	0.0492	0.0689	—	0.0245 (J)	—	—	0.0466
RE21-07-75665	21-27530	5.0–6.0	Soil	1.51	—	—	2.38	3.88	3.92	4.6	2.11 (J)	1.8	—	—	3.76
RE21-07-75674	21-27534	0.0–0.5	Soil	0.143	—	NA	0.231	0.584	0.558	0.84	0.237 (J)	—	—	NA	0.584
RE21-07-75675	21-27534	2.0–3.0	Soil	—	—	—	0.00875 (J)	0.0427	0.0348 (J)	0.044	0.0249 (J)	0.0207 (J)	—	—	0.0319 (J)
RE21-07-75676	21-27535	0.0–0.5	Soil	0.0161 (J)	—	NA	0.0301 (J)	0.169	0.19	0.275	0.126 (J)	0.0947	—	NA	0.223
RE21-07-75677	21-27535	2.0–3.0	Soil	—	—	—	—	0.0146 (J)	—	0.0135 (J)	—	—	—	—	0.014 (J)
RE21-07-75678	21-27536	0.0–0.5	Soil	0.0429	—	NA	0.081	0.36	—	0.7	0.209	—	—	NA	0.37
RE21-07-75680	21-27537	0.0–0.5	Soil	0.0421	—	NA	0.0633	—	—	0.354	0.0894	—	—	NA	0.174
RE21-07-75682	21-27538	0.0–0.5	Soil	0.0186 (J)	—	NA	0.0568	0.267	0.0816	0.368	0.167 (J)	0.166	—	NA	0.307
RE21-07-75683	21-27538	2.0–3.0	Soil	—	—	—	—	—	—	—	—	—	—	—	—
RE21-07-75684	21-27539	2.0–3.0	Soil	—	—	—	—	—	0.0123 (J)	0.0165 (J)	—	—	—	—	—
RE21-07-75686	21-27540	0.0–0.5	Soil	0.0191 (J)	—	NA	0.0267 (J)	0.15	0.162	0.257	0.106 (J)	0.12	—	NA	0.193
RE21-07-75687	21-27540	2.0–3.0	Soil	—	—	—	—	0.0273 (J)	0.0257 (J)	0.0361	—	0.0124 (J)	—	—	0.0248 (J)
RE21-07-75690	21-27542	0.0–0.5	Soil	—	—	NA	—	0.0404	0.0355 (J)	0.0239 (J)	0.0227 (J)	0.0225 (J)	—	NA	0.0454
RE21-07-75692	21-27543	0.0–0.5	Soil	—	—	NA	0.00972 (J)	0.0555	0.0728	0.119	0.0438 (J)	—	—	NA	0.0846
RE21-07-75696	21-27545	3.0–4.0	Soil	0.357	0.0122 (J)	—	0.764	1.87 (J)	—	2.67 (J)	0.952 (J)	0.962 (J)	—	—	1.94 (J)
RE21-07-75698	21-27546	1.0–2.0	Soil	0.368	—	—	0.871	1.86 (J)	—	2.45 (J)	1.11 (J)	1.02 (J)	—	—	1.86 (J)
RE21-07-75699	21-27546	4.0–5.0	Soil	0.0242 (J)	—	—	0.0356 (J)	0.134 (J)	—	0.226 (J)	0.192 (J)	0.0805 (J)	—	—	0.166 (J)
RE21-07-75700	21-27547	0.5–1.5	Soil	0.186	—	—	0.378	1.13	—	1.66	0.704 (J)	0.532	—	—	1.22
RE21-07-75701	21-27547	2.5–3.5	Soil	0.167	—	—	0.552	0.637	—	0.731	0.417 (J)	0.321	—	—	0.607

Table 6.4-28 (continued)

Sample ID	Location ID	Depth (ft)	Media	Dibenzofuran	Dichlorobenzene[1,4-]	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Methylene Chloride	Methylnaphthalene[2-]	Naphthalene	Phenanthrene	Pyrene	Toluene	Xylene[1,3-]+Xylene[1,4-]
Industrial SSL[a]				**1620**	**103**	**24400**	**26500**	**23.4**	**490**	**300 [d]**	**300**	**20500**	**30900**	**252**	**82**
Construction Worker SSL[a]				**552**	**1960**	**8730**	**10200**	**212**	**2630**	**262 [d]**	**262**	**6990**	**9010**	**252**	**82**
Residential SSL[a]				**142**	**39.5**	**2290**	**2660**	**6.21**	**182**	**79.5 [d]**	**79.5**	**1830**	**2290**	**252**	**82**
RE21-07-75339	21-27439	0.0–0.5	Soil	—	—	0.0414	—	—	0.00411 (J)	—	—	0.0206 (J)	0.0293 (J)	—	—
RE21-07-75340	21-27439	3.5–4.0	Soil	—	—	0.225	—	0.128	—	—	—	0.0746	0.163	0.00092 (J)	—
RE21-07-75341	21-27439	5.0–5.5	Soil	—	—	0.139	—	0.124 (J)	—	—	—	0.0632	0.109	0.00515	—
RE21-07-75342	21-27440	3.5–4.0	Soil	—	0.000316 (J)	0.108	—	0.121	—	0.00778 (J)	—	0.0323 (J)	0.0813	0.0038	—
RE21-07-75343	21-27440	5.0–5.5	Soil	—	—	—	—	—	—	—	—	—	—	0.00163	—
RE21-07-75344	21-27441	3.5–4.0	Soil	—	—	0.273	—	0.144	—	—	—	0.0191 (J)	0.17	0.00268	—
RE21-07-75346	21-27442	3.5–4.0	Soil	0.0754 (J)	—	2.92	0.126	0.472	—	0.0251 (J)	—	1.54	2.44	0.00341	—
RE21-07-75347	21-27442	5.0–5.5	Soil	—	—	—	—	—	—	—	—	—	—	0.0028	—
RE21-07-75348	21-27443	3.5–4.0	Soil	—	—	0.0583	—	—	—	—	—	0.0182 (J)	0.0429	0.00245	—
RE21-07-75349	21-27443	5.5–6.0	Soil	—	—	—	—	—	—	—	—	—	—	0.00149	—
RE21-07-75622	21-27516	2.0–3.0	Soil	—	—	0.0375	—	—	—	—	—	0.0226 (J)	0.0346 (J)	—	—
RE21-07-75625	21-27517	0.0–0.5	Soil	—	—	0.126	—	0.0277 (J)	NA [e]	—	—	—	0.105	NA	NA
RE21-07-75626	21-27517	2.0–2.5	Soil	—	—	0.144	—	—	—	—	—	—	0.179 (J)	0.00144	—
RE21-07-75627	21-27518	0.0–0.5	Soil	—	—	0.0268 (J)	—	0.0214 (J)	NA	—	—	—	0.0246 (J)	NA	NA
RE21-07-75628	21-27518	2.0–2.5	Soil	—	—	—	—	—	—	—	—	—	—	0.00137	—
RE21-07-75629	21-27519	0.0–0.5	Soil	—	—	—	—	—	NA	—	—	—	—	NA	NA
RE21-07-75630	21-27519	2.0–2.5	Soil	—	—	0.107	—	0.0142 (J)	—	—	—	—	0.0798	—	—
RE21-07-75631	21-27520	2.0–3.0	Soil	0.401	—	8.61	0.724	1.31	—	0.165	0.44	6.28	7.37	—	—
RE21-07-75632	21-27520	4.0–5.0	Soil	—	—	1.37	0.0932	0.339	—	0.0161 (J)	0.0397 (J)	0.908	1.03	—	—
RE21-07-75633	21-27521	2.5–3.5	Soil	0.596	—	8.24	0.932	1.3 (J)	—	0.251	0.739	7.01	6.42	—	—
RE21-07-75634	21-27521	4.5–5.5	Soil	—	—	0.118	—	0.026 (J)	—	—	—	0.0814	0.0815	—	—
RE21-07-75635	21-27522	5.0–6.0	Soil	—	—	0.409	0.0262 (J)	0.0873 (J)	—	—	0.0165 (J)	0.309	0.337	0.000364 (J)	—
RE21-07-75637	21-27523	3.0–4.0	Soil	—	—	0.51	0.0463	0.169 (J)	—	0.0107 (J)	0.0317 (J)	0.39	0.403	—	—
RE21-07-75638	21-27523	5.0–6.0	Soil	—	—	0.14	—	0.12 (J)	—	—	—	0.1	0.134 (J)	—	—
RE21-07-75639	21-27524	2.0–3.0	Soil	—	—	0.232	0.0146 (J)	0.087	—	—	—	0.145	0.205	—	—
RE21-07-75640	21-27524	4.0–5.0	Soil	—	—	0.322	0.024 (J)	0.123	—	—	—	0.227	0.295	—	—
RE21-07-75643	21-27526	4.0–5.0	Soil	0.108 (J)	—	4.22	0.238	0.801 (J)	—	0.0383	0.093	2.62	3.71	—	—
RE21-07-75663	21-27530	0.0–0.5	Soil	—	—	0.489	0.0308 (J)	0.229 (J)	NA	—	—	0.331	0.463	NA	NA
RE21-07-75664	21-27530	2.0–3.0	Soil	—	—	0.119	0.0109 (J)	—	—	—	—	0.0971	0.0904	—	—
RE21-07-75665	21-27530	5.0–6.0	Soil	0.694	—	10.5	1.2	2.03 (J)	—	0.321	1.22	9.28	7.26	—	—

Table 6.4-28 (continued)

Sample ID	Location ID	Depth (ft)	Media	Dibenzofuran	Dichlorobenzene[1,4-]	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Methylene Chloride	Methylnaphthalene[2-]	Naphthalene	Phenanthrene	Pyrene	Toluene	Xylene[1,3-]+Xylene[1,4-]
Industrial SSL[a]				**1620**	**103**	**24400**	**26500**	**23.4**	**490**	**300 [d]**	**300**	**20500**	**30900**	**252**	**82**
Construction Worker SSL[a]				**552**	**1960**	**8730**	**10200**	**212**	**2630**	**262 [d]**	**262**	**6990**	**9010**	**252**	**82**
Residential SSL[a]				**142**	**39.5**	**2290**	**2660**	**6.21**	**182**	**79.5 [d]**	**79.5**	**1830**	**2290**	**252**	**82**
RE21-07-75674	21-27534	0.0–0.5	Soil	—	—	1.41	0.114	0.24 (J)	NA	—	—	0.972	1.21	NA	NA
RE21-07-75675	21-27534	2.0–3.0	Soil	—	—	0.0783	—	0.0231 (J)	—	—	—	0.0374	0.057	—	—
RE21-07-75676	21-27535	0.0–0.5	Soil	—	—	0.439	0.0114 (J)	0.117 (J)	NA	—	—	0.191	0.351	NA	NA
RE21-07-75677	21-27535	2.0–3.0	Soil	—	—	0.0234 (J)	—	—	—	—	—	—	0.0162 (J)	—	—
RE21-07-75678	21-27536	0.0–0.5	Soil	—	—	0.803	0.0319 (J)	0.226	NA	—	—	0.415	0.673	NA	NA
RE21-07-75680	21-27537	0.0–0.5	Soil	—	—	0.427	0.0291 (J)	0.132	NA	—	—	0.27	0.318	NA	NA
RE21-07-75682	21-27538	0.0–0.5	Soil	—	—	0.681	0.0123 (J)	0.167 (J)	NA	—	—	0.293	0.603	NA	NA
RE21-07-75683	21-27538	2.0–3.0	Soil	—	—	—	—	—	—	—	—	—	—	0.000602 (J)	—
RE21-07-75684	21-27539	2.0–3.0	Soil	—	—	0.0365 (J)	—	—	—	—	—	0.0346 (J)	0.0228 (J)	—	—
RE21-07-75686	21-27540	0.0–0.5	Soil	—	—	0.416	0.013 (J)	0.103 (J)	NA	—	—	0.193	0.349	NA	NA
RE21-07-75687	21-27540	2.0–3.0	Soil	—	—	0.0498	—	—	—	—	—	0.0218 (J)	0.0421	0.00178	0.000381 (J)
RE21-07-75690	21-27542	0.0–0.5	Soil	—	—	0.0748	—	0.0208 (J)	NA	—	—	0.0237 (J)	0.0681	NA	NA
RE21-07-75692	21-27543	0.0–0.5	Soil	—	—	0.156	—	0.0392 (J)	NA	—	—	0.0742	0.136	NA	NA
RE21-07-75696	21-27545	3.0–4.0	Soil	0.191 (J)	—	4.6	0.355	0.947 (J)	—	0.0745	0.173	3.67	3.87 (J)	—	—
RE21-07-75698	21-27546	1.0–2.0	Soil	0.263 (J)	—	4.69	0.451	1.07 (J)	—	0.116 (J)	0.355 (J)	4.19	3.82 (J)	—	—
RE21-07-75699	21-27546	4.0–5.0	Soil	—	—	0.354	0.0229 (J)	0.157 (J)	—	—	—	0.268	0.374 (J)	—	—
RE21-07-75700	21-27547	0.5–1.5	Soil	0.117 (J)	—	2.67	0.174	0.667 (J)	—	0.0534	0.16	1.85	2.75	—	—
RE21-07-75701	21-27547	2.5–3.5	Soil	0.18 (J)	—	1.78	0.288	0.379 (J)	—	0.112	0.3	1.89	1.36	—	—

[a] SSLs from NMED (2006, 092513).

[b] Pyrene used as surrogate based on structural similarity

[c] — = Not detected.

[d] Naphthlene used as a surrogate based on structural similarity.

[e] NA = Not analyzed.

Table 6.4-29
Organic Chemicals Detected in Tuff at Consolidated Unit 21-024(l)-99

Sample ID	Location ID	Depth (ft)	Media	Acenaphthene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Fluoranthene	Fluorene	Heptachlorodibenzodioxin[1,2,3,4,6,7,8-]
Industrial SSL [a]				**33500**	**100000**	**23.4**	**2.34**	**23.4**	**30900 [b]**	**234**	**2310**	**24400**	**26500**	**na [c]**
Construction Worker SSL [a]				**14100**	**86000**	**212**	**21.2**	**212**	**9010 [b]**	**2120**	**21200**	**8730**	**10200**	**na**
Residential SSL [a]				**3730**	**22000**	**6.21**	**0.621**	**6.21**	**2290 [b]**	**62.1**	**615**	**2290**	**2660**	**na**
RE21-07-3963	21-27515	15.0–16.0	Tuff	NA [d]	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.000000538 (J)
RE21-07-75616	21-27514	10.0–11.0	Tuff	— [e]	—	—	—	—	—	—	0.0156 (J)	0.0387	—	NA
RE21-07-75617	21-27514	15.0–16.0	Tuff	0.0417	0.0687	0.219 (J)	0.223 (J)	0.307 (J)	0.228 (J)	0.111 (J)	0.241 (J)	0.51	0.0306 (J)	NA
RE21-07-75618	21-27514	20.0–21.0	Tuff	0.0568	0.102	0.291 (J)	0.301 (J)	0.421 (J)	0.251 (J)	0.149 (J)	0.319 (J)	0.698	0.0499	NA
RE21-07-75624	21-27516	6.0–7.0	Tuff	—	—	—	—	—	—	—	—	0.0115 (J)	—	NA
RE21-07-75636	21-27522	7.0–8.0	Tuff	—	0.00888 (J)	0.0412	0.0436	0.075	0.0245 (J)	—	0.0553	0.102	—	NA
RE21-07-75641	21-27525	5.0–6.0	Tuff	0.141	0.202	0.374	0.34 (J)	0.553 (J)	0.176 (J)	—	0.382	0.923	0.1	NA
RE21-07-75642	21-27525	7.0–8.0	Tuff	0.013 (J)	0.0175 (J)	—	0.0465	0.0692	0.029 (J)	—	0.0582	0.107	—	NA
RE21-07-75644	21-27526	6.0–7.0	Tuff	0.108	0.161	0.573	0.625	0.834	0.378 (J)	0.363	0.651	1.42	0.0903	NA
RE21-07-75672	21-27533	0.0–0.5	Tuff	—	—	0.0242 (J)	—	0.0493	0.018 (J)	0.0189 (J)	0.0381	0.0678	—	NA
RE21-07-75693	21-27543	2.0–3.0	Tuff	—	—	—	—	—	—	—	—	0.0118 (J)	—	NA
RE21-07-75694	21-27544	2.0–3.0	Tuff	—	—	0.0247 (J)	0.0237 (J)	0.0273 (J)	0.0147 (J)	0.0136 (J)	0.0231 (J)	0.0504	—	NA
RE21-07-75697	21-27545	5.0–6.0	Tuff	—	0.0139 (J)	—	—	0.0644	—	0.0307 (J)	0.0583	0.11	—	NA

Table 6.4-29 (continued)

Sample ID	Location ID	Depth (ft)	Media	Heptachlorodibenzofuran[1,2,3,4,6,7,8-]	Indeno(1,2,3-cd)pyrene	Isopropyltoluene[4-]	Methylnaphthalene[2-]	Naphthalene	Octachlorodibenzodioxin[1,2,3,4,6,7,8,9-]	Octachlorodibenzofuran[1,2,3,4,6,7,8,9-]	Phenanthrene	Pyrene	Tetrachlorodibenzofuran[2,3,7,8-]	Toluene
Industrial SSL [a]				**na**	**23.4**	**389 [f]**	**300 [g]**	**300**	**na**	**na**	**20500**	**30900**	**na**	**252**
Construction Worker SSL [a]				**na**	**212**	**389 [f]**	**262 [g]**	**262**	**na**	**na**	**6990**	**9010**	**na**	**252**
Residential SSL [a]				**na**	**6.21**	**271 [f]**	**79.5 [g]**	**79.5**	**na**	**na**	**1830**	**2290**	**na**	**252**
RE21-07-3963	21-27515	15.0–16.0	Tuff	0.000000634 (J)	NA	NA	NA	NA	0.00000533 (J)	0.000000778 (J)	NA	NA	0.000000189 (J)	NA
RE21-07-75616	21-27514	10.0–11.0	Tuff	NA	—	—	—	—	NA	NA	0.0308 (J)	0.0377	NA	—
RE21-07-75617	21-27514	15.0–16.0	Tuff	NA	0.198 (J)	—	—	—	NA	NA	0.332	0.471 (J)	NA	—
RE21-07-75618	21-27514	20.0–21.0	Tuff	NA	0.224 (J)	—	0.00913 (J)	0.028 (J)	NA	NA	0.519	0.659 (J)	NA	—
RE21-07-75624	21-27516	6.0–7.0	Tuff	NA	—	—	—	—	NA	NA	—	—	NA	—
RE21-07-75636	21-27522	7.0–8.0	Tuff	NA	0.022 (J)	0.000463 (J)	—	—	NA	NA	0.064	0.076	NA	—
RE21-07-75641	21-27525	5.0–6.0	Tuff	NA	0.168 (J)	0.000443 (J)	0.024 (J)	0.0853	NA	NA	0.871	0.71	NA	—
RE21-07-75642	21-27525	7.0–8.0	Tuff	NA	0.0252 (J)	—	—	—	NA	NA	0.0846	0.0834	NA	—
RE21-07-75644	21-27526	6.0–7.0	Tuff	NA	0.347 (J)	—	0.0194 (J)	0.0537	NA	NA	1	1.35	NA	—
RE21-07-75672	21-27533	0.0–0.5	Tuff	NA	0.0188 (J)	NA	—	—	NA	NA	0.028 (J)	0.0601	NA	NA
RE21-07-75693	21-27543	2.0–3.0	Tuff	NA	—	—	—	—	NA	NA	—	—	NA	0.000411 (J)
RE21-07-75694	21-27544	2.0–3.0	Tuff	NA	0.0123 (J)	—	—	—	NA	NA	0.0253 (J)	0.0376	NA	—
RE21-07-75697	21-27545	5.0–6.0	Tuff	NA	—	—	—	—	NA	NA	0.0735	0.098	NA	—

Note: Units are mg/kg.

[a] SSLs from NMED (2006, 092513).

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

[c] na = Not available.

[d] NA = Not analyzed.

[e] — = Not detected.

[f] Isopropylbenzene used as a surrogate based on structural similarity.

[g] Naphthlene used as a surrogate based on structural similarity.

Table 6.4-30
Radionuclides Detected or Detected above BVs/FVs in Soil at Consolidated Unit 21-024(l)-99

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cesium-137	Plutonium-238	Plutonium-239	Tritium	Uranium-234	Uranium-235
Soil BV/FV [a]				**0.013**	**1.65**	**0.023**	**0.054**	**na [b]**	**2.59**	**0.2**
Industrial SAL [c]				**180**	**23**	**240**	**210**	**440000**	**1500**	**87**
Construction Worker SAL [c]				**34**	**18**	**40**	**36**	**320000**	**220**	**43**
Residential SAL [c]				**34**	**18**	**40**	**36**	**320000**	**220**	**43**
RE21-07-75339	21-27439	0.0–0.5	Soil	— [d]	—	—	0.214 (J-)	0.194	—	—
RE21-07-75340	21-27439	3.5–4.0	Soil	—	0.181	0.341 (J-)	0.439 (J-)	0.404	—	—
RE21-07-75341	21-27439	5.0–5.5	Soil	—	—	—	0.203 (J-)	0.848	—	—
RE21-07-75342	21-27440	3.5–4.0	Soil	—	—	—	0.049 (J-)	0.330	—	—
RE21-07-75343	21-27440	5.0–5.5	Soil	—	—	—	0.0967 (J-)	0.193	—	—
RE21-07-75344	21-27441	3.5–4.0	Soil	0.257	—	—	0.545 (J-)	0.191	—	—
RE21-07-75345	21-27441	5.0–5.5	Soil	—	—	—	—	0.298	—	—
RE21-07-75346	21-27442	3.5–4.0	Soil	—	—	—	0.0744 (J-)	0.680	—	—
RE21-07-75347	21-27442	5.0–5.5	Soil	—	—	—	—	0.291	—	—
RE21-07-75348	21-27443	3.5–4.0	Soil	—	—	—	0.0745 (J-)	0.354	—	—
RE21-07-75349	21-27443	5.5–6.0	Soil	—	—	0.0765 (J-)	0.0358 (J-)	0.615	—	—
RE21-07-75622	21-27516	2.0–3.0	Soil	0.217	—	0.0434	9.88	0.0221	—	—
RE21-07-75625	21-27517	0.0–0.5	Soil	0.21	—	0.0528	0.924	—	2.61	—
RE21-07-75626	21-27517	2.0–2.5	Soil	0.473	0.701	0.0775	1.94	0.0258	—	—
RE21-07-75627	21-27518	0.0–0.5	Soil	0.0716	—	—	0.49	0.0288	—	—

Table 6.4-30 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cesium-137	Plutonium-238	Plutonium-239	Tritium	Uranium-234	Uranium-235
Soil BV/FV [a]				**0.013**	**1.65**	**0.023**	**0.054**	**na**	**2.59**	**0.2**
Industrial SAL [c]				**180**	**23**	**240**	**210**	**440000**	**1500**	**87**
Construction Worker SAL [c]				**34**	**18**	**40**	**36**	**320000**	**220**	**43**
Residential SAL [c]				**34**	**18**	**40**	**36**	**320000**	**220**	**43**
RE21-07-75628	21-27518	2.0–2.5	Soil	—	—	—	0.0695	0.0267	—	—
RE21-07-75629	21-27519	0.0–0.5	Soil	—	—	—	0.174	0.0629	—	—
RE21-07-75630	21-27519	2.0–2.5	Soil	—	—	—	0.179	0.0607	—	—
RE21-07-75631	21-27520	2.0–3.0	Soil	0.0312	0.207	—	0.724	0.0698	—	—
RE21-07-75632	21-27520	4.0–5.0	Soil	—	—	—	0.174	0.121	—	—
RE21-07-75633	21-27521	2.5–3.5	Soil	—	—	—	0.137	0.130	—	—
RE21-07-75634	21-27521	4.5–5.5	Soil	—	—	—	0.064	0.0917	—	—
RE21-07-75635	21-27522	5.0–6.0	Soil	—	—	—	0.515	—	—	—
RE21-07-75637	21-27523	3.0–4.0	Soil	—	—	—	0.218	0.0451	—	—
RE21-07-75638	21-27523	5.0–6.0	Soil	—	—	—	0.189	0.131	—	—
RE21-07-75639	21-27524	2.0–3.0	Soil	—	—	—	0.871	0.0431	—	—
RE21-07-75640	21-27524	4.0–5.0	Soil	—	—	—	0.331	—	—	—
RE21-07-75643	21-27526	4.0–5.0	Soil	3.44	—	—	103	0.0914	—	—
RE21-07-75663	21-27530	0.0–0.5	Soil	0.0611	—	—	0.494	—	—	—
RE21-07-75664	21-27530	2.0–3.0	Soil	—	—	—	0.0813	—	—	—
RE21-07-75665	21-27530	5.0–6.0	Soil	—	—	—	0.252	0.0416	—	—
RE21-07-75675	21-27534	2.0–3.0	Soil	—	—	—	0.157	0.0342	—	—
RE21-07-75676	21-27535	0.0–0.5	Soil	0.0579	—	—	0.244	0.0102	—	—
RE21-07-75677	21-27535	2.0–3.0	Soil	—	—	—	0.215	—	—	—

Table 6.4-30 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cesium-137	Plutonium-238	Plutonium-239	Tritium	Uranium-234	Uranium-235
Soil BV/FV [a]				**0.013**	**1.65**	**0.023**	**0.054**	**na**	**2.59**	**0.2**
Industrial SAL [c]				**180**	**23**	**240**	**210**	**440000**	**1500**	**87**
Construction Worker SAL [c]				**34**	**18**	**40**	**36**	**320000**	**220**	**43**
Residential SAL [c]				**34**	**18**	**40**	**36**	**320000**	**220**	**43**
RE21-07-75678	21-27536	0.0–0.5	Soil	0.0631	—	0.084	0.219	—	—	—
RE21-07-75680	21-27537	0.0–0.5	Soil	0.0471	—	0.135	0.156	—	—	—
RE21-07-75682	21-27538	0.0–0.5	Soil	0.0636	—	0.0327	0.691	0.113	—	—
RE21-07-75683	21-27538	2.0–3.0	Soil	—	—	—	0.0233	0.0452	—	—
RE21-07-75684	21-27539	2.0–3.0	Soil	0.0496	—	—	0.695	0.0401	—	—
RE21-07-75686	21-27540	0.0–0.5	Soil	0.22	—	—	0.994	—	—	—
RE21-07-75687	21-27540	2.0–3.0	Soil	—	—	—	0.244	0.0133	—	—
RE21-07-75690	21-27542	0.0–0.5	Soil	0.0398	—	—	0.209	—	3.72	0.276
RE21-07-75692	21-27543	0.0–0.5	Soil	0.22	—	0.109	2.16	—	—	—
RE21-07-75696	21-27545	3.0–4.0	Soil	0.0436	—	—	2.86	0.255	—	—
RE21-07-75698	21-27546	1.0–2.0	Soil	—	—	—	0.389	0.0263	—	—
RE21-07-75699	21-27546	4.0–5.0	Soil	—	—	—	0.268	0.0634	—	—
RE21-07-75700	21-27547	0.5–1.5	Soil	—	—	—	0.178	0.0320	—	—
RE21-07-75701	21-27547	2.5–3.5	Soil	—	—	—	—	0.104	—	—

Note: Units are pCi/g.

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

[b] na = Not available.

[c] SALs from LANL (2005, 088493).

[d] — = Not detected or not detected above BV.

Table 6.4-31
Radionuclides Detected or Detected above BVs/FVs in Tuff at Consolidated Unit 21-024(l)-99

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Plutonium-238	Plutonium-239	Tritium	Uranium-235
Qbt 2,3,4 BV/FV [a]				**na [b]**	**na**	**na**	**na**	**0.09**
Industrial SAL [c]				**180**	**240**	**210**	**440000**	**87**
Construction Worker SAL [c]				**34**	**40**	**36**	**320000**	**43**
Residential SAL [c]				**30**	**37**	**33**	**750**	**17**
RE21-07-75616	21-27514	10.0–11.0	Tuff	— [d]	—	0.139	0.146	—
RE21-07-75617	21-27514	15.0–16.0	Tuff	—	—	1.17	0.124	—
RE21-07-75618	21-27514	20.0–21.0	Tuff	0.0564	—	1.16	0.130	—
RE21-07-75619	21-27515	10.0–11.0	Tuff	—	—	0.0472	0.0518	0.136
RE21-07-75620	21-27515	15.0–16.0	Tuff	—	—	0.0802	0.0638	—
RE21-07-75621	21-27515	20.0–21.0	Tuff	—	—	0.0356	0.146	—
RE21-07-75623	21-27516	4.0–5.0	Tuff	1.66	0.35	66	0.0313	—
RE21-07-75624	21-27516	6.0–7.0	Tuff	0.773	—	36.2	0.0145	—
RE21-07-75636	21-27522	7.0–8.0	Tuff	—	—	0.226	—	—
RE21-07-75641	21-27525	5.0–6.0	Tuff	—	—	0.0889	0.105	—
RE21-07-75642	21-27525	7.0–8.0	Tuff	—	—	0.09	0.154	—
RE21-07-75644	21-27526	6.0–7.0	Tuff	0.0532	—	3.9	0.110	—
RE21-07-75672	21-27533	0.0–0.5	Tuff	0.108	4.9	0.989	0.0376	0.113
RE21-07-75673	21-27533	2.0–3.0	Tuff	0.0536	0.104	0.351	0.0109	—
RE21-07-75679	21-27536	2.0–3.0	Tuff	—	—	0.034	—	—
RE21-07-75685	21-27539	5.0–6.0	Tuff	—	—	0.0358	0.0210	—
RE21-07-75691	21-27542	2.0–3.0	Tuff	—	—	0.149	—	—
RE21-07-75693	21-27543	2.0–3.0	Tuff	0.0381	—	0.296	—	—

Table 6.4-31 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Plutonium-238	Plutonium-239	Tritium	Uranium-235
Qbt 2,3,4 BV/FV [a]				**na**	**na**	**na**	**na**	**0.09**
Industrial SAL [c]				**180**	**240**	**210**	**440000**	**87**
Construction Worker SAL [c]				**34**	**40**	**36**	**320000**	**43**
Residential SAL [c]				**30**	**37**	**33**	**750**	**17**
RE21-07-75694	21-27544	2.0–3.0	Tuff	—	—	0.0664	0.0465	—
RE21-07-75695	21-27544	4.0–5.0	Tuff	—	—	—	0.0225	—
RE21-07-75697	21-27545	5.0–6.0	Tuff	0.0505	—	0.296	2.06	—

Note: Units are pCi/g.

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

[b] na = Not available.

[c] SALs from LANL (2005, 088493).

[d] — = Not detected or not detected above BV.

Table 6.4-32
Inorganic Chemicals above BVs in Soil at SWMU 21-024(o)

Sample ID	Location ID	Depth (ft)	Media	Cadmium	Copper	Cyanide (Total)	Lead	Manganese	Nitrate	Perchlorate	Selenium	Uranium	Zinc
Soil BV [a]				**0.4**	**14.7**	**0.5**	**22.3**	**671**	**na [b]**	**na**	**1.52**	**1.82**	**48.8**
Industrial SSL [c]				**564**	**45400**	**13700**	**800**	**48400**	**100000**	**790 [d]**	**5680**	**200 [e]**	**100000**
Construction Worker SSL [c]				**154**	**12400**	**4760**	**800**	**150**	**100000**	**na**	**1550**	**na**	**92900**
Residential SSL [c]				**39**	**3130**	**1220**	**400**	**3590**	**100000**	**55 [d]**	**391**	**16 [e]**	**23500**
RE21-07-74952	21-27346	0.0–0.5	Soil	0.468 (J)	— [f]	—	28.8	—	—	0.000811 (J-)	1.67 (U)	3.55 (J-)	85
RE21-07-74955	21-27347	0.0–0.5	Soil	0.426 (J)	—	1.33	31.6	—	3.38	0.00113 (J-)	1.7 (U)	—	192
RE21-07-74958	21-27348	0.0–0.5	Soil	2.13	15.7	—	52.9	—	3.34	0.00141 (J-)	1.68 (U)	5.13 (J-)	136
RE21-07-74960	21-27349	0.0–0.5	Soil	0.694	—	—	40.6	—	38	0.000973 (J-)	—	—	116
RE21-07-74961	21-27349	2.0–2.5	Soil	0.432 (J)	—	—	—	699	14	—	1.57 (U)	—	49.1
RE21-07-74962	21-27350	0.0–0.5	Soil	—	—	—	24.9	—	20	0.000654 (J-)	1.59 (U)	—	75.5
RE21-07-74964	21-27351	0.0–0.5	Soil	—	—	—	—	—	1.63	0.000539 (J-)	1.57 (U)	—	—
RE21-07-74965	21-27351	2.0–2.5	Soil	0.512 (U)	—	—	—	—	2.15	—	1.54 (U)	—	—
RE21-07-74966	21-27352	0.0–0.5	Soil	0.602	—	—	31.9	—	2.11	—	1.62 (U)	—	96.3
RE21-07-74967	21-27352	2.0–2.5	Soil	—	—	—	—	—	0.766 (J)	—	1.55 (U)	—	—
RE21-07-74968	21-27353	0.0–0.5	Soil	—	—	—	—	—	1.72	0.00105 (J-)	1.6 (U)	2.67 (J-)	—
RE21-07-74969	21-27353	2.0–2.5	Soil	0.505 (U)	—	—	—	—	—	—	—	—	—
RE21-07-74970	21-27354	0.0–0.5	Soil	—	—	—	—	—	0.927 (J)	0.000551 (J-)	1.6 (U)	—	—
RE21-07-74971	21-27354	2.0–2.5	Soil	0.501 (U)	—	—	—	—	—	—	—	—	—
RE21-07-74972	21-27355	0.0–0.5	Soil	0.626	—	—	37.7	—	3.46	0.00124 (J-)	1.53 (U)	—	115
RE21-07-74973	21-27355	2.0–2.5	Soil	0.517 (U)	—	—	—	—	1.22	—	1.55 (U)	—	—
RE21-07-74974	21-27356	0.0–0.5	Soil	0.527 (U)	—	—	—	—	1.71	—	1.58 (U)	—	—
RE21-07-74975	21-27356	2.0–2.5	Soil	0.493 (U)	—	—	—	—	—	—	—	—	—

Note: Units are mg/kg.
[a] BVs from LANL (1998, 059730).
[b] na = Not available.
[c] SSLs from NMED (2006, 092513).
[d] Value from EPA Region 6 (2007, 095866).
[e] Value from EPA Region 9 (http://www.epa.gov/region9/waste/sfund/prg/files/04prgtable.pdf).
[f] — = Not above BV.

Table 6.4-33
Inorganic Chemicals above BVs in Tuff at SWMU 21-024(o)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Barium	Chromium	Copper	Nitrate	Perchlorate	Selenium
Qbt 2,3,4 BV [a]				**7340**	**46**	**7.14**	**4.66**	**na [b]**	**na**	**0.3**
Industrial SSL [c]				**100000**	**100000**	**5000 [d]**	**45400**	**100000**	**790**	**5680**
Construction Worker SSL [c]				**14400**	**60200**	**26.1**	**12400**	**100000**	**na**	**1550**
Residential SSL [c]				**77800**	**15600**	**2100 [d]**	**3130**	**100000**	**55**	**391**
RE21-07-74953	21-27346	2.0–2.5	Tuff	8830 (J+)	— [e]	11.1	5.63	—	—	1.78 (U)
RE21-07-74956	21-27347	2.0–2.5	Tuff	9840 (J+)	46.6	9.75	5.25	0.768 (J)	—	1.69 (U)
RE21-07-74959	21-27348	2.0–2.5	Tuff	—	—	15.5	5.21	1.18	—	1.55 (U)
RE21-07-74963	21-27350	2.0–2.5	Tuff	—	—	24.7	—	16.1	0.000759 (J-)	1.55 (U)

Note: Units are mg/kg.

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

[b] na = Not available.

[c] SSLs from NMED (2006, 092513).

[d] Value from EPA Region 6 (2007, 095866).

[e] – = Not above BV.

Table 6.4-34
Organic Chemicals Detected in Soil at SWMU 21-024(o)

Sample ID	Location ID	Depth (ft)	Media	Acenaphthene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Benzoic Acid	Bis(2-ethylhexyl)phthalate
Industrial SSL [a]				**33500**	**100000**	**23.4**	**2.34**	**23.4**	**30900 [b]**	**234**	**100000 [c]**	**1370**
Construction Worker SSL [a]				**14100**	**86000**	**212**	**21.2**	**212**	**9010 [b]**	**2120**	**na [d]**	**4660**
Residential SSL [a]				**3730**	**22000**	**6.21**	**0.621**	**6.21**	**2290 [b]**	**62.1**	**100000 [c]**	**347**
RE21-07-74952	21-27346	0.0–0.5	Soil	— [e]	0.0395	0.173	0.166 (J)	0.389 (J)	—	—	—	—
RE21-07-74955	21-27347	0.0–0.5	Soil	0.0877	0.173	0.406	0.357 (J)	—	—	0.775 (J)	—	0.119 (J)
RE21-07-74958	21-27348	0.0–0.5	Soil	0.0702	0.13	0.44	0.452 (J)	0.985 (J)	0.237 (J)	—	—	0.0937 (J)
RE21-07-74960	21-27349	0.0–0.5	Soil	0.0558	0.115	0.239 (J)	0.234 (J)	0.518 (J)	—	—	—	—
RE21-07-74961	21-27349	2.0–2.5	Soil	—	0.0447	—	—	—	—	—	—	—
RE21-07-74962	21-27350	0.0–0.5	Soil	—	0.0155 (J)	0.0702	0.0766 (J)	0.141 (J)	—	0.0448 (J)	—	—
RE21-07-74965	21-27351	2.0–2.5	Soil	—	—	—	—	—	—	—	—	—
RE21-07-74966	21-27352	0.0–0.5	Soil	—	0.0206 (J)	0.0853	—	—	—	—	—	—
RE21-07-74967	21-27352	2.0–2.5	Soil	—	—	—	—	—	—	—	—	—
RE21-07-74968	21-27353	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—
RE21-07-74969	21-27353	2.0–2.5	Soil	—	—	—	—	—	—	—	—	—
RE21-07-74970	21-27354	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—
RE21-07-74972	21-27355	0.0–0.5	Soil	0.0843	0.158	0.32	0.273 (J)	0.582 (J)	—	—	—	—
RE21-07-74973	21-27355	2.0–2.5	Soil	—	—	—	—	—	—	—	—	—
RE21-07-74974	21-27356	0.0–0.5	Soil	—	—	—	—	—	—	—	0.589 (J)	—
RE21-07-74952	21-27346	0.0–0.5	Soil	0.196	0.388	0.0251 (J)	—	—	—	0.231	0.382	NA

Table 6.4-34 (continued)

Sample ID	Location ID	Depth (ft)	Media	Chrysene	Fluoranthene	Fluorene	Hexachlorobenzene	Methylnaphthalene[2-]	Naphthalene	Phenanthrene	Pyrene	Toluene
Industrial SSL [a]				**2310**	**24400**	**26500**	**12**	**300 [f]**	**300**	**20500**	**30900**	**252**
Construction Worker SSL [a]				**21200**	**8730**	**10200**	**102**	**262 [f]**	**262**	**6990**	**9010**	**252**
Residential SSL [a]				**615**	**2290**	**2660**	**3.04**	**79.5 [f]**	**79.5**	**1830**	**2290**	**252**
RE21-07-74955	21-27347	0.0–0.5	Soil	0.396	0.837	0.122	—	0.0439	0.0853	0.73	0.914	NA [g]
RE21-07-74958	21-27348	0.0–0.5	Soil	0.553	1.02	0.0832	—	0.0302 (J)	0.0598	0.734	0.983	NA
RE21-07-74960	21-27349	0.0–0.5	Soil	0.291 (J)	0.478	0.0734	0.0892 (J)	0.0263 (J)	0.0462	0.489	0.518 (J)	NA
RE21-07-74961	21-27349	2.0–2.5	Soil	—	0.0797	—	—	—	—	0.0754	0.0924 (J)	0.01 (J+)
RE21-07-74962	21-27350	0.0–0.5	Soil	0.0907	0.146	—	—	—	—	0.0814	0.135	NA
RE21-07-74965	21-27351	2.0–2.5	Soil	—	—	—	—	—	—	—	—	0.00085 (J+)
RE21-07-74966	21-27352	0.0–0.5	Soil	0.119	0.199	0.0122 (J)	—	—	—	0.135	0.231	NA
RE21-07-74967	21-27352	2.0–2.5	Soil	—	0.0327 (J)	—	—	—	—	0.0194 (J)	0.0402	0.000713 (J+)
RE21-07-74968	21-27353	0.0–0.5	Soil	—	0.0634	—	—	—	—	0.0383	0.065	NA
RE21-07-74969	21-27353	2.0–2.5	Soil	—	—	—	—	—	—	—	—	0.00105 (J+)
RE21-07-74970	21-27354	0.0–0.5	Soil	0.0228 (J)	0.0292 (J)	—	—	—	—	0.0127 (J)	0.034 (J)	NA
RE21-07-74972	21-27355	0.0–0.5	Soil	0.293	0.634	0.127	—	0.052	0.104	0.682	0.715	NA
RE21-07-74973	21-27355	2.0–2.5	Soil	0.0367 (J)	0.0589	—	—	—	—	0.0366	0.0667 (J)	0.000658 (J+)
RE21-07-74974	21-27356	0.0–0.5	Soil	—	—	—	—	—	—	—	—	NA

Note: Units are mg/kg.
[a] SSLs from NMED (2006, 092513).
[b] Pyrene used as surrogate based on structural similarity.
[c] Value from EPA Region 6 (2007, 095866).
[d] na = Not available.
[e] — = Not detected.
[f] Naphthalene used as surrogate based on structural similarity.
[g] NA = Not analyzed.

Table 6.4-35
Organic Chemicals Detected in Tuff at SWMU 21-024(o)

Sample ID	Location ID	Depth (ft)	Media	Acenaphthene	Acetone	Aroclor-1260	Benzo(a)anthracene	Bis(2-ethylhexyl)phthalate	Chrysene	Fluoranthene	Heptachlorodibenzodioxin[1,2,3,4,6,7,8-]	Heptachlorodibenzofuran[1,2,3,4,6,7,8-]
Industrial SSL [a]				**33500**	**100000**	**8.26**	**23.4**	**1370**	**2310**	**24400**	**na [b]**	**na**
Construction Worker SSL [a]				**14100**	**98500**	**4.28**	**212**	**4660**	**21200**	**8730**	**na**	**na**
Residential SSL [a]				**3730**	**28100**	**1.12**	**6.21**	**347**	**615**	**2290**	**na**	**na**
RE21-07-4030	21-27355	2.0–2.5	Tuff	NA [c]	NA	0.0201	NA	NA	NA	NA	4.89E-06	1.17E-06(J)
RE21-07-74953	21-27346	2.0–2.5	Tuff	0.0495	— [d]	NA	—	—	—	0.0391	NA	NA
RE21-07-74956	21-27347	2.0–2.5	Tuff	—	—	NA	—	—	—	0.013 (J)	NA	NA
RE21-07-74959	21-27348	2.0–2.5	Tuff	0.0156 (J)	0.00268 (J)	NA	0.0249 (J)	—	0.0228 (J)	0.0447	NA	NA
RE21-07-74963	21-27350	2.0–2.5	Tuff	—	—	NA	—	0.0796 (J)	—	0.0184 (J)	NA	NA

Table 6.4-35 (continued)

Sample ID	Location ID	Depth (ft)	Media	Hexachlorodibenzofuran[1,2,3,4,7,8-]	Hexachlorodibenzofuran[2,3,4,6,7,8-]	Octachlorodibenzodioxin[1,2,3,4,6,7,8,9-]	Octachlorodibenzofuran[1,2,3,4,6,7,8,9-]	Pentachlorodibenzofuran[2,3,4,7,8-]	Phenanthrene	Pyrene	Toluene
Industrial SSL [a]				**na**	**na**	**na**	**na**	**na**	**20500**	**30900**	**252**
Construction Worker SSL [a]				**na**	**na**	**na**	**na**	**na**	**6990**	**9010**	**252**
Residential SSL [a]				**na**	**na**	**na**	**na**	**na**	**1830**	**2290**	**252**
RE21-07-4030	21-27355	2.0–2.5	Tuff	1.96E-07(J)	1.79E-07(J)	4.31E-05	2.67E-06(J)	3.33E-078(J)	NA	NA	NA
RE21-07-74953	21-27346	2.0–2.5	Tuff	NA	NA	NA	NA	NA	0.0241 (J)	0.0499 (J)	0.00204
RE21-07-74956	21-27347	2.0–2.5	Tuff	NA	NA	NA	NA	NA	—	0.015 (J)	0.00321
RE21-07-74959	21-27348	2.0–2.5	Tuff	NA	NA	NA	NA	NA	0.0416	0.0588 (J)	0.000905 (J)
RE21-07-74963	21-27350	2.0–2.5	Tuff	NA	NA	NA	NA	NA	—	0.0354 (J)	0.00126

Note: Units are mg/kg.

[a] SSLs from NMED (2006, 092513).

[b] na = Not available.

[c] NA = Not analyzed.

[d] — = Not detected.

Table 6.4-36
Radionuclides Detected or Detected above FVs in Soil at SWMU 21-024(o)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Plutonium-238	Plutonium-239	Tritium
Soil FV [a]				**0.013**	**0.023**	**0.054**	**na [b]**
Industrial SAL [c]				**180**	**240**	**210**	**440000**
Construction Worker SAL [c]				**180**	**240**	**210**	**440000**
Residential SAL [c]				**180**	**240**	**210**	**440000**
RE21-07-74952	21-27346	0.0–0.5	Soil	— [d]	—	1.16	—
RE21-07-74955	21-27347	0.0–0.5	Soil	0.0432	—	2.21	—
RE21-07-74958	21-27348	0.0–0.5	Soil	0.0446	—	2.01	0.0214
RE21-07-74960	21-27349	0.0–0.5	Soil	0.0348	—	0.674	0.0177
RE21-07-74961	21-27349	2.0–2.5	Soil	—	—	0.233	—
RE21-07-74962	21-27350	0.0–0.5	Soil	0.0941	—	1.62	—
RE21-07-74964	21-27351	0.0–0.5	Soil	0.0201	—	0.502	—
RE21-07-74965	21-27351	2.0–2.5	Soil	—	—	0.0608	—
RE21-07-74966	21-27352	0.0–0.5	Soil	0.0489	0.0846	5.18	—
RE21-07-74967	21-27352	2.0–2.5	Soil	—	—	0.147	—
RE21-07-74968	21-27353	0.0–0.5	Soil	0.0404	—	1.17	—
RE21-07-74970	21-27354	0.0–0.5	Soil	0.0366	—	0.554	—
RE21-07-74971	21-27354	2.0–2.5	Soil	—	—	0.0307	—
RE21-07-74972	21-27355	0.0–0.5	Soil	0.0653	—	0.519	—
RE21-07-74973	21-27355	2.0–2.5	Soil	—	—	0.0492	—
RE21-07-74974	21-27356	0.0–0.5	Soil	—	—	0.12	0.0193
RE21-07-74975	21-27356	2.0–2.5	Soil	—	—	—	0.00382

Note: Units are pCi/g.

[a] FVs from LANL (1998, 059730). FVs only apply to the 0- to 0.5-ft depth interval.

[b] na = Not available.

[c] SALs from LANL (2005, 088493).

[d] — = Not detected or not detected above FV.

Table 6.4-37
Radionuclides Detected in Tuff at SWMU 21-024(o)

Sample ID	Location ID	Depth (ft)	Media	Cesium-137	Plutonium-239	Tritium
Qbt 2,3,4 FV [a]				**na [b]**	**na**	**na**
Industrial SAL [c]				**23**	**210**	**440000**
Construction Worker SAL [c]				**18**	**36**	**320000**
Residential SAL [c]				**5.6**	**33**	**750**
RE21-07-74953	21-27346	2.0–2.5	Tuff	0.0664	0.212	— [d]
RE21-07-74959	21-27348	2.0–2.5	Tuff	—	0.471	0.0121
RE21-07-74963	21-27350	2.0–2.5	Tuff	—	0.176	0.0116

Note: Units are pCi/g.

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

[b] na = Not available.

[c] SALs from LANL (2005, 088493).

[d] — = Not detected or not detected above FV.

Table 6.4-38
Inorganic Chemicals above BVs in Soil at Consolidated Unit 21-026(a)-99

Sample ID	Location ID	Depth (ft)	Media	Antimony	Arsenic	Barium	Cadmium	Calcium	Chromium	Copper	Cyanide (Total)	Lead	Mercury	Nickel	Nitrate	Perchlorate	Selenium	Silver	Uranium	Zinc
Soil BV [a]				**0.83**	**8.17**	**295**	**0.4**	**6120**	**19.3**	**14.7**	**0.5**	**22.3**	**0.1**	**15.4**	**na [b]**	**na**	**1.52**	**1**	**1.82**	**48.8**
Industrial SSL [c]				**454**	**17.7**	**100000**	**564**	**na**	**5000 [d]**	**45400**	**13700**	**800**	**610 [d]**	**22700**	**100000**	**790 [d]**	**5680**	**5680**	**200 [e]**	**100000**
Construction Worker SSL [c]				**124**	**85.2**	**60200**	**154**	**na**	**26.1**	**12400**	**4760**	**800**	**927**	**6190**	**100000**	**na**	**1550**	**1550**	**na**	**92900**
Residential SSL [c]				**31.3**	**3.9**	**15600**	**39**	**na**	**2100 [d]**	**3130**	**1220**	**400**	**23 [d]**	**1560**	**100000**	**55 [d]**	**391**	**391**	**16 [e]**	**23500**
RE21-07-75726	21-27550	0.0–0.5	Soil	— [f]	—	—	—	—	—	—	—	—	—	—	2.54	—	—	—	—	—
RE21-07-75734	21-27552	0.0–0.5	Soil	—	—	—	0.516 (U)	—	—	—	—	—	—	—	—	—	1.55 (U)	—	—	—
RE21-07-75735	21-27552	2.0–3.0	Soil	—	—	—	0.524 (U)	—	—	—	—	—	—	—	—	—	1.57 (U)	—	—	—
RE21-07-75737	21-27553	0.0–0.5	Soil	—	—	—	—	13900	—	—	—	—	—	—	1.25	—	1.57 (U)	—	—	—
RE21-07-75738	21-27553	2.0–3.0	Soil	—	—	—	—	7170	—	—	—	—	—	—	—	0.00134 (J)	1.68 (U)	—	—	—
RE21-07-75743	21-27555	0.0–0.5	Soil	—	—	—	0.523 (U)	—	—	—	—	—	—	—	1.88	0.000991 (J)	—	—	—	—
RE21-07-75745	21-27556	0.0–0.5	Soil	—	—	—	0.567 (U)	—	—	—	—	—	—	—	1.53	—	—	—	—	—
RE21-07-75747	21-27557	0.0–0.5	Soil	—	—	—	0.632 (U)	—	—	—	—	—	—	—	1.4	—	1.9 (U)	—	—	—
RE21-07-75749	21-27558	0.0–0.5	Soil	—	—	—	0.542 (U)	—	—	—	—	—	—	—	—	—	1.62 (U)	—	—	—
RE21-07-75752	21-27554	0.0–0.5	Soil	—	—	—	0.48 (U)	—	—	—	—	—	—	—	1.43	—	—	—	—	—
RE21-07-75755	21-27559	0.0–0.5	Soil	—	—	—	0.483 (U)	—	—	—	—	—	—	—	1.08	—	—	—	—	—
RE21-07-75765	21-27560	0.0–0.5	Soil	—	—	—	0.552 (U)	—	—	—	—	—	—	—	1.37	—	1.65 (U)	—	—	—
RE21-07-75766	21-27560	2.0–3.0	Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	1.71 (U)	—	—	—
RE21-07-75767	21-27561	0.0–0.5	Soil	—	—	—	0.532 (U)	—	—	—	—	—	—	—	—	—	1.6 (U)	—	—	—
RE21-07-75768	21-27561	2.0–3.0	Soil	—	—	—	0.566 (U)	—	—	—	—	—	—	—	1.4	—	1.7 (U)	—	—	—
RE21-07-75769	21-27562	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	—	2.62	—	1.56 (U)	—	—	—
RE21-07-75771	21-27563	0.0–0.5	Soil	—	—	—	0.546 (U)	—	—	—	—	—	—	—	1.54	—	1.64 (U)	—	—	—
RE21-07-75772	21-27563	2.0–3.0	Soil	—	—	—	0.511 (U)	—	—	—	—	—	—	—	—	—	1.53 (U)	—	—	—
RE21-07-75804	21-27570	0.0–0.5	Soil	—	—	—	0.412 (J)	10500 (J)	—	31.1	—	—	0.842	—	2.21	—	—	—	—	109 (J-)
RE21-07-75807	21-27571	0.0–0.5	Soil	—	—	—	—	11000 (J)	—	—	—	—	0.171	—	2.41	—	1.54 (U)	—	—	—
RE21-07-75813	21-27573	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	—	2 (J)	—	—	—	—	—
RE21-07-75815	21-27574	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	—	1.8 (J)	—	—	—	—	—
RE21-07-75817	21-27575	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	—	0.69 (J)	—	—	—	—	—
RE21-07-75819	21-27576	0.0–0.5	Soil	1.5 (J-)	11.9	708	12.1	—	252	556	1.9 (J)	249	12.5	62.6	9.8 (J)	—	1.9	40.3	12.9	1640
RE21-07-75821	21-27577	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	—	2.6 (J)	—	—	—	—	—
RE21-07-75823	21-27578	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	0.12	—	4.9 (J)	—	—	1.2	—	—

Table 6.4-38 (continued)

Sample ID	Location ID	Depth (ft)	Media	Antimony	Arsenic	Barium	Cadmium	Calcium	Chromium	Copper	Cyanide (Total)	Lead	Mercury	Nickel	Nitrate	Perchlorate	Selenium	Silver	Uranium	Zinc
Soil BV [a]				**0.83**	**8.17**	**295**	**0.4**	**6120**	**19.3**	**14.7**	**0.5**	**22.3**	**0.1**	**15.4**	**na [b]**	**na**	**1.52**	**1**	**1.82**	**48.8**
Industrial SSL [c]				**454**	**17.7**	**100000**	**564**	**na**	**5000 [d]**	**45400**	**13700**	**800**	**610 [d]**	**22700**	**100000**	**790 [d]**	**5680**	**5680**	**200 [e]**	**100000**
Construction Worker SSL [c]				**124**	**85.2**	**60200**	**154**	**na**	**26.1**	**12400**	**4760**	**800**	**927**	**6190**	**100000**	**na**	**1550**	**1550**	**na**	**92900**
Residential SSL [c]				**31.3**	**3.9**	**15600**	**39**	**na**	**2100 [d]**	**3130**	**1220**	**400**	**23 [d]**	**1560**	**100000**	**55 [d]**	**391**	**391**	**16 [e]**	**23500**
RE21-07-75825	21-27579	0.0–0.5	Soil	0.94 (J-)	—	392	4.4	—	124	292	2.7 (J)	118	14.7	36.6	5.8 (J)	—	1.6	42.2	19.2	568
RE21-07-75827	21-27580	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	—	2.6 (J)	—	—	—	—	—

Note: Units are mg/kg.

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

[b] na = Not available.

[c] SSLs from NMED (2006, 092513).

[d] Value from EPA Region 6 (2007, 095866).

[e] Value from EPA Region 9 (http://www.epa.gov/region9/waste/sfund/prg/files/04prgtable.pdf).

[f] — = Not detected or not detected above BV.

Table 6.4-39
Inorganic Chemicals above BVs in Tuff at Consolidated Unit 21-026(a)-99

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Arsenic	Barium	Calcium	Chromium	Copper	Cyanide (Total)	Lead	Magnesium	Mercury	Nickel	Nitrate	Perchlorate	Selenium	Silver	Uranium	Zinc
Qbt 2,3,4 BV [a]				**7340**	**2.79**	**46**	**2200**	**7.14**	**4.66**	**0.5**	**11.2**	**1690**	**0.1**	**6.58**	**na [b]**	**na**	**0.3**	**1**	**2.4**	**63.5**
Industrial SSL [c]				**100000**	**17.7**	**100000**	**na**	**5000 [d]**	**45400**	**13700**	**800**	**na**	**610 [d]**	**22700**	**100000**	**790 [d]**	**5680**	**5680**	**200 [e]**	**100000**
Construction Worker SSL [c]				**14400**	**85.2**	**60200**	**na**	**26.1**	**12400**	**4760**	**800**	**na**	**927**	**6190**	**100000**	**na**	**1550**	**1550**	**na**	**92900**
Residential SSL [c]				**77800**	**3.9**	**15600**	**na**	**2100 [d]**	**3130**	**1220**	**400**	**na**	**23 [d]**	**1560**	**100000**	**55 [d]**	**391**	**391**	**16 [e]**	**23500**
RE21-07-75727	21-27550	4.33–5.33	Tuff	— [f]	—	—	5690	8 (J)	—	—	—	—	—	—	—	—	1.51 (U)	—	—	—
RE21-07-75728	21-27550	6.33–7.33	Tuff	—	—	—	—	—	—	—	—	—	—	—	—	—	1.52 (U)	—	—	—
RE21-07-75729	21-27550	9.33–10.33	Tuff	—	—	—	2530	—	9.29	—	—	—	0.158	—	—	—	1.51 (U)	—	—	—
RE21-07-75730	21-27551	10.0–11.0	Tuff	—	—	—	8970 (J)	—	—	—	—	—	—	—	—	0.000788 (J)	1.53 (U)	—	—	—
RE21-07-75731	21-27551	15.0–16.0	Tuff	—	—	—	5990 (J)	—	—	—	—	—	—	—	—	0.000607 (J)	0.675 (J)	—	—	—
RE21-07-75732	21-27551	20.0–21.0	Tuff	—	—	—	8490 (J)	—	—	—	—	—	—	—	—	0.000956 (J)	1.52 (U)	—	—	—
RE21-07-75736	21-27552	5.0–6.0	Tuff	—	—	—	—	—	—	—	—	—	—	—	—	0.000627 (J)	0.674 (J)	—	—	—
RE21-07-75739	21-27553	5.0–6.0	Tuff	—	3.11	102 (J+)	37000	8.44	5.08	—	—	2970	—	6.86	—	0.00094 (J-)	1.64 (U)	—	—	—
RE21-07-75744	21-27555	2.0–2.5	Tuff	—	—	—	—	—	—	—	—	—	—	—	—	0.000675 (J)	1.57 (U)	—	—	—
RE21-07-75746	21-27556	2.0–2.5	Tuff	—	—	—	—	10.6	—	—	—	—	—	—	—	—	0.66 (J)	—	—	—
RE21-07-75748	21-27557	2.0–2.5	Tuff	13200	2.95	48.1	—	10.7	4.69	—	—	1900 (J+)	—	—	—	—	0.868 (J)	—	—	—
RE21-07-75750	21-27558	2.0–2.5	Tuff	—	—	—	—	—	—	—	—	—	—	—	—	—	1.69 (U)	—	—	—
RE21-07-75753	21-27554	2.5–3.5	Tuff	—	—	—	4970 (J+)	13	—	—	—	—	—	—	—	—	1.51 (U)	—	—	—
RE21-07-75754	21-27554	4.5–5.5	Tuff	—	—	—	3120 (J+)	13.2	—	—	—	—	—	—	—	0.00154 (J+)	1.57 (U)	—	—	—
RE21-07-75756	21-27559	2.5–3.5	Tuff	—	—	—	—	11.3	—	—	—	—	—	—	—	—	1.64 (U)	—	—	—
RE21-07-75757	21-27559	4.5–5.5	Tuff	—	—	—	3120 (J+)	11.9	—	—	—	—	—	—	—	—	1.6 (U)	—	—	—
RE21-07-75770	21-27562	2.0–3.0	Tuff	—	—	—	—	17.1	—	—	—	—	—	—	1.85	0.000929 (J-)	0.845 (J)	—	—	—
RE21-07-75773	21-27564	9.5–10.5	Tuff	—	—	—	8450 (J+)	—	—	—	267 (J)	—	—	—	—	0.00471 (J+)	0.659 (J)	—	—	—
RE21-07-75774	21-27564	11.5–12.5	Tuff	—	—	—	—	—	—	—	82.8 (J)	—	—	—	—	0.00132 (J-)	1.51 (U)	—	—	—
RE21-07-75775	21-27565	12.0–13.0	Tuff	—	—	—	4150 (J)	—	—	—	—	—	—	—	—	—	1.45 (U)	—	—	—
RE21-07-75776	21-27565	14.0–15.0	Tuff	—	—	59.1	19200 (J)	—	—	—	17.6	—	—	—	—	—	1.6 (U)	—	—	—
RE21-07-75777	21-27566	12.0–13.0	Tuff	—	—	—	4410 (J)	—	—	—	—	—	—	—	1.22	0.00414 (J-)	1.46 (U)	—	—	—
RE21-07-75778	21-27566	14.0–15.0	Tuff	—	—	—	3390 (J)	—	—	—	—	—	—	—	1.23	0.00268 (J-)	1.53 (U)	—	—	—
RE21-07-75781	21-27568	10.0–11.0	Tuff	—	—	46.2	8320 (J)	—	—	—	—	—	—	—	—	0.000811 (J)	0.646 (J)	—	—	—
RE21-07-75782	21-27568	12.0–13.0	Tuff	—	—	—	11100 (J)	—	—	—	—	—	—	—	2.21	0.00352	1.6 (U)	—	—	—
RE21-07-75805	21-27570	3.5–4.5	Tuff	—	—	—	7940 (J)	—	7.72	—	96.6	—	—	—	—	—	1.63 (U)	—	—	—
RE21-07-75806	21-27570	5.5–6.5	Tuff	—	—	—	—	—	—	—	26.4	—	—	—	—	0.000823 (J)	1.54 (U)	—	—	—

Table 6.4-39 (continued)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Arsenic	Barium	Calcium	Chromium	Copper	Cyanide (Total)	Lead	Magnesium	Mercury	Nickel	Nitrate	Perchlorate	Selenium	Silver	Uranium	Zinc
Qbt 2,3,4 BV [a]				**7340**	**2.79**	**46**	**2200**	**7.14**	**4.66**	**0.5**	**11.2**	**1690**	**0.1**	**6.58**	**na [b]**	**na**	**0.3**	**1**	**2.4**	**63.5**
Industrial SSL [c]				**100000**	**17.7**	**100000**	**na**	**5000 [d]**	**45400**	**13700**	**800**	**na**	**610 [d]**	**22700**	**100000**	**790 [d]**	**5680**	**5680**	**200 [e]**	**100000**
Construction Worker SSL [c]				**14400**	**85.2**	**60200**	**na**	**26.1**	**12400**	**4760**	**800**	**na**	**927**	**6190**	**100000**	**na**	**1550**	**1550**	**na**	**92900**
Residential SSL [c]				**77800**	**3.9**	**15600**	**na**	**2100 [d]**	**3130**	**1220**	**400**	**na**	**23 [d]**	**1560**	**100000**	**55 [d]**	**391**	**391**	**16 [e]**	**23500**
RE21-07-75808	21-27571	3.5–4.5	Tuff	—	—	—	42800 (J)	9.23	8.14	—	35.8	—	—	—	—	—	1.55 (U)	—	—	—
RE21-07-75809	21-27571	5.5–6.5	Tuff	—	3.06	—	6280 (J)	23.9	—	—	103	—	—	—	—	—	1.58 (U)	—	—	65 (J-)
RE21-07-75810	21-27572	0.0–0.5	Tuff	—	—	—	—	—	—	0.54 (U)	—	—	—	—	—	—	0.54 (U)	—	—	—
RE21-07-75811	21-27572	2.0–3.0	Tuff	—	—	—	—	—	—	0.54 (U)	—	—	—	—	—	—	—	—	—	—
RE21-07-75812	21-27572	5.0–6.0	Tuff	—	—	—	—	—	—	0.51 (U)	—	—	—	—	—	—	0.32 (J)	—	—	—
RE21-07-75814	21-27573	2.0–3.0	Tuff	—	—	—	—	8.6	—	—	—	—	—	—	—	—	0.38 (J)	—	—	—
RE21-07-75816	21-27574	2.0–3.0	Tuff	—	—	—	—	10	—	—	—	—	—	—	—	—	0.33 (J)	—	—	—
RE21-07-75818	21-27575	2.0–3.0	Tuff	—	—	—	—	—	9.5	—	—	—	0.22	—	—	—	—	2.6	—	—
RE21-07-75820	21-27576	2.0–3.0	Tuff	—	—	90.5	—	33.2	49.8	—	23.5	—	0.82	12.1	0.98 (J)	—	—	3.1	—	202
RE21-07-75822	21-27577	2.0–3.0	Tuff	—	—	—	—	—	—	0.52 (U)	—	—	—	—	—	—	—	—	—	—
RE21-07-75824	21-27578	2.0–3.0	Tuff	—	—	—	—	—	—	0.55 (U)	—	—	—	—	—	—	0.34 (J)	—	—	—
RE21-07-75826	21-27579	2.0–3.0	Tuff	—	—	—	—	12.8	29.3	0.54 (U)	12.7	—	0.88	7	—	—	—	2	2.5	73.7
RE21-07-75828	21-27580	2.0–3.0	Tuff	—	—	—	—	10.8	—	0.54 (U)	—	—	—	—	—	—	—	—	—	—
RE21-07-75829	21-27581	10.0–11.0	Tuff	—	—	61.3	13900 (J)	—	—	—	—	—	—	—	—	—	0.833 (J)	—	—	—
RE21-07-75830	21-27581	12.0–13.0	Tuff	—	—	—	11700 (J)	—	—	—	—	—	—	—	—	0.000551 (J)	1.03 (J)	—	—	—

Note: Units are mg/kg.

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

[b] na = Not available.

[c] SSLs from NMED (2006, 092513).

[d] Value from EPA Region 6 (2007, 095866).

[e] Value from EPA Region 9 (http://www.epa.gov/region9/waste/sfund/prg/files/04prgtable.pdf).

[f] — = Not detected or not detected above BV.

Table 6.4-40
Organic Chemicals Detected in Soil at Consolidated Unit 21-026(a)-99

Sample ID	Location ID	Depth (ft)	Media	Acenaphthene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Benzoic Acid	Bis(2-ethylhexyl)phthalate	Butylbenzylphthalate	Chrysene
Industrial SSL[a]				**33500**	**100000**	**23.4**	**2.34**	**23.4**	**30900 [b]**	**234**	**100000 [c]**	**1370**	**240 [c]**	**2310**
Construction Worker SSL[a]				**14100**	**86000**	**212**	**21.2**	**212**	**9010 [b]**	**2120**	**na[d]**	**4660**	**na**	**21200**
Residential SSL[a]				**3730**	**22000**	**6.21**	**0.621**	**6.21**	**2290 [b]**	**62.1**	**100000 [c]**	**347**	**240 [c]**	**615**
RE21-07-75726	21-27550	0.0–0.5	Soil	— [e]	—	—	—	0.0153 (J)	—	—	—	—	—	—
RE21-07-75735	21-27552	2.0–3.0	Soil	0.281	—	—	—	—	—	—	—	—	—	—
RE21-07-75738	21-27553	2.0–3.0	Soil	—	—	—	—	—	—	—	—	—	—	—
RE21-07-75743	21-27555	0.0–0.5	Soil	—	—	—	—	—	—	—	0.501 (J)	—	—	—
RE21-07-75745	21-27556	0.0–0.5	Soil	—	—	—	—	—	—	—	0.44 (J)	—	—	—
RE21-07-75747	21-27557	0.0–0.5	Soil	—	—	—	—	—	—	—	0.481 (J)	—	—	—
RE21-07-75771	21-27563	0.0–0.5	Soil	—	—	—	—	0.0123 (J)	—	—	—	—	—	—
RE21-07-75804	21-27570	0.0–0.5	Soil	—	—	—	0.0837	0.162	0.0429	0.0718	—	0.16 (J)	—	0.104
RE21-07-75807	21-27571	0.0–0.5	Soil	—	—	—	—	0.0553	—	—	—	0.0937 (J)	—	0.0387
RE21-07-75813	21-27573	0.0–0.5	Soil	—	—	0.081 (J)	0.06 (J)	0.062 (J)	—	0.07 (J)	—	—	—	0.082 (J)
RE21-07-75817	21-27575	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	—
RE21-07-75819	21-27576	0.0–0.5	Soil	0.15 (J)	0.55 (J)	5.5	4.3 (J)	5.7 (J)	2.1 (J)	4.6 (J)	—	4.2	0.84	6
RE21-07-75825	21-27579	0.0–0.5	Soil	0.24 (J)	0.65	5.9	4.4 (J)	6 (J)	2.1 (J)	4.2 (J)	—	2.7	1.2	6

Table 6.4-40 (continued)

Sample ID	Location ID	Depth (ft)	Media	Di-n-butylphthalate	Di-n-octylphthalate	Dibenz(a,h)anthracene	Dibenzofuran	Dichlorobenzene[1,4-]	Dimethylphenol[2,4-]	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Phenanthrene	Pyrene	Trimethylbenzene[1,2,4-]
Industrial SSL[a]				**68400**	**2500 [c]**	**2.34**	**1620**	**103**	**13700**	**24400**	**26500**	**23.4**	**20500**	**30900**	**213**
Construction Worker SSL[a]				**23300**	**na**	**21.2**	**552**	**1960**	**4660**	**8730**	**10200**	**212**	**6990**	**9010**	**190**
Residential SSL[a]				**6100**	**2400 [c]**	**0.621**	**142**	**39.5**	**1220**	**2290**	**2660**	**6.21**	**1830**	**2290**	**58**
RE21-07-75726	21-27550	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	—	NA [f]
RE21-07-75735	21-27552	2.0–3.0	Soil	—	—	—	—	—	—	—	—	—	—	—	—
RE21-07-75738	21-27553	2.0–3.0	Soil	—	—	—	—	—	—	—	—	—	—	—	0.000413 (J)
RE21-07-75743	21-27555	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	—	NA
RE21-07-75745	21-27556	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	—	NA
RE21-07-75747	21-27557	0.0–0.5	Soil	—	—	—	—	—	—	—	—	—	—	—	NA
RE21-07-75771	21-27563	0.0–0.5	Soil	—	—	—	—	—	—	0.0137 (J)	—	—	—	0.0114 (J)	NA
RE21-07-75804	21-27570	0.0–0.5	Soil	—	—	—	—	—	—	0.079	—	0.0393	—	0.0849	NA
RE21-07-75807	21-27571	0.0–0.5	Soil	0.0621 (J)	—	—	—	—	—	0.0346	—	—	—	0.0405	NA
RE21-07-75813	21-27573	0.0–0.5	Soil	—	—	—	—	—	—	0.089 (J)	—	—	—	0.089 (J)	NA
RE21-07-75817	21-27575	0.0–0.5	Soil	0.04 (J)	—	—	—	—	—	—	—	—	—	—	NA
RE21-07-75819	21-27576	0.0–0.5	Soil	0.31 (J)	0.1 (J)	0.83 (J)	—	—	—	6	0.12 (J)	2.2 (J)	1.8 (J)	5.4	NA
RE21-07-75825	21-27579	0.0–0.5	Soil	0.85	—	0.84 (J)	0.055 (J)	0.064 (J)	0.063 (J)	6.7	0.17 (J)	2.1 (J)	2.2	6	NA

Note: Units are mg/kg.

[a] SSLs from NMED (2006, 092513).

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

[c] Values from EPA Region 6 (2007, 095866).

[d] na = not available.

[e] — = Not detected.

[f] NA = Not analyzed.

Table 6.4-41
Organic Chemicals Detected in Tuff at Consolidated Unit 21-026(a)-99

Sample ID	Location ID	Depth (ft)	Media	Anthracene	Aroclor-1254	Aroclor-1260	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Benzoic Acid	Bis(2-ethylhexyl)phthalate	Butylbenzylphthalate	Chloroform	Chrysene
Industrial SSL[a]				**100000**	**8.26**	**8.26**	**23.4**	**2.34**	**23.4**	**30900 [b]**	**234**	**100000 [c]**	**1370**	**240 [c]**	**9.59**	**128**
Construction Worker SSL[a]				**86000**	**4.28**	**4.28**	**212**	**21.2**	**212**	**9010 [b]**	**2120**	**na [d]**	**4660**	**na**	**216**	**128**
Residential SSL[a]				**22000**	**1.12**	**1.12**	**6.21**	**0.621**	**6.21**	**2290 [b]**	**62.1**	**100000 [c]**	**347**	**240 [c]**	**4**	**128**
RE21-07-583	21-27558	2.0–3.0	Tuff	NA [e]	0.0044	0.0031 (J)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE21-07-75727	21-27550	4.33–5.33	Tuff	— [f]	NA	NA	0.0291 (J)	0.0184 (J)	0.0297 (J)	—	—	—	—	—	—	0.0248 (J)
RE21-07-75728	21-27550	6.33–7.33	Tuff	—	NA	NA	0.0142 (J)	—	0.0124 (J)	—	—	—	—	—	—	—
RE21-07-75729	21-27550	9.33–10.33	Tuff	—	NA	NA	0.124	0.0893	0.153	0.0371 (J)	0.0564	—	0.0839 (J)	—	—	0.121
RE21-07-75731	21-27551	15.0–16.0	Tuff	—	NA	NA	—	—	—	—	—	—	—	—	—	—
RE21-07-75732	21-27551	20.0–21.0	Tuff	—	NA	NA	—	—	—	—	—	—	—	—	—	—
RE21-07-75750	21-27558	2.0–2.5	Tuff	—	NA	NA	—	—	—	—	—	0.392 (J)	—	—	—	—
RE21-07-75776	21-27565	14.0–15.0	Tuff	—	NA	NA	—	—	0.0108 (J)	—	—	—	—	—	—	—
RE21-07-75781	21-27568	10.0–11.0	Tuff	—	NA	NA	—	—	—	—	—	—	—	—	—	—
RE21-07-75782	21-27568	12.0–13.0	Tuff	—	NA	NA	—	—	—	—	—	—	—	—	—	—
RE21-07-75805	21-27570	3.5–4.5	Tuff	—	NA	NA	—	—	—	—	—	—	—	—	0.000254 (J)	—
RE21-07-75808	21-27571	3.5–4.5	Tuff	—	NA	NA	—	—	—	—	—	—	—	—	0.000219 (J)	—
RE21-07-75818	21-27575	2.0–3.0	Tuff	—	NA	NA	—	—	—	—	—	—	0.12 (J)	0.069 (J)	—	—
RE21-07-75820	21-27576	2.0–3.0	Tuff	0.04 (J)	NA	NA	0.47	0.36 (J)	0.44	0.16 (J)	0.36 (J)	—	0.24 (J)	0.071 (J)	—	0.51
RE21-07-75826	21-27579	2.0–3.0	Tuff	0.073 (J)	NA	NA	0.28 (J)	0.22 (J)	0.2 (J)	0.089 (J)	0.28 (J)	—	0.14 (J)	0.14 (J)	—	0.3 (J)
RE21-07-75829	21-27581	10.0–11.0	Tuff	—	NA	NA	—	—	—	—	—	—	—	—	—	—

Table 6.4-41 (continued)

Sample ID	Location ID	Depth (ft)	Media	Di-n-butylphthalate	Ethylbenzene	Fluoranthene	Heptachlorodibenzodioxin[1,2,3,4,6,7,8-]	Indeno(1,2,3-cd)pyrene	Octachlorodibenzodioxin[1,2,3,4,6,7,8,9-]	Phenanthrene	Pyrene	Toluene	Trimethylbenzene[1,2,4-]	Xylene[1,3-]+Xylene[1,4-]
Industrial SSL[a]				**24400**	**128**	**2310**	**68400**	**23.4**	**na**	**20500**	**30900**	**252**	**213**	**82**
Construction Worker SSL[a]				**8730**	**128**	**21200**	**23300**	**212**	**na**	**6990**	**9010**	**252**	**190**	**82**
Residential SSL[a]				**2290**	**128**	**615**	**6100**	**6.21**	**na**	**1830**	**2290**	**252**	**58**	**82**
RE21-07-583	21-27558	2.0–3.0	Tuff	NA	NA	NA	0.00158 (J)	NA	0.00995	NA	NA	NA	NA	NA
RE21-07-75727	21-27550	4.33–5.33	Tuff	—	—	0.0287 (J)	NA	—	NA	—	0.024 (J)	—	—	—
RE21-07-75728	21-27550	6.33–7.33	Tuff	—	—	0.0109 (J)	NA	—	NA	—	—	—	—	0.000283 (J)
RE21-07-75729	21-27550	9.33–10.33	Tuff	—	—	0.143	NA	—	NA	0.0219 (J)	0.124	—	—	0.000279 (J)
RE21-07-75731	21-27551	15.0–16.0	Tuff	—	—	—	NA	—	NA	—	—	0.000311 (J)	—	0.000292 (J)
RE21-07-75732	21-27551	20.0–21.0	Tuff	—	—	—	NA	—	NA	—	—	0.00042 (J)	—	0.000357 (J)
RE21-07-75750	21-27558	2.0–2.5	Tuff	—	—	—	NA	—	NA	—	—	—	—	—
RE21-07-75776	21-27565	14.0–15.0	Tuff	—	—	—	NA	—	NA	—	—	—	—	—
RE21-07-75781	21-27568	10.0–11.0	Tuff	—	—	—	NA	—	NA	—	—	0.000471 (J)	—	—
RE21-07-75782	21-27568	12.0–13.0	Tuff	—	—	—	NA	—	NA	—	—	0.00369	—	—
RE21-07-75805	21-27570	3.5–4.5	Tuff	—	—	—	NA	—	NA	—	—	—	—	—
RE21-07-75808	21-27571	3.5–4.5	Tuff	—	—	—	NA	—	NA	—	—	—	—	—
RE21-07-75818	21-27575	2.0–3.0	Tuff	—	—	—	NA	—	NA	—	—	—	—	—
RE21-07-75820	21-27576	2.0–3.0	Tuff	—	—	0.52	NA	0.19 (J)	NA	0.13 (J)	0.49	—	—	—
RE21-07-75826	21-27579	2.0–3.0	Tuff	0.069 (J)	0.00043 (J)	0.44	NA	0.084 (J)	NA	0.24 (J)	0.36	—	0.00049 (J)	0.0015 (J)
RE21-07-75829	21-27581	10.0–11.0	Tuff	—	—	—	NA	—	NA	—	—	0.00246	—	—

Note: Units are mg/kg.

[a] SSLs from NMED (2006, 092513).

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

[c] Values from EPA Region 6 (2007, 095866).

[d] na = not available

[e] NA = Not analyzed.

[f] — = Not detected.

Table 6.4-42
Radionuclides Detected or Detected above BVs/FVs in Soil at Consolidated Unit 21-026(a)-99

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cesium-137	Plutonium-238	Plutonium-239	Tritium	Uranium-234	Uranium-235	Uranium-238
Soil BV/FV [a]				**0.013**	**1.65**	**0.023**	**0.054**	**na [b]**	**2.59**	**0.2**	**2.29**
Industrial SSL [c]				**180**	**23**	**240**	**210**	**440000**	**1500**	**87**	**430**
Construction Worker SSL [c]				**34**	**18**	**40**	**36**	**320000**	**220**	**43**	**160**
Residential SSL [c]				**30**	**5.6**	**37**	**33**	**750**	**170**	**17**	**86**
RE21-07-75726	21-27550	0.0–0.5	Soil	0.194	— [d]	—	0.221	0.0285	—	—	—
RE21-07-75735	21-27552	2.0–3.0	Soil	—	0.108	—	—	0.0134	—	—	—
RE21-07-75737	21-27553	0.0–0.5	Soil	0.196	—	—	0.165	—	—	—	—
RE21-07-75738	21-27553	2.0–3.0	Soil	0.104	—	—	0.123	0.0427	—	—	—
RE21-07-75743	21-27555	0.0–0.5	Soil	—	—	—	—	0.0387	—	—	—
RE21-07-75745	21-27556	0.0–0.5	Soil	—	—	—	0.468	—	—	—	—
RE21-07-75747	21-27557	0.0–0.5	Soil	—	—	0.073	—	—	—	—	—
RE21-07-75749	21-27558	0.0–0.5	Soil	—	—	—	0.105	0.0371	—	—	—
RE21-07-75752	21-27554	0.0–0.5	Soil	—	—	—	0.0631	0.00367	—	—	—
RE21-07-75755	21-27559	0.0–0.5	Soil	—	—	—	—	0.00320	—	—	—
RE21-07-75766	21-27560	2.0–3.0	Soil	—	—	—	0.0671	0.0285	—	—	—
RE21-07-75768	21-27561	2.0–3.0	Soil	—	0.139	—	—	—	—	—	—
RE21-07-75769	21-27562	0.0–0.5	Soil	—	—	—	0.127	0.0224	—	—	—
RE21-07-75772	21-27563	2.0–3.0	Soil	—	0.0691	—	—	0.0194	—	—	—
RE21-07-75804	21-27570	0.0–0.5	Soil	4.19	—	0.125	3.74	0.282	—	—	—
RE21-07-75807	21-27571	0.0–0.5	Soil	0.271	—	—	0.468	0.0545	—	—	—
RE21-07-75813	21-27573	0.0–0.5	Soil	—	—	—	0.077	—	—	—	—

Table 6.4-42 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cesium-137	Plutonium-238	Plutonium-239	Tritium	Uranium-234	Uranium-235	Uranium-238
Soil BV/FV [a]				**0.013**	**1.65**	**0.023**	**0.054**	**na [b]**	**2.59**	**0.2**	**2.29**
Industrial SSL [c]				**180**	**23**	**240**	**210**	**440000**	**1500**	**87**	**430**
Construction Worker SSL [c]				**34**	**18**	**40**	**36**	**320000**	**220**	**43**	**160**
Residential SSL [c]				**30**	**5.6**	**37**	**33**	**750**	**170**	**17**	**86**
RE21-07-75815	21-27574	0.0–0.5	Soil	0.0418	—	—	—	—	—	—	—
RE21-07-75817	21-27575	0.0–0.5	Soil	0.0296	—	—	0.169	—	—	—	—
RE21-07-75819	21-27576	0.0–0.5	Soil	58.1	—	3.24	83.5	6.12	12.6	0.65	3.44
RE21-07-75821	21-27577	0.0–0.5	Soil	0.182	—	—	0.369	—	—	—	—
RE21-07-75823	21-27578	0.0–0.5	Soil	0.087	—	—	0.138	0.0343	—	—	—
RE21-07-75825	21-27579	0.0–0.5	Soil	5.99	—	2.35	20.5	0.538	43.1	1.8	5.2
RE21-07-75827	21-27580	0.0–0.5	Soil	—	—	—	0.126	0.0082	—	—	—

Note: Units are pCi/g.

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

[b] na = Not available.

[c] SALs from LANL (2005, 088493).

[d] — = Not detected or not detected above BV/FV.

Table 6.4-43
Radionuclides Detected or Detected above BVs in Tuff at Consolidated Unit 21-026(a)-99

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cesium-137	Plutonium-238	Plutonium-239	Tritium	Uranium-234	Uranium-235
Qbt 2,3,4 BV/FV [a]				**na [b]**	**na**	**na**	**na**	**na**	**1.98**	**0.09**
Industrial SSL [c]				**180**	**23**	**240**	**210**	**440000**	**1500**	**87**
Construction Worker SSL [c]				**34**	**18**	**40**	**36**	**320000**	**220**	**43**
Residential SSL [c]				**30**	**5.6**	**37**	**33**	**750**	**170**	**17**
RE21-07-75727	21-27550	4.33–5.33	Tuff	0.568	— [d]	0.0304	1.38	0.0697	—	—
RE21-07-75728	21-27550	6.33–7.33	Tuff	0.0777	—	—	0.0546	0.0643	—	—
RE21-07-75729	21-27550	9.33–10.33	Tuff	0.336	—	—	0.432	0.0538	—	—
RE21-07-75730	21-27551	10.0–11.0	Tuff	—	—	—	—	0.0484	—	—
RE21-07-75731	21-27551	15.0–16.0	Tuff	—	—	—	—	0.0305	—	—
RE21-07-75732	21-27551	20.0–21.0	Tuff	—	—	—	—	0.0497	—	—
RE21-07-75736	21-27552	5.0–6.0	Tuff	—	—	—	—	0.0191	—	—
RE21-07-75739	21-27553	5.0–6.0	Tuff	—	—	—	0.0939	0.0524	—	—
RE21-07-75744	21-27555	2.0–2.5	Tuff	—	0.33	—	—	0.1371	—	—
RE21-07-75746	21-27556	2.0–2.5	Tuff	—	—	—	—	0.0439	—	—
RE21-07-75748	21-27557	2.0–2.5	Tuff	—	—	—	—	0.0340	—	—
RE21-07-75750	21-27558	2.0–2.5	Tuff	—	—	—	—	0.0637	—	—
RE21-07-75753	21-27554	2.5–3.5	Tuff	—	—	—	—	0.0144	—	—
RE21-07-75754	21-27554	4.5–5.5	Tuff	—	—	—	—	0.0186	—	—
RE21-07-75756	21-27559	2.5–3.5	Tuff	—	—	—	—	0.0291	—	—
RE21-07-75757	21-27559	4.5–5.5	Tuff	—	—	—	—	0.0168	—	—
RE21-07-75770	21-27562	2.0–3.0	Tuff	—	—	—	—	0.0918	—	—

Table 6.4-43 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cesium-137	Plutonium-238	Plutonium-239	Tritium	Uranium-234	Uranium-235
Qbt 2,3,4 BV/FV [a]				**na [b]**	**na**	**na**	**na**	**na**	**1.98**	**0.09**
Industrial SSL [c]				**180**	**23**	**240**	**210**	**440000**	**1500**	**87**
Construction Worker SSL [c]				**34**	**18**	**40**	**36**	**320000**	**220**	**43**
Residential SSL [c]				**30**	**5.6**	**37**	**33**	**750**	**170**	**17**
RE21-07-75773	21-27564	9.5–10.5	Tuff	0.0508	0.119	—	0.303	0.0225	—	—
RE21-07-75774	21-27564	11.5–12.5	Tuff	—	—	—	—	0.00393	—	—
RE21-07-75775	21-27565	12.0–13.0	Tuff	—	—	—	—	0.0626	—	—
RE21-07-75776	21-27565	14.0–15.0	Tuff	—	—	—	0.0338	0.0324	—	—
RE21-07-75777	21-27566	12.0–13.0	Tuff	—	—	—	0.043	0.0164	—	—
RE21-07-75778	21-27566	14.0–15.0	Tuff	—	—	—	—	0.0163	—	—
RE21-07-75781	21-27568	10.0–11.0	Tuff	—	—	—	—	0.0527	—	—
RE21-07-75782	21-27568	12.0–13.0	Tuff	—	NA	—	—	0.0594	—	—
RE21-07-75805	21-27570	3.5–4.5	Tuff	—	—	—	0.0527	0.0928	—	—
RE21-07-75806	21-27570	5.5–6.5	Tuff	—	—	—	—	0.0352	—	—
RE21-07-75808	21-27571	3.5–4.5	Tuff	0.0718	—	—	0.109	0.0841	—	—
RE21-07-75809	21-27571	5.5–6.5	Tuff	—	—	—	—	0.0939	—	—
RE21-07-75810	21-27572	0.0–0.5	Tuff	—	—	—	—	0.0082	—	—
RE21-07-75811	21-27572	2.0–3.0	Tuff	—	—	—	—	0.0396	—	—
RE21-07-75812	21-27572	5.0–6.0	Tuff	—	—	—	NA	0.0128	—	—
RE21-07-75816	21-27574	2.0–3.0	Tuff	—	—	—	—	0.02	—	—
RE21-07-75818	21-27575	2.0–3.0	Tuff	0.177	—	0.25	1.08	0.053	—	—
RE21-07-75820	21-27576	2.0–3.0	Tuff	1.09	—	0.082	2.33	0.701	—	—

Table 6.4-43 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cesium-137	Plutonium-238	Plutonium-239	Tritium	Uranium-234	Uranium-235
Qbt 2,3,4 BV/FV [a]				**na [b]**	**na**	**na**	**na**	**na**	**1.98**	**0.09**
Industrial SSL [c]				**180**	**23**	**240**	**210**	**440000**	**1500**	**87**
Construction Worker SSL [c]				**34**	**18**	**40**	**36**	**320000**	**220**	**43**
Residential SSL [c]				**30**	**5.6**	**37**	**33**	**750**	**170**	**17**
RE21-07-75822	21-27577	2.0–3.0	Tuff	—	—	—	0.0391	0.0165	—	—
RE21-07-75826	21-27579	2.0–3.0	Tuff	0.131	—	0.079	0.508	0.106	3.39	0.212
RE21-07-75828	21-27580	2.0–3.0	Tuff	—	—	NA	—	0.0162	—	—
RE21-07-75829	21-27581	10.0–11.0	Tuff	—	NA	—	—	0.0634	—	—
RE21-07-75830	21-27581	12.0–13.0	Tuff	—	—	—	—	0.0389	—	—

Note: Units are pCi/g.

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

[b] na = Not available.

[c] SALs from LANL (2005, 088493).

[d] — = Not detected or not detected above BV/FV.

Table 6.4-44
Inorganic Chemicals above BVs in Soil at SWMU 21-027(c)

Sample ID	Location ID	Depth (ft)	Media	Cadmium	Calcium	Chromium	Copper	Lead	Mercury	Nitrate	Perchlorate	Selenium	Uranium	Zinc
Soil BV [a]				**0.4**	**6120**	**19.3**	**14.7**	**22.3**	**0.1**	**na [b]**	**na**	**1.52**	**1.82**	**48.8**
Industrial SSL [c]				**564**	**na**	**5000 [d]**	**45400**	**800**	**610 [d]**	**100000**	**790 [d]**	**5680**	**200 [e]**	**100000**
Construction Worker SSL [c]				**154**	**na**	**26.1**	**12400**	**800**	**927**	**100000**	**na**	**1550**	**na**	**92900**
Residential SSL [c]				**39**	**na**	**2100 [d]**	**3130**	**400**	**23 [d]**	**100000**	**55 [d]**	**391**	**16 [e]**	**23500**
RE21-07-75115	21-27399	3.0–4.0	Soil	— [f]	—	—	32.9 (J+)	90.4	0.37	—	0.000649 (J)	—	—	137 (J+)
RE21-07-75116	21-27399	5.0–6.0	Soil	0.541 (U)	—	—	26 (J+)	35.1	0.129	—	—	—	2.04	79.2 (J+)
RE21-07-75121	21-27401	0.0–0.5	Soil	0.417 (J)	21500 (J)	—	—	—	—	—	—	—	—	62.6 (J-)
RE21-07-75122	21-27401	2.0–2.5	Soil	—	—	—	—	—	—	—	—	—	—	60.2 (J-)
RE21-07-75123	21-27402	0.0–0.5	Soil	0.719	—	—	—	61.5	—	0.851 (J-)	—	1.61 (U)	—	102 (J-)
RE21-07-75124	21-27402	2.0–2.5	Soil	—	—	—	—	66.3	—	—	—	1.66 (U)	—	56.2 (J-)
RE21-07-75125	21-27403	0.0–0.5	Soil	—	—	—	—	—	—	0.968 (J-)	—	—	—	—
RE21-07-75126	21-27403	2.0–2.5	Soil	0.548	—	—	—	31	—	—	—	1.58 (U)	—	57 (J-)
RE21-07-75127	21-27404	0.0–0.5	Soil	0.491 (J)	—	—	17.7	31.6	0.111	—	—	1.68 (U)	—	108 (J-)
RE21-07-75128	21-27404	2.0–2.5	Soil	—	—	52.3	—	—	—	0.843 (J-)	—	1.65 (U)	—	58 (J-)
RE21-07-75129	21-27405	0.0–0.5	Soil	—	—	—	—	—	—	—	—	1.81 (U)	—	—
RE21-07-75130	21-27405	2.0–2.5	Soil	0.576 (U)	—	36.5	—	—	—	—	—	1.73 (U)	—	—
RE21-07-75131	21-27406	0.0–0.5	Soil	0.522 (J)	—	—	—	34.4	—	—	—	—	2.77	86.3 (J-)
RE21-07-75132	21-27406	2.0–2.5	Soil	0.519 (U)	8230 (J)	—	—	—	—	—	—	1.56 (U)	—	—
RE21-07-75133	21-27407	0.0–0.5	Soil	—	—	—	—	—	—	1.02 (J-)	—	—	—	—
RE21-07-75134	21-27407	2.0–2.5	Soil	0.5 (U)	—	—	—	—	—	—	—	—	—	—
RE21-07-75135	21-27408	0.0–0.5	Soil	0.533 (U)	—	—	—	—	—	0.859 (J-)	—	1.6 (U)	—	—
RE21-07-75136	21-27408	2.0–2.5	Soil	0.53 (U)	—	—	—	—	—	—	—	1.59 (U)	—	—
RE21-07-75137	21-27409	0.0–0.5	Soil	0.511 (U)	—	—	—	—	—	0.788 (J-)	—	1.53 (U)	—	—
RE21-07-75138	21-27409	2.0–2.5	Soil	0.5 (U)	—	—	—	—	—	—	—	—	—	—
RE21-07-75139	21-27410	0.0–0.5	Soil	0.502 (U)	—	—	—	—	—	1.04 (J-)	—	—	—	—
RE21-07-75140	21-27410	2.0–2.5	Soil	0.514 (U)	—	—	—	—	—	—	—	1.54 (U)	—	—
RE21-07-75141	21-27411	0.0–0.5	Soil	0.514 (U)	—	—	—	—	—	—	—	1.54 (U)	—	—
RE21-07-75142	21-27411	2.0–2.5	Soil	0.514 (U)	—	—	—	—	—	—	—	1.54 (U)	—	—
RE21-07-75143	21-27412	0.0–0.5	Soil	0.534 (U)	—	—	—	78.5	—	0.879 (J)	—	1.6 (U)	—	—
RE21-07-75144	21-27412	2.0–2.5	Soil	0.512 (U)	—	—	—	114	—	—	—	1.53 (U)	—	—
RE21-07-75145	21-27413	2.5–3.5	Soil	—	—	—	35.3 (J+)	44.9	—	—	—	—	3.92	231 (J+)
RE21-07-75146	21-27413	4.5–5.5	Soil	0.585 (U)	—	—	—	—	—	—	—	—	—	—
RE21-07-75147	21-27414	0.0–0.5	Soil	—	—	—	—	26.9	—	2.75	0.00155 (J)	—	—	51.5 (J+)

Table 6.4-44 (continued)

Sample ID	Location ID	Depth (ft)	Media	Cadmium	Calcium	Chromium	Copper	Lead	Mercury	Nitrate	Perchlorate	Selenium	Uranium	Zinc
Soil BV [a]				**0.4**	**6120**	**19.3**	**14.7**	**22.3**	**0.1**	**na [b]**	**na**	**1.52**	**1.82**	**48.8**
Industrial SSL [c]				**564**	**na**	**5000 [d]**	**45400**	**800**	**610 [d]**	**100000**	**790 [d]**	**5680**	**200 [e]**	**100000**
Construction Worker SSL [c]				**154**	**na**	**26.1**	**12400**	**800**	**927**	**100000**	**na**	**1550**	**na**	**92900**
Residential SSL [c]				**39**	**na**	**2100 [d]**	**3130**	**400**	**23 [d]**	**100000**	**55 [d]**	**391**	**16 [e]**	**23500**
RE21-07-75148	21-27414	3.0–4.0	Soil	0.538 (U)	—	—	—	—	—	—	—	—	—	—
RE21-07-75149	21-27415	0.0–0.5	Soil	—	—	—	—	24.8	—	1.88	0.00104 (J)	—	—	60.1 (J+)
RE21-07-75150	21-27415	3.0–4.0	Soil	0.545 (U)	—	—	—	—	—	—	—	—	—	—
RE21-07-75151	21-27414	5.0–6.0	Soil	—	—	—	—	25.9	—	—	—	1.63 (U)	—	—
RE21-07-75153	21-27415	5.0–6.0	Soil	0.547 (U)	—	—	—	—	0.895	—	0.000663 (J)	—	—	—

Note: Units are mg/kg.

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

[b] na = Not available.

[c] SSLs from NMED (2006, 092513).

[d] Value from EPA Region 6 (2007, 095866).

[e] Value from EPA Region 9 (http://www.epa.gov/region9/waste/sfund/prg/files/04prgtable.pdf).

[f] — = Not detected or not detected above BV.

Table 6.4-45
Inorganic Chemicals above BVs in Tuff at SWMU 21-027(c)

Sample ID	Location ID	Depth (ft)	Media	Arsenic	Barium	Cobalt	Copper	Lead	Manganese	Selenium
Qbt 2,3,4 BV [a]				**2.79**	**46**	**3.14**	**4.66**	**11.2**	**482**	**0.3**
Industrial SSL [b]				**17.7**	**100000**	**20500**	**45400**	**800**	**48400**	**5680**
Construction Worker SSL [b]				**85.2**	**60200**	**61**	**12400**	**800**	**150**	**1550**
Residential SSL [b]				**3.9**	**15600**	**1520**	**3130**	**400**	**3590**	**391**
RE21-07-75117	21-27399	8.0–9.0	Tuff	3.4	97 (J+)	4.56	9.16 (J+)	24.8	546 (J+)	1.67 (U)

Note: Units are mg/kg.

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

[b] SSLs from NMED (2006, 092513).

Table 6.4-46
Organic Chemicals Detected in Soil at SWMU 21-027(c)

Sample ID	Location ID	Depth (ft)	Media	Acenaphthene	Acenaphthylene	Acetone	Anthracene	Aroclor-1260	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Benzoic Acid	Bis(2-ethylhexyl)phthalate	Chrysene	Di-n-butylphthalate	Dibenzofuran	Dichlorobenzene[1,4-]
Industrial SSL [a]				**33500**	**30900[b]**	**100000**	**100000**	**8.26**	**23.4**	**2.34**	**23.4**	**30900 [b]**	**234**	**100000 [c]**	**1370**	**2310**	**68400**	**1620**	**103**
Construction Worker SSL [a]				**14100**	**9010[b]**	**98500**	**86000**	**4.28**	**212**	**21.2**	**212**	**9010 [b]**	**2120**	**na[d]**	**4660**	**21200**	**23300**	**552**	**1960**
Residential SSL [a]				**3730**	**2290[b]**	**28100**	**22000**	**1.12**	**6.21**	**0.621**	**6.21**	**2290 [b]**	**62.1**	**100000 [c]**	**347**	**615**	**6110**	**142**	**39.5**
RE21-07-75115	21-27399	3.0–4.0	Soil	—[e]	—	—	—	NA[f]	—	—	—	—	—	—	—	—	—	—	—
RE21-07-75116	21-27399	5.0–6.0	Soil	—	—	—	—	NA	—	—	0.255 (J)	—	—	—	—	0.179 (J)	—	—	—
RE21-07-75121	21-27401	0.0–0.5	Soil	0.032 (J)	—	NA	0.0493	NA	0.3 (J)	0.295 (J)	0.693 (J)	—	—	—	—	0.449 (J)	—	—	—
RE21-07-75122	21-27401	2.0–2.5	Soil	0.0216 (J)	—	—	0.0683	NA	0.301 (J)	0.353 (J)	0.508 (J)	NA	0.228 (J)	—	—	0.397 (J)	—	—	—
RE21-07-75123	21-27402	0.0–0.5	Soil	0.565	—	NA	0.949	NA	3.08 (J)	2.43 (J)	5.67 (J)	1.12 (J)	—	0.306 (J)	0.296 (J)	3.18 (J)	0.0925 (J)	0.25 (J)	—
RE21-07-75124	21-27402	2.0–2.5	Soil	0.0412	—	0.0112 (J)	0.0704	NA	0.373 (J)	0.354 (J)	0.745 (J)	NA	NA	0.256 (J)	0.156 (J)	0.432 (J)	—	—	—
RE21-07-75125	21-27403	0.0–0.5	Soil	0.0557	—	NA	0.0842	NA	0.491 (J)	0.499 (J)	1.12 (J)	0.34 (J)	—	—	48.8	0.594 (J)	—	—	—
RE21-07-75126	21-27403	2.0–2.5	Soil	0.0215 (J)	—	—	0.0368 (J)	NA	0.239	0.26 (J)	0.532 (J)	0.194 (J)	—	—	0.0767 (J)	0.304	—	—	—
RE21-07-75127	21-27404	0.0–0.5	Soil	—	—	NA	0.0108 (J)	NA	—	0.0885 (J)	0.179 (J)	—	—	—	—	0.109	0.506	—	—
RE21-07-75128	21-27404	2.0–2.5	Soil	—	—	—	0.0106 (J)	NA	—	—	—	—	—	—	—	—	0.0391 (J)	—	—
RE21-07-75129	21-27405	0.0–0.5	Soil	—	—	NA	—	NA	—	—	0.0252 (J)	—	0.0212 (J)	—	—	0.0236 (J)	—	—	—
RE21-07-75130	21-27405	2.0–2.5	Soil	—	—	—	—	NA	—	—	—	—	—	—	0.34 (J)	—	—	—	—
RE21-07-75131	21-27406	0.0–0.5	Soil	—	—	NA	—	NA	—	0.0537 (J)	0.103 (J)	—	—	—	—	—	—	—	—
RE21-07-75133	21-27407	0.0–0.5	Soil	—	—	NA	—	NA	—	—	0.0127 (J)	—	—	—	0.159 (J)	0.0154 (J)	0.0381 (J)	—	—
RE21-07-75134	21-27407	2.0–2.5	Soil	—	—	—	—	NA	—	—	—	—	—	—	—	—	—	—	—
RE21-07-75135	21-27408	0.0–0.5	Soil	—	—	NA	—	NA	—	—	0.0135 (J)	—	0.0116 (J)	—	—	—	—	—	—
RE21-07-75136	21-27408	2.0–2.5	Soil	—	—	—	—	NA	—	—	—	—	—	—	—	—	—	—	—
RE21-07-75138	21-27409	2.0–2.5	Soil	—	—	—	—	NA	—	—	—	—	—	—	—	—	—	—	0.000427 (J)
RE21-07-75140	21-27410	2.0–2.5	Soil	—	—	—	—	NA	—	—	—	—	—	—	—	—	—	—	0.000302 (J)
RE21-07-75141	21-27411	0.0–0.5	Soil	—	—	NA	—	NA	—	0.0301 (J)	0.0569 (J)	—	—	—	—	0.0352	—	—	—
RE21-07-5087	21-27411	0.0–0.5	Soil	NA	NA	NA	NA	0.0016 (J)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE21-07-75142	21-27411	2.0–2.5	Soil	—	—	0.00546	—	NA	—	—	—	—	—	—	—	—	—	—	—
RE21-07-75144	21-27412	2.0–2.5	Soil	—	—	0.0044 (J)	—	NA	—	—	—	—	—	—	—	—	—	—	0.000461 (J)
RE21-07-75145	21-27413	2.5–3.5	Soil	—	0.0206 (J)	—	0.0209 (J)	NA	0.0909	—	—	—	—	—	—	0.107	0.103 (J)	—	—
RE21-07-75146	21-27413	4.5–5.5	Soil	—	—	—	—	NA	—	—	—	—	—	—	0.079 (J)	—	—	—	—
RE21-07-75149	21-27415	0.0–0.5	Soil	—	—	NA	—	NA	—	—	0.319 (J)	—	—	—	—	0.223 (J)	—	—	—
RE21-07-75150	21-27415	3.0–4.0	Soil	—	—	—	—	NA	—	—	—	—	—	—	—	—	—	—	—
RE21-07-75151	21-27414	5.0–6.0	Soil	—	—	—	0.0153 (J)	NA	—	0.0537 (J)	0.102 (J)	—	—	—	—	0.0603	—	—	—
RE21-07-75153	21-27415	5.0–6.0	Soil	—	—	—	—	NA	—	—	—	—	—	—	—	—	—	—	—

Table 6.4-46 (continued)

Sample ID	Location ID	Depth (ft)	Media	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Isopropyltoluene[4-]	Heptachlorodibenzodioxin [1,2,3,4,6,7,8-]	Heptachlorodibenzofuran [1,2,3,4,6,7,8-]	Hexachlorodibenzodioxin [1,2,3,7,8,9-]	Methylene Chloride	Methylnaphthalene[2-]	Naphthalene	Octachlorodibenzodioxin [1,2,3,4,6,7,8,9-]	Octachlorodibenzofuran [1,2,3,4,6,7,8,9-]	Phenanthrene	Pyrene	Toluene	Trichloroethene
Industrial SSL [a]				**24400**	**26500**	**23.4**	**389[g]**	**na**	**na**	**na**	**490**	**300 [h]**	**300**	**na**	**na**	**20500**	**30900**	**252**	**1.56**
Construction Worker SSL [a]				**8730**	**10200**	**212**	**389[g]**	**na**	**na**	**na**	**2630**	**262 [h]**	**262**	**na**	**na**	**6990**	**9010**	**252**	**33.6**
Residential SSL [a]				**2290**	**2660**	**6.21**	**271[g]**	**na**	**na**	**na**	**182**	**79.5 [h]**	**79.5**	**na**	**na**	**1830**	**2290**	**252**	**0.638**
RE21-07-75115	21-27399	3.0–4.0	Soil	—	—	—	—	NA	NA	NA	0.00477 (J)	—	—	NA	NA	—	—	0.00146	—
RE21-07-75116	21-27399	5.0–6.0	Soil	0.358 (J)	—	—	—	NA	NA	NA	0.00293 (J)	—	—	NA	NA	0.224 (J)	0.244 (J)	0.000459 (J)	—
RE21-07-75121	21-27401	0.0–0.5	Soil	0.626	0.0244 (J)	0.186 (J)	NA	NA	NA	NA	NA	—	—	NA	NA	0.362	1.03 (J)	NA	NA
RE21-07-75122	21-27401	2.0–2.5	Soil	0.48	0.0232 (J)	—	—	NA	NA	NA	—	—	—	NA	NA	0.387	0.965 (J)	0.000639 (J)	—
RE21-07-75123	21-27402	0.0–0.5	Soil	5.78	0.48	1.11 (J)	NA	NA	NA	NA	NA	0.0794	0.223	NA	NA	4.98	9.91 (J)	NA	NA
RE21-07-75124	21-27402	2.0–2.5	Soil	0.599	0.0281 (J)	—	0.00162 (J)	NA	NA	NA	—	—	—	NA	NA	0.426	1.11 (J)	0.00516 (J)	—
RE21-07-75125	21-27403	0.0–0.5	Soil	0.924	0.0382	0.302 (J)	NA	NA	NA	NA	NA	—	—	NA	NA	0.594	1.78 (J)	NA	NA
RE21-07-75126	21-27403	2.0–2.5	Soil	0.526	0.0159 (J)	0.17 (J)	0.0003 (J)	NA	NA	NA	—	—	—	NA	NA	0.268	0.663	0.00123	—
RE21-07-75127	21-27404	0.0–0.5	Soil	0.153	—	0.0428 (J)	NA	NA	NA	NA	NA	—	—	NA	NA	0.0798	0.218	NA	NA
RE21-07-75128	21-27404	2.0–2.5	Soil	0.0153 (J)	—	—	—	NA	NA	NA	—	—	—	NA	NA	—	0.0338 (J)	0.00207	—
RE21-07-75129	21-27405	0.0–0.5	Soil	0.0384 (J)	—	—	NA	NA	NA	NA	NA	—	—	NA	NA	0.0158 (J)	0.0459	NA	NA
RE21-07-75130	21-27405	2.0–2.5	Soil	—	—	—	—	NA	NA	NA	—	—	—	NA	NA	—	0.0173 (J)	0.000695 (J)	—
RE21-07-75131	21-27406	0.0–0.5	Soil	0.0679	—	—	NA	NA	NA	NA	NA	—	—	NA	NA	0.0258 (J)	0.131 (J)	NA	NA
RE21-07-75133	21-27407	0.0–0.5	Soil	0.0142 (J)	—	—	NA	NA	NA	NA	NA	—	—	NA	NA	—	0.0237 (J)	NA	NA
RE21-07-75134	21-27407	2.0–2.5	Soil	—	—	—	—	NA	NA	NA	—	—	—	NA	NA	—	—	0.00355	0.00188
RE21-07-75135	21-27408	0.0–0.5	Soil	0.0211 (J)	—	—	NA	NA	NA	NA	NA	—	—	NA	NA	—	0.0266 (J)	NA	NA
RE21-07-75136	21-27408	2.0–2.5	Soil	—	—	—	—	NA	NA	NA	—	—	—	NA	NA	—	—	0.000619 (J)	—
RE21-07-75138	21-27409	2.0–2.5	Soil	—	—	—	—	NA	NA	NA	—	—	—	NA	NA	—	—	0.000861 (J)	—
RE21-07-75140	21-27410	2.0–2.5	Soil	—	—	—	—	NA	NA	NA	—	—	—	NA	NA	—	—	0.000927 (J)	—
RE21-07-75141	21-27411	0.0–0.5	Soil	0.0501	—	—	NA	NA	NA	NA	NA	—	—	NA	NA	0.0199 (J)	0.0698	NA	NA
RE21-07-5087	21-27411	0.0–0.5	Soil	NA	NA	NA	NA	5.16E-06	0.0000012 (J)	0.000000191 (J)	NA	NA	NA	4.96E-05	0.00000218 (J)	NA	NA	NA	NA
RE21-07-75142	21-27411	2.0–2.5	Soil	—	—	—	—	NA	NA	NA	—	—	—	NA	NA	—	—	0.000551 (J)	—
RE21-07-75144	21-27412	2.0–2.5	Soil	0.0114 (J)	—	—	—	NA	NA	NA	—	—	—	NA	NA	—	—	0.0013	0.000874 (J)
RE21-07-75145	21-27413	2.5–3.5	Soil	0.152	—	—	—	NA	NA	NA	—	—	—	NA	NA	0.086	0.152	0.000378 (J)	—
RE21-07-75146	21-27413	4.5–5.5	Soil	0.0281 (J)	—	—	—	NA	NA	NA	—	—	—	NA	NA	0.0151 (J)	0.0225 (J)	0.000387 (J)	—
RE21-07-75149	21-27415	0.0–0.5	Soil	0.426	—	—	NA	NA	NA	NA	NA	—	—	NA	NA	0.205 (J)	0.367	NA	NA
RE21-07-75150	21-27415	3.0–4.0	Soil	—	—	—	—	NA	NA	NA	0.00699 (J+)	—	—	NA	NA	—	—	0.000404 (J+)	—

Table 6.4-46 (continued)

Sample ID	Location ID	Depth (ft)	Media	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Isopropyltoluene[4-]	Heptachlorodibenzodioxin [1,2,3,4,6,7,8-]	Heptachlorodibenzofuran [1,2,3,4,6,7,8-]	Hexachlorodibenzodioxin [1,2,3,7,8,9-]	Methylene Chloride	Methylnaphthalene[2-]	Naphthalene	Octachlorodibenzodioxin [1,2,3,4,6,7,8,9-]	Octachlorodibenzofuran [1,2,3,4,6,7,8,9-]	Phenanthrene	Pyrene	Toluene	Trichloroethene
Industrial SSL [a]				**24400**	**26500**	**23.4**	**389[g]**	**na**	**na**	**na**	**490**	**300[h]**	**300**	**na**	**na**	**20500**	**30900**	**252**	**1.56**
Construction Worker SSL [a]				**8730**	**10200**	**212**	**389[g]**	**na**	**na**	**na**	**2630**	**262[h]**	**262**	**na**	**na**	**6990**	**9010**	**252**	**33.6**
Residential SSL [a]				**2290**	**2660**	**6.21**	**271[g]**	**na**	**na**	**na**	**182**	**79.5[h]**	**79.5**	**na**	**na**	**1830**	**2290**	**252**	**0.638**
RE21-07-75151	21-27414	5.0–6.0	Soil	0.112	—	—	—	NA	NA	NA	—	—	—	NA	NA	0.0722	0.0884	0.000358 (J)	—
RE21-07-75153	21-27415	5.0–6.0	Soil	—	—	—	—	NA	NA	NA	0.00634	—	—	NA	NA	—	—	0.00124	—

Note: Units are mg/kg

[a] SSLs from NMED (2006, 092513).

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

[c] Values from EPA Region 6 (2007, 095866).

[d] na = Not available.

[e] — = Not detected.

[f] NA = Not analyzed.

[g] Isopropylbenzene used as a surrogate based on structural similarity.

[h] Naphthalene used as a surrogate based on structural similarity.

Table 6.4-47
Organic Chemicals Detected in Tuff at SWMU 21-027(c)

Sample ID	Location ID	Depth (ft)	Media	Acetone
Industrial SSL [a]				**100000**
Construction Worker SSL [a]				**98500**
Residential SSL [a]				**28100**
RE21-07-75117	21-27399	8.0–9.0	Tuff	0.00417 (J)

Note: Units are mg/kg.
[a] SSLs from NMED (2006, 092513).

Table 6.4-48
Radionuclides Detected or Detected above BVs/FVs in Soil at SWMU 21-027(c)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cesium-134	Cesium-137	Plutonium-238	Plutonium-239	Strontium-90	Tritium	Uranium-234
Soil BV/FV [a]				**0.013**	**na [b]**	**1.65**	**0.023**	**na**	**1.31**	**na**	**2.59**
Industrial SAL[c]				**180**	**9.7**	**23**	**240**	**210**	**1900**	**440000**	**1500**
Construction Worker SAL[c]				**34**	**7.7**	**18**	**40**	**36**	**800**	**320000**	**220**
Residential SAL[c]				**30**	**2.4**	**5.6**	**37**	**33**	**5.7**	**750**	**170**
RE21-07-75115	21-27399	3.0–4.0	Soil	0.988	— [d]	1.12	0.112	19.7	—	—	—
RE21-07-75116	21-27399	5.0–6.0	Soil	0.736	—	0.138	0.0783	20.4	—	—	—
RE21-07-75121	21-27401	0.0–0.5	Soil	0.82	—	—	0.169	17.8	—	0.0317	—
RE21-07-75122	21-27401	2.0–2.5	Soil	0.446	—	—	0.0638	7.85	—	0.0216	—
RE21-07-75123	21-27402	0.0–0.5	Soil	1.08	—	—	0.138	5.3	—	—	—
RE21-07-75124	21-27402	2.0–2.5	Soil	1.2	—	0.345	0.144	12.5	—	0.0461	—
RE21-07-75125	21-27403	0.0–0.5	Soil	—	—	—	—	1.24	—	0.0484	—
RE21-07-75126	21-27403	2.0–2.5	Soil	1.4	—	0.207	0.242	43.3	—	0.0217	—
RE21-07-75127	21-27404	0.0–0.5	Soil	0.496	—	—	—	5.38	—	—	—
RE21-07-75128	21-27404	2.0–2.5	Soil	—	—	—	—	0.528	—	0.0586	—
RE21-07-75129	21-27405	0.0–0.5	Soil	—	—	—	—	0.483	—	—	—
RE21-07-75130	21-27405	2.0–2.5	Soil	—	—	—	—	0.622	—	0.0376	—
RE21-07-75131	21-27406	0.0–0.5	Soil	0.533	—	—	0.0648	8.59	—	—	—
RE21-07-75132	21-27406	2.0–2.5	Soil	—	—	—	—	0.202	—	0.0168	—
RE21-07-75133	21-27407	0.0–0.5	Soil	—	—	—	—	0.349	—	—	—
RE21-07-75134	21-27407	2.0–2.5	Soil	—	—	—	—	0.0541	—	0.0130	—
RE21-07-75135	21-27408	0.0–0.5	Soil	0.0904	—	—	—	0.469	—	0.0171	—
RE21-07-75137	21-27409	0.0–0.5	Soil	3.59	—	—	0.248	11.2	—	—	3.31

Table 6.4-48 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cesium-134	Cesium-137	Plutonium-238	Plutonium-239	Strontium-90	Tritium	Uranium-234
Soil FV/BV [a]				**0.013**	**na**	**1.65**	**0.023**	**na**	**1.31**	**na**	**2.59**
Industrial SAL[c]				**180**	**9.7**	**23**	**240**	**210**	**1900**	**440000**	**1500**
Construction Worker SAL[c]				**34**	**7.7**	**18**	**40**	**36**	**800**	**320000**	**220**
Residential SAL[c]				**30**	**2.4**	**5.6**	**37**	**33**	**5.7**	**750**	**170**
RE21-07-75138	21-27409	2.0–2.5	Soil	—	—	—	—	0.493	0.189	—	—
RE21-07-75139	21-27410	0.0–0.5	Soil	—	—	—	—	0.319	2.97	0.0297	—
RE21-07-75140	21-27410	2.0–2.5	Soil	—	—	—	—	0.0596	—	—	—
RE21-07-75141	21-27411	0.0–0.5	Soil	0.0635	—	—	—	1.06	—	0.0151	—
RE21-07-75142	21-27411	2.0–2.5	Soil	0.0347	—	—	—	0.221	—	—	—
RE21-07-75143	21-27412	0.0–0.5	Soil	—	—	—	0.0673	0.0688	—	—	—
RE21-07-75145	21-27413	2.5–3.5	Soil	0.0971	—	—	—	3.26	—	—	—
RE21-07-75146	21-27413	4.5–5.5	Soil	—	—	—	—	0.773	—	0.039	—
RE21-07-75147	21-27414	0.0–0.5	Soil	0.643	—	—	0.0551	11	—	—	—
RE21-07-75148	21-27414	3.0–4.0	Soil	0.173	—	—	—	3.93	—	—	—
RE21-07-75149	21-27415	0.0–0.5	Soil	1.91	0.141	—	0.0809	7.72	—	—	—
RE21-07-75150	21-27415	3.0–4.0	Soil	0.166	—	—	0.0286	5.76	—	0.0174	—
RE21-07-75151	21-27414	5.0–6.0	Soil	0.672	—	—	—	15.1	—	—	—
RE21-07-75153	21-27415	5.0–6.0	Soil	0.407	—	—	0.0725	11.6	—	—	—

Note: Units are pCi/g.

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

[b] na = Not available.

[c] SALs from LANL (2005, 088493).

[d] — = Not detected.

Table 6.4-49
Radionuclides Detected in Tuff at SWMU 21-027(c)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Plutonium-239
Tuff FV [a]				**na [b]**	**na**
Industrial SAL[c]				**180**	**210**
Construction Worker SAL[c]				**34**	**36**
Residential SAL[c]				**30**	**33**
RE21-07-75117	21-27399	8.0–9.0	Tuff	0.155	3.82

Note: Units are pCi/g.

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

[b] na = Not available.

[c] SALs from LANL (2005, 088493).

Appendix A

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

A-1.0 ACRONYMS AND ABBREVATIONS

AOC	area of concern
bgs	below ground surface
BH	borehole
BV	background value
CMP	corrugated metal pipe
cmp	counts per minute
COPC	chemical of potential concern
CRDL	contract-required detection limit
CST	Chemical Science and Technology [a LANL division]
D&D	decontamination and decommissioning
DL	detection limit
DOE	Department of Energy (U.S.)
DP	Delta Prime
dpm	disintegrations per minute
EDL	estimated detection limit
EP	Environmental Programs
EPA	Environmental Protection Agency (U.S.)
EQL	estimated quantitation limit
ER	Environmental Restoration
ERSS	Environmental Remediation and Support Services
FV	fallout value
GPS	global positioning system
ICPES	inductively coupled plasma emission spectroscopy
ICS	interference check sample
ICV/CCV	initial calibration verification/continuing calibration verification
IDW	investigation derived waste
LANL	Los Alamos National Laboratory or the Laboratory
LASL	Los Alamos Scientific Laboratory [Laboratory's name before January 1, 1981]
LCS	laboratory control sample
LLW	low-level waste
MDA	material disposal area
MDL	method detection limit

ND	nondetect
NMED	New Mexico Environment Department
NMSA	New Mexico Statutes Annotated
NPDES	National Pollution Discharge Elimination System
PCB	polychlorinated biphenyl
PID	photoionization detector
PPE	personal protective equipment
PPM	part(s) per million
QA	quality assurance
QC	quality control
RCRA	Resource Conservation and Recovery Act
RCT	Radiological Control Technician
RFI	Resource Conservation and Recovery Act facility investigation
RPF	Records Processing Facility
SAL	screening action level
SMO	Sample Management Office
SOP	standard operating procedure
SOW	statement of work
SSL	soil screening level
SVOC	semivolatile organic chemical
SWMU	solid waste management unit
TA	technical area
TAL	target analyte list
TPU	total propagated uncertainty
TSCA	Toxic Substances Control Act
TSTA	Tritium System Test Assembly
VCA	voluntary corrective action
VCP	vitrified clay pipe
VOC	volatile organic chemical
WCSF	waste characterization strategy form
WPF	waste profile form

A-2.0 GLOSSARY

accuracy—A measure of the closeness of measurements to the true value of the parameter being measured.

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

administrative controls—Nonphysical or nonengineered mechanisms for managing risks to human health and the environment.

administrative order on consent—A legal agreement signed by the U.S. Environmental Protection Agency and an individual, business, or other entity through which a violator agrees to pay for the correction of violations, take the required corrective or cleanup actions, or refrain from an activity. It describes the actions to be taken, may be subject to a comment period, applies to civil actions, and can be enforced in court.

administrative record—All documents that the administrative authority considered, or relied on, when selecting the response action at a site, culminating in the record of decision for remedial action or an action memorandum for removal actions.

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

alluvial—Pertaining to geologic deposits or features formed by running water.

alluvial fan—A fan-shaped piedmont accumulation of alluvium.

alluvium—Soil deposited by a river or other running water.

alpha radiation—A form of particle radiation that is highly ionizing and has low penetration. Alpha radiation consists of two protons and two neutrons bound together into a particle that is identical to a helium nucleus and can be written as He^{2+}.

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

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

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

andesite—Fine-grained intermediate volcanic rock, made up chiefly of plagioclase and pyroxene.

anthropogenic—Of, relating to, or resulting from, the influence of human beings.

applicable or relevant and appropriate requirements (ARARs)—(1) Those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under federal environmental, state environmental, or facility siting laws that specifically address a hazardous substance, pollutant, contamination, remedial action, location, or other circumstance found at a site. Only those state standards that are identified by a state in a timely manner and that are more stringent than federal requirements may be applicable (see National Contingency Plan, section 300.5). (2) Requirements promulgated under federal or state law that specifically address the

circumstances at a site. (3) Requirements and environmental laws that may be either "applicable" or "relevant and appropriate," but not both. The identification of ARARs must take place on a site-specific basis.

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

aquitard—Geological formation that may contain groundwater but is not capable of transmitting significant quantities of it under normal hydraulic gradients.

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

area of contamination—As defined by the U.S. Environmental Protection Agency, certain areas of generally dispersed contamination that could be equated to a Resource Conservation and Recovery Act (RCRA) landfill. The movement of hazardous wastes within those areas would not be considered land disposal and would not trigger RCRA land-disposal restrictions. An area of contamination may be designated by the Environmental Remediation and Surveillance Program as part of a corrective action for waste management purposes, subject to approval by the administrative authority.

ash-flow tuff—A tuff deposited by a hot, dense volcanic current. Ash-flow tuff can be either welded tuff or nonwelded tuff.

assessment—(1) The act of reviewing, inspecting, testing, checking, conducting surveillance, auditing, or otherwise determining and documenting whether items, processes, or services meet specified requirements. (2) An evaluation process used to measure the performance or effectiveness of a system and its elements. In this glossary, assessment is an all-inclusive term used to denote any one of the following: audit, performance evaluation, management system review, peer review, inspection, or surveillance.

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

background data—Data that represent naturally occurring concentrations of inorganic and radionuclide constituents in a geologic medium. Los Alamos National Laboratory's (the Laboratory's) background data are derived from samples collected at locations that are either within, or adjacent to, the Laboratory. These locations (1) are representative of geological media found within Laboratory boundaries, and (2) have not been affected by Laboratory operations.

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

background radiation—The amount of radioactivity naturally present in the environment, including cosmic rays from space and natural radiation from soils and rock.

background sample—A sample collected from an area or site that is similar to the one being studied but known, or thought, to be free from constituents of concern.

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

barrier—Any material or structure that prevents, or substantially delays, the movement of solid-, liquid-, or gaseous-phase chemicals in environmental media.

basalt—A fine-grained, dark volcanic rock composed chiefly of plagioclase, augite, olivine, and magnetite.

baseline risk assessment—A site-specific analysis of the potential adverse effects of hazardous constituents that have been released from a site in the absence of any controls or mitigating actions. A baseline risk assessment consists of the following four steps: data collection and analysis, exposure assessment, toxicity assessment, and risk characterization.

bentonite—An absorbent aluminum silicate clay formed from volcanic ash and used in various adhesives, cements, and ceramic fillers. Because bentonite can absorb large quantities of water and expand to several times its normal volume, it is a common drilling mud additive.

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

beta radiation—High-energy electrons emitted by certain types of radioactive nuclei, such as potassium-40. The beta particles emitted are a form of ionizing radiation also known as beta rays.

bias—The systematic deviation from a true value that remains constant over replicated measurements within the statistical precision of the measurement process.

biomass—The dry weight of living matter (including stored food) that is present in a species population. Biomass is expressed in terms of a habitat's given area or volume.

bioremediation—(1) The use of living organisms to clean up oil spills or to remove other pollutants from soil, water, or wastewater. (2) The use of organisms, such as harmless insects, to remove agricultural pests or to counteract diseases of trees, plants, and garden soil.

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

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

borehole logging—The process of making remote measurements of physical, chemical, or other parameters at multiple depths in a borehole.

breccia—A coarse-grained rock that consists of angular fragments cemented together or embedded in a fine-grained matrix.

calcrete—See pedogenic calcite or caliche.

calibration—A process used to identify the relationship between the true analyte concentration or other variable and the response of a measurement instrument, chemical analysis method, or other measurement system.

calibration blank—A calibration standard prepared to contain negligible or unmeasurable amounts of analytes. A calibration blank is used to establish the zero concentration point for analytical measurement calibrations.

calibration standard—A sample prepared to contain known amounts of analytes of interest and other constituents required for an analysis.

caliche (properly called pedogenic calcite, also known as calcrete)—A layer of hard subsoil encrusted with calcium carbonate that occurs in arid or semiarid regions or precipitates out of groundwater (groundwater caliche). Typically found in near-surface soil.

canopy—The cover formed by the leafy upper branches of surrounding trees and shrubs.

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

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

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

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

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

chemical interference—A chemical or physical entity whose influence results in a decrease or increase in the response of an analytical method or other measurement system relative to the response obtained in the absence of the entity.

chemical of concern—A chemical identified in human-health or ecological risk assessments as posing a risk.

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

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

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

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

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

collocated sample—One of two or more samples collected within close proximity of each other and meant to represent the same immediate area.

colluvium—A loose deposit of rock debris accumulated through the action of gravity at the base of a cliff or slope.

comparability—A qualitative measure of the degree to which one item or data set can be compared with another.

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

conceptual hydrogeologic model—An approximation of the occurrence, movement, and quality of groundwater in a given area and the relationship of that groundwater to the surface water, soil water, and geologic framework in that area.

confined—Pertaining to groundwater in an artesian aquifer.

Consent Order—See Compliance Order on Consent.

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

construction worker scenario—A land-use condition that evaluates exposures to a human receptor throughout a construction project. The activities typically involve substantial short-term on-site exposures.

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

contract analytical laboratory—An analytical laboratory under contract to Los Alamos National Security to analyze samples from work performed at Los Alamos National Laboratory.

contract-required detection limit (CRDL)—The minimum reporting limits required under a contract between Los Alamos National Laboratory and a contract laboratory. The CRDLs are not necessarily intrinsically tied to instrument sensitivity; rather they are reporting limits.

controlled area—An indoor or outdoor Los Alamos National Laboratory area to which access is controlled for security reasons or for the protection of individuals from exposure to radiation and/or hazardous materials.

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

corrective measure—An action taken at a solid waste management unit or area of concern to protect human health or the environment in the event of a release of contaminants into the environment, or to prevent a release of contaminants into the environment.

corrective measures study—A formal process for identifying and evaluating alternative remedies for releases at a facility.

Curie—A unit of radioactivity defined as the quantity of any radioactive nuclide that has an activity of 3.7×10^{10} disintegrations per second (dps).

data package—The hard copy deliverable for each sample delivery group produced by a contract analytical laboratory in accordance with the statement of work for analytical services.

data-quality assessment—The statistical and/or scientific evaluation of a data set that establishes whether the data set is adequate for its intended use.

data-quality objectives—Qualitative and quantitative statements of the overall level of uncertainty that a decision maker will accept regarding results or decisions based on environmental data. The objectives provide the statistical framework for planning and managing environmental data operations that will meet user needs.

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

data verification—The process of evaluating the completeness, correctness, consistency, and compliance of a laboratory data package against a specified standard or contract.

- Completeness: All required information is present—in both hard copy and electronic forms.
- Correctness: The reported results are based on properly documented and correctly applied algorithms.
- Consistency: The values are the same when they appear in different reports or are transcribed from one report to another.
- Compliance: The data pass numerical quality-control tests based on parameters or limits specified in a contract or in an auxiliary document.

decision-level concentration—The concentration at which a 5% probability exists of reporting a false positive for a sample that contains no analytes.

decision peer review—A technical (subject-matter-expert) review that occurs before document writing has begun. The focus of the decision peer review is on the appropriateness of the stated objectives for the identified problem, on the adequacy of the proposed approach to address the objectives, and on the identification of concerns and necessary contingencies. Any decision that is expected to lead to the writing of a peer-reviewed document is subject to a decision peer review and falls under Quality Procedure 3.5, Peer Review Process.

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

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

deferred action—The postponement of the selection and implementation of a corrective measure.

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

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

detector background—The ambient signal response recorded by radioactivity-measuring instruments that is independent of radioactivity contributed by the radionuclides being measured in the sample.

dilution attenuation factor—The ratio of contaminant concentration in soil leachate to the concentration in groundwater at a receptor point. The factor is used to account for the dilution of soil leachate in an aquifer.

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

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

document control—The process of ensuring that documents are reviewed for adequacy, approved for release by authorized personnel, and distributed to, and used at, the location where the prescribed activity is to be performed.

dose (dosage)—(1) The actual quantity of a chemical that is administered to an organism or to which it is exposed. (2) The amount of a substance that reaches a specific tissue (e.g., the liver). (3) The amount of a substance that is available for interaction with metabolic processes after it has crossed an organism's outer boundary.

dose equivalent—The product of the absorbed dose from ionizing radiation and factors that account for biological differences as a result of the radiation type and its distribution in the body.

duplicate analysis—An analysis performed on one member of a pair of identically prepared subsamples taken from the same sample.

duplicate measurement—An additional measurement performed on a prepared sample under identical conditions to evaluate any variance in measurement.

ecological screening levels—Soil, sediment, or water concentrations that are used to screen for potential ecological effects. The concentrations are based on a chemical's no-observed-adverse-effect level for a receptor, below which no risk is indicated.

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

end state—The physical state of a site after agreed-upon remediation activities have been completed.

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

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

environmental surveillance—The collection and analysis of samples from air, water, soil, foodstuffs, biota, and other media to determine the environmental quality of an industry or community. Environmental surveillance is performed commonly at sites that contain nuclear facilities.

eolian—Pertaining to the geological products of wind action and especially said of sediment deposition by the wind (e.g., eolian sand and eolian dunes).

ephemeral—Pertaining to a stream or spring that flows only during, and immediately after, periods of rainfall or snowmelt.

equipment blank (rinsate blank)—A sample used to rinse sample-collection equipment and expected to have negligible or unmeasurable amounts of analytes. The equipment blank is collected after the equipment decontamination is completed but before the collection of another field sample.

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

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

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

error—The quantifiable difference between an observed value and the true value of a parameter being measured.

estimated detection limit—A reporting limit required by a Los Alamos National Laboratory statement of work for analytical services.

estimated quantitation limit (EQL)—The lowest concentration that can be reliably achieved within specified limits of precision and accuracy during routine analytical-laboratory operating conditions. The low point on a calibration curve should reflect this quantitation limit. The EQL is not used to establish detection status. Sample EQLs are highly matrix dependent, and the specified EQLs might not always be achievable.

external standard calibration—A comparison of instrument responses from a sample to the responses from target compounds in the calibration standards. The sample’s peak areas (or peak heights) are compared to the standards’ peak areas (or peak heights).

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

fallout radionuclides—Radionuclides that are present at globally elevated levels in the environment as a result of fallout from world-wide atomic weapons tests. The Los Alamos National Laboratory (the Laboratory) background data sets consist of environmental surveillance samples taken from marginal and regional locations for the following radionuclides associated with fallout: tritium, cesium-137, americium-241, plutonium-238, plutonium-239/240, and strontium-90. Samples were

collected from regional and marginal locations in the Laboratory's vicinity that were (1) representative of geological media found within Laboratory boundaries, and (2) were not impacted by Laboratory operations.

fault—A fracture, or zone of fractures, in rock along which vertical or horizontal movement has taken place and adjacent rock layers or bodies have been displaced.

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

field blank (field reagent blank)—A blank sample prepared in the field or carried to the sampling site, exposed to sampling conditions (e.g., by removing bottle caps), and returned to a laboratory to be analyzed in the same manner in which environmental samples are being analyzed. Field blanks are used to identify the presence of any contamination that may have been added during the sampling and analysis process.

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

field matrix spike—A known amount of a field sample to which a known amount of a target analyte has been added and used to compute the proportion of the added analyte that is recovered upon analysis.

field notebook—A record of activities performed in the field or a compilation of field data.

field reagent blank—See field blank.

field sample—See sample.

field split sample—A field sample that has been homogenized and divided, in the field, into equally representative portions that are submitted for analysis.

focused data validation—A technically based analyte-, sample-, and data-use-specific process that extends the qualification of data beyond the method or contractual compliance and provides a higher level of confidence that an analyte is present or absent. If an analyte is present, the quality of the quantitation may be obtained through focused validation.

gamma radiation—A form of electromagnetic, high-energy ionizing radiation emitted from a nucleus. Gamma rays are essentially the same as x-rays (though at higher energy) and require heavy shielding, such as concrete or steel, to be blocked.

geohydrology—The science that applies hydrologic methods to the understanding of geologic phenomena.

grab sample—A specimen collected by a single application of a field sampling procedure to a target population (e.g., the surface soil from a single hole collected after the spade-and-scoop sampling procedure, or a single air filter left in the field for three months).

ground cover—Natural or human-made materials (e.g., grasses, pine needles, asphalt, or concrete) which overlay soils.

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

grout—Cement or bentonite mixtures used for sealing boreholes and wells and for zone isolation. Only Portland Type I or II cement is approved for use at investigative sites.

half-life—(1) The time required for a pollutant to lose one-half of its original concentration (for example, the biochemical half-life of DDT [dichlorodiphenyltrichloroethane] in the environment is 15 yr). (2) The time required for one half of the atoms in a radioactive element to undergo self-transmutation or decay (the half-life of radium is 1620 yr). (3) The time required for the elimination of one half of a total dose from the body.

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

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

hazardous samples—Samples of on-site air particulates, soil, or water and materials collected at waste sites that are known, or thought, to meet the definition of a hazard class per 49 Code of Federal Regulations 171.8. The term “hazardous samples” does not refer to Resource Conservation and Recovery Act hazardous wastes unless so stated.

hazardous waste—(1) Solid waste that is listed as a hazardous waste, or exhibits any of the characteristics of hazardous waste (i.e., ignitability, corrosivity, reactivity, or toxicity, as provided in 40 CFR, Subpart C). (2) According to the March 1, 2005, Compliance Order of Consent (Consent Order), any solid waste or combination of solid wastes that, because of its quantity, concentration, or physical, chemical, or infectious characteristics, meets the description set forth in New Mexico Statutes Annotated 1978, § 74-4-3(K) and is listed as a hazardous waste or exhibits a hazardous waste characteristic under 40 CFR 261 (incorporated by 20.4.1.200 New Mexico Administrative Code).

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

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

hazard quotient (HQ)—The ratio of the estimated site-specific exposure concentration of a single chemical from a site to the estimated daily exposure level at which no adverse health effects are likely to occur.

high-explosive wastes—Any waste-containing material having an amount of stored chemical energy that could start a violent reaction when initiated by impact, spark, or heat. This violent reaction would be accompanied by a strong shock wave and the potential for high-velocity particles to be propelled.

holding time—The maximum elapsed time a sample can be stored without unacceptable changes in analyte concentrations. Holding times apply under prescribed conditions, and deviations from these conditions may affect the holding times. Extraction holding time refers to the time lapsed between sample collection and sample preparation. Analytical holding time refers to the time lapsed between sample preparation and analysis.

HSWA module—See Module VIII.

hydraulic conductivity—(1) A coefficient of proportionality that describes the rate at which a fluid can move through a permeable medium. The rate is a function of both the medium and the fluid flowing through it. (2) The quantity of water that will flow through a unit of cross-sectional area of a porous material per unit time under a hydraulic gradient of 1.00 (measured at right angles to the direction of flow) at a specified temperature.

hydraulic gradient—The rate of change in hydraulic head per unit of distance in the direction of groundwater flow.

hydraulic head—The elevation of the water table or potentiometric surface as measured in a well.

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

"Hydrogeologic Workplan"—The document that describes the activities planned by Los Alamos National Laboratory (the Laboratory) to characterize the hydrologic setting beneath the Laboratory and to enhance the Laboratory's groundwater monitoring program.

hydrogeology—The science dealing with the occurrence of surface water and groundwater, their uses, and their functions in modifying the earth, primarily by erosion and deposition.

hypothesis—A tentative explanation that accounts for a set of data and that can be tested by further investigation.

inductively coupled plasma emission spectroscopy—A method that detects trace elements (including metals) in solutions by measuring characteristic emission spectra through optical spectrometry. Samples are nebulized, and the resulting aerosol is transported to a plasma torch. Element-specific emission spectra are produced by a radio-frequency, inductively coupled plasma. The spectra are dispersed by a grating spectrometer, and photosensitive devices are used to monitor the emission lines' intensities.

inductively coupled plasma mass spectrometry—A method that detects sub-microgram/liter concentrations of a large number of elements in water samples and in waste extracts or digests. When dissolved constituents are required, samples must be filtered and acid-preserved before analysis. No digestion is required before analysis for dissolved elements in water samples. The method measures ions produced by a radio-frequency, inductively coupled plasma. Analyte species originating in a liquid are nebulized, and the resulting aerosol is transported by argon gas into a plasma torch. The ions produced in the plasma gas are introduced into a mass spectrometer by means of an interface. The ions produced in the plasma are sorted according to their mass-to-change ratios and quantified with a channel electron multiplier or Faraday cup.

industrial scenario—A land-use condition in which current Los Alamos National Laboratory operations or industrial/commercial operations within Los Alamos County are continued or planned. Any necessary remediation involves cleanup to standards designed to ensure a safe and healthy work environment for workers.

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

injection well—A well into which fluids are injected for purposes such as waste disposal, improving the recovery of crude oil, or solution mining.

innovative technologies—New or inventive methods for effectively treating hazardous waste and reducing risk to human health and the environment.

institutional controls—Controls that prohibit or limit access to contaminated media. Institutional controls may include use restrictions, permitting requirements, standard operating procedures, laboratory implementation requirements, laboratory implementation guidance, and laboratory performance requirements.

instrument detection limit (IDL)—A measure of instrument sensitivity without any consideration for contributions to the signal from reagents. The IDL is calculated as follows: Three times the average of the standard deviations obtained on three nonconsecutive days from the analysis of a standard solution, with seven consecutive measurements of that solution per day. The standard solution must be prepared at a concentration of three to five times the instrument manufacturer's estimated IDL.

interim measure—An action that can be implemented to minimize or prevent the migration of contaminants and to minimize or prevent actual or potential human or ecological exposure to contaminants, while long-term final corrective action remedies are evaluated and, if necessary, implemented.

investigation-derived waste—Solid waste or hazardous waste that was generated as a result of corrective action investigation or remediation field activities. Investigation-derived waste may include drilling muds, cuttings, and purge water from the installation of test pits or wells; purge water, soil, and other materials from the collection of samples; residues from the testing of treatment technologies and pump-and-treat systems; contaminated personal protective equipment; and solutions (aqueous or otherwise) used to decontaminate nondisposable protective clothing and equipment.

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

laboratory qualifier (laboratory flag)—Codes applied to data by a contract analytical laboratory to indicate, on a gross scale, a verifiable or potential data deficiency. These flags are applied according to the U.S. Environmental Protection Agency contract-laboratory program guidelines.

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

LANL (Los Alamos National Laboratory) data validation reason codes—The Los Alamos National Laboratory designations applied to sample data by data validators who are independent of the contract laboratory that performed a given sample analysis. Reason codes provide an analysis-specific explanation for applying a qualifier, with some description of the qualifier's potential impact on data use. For a complete list of data qualifiers applicable to any particular analytical suite, consult the appropriate Environmental Remediation and Surveillance Program standard operating procedure.

leachate—Water that collects contaminants as it trickles through wastes, pesticides, or fertilizers. Leaching may occur in farming areas, feedlots, and landfills, and may result in hazardous substances entering surface water, groundwater, or soil.

leaching—The process by which soluble constituents are dissolved and filtered through the soil by a percolating fluid.

log book—A notebook used to record tabulated data (e.g., the history of calibrations, sample tracking, numerical data, or other technical data).

long-term environmental stewardship—All the activities required to maintain an adequate level of protection for human health and the environment from risks posed by nuclear and/or chemical materials, waste, and contamination that remain after cleanup is complete.

Los Alamos unlimited release (LA-UR) number—A unique identification number required for all documents or presentations prepared for distribution outside Los Alamos National Laboratory (the Laboratory). LA-UR numbers are obtained by filling out a technical information release form (http://enterprise.lanl.gov/alpha.htm) and submitting the form together with 2 copies of the document to the Laboratory's Classification Group (S-7) for review.

lower acceptance limit (LAL)—The lowest limit that is acceptable according to quality control (QC) criteria for a specific QC sample and for a specific method. Any results lower than the LAL are qualified following the routine validation procedure.

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

matrix—Relatively fine material in which coarser fragments or crystals are embedded; also called "ground mass" in the case of igneous rocks.

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

matrix spike duplicate—An intralaboratory duplicate sample to which a known amount of target analyte has been added. Spiking typically occurs before sample preparation and analysis.

maximum contaminant level (MCL)—Under the Safe Drinking Water Act, the maximum permissible level of a contaminant in water that is delivered to any user of a public water system serving 15 or more connections and 25 or more people. MCLs are enforceable standards and take into account the feasibility and cost of attaining the standards.

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

medium (geological)—The solid part of the hydrogeological system; may be unsaturated or saturated.

method blank—An analyte-free matrix to which all reagents are added in the same volumes or proportions as those used in the environmental sample processing, and which is prepared and analyzed in the same manner as the corresponding environmental samples. The method blank is used to assess the potential for sample contamination during preparation and analysis.

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

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

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

minimum detectable activity (MDA)—For the analysis of radionuclides, the lowest detectable radioactivity for a given analytical technique. The following equation is used to calculate the MDA

unless otherwise noted or approved by Los Alamos National Laboratory. (Note: "MDA" here should not to be confused with material disposal area):

$$\mathrm{MDA} = \frac{4.65(\mathrm{BKG})^{0.5} + 2.71}{2.22 \times \mathrm{EFF} \times \mathrm{V} \times \mathrm{T_s} \times \mathrm{Y}} \quad ,$$

where BKG = the total background counts,
EFF = the fraction detector efficiency,
V = the volume or unit weight,
T_s = the sample count duration, and
Y = the fractional chemical recovery obtained from the tracer recovery.

Depending on the type of analysis, other terms may also be required in the denominator (e.g., gamma abundance).

mitigation—(1) Minimizing environmental impacts by limiting the degree or magnitude of an action and its implementation, (2) Rectifying an environmental impact by repairing, rehabilitating, or restoring the affected environment, (3) Reducing or eliminating an environmental impact over time by preservation and maintenance operations during the life of the action, (4) Compensating for an environmental impact by replacing or providing substitute resources or environments.

mixed waste—Waste containing both hazardous and source, special nuclear, or byproduct materials subject to the Atomic Energy Act of 1954.

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

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

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

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

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

notices of approval, of approval with modification, or of disapproval—Notices issued by the New Mexico Environment Department (NMED). Upon receipt of a work plan, schedule, report, or other deliverable document, NMED reviews the document and approves the document as submitted, modifies the document and approves it as modified, or disapproves the document. A notice of approval means that the document is approved as submitted. A notice of approval with modifications means that the document is approved but with modifications specified by NMED. A notice of disapproval means that the document is disapproved and it states the deficiencies and other reasons for disapproval.

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

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

percent recovery (%R)—The amount of material detected in a sample (less any amount already in the sample) divided by the amount added to the sample, expressed as a percentage.

perched water—A zone of unpressurized water held above the water table by impermeable rock or sediment.

percolation—Gravity flow of soil water through the pore spaces in soil or rock below the ground surface.

perennial stream—Water in a channel or bed that flows continuously throughout the year.

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

permit modification—A change to a condition in a facility's permit, initiated by either a request from the permittee or by the administrative authority's action.

piedmont—An area of land formed or lying at the foot of a mountain or mountain range.

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

population—(1) A group of interbreeding organisms occupying a particular space. (2) The number of humans or other living creatures in a designated area.

porosity—The degree to which soil, gravel, sediment, or rock is permeated with pores or cavities through which water or air can move.

porphyritic—Pertaining to the texture of an igneous rock in which larger crystals (phenocrysts) are set in a finer ground mass or matrix**.**

potential release site—A term for a potentially contaminated site at Los Alamos National Laboratory that refers to solid waste management units and areas of concern.

Precambrian—All geologic time before the beginning of the Cambrian period's Paleozoic Era which began about 600 million years ago.

precision—The degree of mutual agreement among a series of individual measurements, values, or results.

preliminary remediation goals—Acceptable exposure levels (protective of human health and the environment) that are used as a risk-based tool for evaluating remedial alternatives.

quality-assessment sample—A sample submitted for analysis, the data from which are used to assess the performance quality of a sampling or analysis process. May include performance-evaluation samples, field duplicates, or field blanks.

quality assurance/quality control—A system of procedures, checks, audits, and corrective actions set up to ensure that all U.S. Environmental Protection Agency research design and performance, environmental monitoring and sampling, and other technical and reporting activities are of the highest achievable quality.

quality control—See quality assurance/quality control.

quality-control sample—A specimen that, upon analysis, is intended to provide information that is useful for adjusting, controlling, or verifying the continuing acceptability of sampling and/or analysis activities in progress.

quality indicators—Quantitative statistics and qualitative descriptors for interpreting the degree of acceptability or utility of data to the user. Indicators of quality include precision, bias, representativeness, reproducibility, comparability, and statistical confidence.

quality management plan (QMP)—A document providing a framework for planning, implementing, and assessing work performed by an organization and for carrying out required quality assurance/quality control. A QMP is part of an organization's structured and documented management system that describes the policies, objectives, principles, organizational authority, responsibilities, accountability, and implementation plan for ensuring quality in work processes, products, and services.

quality procedure—A document that describes the process, method, and responsibilities for performing, controlling, and documenting any quality-affecting activity governed by a quality management plan.

Quaternary—The second period of the Cenozoic Era, following the Tertiary, and including the last two to three million years of earth history.

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

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

radioactive waste—Waste that, by either monitoring and analysis, or acceptable knowledge, or both, has been determined to contain added (or concentrated and naturally occurring) radioactive material or activation products, or that does not meet radiological release criteria.

radioactivity (radioactive decay; radioactive disintegration)—The spontaneous change in an atom by the emission of charged particles and/or gamma rays.

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

RCRA facility assessment (RFA)—Usually the first step in the Resource Conservation and Recovery Act (RCRA) corrective action process. The RFA includes the identification of potential and actual releases from solid waste management units and preliminary determinations about releases and the need for corrective action and stabilization measures.

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

reference set—A hard-copy compilation of reference items cited in Environmental Remediation and Surveillance Program documents.

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

regulatory standard—Media-specific contaminant concentration levels of potential concern that are mandated by federal or state legislation or regulation (e.g., the Safe Drinking Water Act, New Mexico Water Quality Control Commission regulations).

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

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

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

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

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

remediation—(1) The process of reducing the concentration of a contaminant (or contaminants) in air, water, or soil media to a level that poses an acceptable risk to human health and the environment. (2) The act of restoring a contaminated area to a usable condition based on specified standards.

remediation waste—All solid wastes and hazardous wastes, and all media (including groundwater, surface water, soils, and sediments) and debris, that are managed for implementing cleanup.

reporting limit (RL)—The numerical value that an analytical laboratory (in conjunction with its client) selects for determining if a target analyte has been detected. Results below the RL are considered to be undetected, but results above the RL are considered to be detected. The RLs are not necessarily based on instrument sensitivity. RLs can be established at the instrument detection limit, method detection limit, estimated quantitation limit, or contract-required detection limit.

residential scenario—The land use condition under which individuals may be exposed to contaminants as a result of living on or near contaminated sites.

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

retardation—An act or process that reduces the rate of movement of a chemical substance in water relative to the average velocity of the water. The movement of chemical substances in water can be retarded by adsorption and precipitation reactions, and by diffusion into pore water in a given sedimentary or rock matrix.

rinsate blank—See equipment blank.

risk characterization—The last phase in the risk assessment process which estimates the potential for adverse health or ecological effects to occur as a result of exposure to a stressor, and which evaluates the uncertainty involved.

routine analysis—The analysis categories of inorganic compounds, organic compounds, metals, radiochemistry, and high explosives, as defined in a contract laboratory's statement of work.

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

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

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

sample matrix—In chemical analysis, that portion of a sample that is exclusive of the analytes of interest. Together, the matrix and the analytes of interest form the sample.

screening action level (SAL)—A radionuclide's medium-specific concentration level; it is calculated by using conservative criteria below which it is generally assumed that no potential exists for a dose that is unacceptable to human health. The derivation of a SAL is based on conservative exposure and on land-use assumptions. However, if an applicable regulatory standard exists that is less than the value derived, it is used in place of the SAL.

screening risk assessment—A risk assessment that is performed with few data and many assumptions in order to identify exposures that should be evaluated more carefully for potential risk.

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

sensitivity—An indication of the lowest analyte concentration that can be measured with a specified degree of confidence.

serial dilution sample—A requirement of the U.S. Environmental Protection Agency (EPA) Method 6010B (Inductively Coupled Plasma-Atomic Emission Spectroscopy). Serial dilutions are made by performing a series of dilutions on an aliquot taken from a stock solution for a target analyte. The first dilution of the original stock solution serves as the stock solution for the second dilution, and the second dilution serves as the stock solution for the third dilution, and so on. To meet the requirement of EPA Method 6010B, one serial dilution analysis must be performed for each matrix in every sample batch, with a minimum of 1 serial dilution sample per 20 samples.

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

slope—A ratio of units of elevation change to units of horizontal change, usually expressed in degrees.

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

soil moisture—The water contained in the pore space of the unsaturated zone.

soil screening level (SSL)—The concentration of a chemical (inorganic or organic) below which no potential for unacceptable risk to human health exists. The derivation of an SSL is based on conservative exposure and land-use assumptions, and on target levels of either a hazard quotient of 1.0 for a noncarcinogenic chemical or a cancer risk of 10^{-5} for a carcinogenic chemical.

soil water—Water in the unsaturated zone, regardless of whether it occurs in soil or rock.

solid waste—Any garbage, refuse, or sludge from a waste treatment plant, water-supply treatment plant, or air-pollution control facility, and other discarded material, including solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations and from community activities. Solid waste does not include solid or dissolved materials in domestic sewage; solid or dissolved materials in irrigation return flows; industrial discharges that are point sources subject to permits under section 402 of the Federal Water Pollution Control Act, as amended; or source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954, as amended.

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

split sample—A sample that has been divided into two or more portions that are expected to be of the same composition; used to characterize within-sample heterogeneity, sample handling, and measurement variability.

stakeholder—Any organization, governmental entity, or individual that has a stake in, or may be impacted by, a given approach to environmental regulation, pollution prevention, or energy conservation.

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

stratification—The process of separating into layers.

stratigraphy—The study of the formation, composition, and sequence of sediments, whether consolidated or not.

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

surrogate (surrogate compound)—An organic compound used in the analyses of organic target analytes that is similar in composition and behavior to the target analytes but is not normally found in field samples. Surrogates are added to every blank and spike sample to evaluate the efficiency with which analytes are being recovered during extraction and analysis.

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

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

tentatively identified compound (TIC)—A chemical compound detected in a sample that is not a target analyte, internal standard, or surrogate. Up to 30 chromatographic peaks may be subject to mass spectral matching for identification as TICs.

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

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

trip blank—A sample of analyte-free medium taken from a sampling site and returned to an analytical laboratory unopened, along with samples taken in the field; used to monitor cross contamination of samples during handling and storage both in the field and in the analytical laboratory.

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

unconfined aquifer—An aquifer containing water that is not under pressure; the water level in a well is the same as the water table outside the well.

unique identifier—A word or code that aids in the ability to trace the history, application, or location of an activity, item, datum, or sample using recorded documentation. For Environmental Remediation and Surveillance Program records, a unique identifier is an alphanumeric identifier assigned to a primary record.

unsaturated zone—The area above the water table where soil pores are not fully saturated, although some water may be present.

upper confidence limit—The statistic that represents the upper bound of the arithmetic mean (usually 95%) of the measured data and that is used in a risk assessment as the reasonable maximum exposure point concentration.

upper tolerance limit—A statistical measure of the upper end of a distribution. The 95th percentile upper tolerance limit, which is the 95% upper percentile of the 95th percentile of the data distribution, is the background value used to represent the background data distribution for an inorganic chemical or naturally occurring radionuclide.

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

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

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

verification—A test or tests, generally performed before and after logging in lieu of a calibration, to ascertain whether the logging system is operating properly. Verification differs from calibration in that it does not provide updated system-calibration values.

welded tuff—A volcanic deposit hardened by the action of heat, pressures from overlying material, and hot gases.

work plan—A document that specifies the activities to be performed when implementing an investigation or remedy. At a minimum, the work plan should identify the scope of the work to be performed, specify the procedures to be used to perform the work, and present a schedule for performing the work. The work plan may also present the technical basis for performing the work.

A-3.0 METRIC CONVERSION TABLE

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

A-4.0 DATA QUALIFIER DEFINITIONS

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

Data Review

B-1.0 INTRODUCTION

To identify chemicals of potential concern (COPCs) and to determine if nature and extent are defined, this appendix evaluates the data from the investigation sites [area of concern (AOC) 21-002(b), Consolidated Unit 21-003-99, and solid waste management units (SWMUs) 21-009, 21-013(c), and 21-024(c)] and the facility-unimpacted corrective action sites [SWMUs 21-012(b), 21-024(a), 21-024(e), 21-024(g), 21-024(o), and 21-027(c) and Consolidated Units 21-024(l)-99 and 21-026(a)-99].

B-1.1 Overview of Data

In the Environmental Remediation and Support Services Division's database, all data records include a vintage code field denoting how and where samples were submitted for analyses. In the early years of the Environmental Restoration Project, the samples were submitted to the Los Alamos National Laboratory (LANL or the Laboratory) Chemical Science and Technology (CST) Division. Samples were either analyzed at a CST laboratory or shipped to one of several off-site contract laboratories.

Samples analyzed at a CST laboratory are identified by the vintage code "CST Onsite" and were not accompanied by full chain-of-custody and quality-control documentation. Therefore, CST Onsite data are used as screening-level data only and are not included in this data review. Those data have been used at various times during the course of the current and previous investigations to guide sampling and analysis but are not used to determine nature and extent of contamination. The investigation work plan presents these data (LANL 2004, 087461; LANL 2005, 087836). Samples the CST Division shipped to off-site laboratories are identified by the vintage code "CST Offsite." From late 1995 to the present, samples have been shipped through the Sample Management Office (SMO) to off-site contract laboratories. These samples are identified by the vintage code "SMO."

The historical Resource Conservation and Recovery Act facility investigation (RFI) data collected during the investigation of AOC 21-002(b), Consolidated Unit 21-003-99, and SWMUs 21-013(c) and 21-024(c) at Technical Area (TA) 21 in 1994 are of varying quality, depending on the available documentation that accompanies the analytical results. No data were previously collected at SWMU 21-009.

For the investigation sites, CST Offsite data were reviewed, whenever possible, by examining the original data packages and validating the reported results; therefore, CST Offsite data are used in this investigation report for Consolidated Unit 21-003-99 and SWMU 21-013(c). Usable CST Offsite data for these two sites have been included with the SMO data in the determination of nature and extent of contamination. No usable CST Offsite data were available for AOCs 21-002(b) and 21-024(c).

For the facility-unimpacted corrective action sites, it was determined that data only from the current 2006-2007 sampling activities should be used (LANL 2004, 087461; LANL 2005, 087836). Because of the disruptive nature of the corrective actions performed at the site, it was deemed suitable not to use the previously collected data. In addition, most of the data were over 10 yr old and did not define nature or extent.

Site data are evaluated by media to facilitate the comparison with media-specific background data. Background data are available for soil (all soil horizons, designated by the media code ALLH), sediment, and for several geologic units, including Bandelier Tuff (media codes Qbt 3, Qbt 2, Qbt 1v, Qbt 1g, Qct, and Qbo). Fill material is undifferentiated and may include soil and crushed tuff in varying proportions; fill material is compared with soil background values (BVs) (LANL 1998, 059730). No fill or sediment samples were collected at any of the sites. Only samples of soil and Qbt 3 were collected.

In some cases, individual analytical results are qualified as “rejected” because of various data-quality issues. Rejected analytical results are not included in the data review or in evaluations of nature and extent of contamination. Data-quality issues, including rejected analytical results, are discussed in Appendix E.

B-1.2 Identification of COPCs

The purpose of the data review is to identify COPCs for the sites. Inorganic chemical and radionuclide data were compared with media-specific background data (LANL 1998, 059730). The first step for background comparisons is to compare the site data with a BV. The BV may be a calculated value for the background data set (upper tolerance limit [95, 95] or the 95% upper confidence bound on the 95th quantile), a detection limit (DL), a fallout value (FV), or it may be calculated based on secular equilibrium or a total analysis. An FV for fallout radionuclides (tritium, cesium-137, americium-241, plutonium-238, plutonium-239, and strontium-90) applies only to surface samples, generally from depths of 0 to 0.5 ft. In some cases, background data and/or a BV or FV are unavailable, and the detected inorganic chemical or radionuclide is retained as a COPC.

If a site-specific datum exceeds its BV, an additional evaluation of the datum may be performed by comparing the chemical concentration with the range of background concentrations for that chemical (Table B-1.2-1). If the site concentration is within the range of background concentrations, the analyte is eliminated as a COPC.

Organic chemicals are retained as COPCs if they are detected at the site.

B-1.3 Nature and Extent Determination

For each site, except for Consolidated Unit 21-003-99 and SWMU 21-024(c), COPCs were evaluated to determine if vertical and lateral extent were defined. This was accomplished by identifying the following: (1) a decreasing trend in concentration, (2) inorganic chemical COPC concentrations at background concentrations (LANL 1998, 059730), and (3) detected organic chemical concentrations below or near their respective estimated quantitation limits (EQLs).

Nature and extent were not determined for Consolidated Unit 21-003-99 and SWMU 21-024(c) because these sites will be undergoing remediation and soil removal. COPCs are presented for these sites.

B-2.0 INVESTIGATION SITES: OVERVIEW OF DATA

The data used for determining COPCs and nature and extent for the five investigation sites [AOC 21-002, Consolidated Unit 21-003-99, and SWMUs 21-009, 21-013(c), and 21-024(c)] were from samples collected in 1994 and 2006. The data include analytical data from 139 surface samples and 181 subsurface samples collected (Table 3.0-1 in the main text of this report). Figures 1.2-2 to 1.2-6 (in the main text of this report) show the sampling locations for the five investigation sites.

B-2.1 AOC 21-002(b)

Figures 6.3-1, 6.3-2, and 6.3-3 present the analytical results for inorganic chemicals, organic chemicals, and radionuclides, respectively, at AOC 21-002(b).

B-2.1.1 COPC Identification of Inorganic Chemicals at AOC 21-002(b)

Inorganic Chemicals in Soil

Eighteen soil samples were collected and analyzed for inorganic chemicals, including nitrate, cyanide, and perchlorate. Table 3.1-1 summarizes the soil samples collected and the requested inorganic chemical analyses for each sample. The extent of inorganic chemical contamination in soil is discussed in section B-2.1.2.

Table 6.3-2 and Figure 6.3-1 present the inorganic chemical results detected above BV, detected inorganic chemicals with no BV, inorganic chemicals with DLs above BV, and/or their locations at AOC 21-002(b).

- Cadmium, calcium, chromium, and uranium were detected within the range of background concentrations (LANL 1998, 059730). These inorganic chemicals were not retained as COPCs in soil.
- Lead, selenium, and zinc were detected with at least one concentration above the range of background concentrations (LANL 1998, 059730). These inorganic chemicals were retained as COPCs in soil.
- Cyanide and silver were detected above their BVs (LANL 1998, 059730). These inorganic chemicals were retained as COPCs in soil.
- Nitrate and perchlorate were detected in at least one sample but have no BVs. These inorganic chemicals were retained as COPCs in soil.

Inorganic Chemicals in Tuff

Eighteen tuff samples were collected and analyzed for inorganic chemicals, including nitrate, cyanide, and perchlorate. Table 3.1-1 summarizes the tuff samples collected and the requested inorganic chemical analyses for each sample. The extent of inorganic chemical contamination in tuff is discussed in section B-2.1.2.

Table 6.3-3 and Figure 6.3-1 present the inorganic chemical results detected above BV, detected inorganic chemicals with no BV, inorganic chemicals with DLs above BV, and/or their locations at AOC 21-002(b).

- Copper and magnesium were detected within the range of background concentrations (LANL 1998, 059730). These inorganic chemicals were not retained as COPCs in tuff.
- Aluminum, arsenic, barium, chromium, cyanide, lead, and selenium were detected with at least one concentration above the range of background concentrations (LANL 1998, 059730). These inorganic chemicals were retained as COPCs in tuff.
- Cadmium was not detected but had DLs above its BV. DLs were also above the range of background concentrations (LANL 1998, 059730). Cadmium was retained as a COPC in tuff.
- Nitrate and perchlorate were detected in at least one sample but have no BVs. These inorganic chemicals were retained as COPCs in tuff.
- Calcium was detected above the range of background concentrations in three samples (LANL 1998, 059730). All concentrations were less than 2 times the maximum background

concentration. Calcium was infrequently detected slightly above background concentration and is an essential nutrient; therefore, calcium was not retained as a COPC (EPA 1989, 008021).

B-2.1.2 Nature and Extent of Inorganic Chemicals

Twelve inorganic chemicals were identified as COPCs (aluminum, arsenic, barium, cadmium, chromium, cyanide, lead, nitrate, perchlorate, selenium, silver, and zinc).

Aluminum was detected above the maximum background concentration in six samples at locations 21-25679, 21-25682, 21-25687, 21-25689, 21-25693, and 21-25696. Concentrations increased with depth at each of these locations except for location 21-25679, where the concentration remained constant with depth. Therefore, vertical extent is not defined at six locations. Lateral extent is defined by surrounding samples, except for locations 21-25687, 21-25689, and 21-25693. No sampling locations exist to the west of location 21-25687, to the south of location 21-25689 (this area is upslope of the AOC), or to the east (downslope) of location 21-25693. Therefore, lateral extent is not defined at these three locations.

Arsenic was detected above the maximum tuff background concentration in one tuff sample at location 21-25685. Concentrations increased with depth at this location; however, the concentration is less than 2 times the maximum background concentration. Therefore, vertical and lateral extent are defined.

Barium was detected above the maximum tuff background concentration in nine tuff samples at locations 21-25679, 21-25682, 21-25684, 21-25686, 21-25687, 21-25688, 21-25689, 21-25693, and 21-25696. At locations 21-25682 and 21-25696, concentrations increased with depth, and the concentrations are greater than 2 times the maximum background concentration. Therefore, vertical extent is not defined. Lateral extent is not defined around the perimeter of the AOC.

Cadmium was detected in soil at concentrations within the range of background concentrations but was not detected in tuff; therefore, extent is defined for cadmium.

Chromium was detected above the maximum tuff background concentration in 11 tuff samples at locations 21-25680, 21-25681, 21-25684, 21-25685, 21-25686, 21-25687, 21-25690, 21-25692, 21-25693, 21-25694, and 21-25696. Concentrations increased with depth at these locations; therefore, vertical extent is not defined. Lateral extent is not defined around the perimeter of the AOC.

Cyanide was detected above its BV in four soil samples (locations 21-25679, 21-25680, 21-25683, and 21-25693) and one tuff sample (location 21-25689). Cyanide concentrations increased slightly with depth at location 21-25689 to a subsurface concentration, approximately the same as BV (0.547 mg/kg vs. 0.5 mg/kg). Lateral extent for cyanide is defined by surrounding samples, except for two perimeter locations: 21-25689 (located upslope of the AOC) and 21-25693. Overall, the levels of cyanide reported at the site (0.088 to 1.49 mg/kg) are low and are not indicative of a release; therefore, the extent of cyanide is defined.

Lead was detected above the maximum background concentration in 13 soil samples (locations 21-25679 through 21-25685, 21-25687, 21-25689, 21-25692 through 21-25694, and 21-25696) and two tuff samples (locations 21-25693 and 21-25696). Lead concentrations decrease with depth at all locations; therefore, vertical extent of lead is defined. However, lateral extent is not defined at perimeter locations 21-25687 (to the south and west) and 21-25689 (to the south).

Nitrate was detected in 16 soil samples and 9 tuff samples at 16 locations. Concentrations ranged from 0.726 to 13.8 mg/kg in soil and from 0.751 to 2.19 mg/kg in tuff. Concentrations decreased with depth except for location 21-25690, where the concentrations stayed approximately the same with depth (0.726 and 0.761 mg/kg); therefore, vertical extent is defined. Lateral extent is defined by surrounding samples except for the higher concentrations at two perimeter locations, 21-25688 (to the west and south) and 21-25693 (to the east). No sample was collected south of location 21-25688; this area is upslope. In addition, the nitrate concentrations at the site are likely naturally occurring.

Perchlorate was detected in three soil samples (locations 21-25683, 21-25687, and 21-25693) and in three tuff samples (locations 21-25682, 21-25690, and 21-25696). Concentrations ranged from 0.0007 to 0.00127 mg/kg and decreased with depth, or for the concentrations detected in the three deeper tuff samples, the corresponding shallower soil samples had detection limits higher than the detected tuff concentration. All detections are below the estimated detection limits (EDLs); therefore, further sampling is not warranted.

Selenium was detected above the maximum background concentration in eight soil samples (locations 21-25689 though 21-25696) and eight tuff samples (locations 21-25689 through 21-25696). Selenium concentrations decreased with depth at all locations except for locations 21-25690 and 21-25693; therefore, vertical extent is not defined. Selenium was also reported with DLs above BV in 10 soil and tuff samples located along the northern half of the AOC, which is the downslope portion of the AOC. Lateral extent is not defined at the edges of the AOC.

Silver was detected above its BV in one soil sample (location 21-25679). Concentrations decreased with depth at location 21-25679; therefore, vertical extent is defined. Lateral extent is defined by surrounding samples.

Zinc was detected above the maximum soil background concentration in seven soil samples at locations 21-25679, 21-25680, 21-25683, 21-25684, 21-25687, 21-25692, and 21-25693. Concentrations decreased with depth; therefore, vertical extent is defined. Lateral extent is not defined to the south of location 21-25687 because there is no sampling location in that direction.

B-2.1.3 COPC Identification of Organic Chemicals at AOC 21-002(b)

Organic Chemicals in Soil

Eighteen soil samples were collected and analyzed for semivolatile organic chemicals (SVOCs). Table 3.1-1 summarizes the soil samples collected and the requested organic chemical analyses for each sample. The extent of organic chemical contamination in soil is discussed in section B-2.1.4.

Table 6.3-4 and Figure 6.3-2 present the detected concentrations for the organic COPCs in soil and their locations at AOC 21-002(b).

All organic chemicals detected in at least one sample were retained as COPCs in soil (anthracene; benzo[a]anthracene; benzo[a]pyrene; benzo[b]fluoranthene; benzo[g,h,i]perylene; benzo[k]fluoranthene; bis[2-ethylhexyl]phthalate; chrysene; dimethyl phthalate; di-n-butylphthalate; fluoranthene; indeno[1,2,3-cd]pyrene; phenanthrene; and pyrene).

Organic Chemicals in Tuff

Eighteen tuff samples were collected and analyzed for volatile organic chemicals (VOCs) and SVOCs. Two of the 18 samples were also analyzed for polychlorinated biphenyls (PCBs) and explosive

compounds. One of the 18 samples was analyzed for dioxin/furans. Table 3.1-1 summarizes the tuff samples collected and the requested organic chemical analyses for each sample. The extent of organic chemical contamination in tuff is discussed in section B-2.1.4.

Table 6.3-5 and Figure 6.3-2 present the detected concentrations for the organic COPCs in tuff and their locations at AOC 21-002(b).

Ten dioxin/furan congeners and two PCBs (Aroclor 1254 and Aroclor 1260) were detected. Per the New Mexico Environmental Department (NMED), no additional sampling for these organic chemicals was necessary (Chamberlain 2006, 095870). One additional sample was also analyzed for PCBs. The detections at this location (21-25683) were less than those at the location selected for the extended suite analyses. Therefore, PCBs were not retained as COPCs.

All other organic chemicals detected in at least one sample were retained as COPCs in tuff (acetone; benzo[a]pyrene; benzo[b]fluoranthene; benzo[g,h,i]perylene; chrysene; fluoranthene; indeno[1,2,3-cd]pyrene; methyl-2-pentanone[4-]; methylene chloride; pyrene; and xylene[1,3 and 1,4]).

B-2.1.4 Nature and Extent of Organic Chemicals

Eighteen organic chemicals were identified as COPCs (acetone; anthracene; benzo[a]anthracene; benzo[a]pyrene; benzo[b]fluoranthene; benzo[g,h,i]perylene; benzo[k])fluoranthene; bis[2-ethylhexyl]phthalate; chrysene; dimethyl phthalate; di-n-butylphthalate; fluoranthene; indeno[1,2,3-cd]pyrene; methyl-2-pentanone[4-]; methylene chloride; phenanthrene; pyrene; and xylene[1,3 and 1,4]).

Acetone; anthracene; dimethyl phthalate; di-n-butylphthalate; methyl-2-pentanone[4-]; methylene chloride; phenanthrene; and xylene[1,3 and 1,4] were not detected above their respective EQLs. Therefore, vertical and lateral extent are defined.

At location 21-25679, benzo(a)anthracene was detected above the EQL in one soil sample. Concentrations decreased with depth at this location; therefore, vertical extent is defined. Lateral extent is defined by surrounding samples.

Benzo(a)pyrene; benzo(b)fluoranthene; benzo(g,h,i)perylene; chrysene; and indeno(1,2,3-cd) were detected in soil and tuff above the EQL at approximately four locations. At location 21-25679, concentrations of all these organic chemicals increased from a nondetect in the shallow soil sample to a very low concentration in the deeper tuff sample; therefore, vertical extent is not defined. Lateral extent is provided by surrounding samples.

Benzo(k)fluoranthene was detected in soil above the EQL at locations 21-25681 and 21-25684. Benzo(k)fluoranthene was not detected in the deeper samples at these locations. Therefore, vertical extent is defined. Lateral extent is defined by surrounding samples.

Bis(2-ethylhexyl)phthalate was detected in soil above the EQL at two locations (21-25689 and 21-25695). It was not detected in the deeper sample at these locations; therefore, vertical extent is defined. Lateral extent is not defined to the east of location 21-25695.

Fluoranthene was detected in soil and tuff above the EQL in six samples at six locations (21-25679, 21-25681, 21-25683, 21-25684, 21-25685, and 21-25693). Concentrations decreased or remained approximately the same with depth at these locations; therefore, vertical extent is defined. Lateral extent is defined by surrounding samples.

Pyrene was detected in soil and tuff above the EQL at five locations (21-25679, 21-25681, 21-25683, 21-25684, and 21-25693). Concentrations stay approximately the same or decrease with depth at these locations; therefore, vertical extent is defined. Lateral extent is defined by surrounding samples.

B-2.1.5 COPC Identification of Radionuclides at AOC 21-002(b)

Radionuclides in Soil

Eighteen soil samples were collected and analyzed for americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, strontium-90, and tritium. Table 3.1-1 summarizes the soil samples collected and the requested radionuclide analyses for each sample. Extent of radionuclide contamination in soil is discussed in section B-2.1.6.

Table 6.3-6 and Figure 6.3-3 present the radionuclide results at AOC 21-002(b).

Americium-241, plutonium-238, plutonium-239, and tritium were detected or detected above their respective FVs in at least one sample (LANL 1998, 059730). These four radionuclides were retained as COPCs in soil.

Radionuclides in Tuff

Eighteen tuff samples were collected and analyzed for americium-241, gamma-emitting radionuclides, isotopic uranium, isotopic plutonium, tritium, and strontium-90. Table 3.1-1 summarizes the tuff samples collected and the requested radionuclide analyses for each sample. Extent of radionuclide contamination in tuff is discussed in section B-2.1.6.

Table 6.3-7 and Figure 6.3-3 present the radionuclide results at AOC 21-002(b).

Plutonium-238, plutonium-239, and tritium were detected in at least one tuff sample. These radionuclides were retained as COPCs in tuff.

B-2.1.6 Nature and Extent of Radionuclides

Four radionuclides were identified as COPCs (americium-241, plutonium-238, plutonium-239, and tritium).

Americium-241 was detected in soil above its FV in 10 samples at locations 21-25679, 21-27680, 21-25682 through 21-25685, 21-25688, 21-25690, 21-25693, and 21-25694. Americium-241 was not detected in the subsurface tuff samples; therefore, vertical extent is defined. Lateral extent is defined by surrounding samples, except for perimeter locations 21-25680 (to the south), 21-25690 (to the east), and 21-25693 (to the east) because there are no sampling locations in the indicated directions.

Plutonium-238 was detected above maximum fallout concentration in three soil samples (locations 21-25681, 21-25685, and 21-25686) and was detected in two tuff samples (locations 21-25685 and 21-25686). Vertical extent is defined at location 21-25681 because plutonium-238 was not detected in the deeper sample. At locations 21-25685 and 21-25686, plutonium-238 was detected in the deeper samples at activities, approximately the same as the surface samples. Therefore, vertical extent is defined for plutonium-238. Lateral extent is not defined to the north of locations 21-25685 and 21-25686 or west of location 21-25686 because there are no sampling locations in these areas.

Plutonium-239 was detected above its FV and above the maximum fallout concentration in 17 soil samples (locations 21-25679 through 21-25696) and at depths where the FV does not apply in six tuff

samples (locations 21-25679, 21-25683, 21-25691, 21-25693, 21-25695, and 21-25696). Activities decreased with depth, or plutonium-239 was not detected in the deeper sample; therefore, vertical extent is defined. Lateral extent is defined by surrounding samples, except for perimeter locations 21-25589 (upslope to the south) and 21-25693 (to the east) because there are no sampling locations in the indicated directions.

Tritium was detected in 2 soil samples (locations 21-25680 and 21-25683) and 10 tuff samples (locations 21-25679, 21-25680, 21-25684, 21-25685, 21-25687, 21-25690, 21-25692, 21-25694, 21-25695, and 21-25696). Activities were low and ranged from 0.0305 to 0.0423 pCi/g in soil and from 0.011 to 0.0387pCi/g in tuff. The tritium facility tower at TA-21 is known to have spread tritium throughout TA-21 via air deposition. The level of tritium activity observed at AOC 21-002(b) is indicative of the tritium facility tower air deposition and is not AOC related. Therefore, further sampling is not warranted for tritium at AOC 21-002(b).

B-2.2 Consolidated Unit 21-003-99

Plates 2, 3, and 4 present the analytical results for inorganic chemicals, organic chemicals, and radionuclides, respectively, at Consolidated Unit 21-003-99. Nature and extent were not determined for Consolidated Unit 21-003-99 because this site will be undergoing remediation and soil removal.

B-2.2.1 COPC Identification of Inorganic Chemicals at Consolidated Unit 21-003-99

Inorganic Chemicals in Soil

Seventy-nine soil samples were collected and analyzed for inorganic chemicals, including nitrate, cyanide, and perchlorate. Table 3.1-2 summarizes the soil samples collected and the requested inorganic chemical analyses for each sample.

Table 6.3-8 and Plate 2 present the inorganic chemical results detected above BV, detected inorganic chemicals with no BV, inorganic chemicals with DLs above BV, and/or their locations at Consolidated Unit 21-003-99.

- Aluminum, cadmium, calcium, cobalt, and nickel were detected within the range of background concentrations (LANL 1998, 059730). These inorganic chemicals were not retained as COPCs in soil.
- Cyanide and mercury were detected above their BVs (LANL 1998, 059730). Cyanide and mercury are retained as COPCs in soil.
- Chromium, copper, lead, selenium, thallium, uranium, and zinc were detected with at least one concentration above the range of background concentrations (LANL 1998, 059730). These inorganic chemicals were retained as COPCs in soil.
- Perchlorate and nitrate were detected in at least one sample but have no BVs. These inorganic chemicals were retained as COPCs in soil.

Inorganic Chemicals in Tuff

Forty-eight tuff samples were collected and analyzed for inorganic chemicals, including nitrate, cyanide, and perchlorate. Table 3.1-2 summarizes the tuff samples collected and the requested inorganic chemical analyses for each sample.

Table 6.3-9 and Plate 2 present the inorganic chemical results detected above the BV, detected inorganic chemicals with no BV, inorganic chemicals with DLs above BV, and/or their locations at Consolidated Unit 21-003-99.

- Aluminum, arsenic, barium, beryllium, chromium, copper, iron, lead, nickel, uranium, vanadium, and zinc were detected with at least one concentration above the range of background concentrations (LANL 1998, 059730). These inorganic chemicals were retained as COPCs in tuff.
- Cobalt, cyanide, mercury, and selenium were detected above their BVs (LANL 1998, 059730). These are retained as COPCs in tuff.
- Nitrate and perchlorate were detected in at least one sample but have no BVs. Therefore, these are retained as COPCs in tuff.
- Calcium and magnesium were detected above the range of background concentrations (LANL 1998, 059730). Calcium was detected above the range of background concentrations in seventeen samples. It was detected above two times the maximum background concentration in five out of 48 samples. Magnesium was detected above the range of background concentrations in two out of 48 samples, but did not exceed two times the maximum background concentration. Additionally, these are essential nutrients and were not retained as COPCs (EPA 1989, 008021).

B-2.2.2 COPC Identification of Organic Chemicals at Consolidated Unit 21-003-99

Organic Chemicals in Soil

Sixty-six soil samples were collected and analyzed for SVOCs and PCBs. Thirty-two of these were analyzed for VOCs; one was analyzed for explosive compounds and dioxin/furans. Table 3.1-2 summarizes the soil samples collected and the requested organic chemical analyses for each sample.

Table 6.3-10 and Plate 3 present the detected concentrations for the organic COPCs in soil and their locations at Consolidated Unit 21-003-99.

Four dioxin/furan congeners were detected. Per NMED, no additional sampling was necessary for dioxin/furans (Chamberlain 2006, 093679); therefore, the dioxin/furan congeners were not retained as COPCs.

All other organic chemicals detected in at least one sample were retained as COPCs in soil (acenaphthene; acetone; anthracene; Aroclor 1242, Aroclor1248, Aroclor 1254, and Aroclor 1260; benzene; benzo(a)anthracene; benzo(a)pyrene; benzo(b)fluoranthene; benzoic acid; benzyl alcohol; bis(2-ethylhexyl)phthalate; butylbenzene[sec-]; chloroform; chrysene; dichlorobenzene[1,3-]; dichloroethene[1,1-]; di-n-butylphthalate; ethylbenzene; fluoranthene; isopropyltoluene[4-]; methylene chloride; phenanthrene; pyrene; styrene; tetrachloroethene; toluene; trichloroethene; xylene[1,2-]; and xylene[1,3 and 1,4]).

Organic Chemicals in Tuff

Forty-eight tuff samples were collected and analyzed for SVOCs, VOCs, and PCBs. Table 3.1-2 summarizes the soil samples collected and the requested organic chemical analyses for each sample.

Table 6.3-11 and Plate 3 present the detected concentrations for the organic COPCs in tuff and their locations at Consolidated Unit 21-003-99.

All organic chemicals detected in at least one sample were retained as COPCs in tuff (acenaphthene; Aroclor 1242, Aroclor 1248, Aroclor 1254, and Aroclor 1260; benzo(a)anthracene; benzo(b)fluoranthene; bis(2-ethylhexyl)phthalate; butylbenzene[sec-]; chrysene; dichloroethene[1,1-]; fluoranthene; methylene chloride; phenanthrene; pyrene; styrene; and trichloroethene).

B-2.2.3 COPC Identification of Radionuclides at Consolidated Unit 21-003-99

Radionuclides in Soil

Seventy-nine soil samples were collected and analyzed for americium-241, gamma-emitting radionuclides, isotopic uranium, isotopic plutonium, tritium, and strontium-90. Table 3.1-2 summarizes the soil samples collected and the requested radionuclide analyses for each sample.

Table 6.3-12 and Plate 4 present the radionuclide results at Consolidated Unit 21-003-99.

Americium-241, cesium-134, cesium-137, plutonium-238, plutonium-239, strontium-90, tritium, uranium-234, uranium-235, and uranium-238 were detected in at least one sample above their respective FVs (LANL 1998, 059730) and/or at depths where the FV does not apply. These radionuclides were retained as COPCs in soil.

Radionuclides in Tuff

Forty-eight tuff samples were collected and analyzed for americium-241, gamma-emitting radionuclides, isotopic uranium, isotopic plutonium, tritium, and strontium-90. Table 3.1-2 summarizes the tuff samples collected and the requested radionuclide analyses for each sample.

Table 6.3-13 and Plate 4 present radionuclide results at Consolidated Unit 21-003-99.

Americium-241, cesium-137, plutonium-238, plutonium-239, strontium-90, tritium, uranium-234, uranium-235, and uranium-238 were detected in at least one tuff sample. These radionuclides were retained as COPCs in tuff.

B-2.3 SWMU 21-009

Figures 6.3-4, 6.3-5, and 6.3-6 present the analytical results for inorganic chemicals, organic chemicals, and radionuclides, respectively, at SWMU 21-009.

B-2.3.1 COPC Identification of Inorganic Chemicals at SWMU 21-009

Inorganic Chemicals in Soil

Fourteen soil samples were collected and analyzed for inorganic chemicals, including nitrate, cyanide, and perchlorate. Table 3.1-3 summarizes the soil samples collected and the requested inorganic chemical analyses for each sample. Extent of inorganic chemical contamination in soil is discussed in section B-2.3.2.

Table 6.3-14 and Figure 6.3-4 present the inorganic chemical results detected above the BV, detected inorganic chemicals with no BV, inorganic chemicals with DLs above BV, and/or their locations at SWMU 21-009.

- Calcium, chromium, and nickel were detected within the range of background concentrations (LANL 1998, 059730). These inorganic chemicals were not retained as COPCs in soil.
- Cyanide was detected above its BV (LANL 1998, 059730). Cyanide is retained as a COPC in soil.
- Lead, selenium, and zinc were detected with at least one concentration above the range of background concentrations (LANL 1998, 059730). These inorganic chemicals were retained as COPCs in soil.
- Perchlorate and nitrate were detected in at least one sample but have no BVs. These inorganic chemicals were retained as COPCs in soil.
- Cadmium was not detected but had DLs within the range of background concentrations (LANL 1998, 059730). Therefore, cadmium was not retained as a COPC in soil.

Inorganic Chemicals in Tuff

Two tuff samples were collected and analyzed for inorganic chemicals, including nitrate, cyanide, and perchlorate. Table 3.1-3 summarizes the tuff samples collected and the requested inorganic chemical analyses for each sample. Extent of inorganic chemical contamination in tuff is discussed in section B-2.3.2.

Table 6.3-15 and Figure 6.3-4 present the inorganic chemical results detected above the BV, detected inorganic chemicals with no BV, inorganic chemicals with DLs above BV, and/or their locations at SWMU 21-009.

- Arsenic was detected within the range of background concentrations (LANL 1998, 059730). Arsenic was not retained as a COPC in tuff.
- Aluminum, barium, chromium, and selenium were detected with at least one concentration above the range of background concentrations (LANL 1998, 059730). These inorganic chemicals were retained as COPCs in tuff.
- Nitrate was detected in at least one sample but has no BV. Therefore, it was retained as COPC in tuff.
- Calcium was detected above the range of background in one tuff sample (LANL 1998, 059730). The concentration was less than 2 times the maximum background concentration. Calcium was infrequently detected slightly above BV and is an essential nutrient and was not retained as a COPC (EPA 1989, 008021).

B-2.3.2 Nature and Extent of Inorganic Chemicals

Nine inorganic chemicals were identified as COPCs (aluminum, barium, chromium, cyanide, lead, nitrate, perchlorate, selenium, and zinc).

Aluminum was detected above the maximum background concentration in one tuff sample (location 21-25643). Concentrations decreased with depth; therefore, vertical extent is defined. Location 21-25643 is the southernmost sampling location; therefore, lateral extent cannot be defined. The detected concentration of aluminum (8740 mg/kg) was slightly above the maximum tuff background

concentration (8370 mg/kg) and was less than 2 times the maximum background concentration. Therefore, the lateral and vertical extent of aluminum are defined.

Barium was detected above the maximum background concentration in one tuff sample at location 21-25638. Concentrations decreased with depth; therefore, vertical extent for barium is defined. Although there are no sampling locations to the west, the detected concentration (75.3 mg/kg) was slightly above the maximum background concentration (51.6 mg/kg) and is less than 2 times the maximum background concentration. Therefore, the lateral extent of barium is defined.

Chromium was detected above the maximum tuff background concentration in one tuff sample at location 21-25638. Concentrations increased with depth at this location; therefore, vertical extent is not defined at this location. Although there are no sampling locations to the west, the detected concentration (15.4 mg/kg) was slightly above the maximum tuff background concentration (13 mg/kg) and was less than 2 times the maximum background concentration. Therefore, vertical and lateral extent are defined.

Cyanide was detected above its BV in two soil samples (locations 21-25642 and 21-25643). At location 21-25642, the surface sample was a nondetect, and the subsurface concentration (0.542 mg/kg) was approximately the same as the BV (0.500 mg/kg). At location 21-25643, concentrations decreased with depth; therefore, vertical extent is defined for cyanide. Although there are no sampling locations surrounding location 21-25643, the detected concentration of cyanide (0.709 mg/kg) was slightly above the BV (0.5 mg/kg) and was less than 2 times the BV; therefore, lateral extent is defined.

Lead was detected above the maximum soil background concentration in one soil sample at location 21-25641. Concentrations decreased with depth; therefore, vertical extent is defined for lead. Lateral extent is defined for lead by surrounding samples.

Nitrate was detected in all 14 soil samples and both tuff samples. Concentrations ranged from 1.4 to 19.3 mg/kg in soil and from 1.52 to 02 mg/kg in tuff. Concentrations remained approximately the same at location 21-25636 and increased with depth at location 21-25640; therefore, vertical extent is not defined. Lateral extent is not defined to the north or south of location 21-25636, to the east and south of location 21-25640, west of location 21-25638, and around location 21-25643 because there are no sampling locations in the indicated directions.

Perchlorate was detected in two soil samples (locations 21-25636 and 21-25641) below EDLs. Therefore, vertical and lateral extent are defined.

Selenium was detected above the maximum soil background concentration in all 14 soil samples. Concentrations decreased with depth at all locations except for locations 21-25641 and 21-25642 where concentrations remained approximately the same with depth. Therefore, vertical extent is defined. Lateral extent is defined by surrounding samples.

Zinc was detected above the maximum background concentration in one soil sample at location 21-25641. Concentrations decreased with depth; therefore, vertical extent are defined. Lateral extent is provided by surrounding samples.

B-2.3.3 COPC Identification of Organic Chemicals at SWMU 21-009

Organic Chemicals in Soil

Fourteen soil samples were collected and analyzed for SVOCs. Six of the 14 samples were analyzed for VOCs. One of the 14 samples was analyzed for PCBs, explosive compounds, and dioxin/furans. Table 3.1-3 summarizes the soil samples collected and the requested organic chemical analyses for each sample. Extent of organic chemical contamination in soil is discussed in section B-2.3.4.

Table 6.3-16 and Figure 6.3-5 present the detected concentrations for the organic COPCs in soil and their locations at SWMU 21-009.

Eleven dioxin/furan congeners were detected. Per NMED, no additional sampling for dioxin/furans was necessary (Chamberlain 2006, 095870); therefore, these organic chemicals were not retained as COPCs.

All other organic chemicals detected in at least one sample were retained as COPCs in soil (anthracene; benzo[a]pyrene; benzo[b]fluoranthene; benzo[k]fluoranthene; chloroform; dichloroethene[1,1-]; fluoranthene; pyrene; and tetrachloroethene).

Organic Chemicals in Tuff

Two tuff samples were collected and analyzed for VOCs and SVOCs. No organic chemicals were detected.

B-2.3.4 Nature and Extent of Organic Chemicals

Nine organic chemicals were identified as COPCs in soil (anthracene; benzo[a]pyrene; benzo[b]fluoranthene; benzo[k]fluoranthene; chloroform; dichloroethene[1,1-]; fluoranthene; pyrene; and tetrachloroethene).

Anthracene; benzo(a)pyrene; benzo(b)fluoranthene; benzo(k)fluoranthene; dichloroethene[1,1-]; and tetrachloroethene were detected in soil below their respective EQLs. Therefore, nature and extent are determined for these organic chemicals.

Chloroform, fluoranthene, and pyrene were detected above their EQLs in one sample at location 21-25640. Chloroform, analyzed for in only one depth, was detected at approximately the same concentration as the EQL (0.001 mg/kg vs. 0.00119 mg/kg). Concentrations of fluoranthene and pyrene decreased with depth. Lateral extent is provided by surrounding samples. Therefore, vertical and lateral extent are defined for these organic chemicals.

Eleven dioxin/furan congeners were detected. Per NMED, no additional sampling for dioxin/furans was necessary (Chamberlain 2006, 095870).

B-2.3.5 COPC Identification of Radionuclides at SWMU 21-009

Radionuclides in Soil

Fourteen soil samples were collected and analyzed for americium-241, gamma-emitting radionuclides, isotopic uranium, isotopic plutonium, tritium, and strontium-90. Table 3.1-3 summarizes the soil samples collected and the requested radionuclide analyses for each sample. Extent of radionuclide contamination in soil is discussed in section B-2.3.6.

Table 6.3-17 and Figure 6.3-6 present the radionuclide results at SWMU 21-009.

Americium-241, plutonium-239, and tritium were detected above their respective FVs (LANL 1998, 059730) and/or at depths where the FV does not apply in at least one sample. These radionuclides were retained as COPCs in soil.

Radionuclides in Tuff

Two tuff samples were collected and analyzed for americium-241, gamma-emitting radionuclides, isotopic uranium, isotopic plutonium, tritium, and strontium-90. Table 3.1-3 summarizes the tuff samples collected and the requested radionuclide analyses for each sample. Extent of radionuclide contamination in tuff is discussed in section B-2.3.6.

Table 6.3-18 and Figure 6.3-6 present radionuclide results at SWMU 21-009.

Americium-241, plutonium-239, and tritium were detected in at least one tuff sample. These radionuclides were retained as COPCs in tuff.

B-2.3.6 Nature and Extent of Radionuclides

Three radionuclides were identified as COPCs in soil and tuff (americium-241, plutonium-239, and tritium).

Americium-241 was detected above its FV in three soil surface samples (locations 21-25640 through 21-25642), in one soil sample (location 21-25636) at a depth where the FV does not apply, and in one tuff sample. Americium-241 increased with depth at locations 21-25636 and 21-25643; therefore, vertical extent is not defined at these locations. Lateral extent is not defined to the north or south of location 21-25636; or to the east, south, or west of location 21-25643 because there are no sampling locations in the indicated directions.

Plutonium-239 was detected above its FV in seven soil surface samples (locations 21-25636, 21-25637, 21-25638, 21-25640, 21-25641, 21-25642, and 21-25643); at a depth where the FV does not apply in four soil samples (locations 21-25636, 21-25640, 21-25641, and 21-25642); and detected in two tuff samples (locations 21-25638 and 21-25643). Activities decreased with depth except for location 21-25636 where activity increased slightly with depth (0.131 pCi/g increasing to 0.23 pCi/g). Therefore, vertical extent is not defined at this location. Lateral extent is not defined to the east or south of location 21-25640 or to the east, south, or west of location 21-25643 because there are no sampling locations in the indicated directions.

Tritium was detected in 13 soil samples and two tuff samples. Tritium activities were low and ranged from 0.0152 to 0.0607 pCi/g. Activities were approximately the same throughout the site. The tritium facility tower at TA-21 is known to have spread tritium throughout TA-21 via air deposition. The level of tritium activity observed at SWMU 21-009 is indicative of the tritium facility tower air deposition and is not SWMU related. Therefore, further sampling for tritium is not warranted at SWMU 21-009.

B-2.4 SWMU 21-013(c)

Figures 6.3-7 through 6.3-12 present the analytical results for inorganic chemicals, organic chemicals, and radionuclides, respectively, at SWMU 21-013(c).

B-2.4.1 COPC Identification of Inorganic Chemicals at SWMU 21-013(c)

Inorganic Chemicals in Soil

Forty-eight soil samples were collected and analyzed for inorganic chemicals. Twenty-eight of the 48 samples were analyzed for nitrate, cyanide, and perchlorate. Table 3.1-4 summarizes the soil samples collected and the requested inorganic chemical analyses for each sample. Extent of inorganic chemical contamination in soil is discussed in section B-2.4.2.

Table 6.3-19 and Figures 6.3-7 and 6.3-8 present the inorganic chemical results detected above BV, detected inorganic chemicals with no BV, inorganic chemicals with DLs above BV, and/or their locations at SWMU 21-013(c).

- Aluminum, beryllium, calcium, chromium, cobalt, iron, lead, magnesium, and zinc were detected within the range of background concentrations (LANL 1998, 059730). These inorganic chemicals were not retained as COPCs in soil.
- Selenium, thallium, and uranium were detected with at least one concentration above the range of background concentrations (LANL 1998, 059730). These inorganic chemicals were retained as COPCs in soil.
- Mercury was detected above its BV (LANL 1998, 059730). Mercury is retained as a COPC in soil.
- Nitrate and perchlorate were detected in at least one sample but have no BVs. These inorganic chemicals were retained as COPCs in soil.
- Sodium was detected above the range of background concentrations in one sample (LANL 1998, 059730). The concentration was less than 2 times the maximum background concentration. Sodium was infrequently detected slightly above BV and is an essential nutrient (EPA 1989, 008021). Sodium was not retained as a COPC.
- Cadmium was not detected but had DLs above the range of background concentrations (LANL 1998, 059730). Cadmium is retained as a COPC.

Inorganic Chemicals in Tuff

Eighteen tuff samples were collected and analyzed for inorganic chemicals, including nitrate, cyanide, and perchlorate. Table 3.1-4 summarizes the tuff samples collected and the requested inorganic chemical analyses for each sample. Extent of inorganic chemical contamination in tuff is discussed in section B-2.4.2.

Table 6.3-20 and Figures 6.3-7 and 6.3-8 present the inorganic chemical results detected above the BV, detected inorganic chemicals with no BV, inorganic chemicals with DLs above BV, and/or their locations at SWMU 21-013(c).

- Copper and iron were detected within the range of background concentrations (LANL 1998, 059730). These inorganic chemicals were not retained as COPCs in tuff.
- Aluminum, arsenic, barium, chromium, lead, nickel, selenium, and vanadium were detected with at least one concentration above the range of background concentrations (LANL 1998, 059730). These inorganic chemicals were retained as COPCs in tuff.
- Perchlorate and nitrate were detected in at least one sample but have no BVs. These inorganic chemicals were retained as COPCs in tuff.

- Calcium and magnesium were detected above the range of background concentrations in seven and four samples, respectively (LANL 1998, 059730). Magnesium was infrequently detected above BV and not detected above 2 times the maximum tuff background concentration. Calcium was detected less than 2 times the maximum tuff background concentration in six samples and was less than 3 times the maximum background concentration in one sample. Additionally, calcium and magnesium are essential nutrients and were not retained as COPCs (EPA 1989, 008021).

B-2.4.2 Nature and Extent of Inorganic Chemicals

Fourteen inorganic chemicals were identified as COPCs (aluminum, arsenic, barium, cadmium, chromium, lead, mercury, nickel, nitrate, perchlorate, selenium, thallium, uranium, and vanadium).

Aluminum was detected above the maximum background concentration in four tuff samples at locations 21-25649, 21-25657, 21-25663, and 21-25664. Concentrations increased with depth at location 21-25664 and are above 2 times the maximum background concentration. Therefore, vertical extent is not defined at location 21-25664. Lateral extent is defined at location 21-25649 by surrounding samples. Although there are no sampling locations to the west of location 21-25657, the detected concentration (8490 mg/kg) was slightly above the maximum background concentration (8370 mg/kg) and was less than 2 times the maximum background concentration. Therefore, lateral extent is defined at this location. Lateral extent is not defined to the west of locations 21-25663 or 21-25664 because there are no sampling locations to the west, and the detected concentrations are greater than 2 times the maximum background concentration. Lateral extent is also not defined to the south of location 21-25663 because there are no sampling locations to the south.

Arsenic was detected slightly above the maximum background concentration for tuff in one sample at location 21-25664. Concentrations increased with depth at this location. There are no sampling locations to the west to define lateral extent. However, the concentration of arsenic was less than 2 times the maximum background concentration; therefore, vertical and lateral vertical extent are defined.

Barium was detected above the maximum tuff background concentration in six samples at locations 21-25649, 21-25653, 21-25657, 21-25660, 21-25663, and 21-25664. Barium concentrations increased at locations 21-25653, 21-25660, 21-25663, and 21-25664. The barium concentrations at locations 21-25660, 21-25663, and 21-25664 were above 2 times the maximum background concentration. Therefore, vertical extent is not defined at these three locations. Lateral extent is not defined to the west of locations 21-25663 and 21-25664 or to the south of locations 21-25660 or 21-25663 because there are no sampling locations in the indicated directions.

Cadmium was not detected but had DLs above the range of background concentrations; therefore, vertical and lateral extent are defined for cadmium.

Chromium was detected above the maximum background concentration in one tuff sample at location 21-25649. Concentrations increased with depth; however, this concentration was less than 2 times the maximum background concentration; therefore, lateral and vertical extent are defined.

Lead was detected above the maximum background concentration in one tuff sample at location 21-25664. Concentrations increased with depth; however, this concentration was less than 2 times the maximum background concentration. Therefore, lateral and vertical extent are defined.

Mercury was detected above its BV in three soil samples at locations 21-25647 and 21-25665. Concentrations increased with depth at location 21-25665. The detection at location 21-25665 is slightly

above its BV (0.123 mg/kg vs. 0.1 mg/kg) but less than 2 times the soil BV. Therefore, vertical and lateral extent are defined.

Nickel was detected slightly above the maximum background concentration in two tuff samples at locations 21-25649 and 21-25664. Concentrations increased with depth at location 21-25664. However, the concentration is less than 2 times the maximum background concentration. Therefore, vertical and lateral extent are defined.

Nitrate was detected in 22 soil samples and 6 tuff samples at 19 locations. In soil, concentrations ranged from 0.781 to 5.7 mg/kg and in tuff from 0.776 to 4.2 mg/kg. Concentrations either decreased or remained approximately the same with depth. In addition, the nitrate concentrations at the site are likely naturally occurring. Therefore, lateral and vertical extent is defined.

Perchlorate was detected in 12 soil samples and 5 tuff samples. In soil, concentrations ranged from 0.00054 to 0.00356 mg/kg and in tuff from 0.000603 to 0.00726 mg/kg. At locations 21-25647 through 21-25651, 21-25660, 21-25663, 21-25665, and 21-25667, concentrations increased with depth. Perchlorate concentrations at these locations were below or just slightly above EDLs. Therefore, extent is defined at these locations. Concentrations at location 21-25664 increased with depth to more than 3 times the EQL. Vertical extent is not defined at this location. Lateral extent is not defined to the west of location 21-25664 because there are no sampling locations in the indicated direction.

Selenium was detected above the maximum background concentration in eight soil samples at locations 21-25651 and locations 21-25657 through 21-25662. Concentrations decrease with depth at locations 21-25657 through 21-25662. Concentrations slightly increased with depth at location 21-25651 and were above 2 times the maximum background concentration; therefore, vertical extent is not defined at this location. Lateral extent is defined at this location. Concentrations of selenium increase in the southerly direction; therefore, lateral extent is not defined south of the boundary of SWMU 21-013(c).

Thallium was detected above the maximum background concentration in three soil samples at locations 21-01910, 21-01912, and 21-01914. Concentrations slightly increased with depth at location 21-01910; however, the second depth was a composite sample (0 to 2.5 ft) collected in 1994. Surrounding samples collected in 2006 provide lateral and vertical extent for locations 21-01910, 21-01912, and 21-01914.

Uranium was detected above the maximum background concentration in two soil samples at locations 21-01913 and 21-25655. Concentrations decrease with depth at location 21-25655; therefore, vertical extent is defined at this location. Lateral extent is defined for location 21-25655 by surrounding 2006 samples. Concentrations increase with depth at the 1993–1994 investigation location 21-01913; however, lateral and vertical extent is provided by samples collected at the adjacent 2006 location 21-25649 that have uranium concentrations less than BV.

Vanadium was detected slightly above the maximum background concentration in one tuff sample at location 21-25664. Concentrations increased with depth; however, the concentration is less than 2 times the maximum background concentration. Therefore, lateral and vertical extent is defined.

B-2.4.3 COPC Identification of Organic Chemicals at SWMU 21-013(c)

Organic Chemicals in Soil

Forty-eight soil samples were collected and analyzed for SVOCs. Twenty-six of the 48 samples were analyzed for VOCs. Twenty-eight of the 48 samples were analyzed for PCBs and explosive compounds.

Two of the 48 samples were analyzed for dioxin/furans. Table 3.1-4 summarizes the soil samples collected and the requested organic chemical analyses for each sample. Extent of organic chemical contamination in soil is discussed in section B-2.4.4.

Table 6.3-21 and Figures 6.3-9 and 6.3-10 present the detected concentrations for the organic COPCs in soil and their locations at SWMU 21-013(c).

Eleven dioxins/furans congeners and Aroclors were detected. Per NMED, no additional sampling for dioxin/furans or PCBs was necessary (Chamberlain 2006, 093678; Chamberlain 2006, 098708). Two samples were analyzed for dioxin/furans; the two samples were collected at the same location from the surface and subsurface. The surface sample was sent to NMED for review; concentrations decreased with depth. Therefore, dioxin/furans were not retained as COPCs. Every sample was analyzed for PCBs.

All other organic chemicals detected in at least one sample were retained as COPCs in soil (acenaphthene; anthracene; Aroclor 1254; Aroclor 1260; benzo[a]anthracene; benzo[a]pyrene; benzo[b]fluoranthene; benzo[g,h,i]perylene; benzo(k)fluoranthene; benzoic acid; bis[2-ethylhexyl]phthalate; chrysene; dibenzofuran; di-n-butylphthalate; fluoranthene; fluorine; indeno[1,2,3-cd]pyrene; methylnaphthalene[2-]; phenanthrene; pyrene; toluene; trichlorofluoromethane; and xylene [total]).

Organic Chemicals in Tuff

Eighteen tuff samples were collected and analyzed for SVOCs, PCBs, and explosive compounds. Seventeen of the 18 samples were analyzed for VOCs. Table 3.1-4 summarizes the tuff samples collected and the requested organic chemical analyses for each sample. Extent of organic chemical contamination in tuff is discussed in section B-2.4.4.

Table 6.3-22 and Figures 6.3-9 and 6.3-10 present the detected concentrations for the organic chemical COPCs in tuff and their locations at SWMU 21-013(c).

All organic chemicals detected in at least one sample (benzo[b]fluoranthene; benzoic acid; chloroform; fluoranthene; and pyrene) were retained as COPCs in tuff.

B-2.4.4 Nature and Extent of Organic Chemicals

Twenty-four organic chemicals were identified as COPCs (acenaphthene; anthracene; Aroclor 1254 and Aroclor 1260; benzo[a]anthracene; benzo[a]pyrene; benzo[b]fluoranthene; benzo[g,h,i]perylene; benzo(k)fluoranthene; benzoic acid; bis[2-ethylhexyl]phthalate; chrysene; chloroform; dibenzofuran; di-n-butylphthalate; fluoranthene; fluorine; indeno[1,2,3-cd]pyrene; methylnaphthalene[2-]; phenanthrene; pyrene; toluene; trichlorofluoromethane; and xylene [total]).

Aroclor 1254 and Aroclor 1260; benzoic acid; chloroform; dibenzofuran; di-n-butyl phthalate; fluorene; methylnaphthalene[2-]; and xylene (total) were detected only below their respective EQLs. Therefore, nature and extent are defined for these organic chemicals.

Acenaphthene was detected above the EQL in two soil samples at locations 21-01913 and 21-25649. Concentrations decreased with depth at both locations; therefore, vertical extent is defined. Lateral extent is defined by surrounding samples.

Aroclor 1254 and Aroclor 1260 were detected within 2 times their EQLs in four soil samples. Concentrations decreased with depth; therefore, vertical and lateral extent are defined.

Anthracene was detected above the EQL in one soil sample at location 21-25649. Concentrations decreased with depth; therefore, vertical extent is defined. Lateral extent is defined by surrounding samples.

Benzo(a)anthracene was detected in soil above the EQL at locations 21-01913, 21-25647 and 21-25651. The 1994 sample at location 21-01913 (0 to 0.5 ft depth) detected benzo(a)anthracene at 1.1 mg/kg. In 2006, a sample was collected adjacent to location 21-01913 (location 21-25649), and benzo(a)anthracene was not detected at the 0- to 0.5-ft or 2.5- to 3-ft-depth interval. Concentrations decreased with depth at location 21-25651. Concentrations increased with depth at location 21-25647 to approximately the same concentration as the EQL (0.035 mg/kg vs. 0.0361 mg/kg). Lateral extent is provided by surrounding samples. Therefore, vertical and lateral extent are defined.

Benzo(a)pyrene was detected in soil above the EQL at locations 21-01913, 21-25647, 21-25649, 21-25651, 21-25664, 21-25666, and 21-25667. The 1994 sample at 21-01913 (0- to 0.5-ft depth) detected benzo(a)pyrene at 1.0 mg/kg. In 2006, a sample was collected adjacent to location 21-01913 (location 21-25649), and benzo(a)pyrene was not detected in the 2.5- to 3-ft-depth interval. Therefore, vertical extent is defined at this location. Concentrations decreased with depth at the other locations listed above. Therefore, vertical and lateral extent are defined.

Benzo(b)fluoranthene was detected in soil above the EQL at locations 21-01913, 21-25647, 21-25648, 21-25649, 21-25651, 21-25653, 21-25655, 21-25657, 21-25666, and 21-25667. In 2006, a sample was collected adjacent to location 21-01913 (location 21-25649), and benzo(b)fluoranthene was not detected in the 2.5- to 3-ft-depth interval. Therefore, vertical and lateral extent are defined for location 21-01913. Concentrations decreased at the other locations listed above; therefore, vertical extent is defined. Lateral extent is provided by surrounding samples.

Benzo(g,h,i)perylene was detected in soil above the EQL at locations 21-01913, 21-25647, 21-25649, 21-25651, 21-25666, and 21-25667. Concentrations decreased with depth at these locations. Therefore, vertical and lateral extent are defined.

Benzo(k)fluoranthene was detected in soil above the EQL at location 21-25667. Concentrations decreased with depth. Lateral extent is provided by surrounding samples. Therefore, vertical and lateral extent are defined.

Bis(2-ethylhexyl)phthalate was detected in soil above the EQL in 12 soil samples. Eleven of those detections were 1994 samples where the vertical and lateral extent are defined by the 2006 samples. One detection was a 2006 sample at location 21-25661, and concentrations decreased with depth at this location. Lateral extent is defined in three directions; however, there are no sampling locations to the south of location 21-25661. The concentration is only slightly above the EQL. Therefore, vertical and lateral extent are defined.

Chrysene was detected in soil above the EQL at locations 21-01913, 21-25647, 21-25648, 21-25649, 21-25651, 21-25664, 21-25666, and 21-25667. In 2006, a sample was collected adjacent to location 21-01913 (location 21-25649), and chrysene was not detected in the 2.5- to 3-ft-depth interval. Lateral extent is provided by surrounding samples. Therefore, vertical and lateral extent are defined for chrysene at this location. Concentrations decreased with depth at the remaining locations listed above; therefore, vertical extent is defined. Lateral extent is defined by surrounding locations.

Fluoranthene was detected in soil above the EQL at locations 21-01913, 21-25647, 21-25648, 21-25649, 21-25651, 21-25655, 21-25657, 21-25664, 21-25665, 21-25666, and 21-25667. In 2006, a sample was collected adjacent to location 21-01913 (location 21-25649), and fluoranthene was not detected in the

2.5- to 3-ft-depth interval. Therefore, vertical extent is defined for this location. Lateral extent is defined for fluoranthene at this location by surrounding locations. Concentrations decreased with depth at the remaining locations listed above; therefore, vertical extent is defined. Lateral extent is provided by surrounding locations.

Indeno[1,2,3-cd]pyrene was detected in soil above the EQL at locations 21-01913, 21-25649, 21-25651, 21-25666, and 21-25667. In 2006, a sample was collected adjacent to location 21-01913 (location 21-25649), and indeno[1,2,3-cd]pyrene was not detected in the 2.5- to 3-ft-depth interval. Therefore, vertical extent is defined for this location. Lateral extent is defined for indeno[1,2,3-cd]pyrene at this location by surrounding locations. Concentrations decreased with depth at the remaining locations listed above; therefore, vertical extent is defined. Lateral extent is not defined north or west of location 21-25666.

Phenanthrene was detected in soil above the EQL at locations 21-01913, 21-25648, 21-25649, 21-25651, 21-25664, 21-25666, and 21-25667. In 2006, a sample was collected adjacent to location 21-01913 (location 21-25649), and phenanthrene was not detected in the 2.5- to 3-ft-depth interval. Therefore, vertical extent is defined for this location. Lateral extent is defined for phenanthrene at this location by surrounding locations. Concentrations decreased with depth at the remaining locations listed above; therefore, vertical extent is defined. Lateral extent is not defined north or west of location 21-25666.

Pyrene was detected in soil above the EQL at locations 21-01913, 21-01915, 21-01916, 21-25647, 21-25648, 21-25649, 21-25651, 21-25653, 21-25655, 21-25657, 21-25659, 21-25664, 21-25665, 21-25666, and 21-25667. In 2006, a sample was collected adjacent to location 21-01913 (location 21-25649), and pyrene was not detected in the 2.5- to 3-ft depth interval. In 2006, a sample was collected adjacent to location 21-01915 (location 21-25648), and pyrene was not detected in the 2.5- to 3-ft depth interval. Lateral extent is provided by surrounding samples. Therefore, vertical and lateral extent are defined for pyrene at these locations. Concentrations decreased or remained approximately the same with depth at the remaining locations listed above; therefore, vertical extent is defined. Lateral extent is not defined north or west of location 21-25666.

Toluene was detected once at the same concentration as the EQL. The 1994 sample at location 21-01914 detected toluene at 0.007 mg/kg. In 2006, a sample was collected adjacent to location 21-01914 (location 21-25650) and toluene was not detected. Surrounding samples provide lateral extent. Therefore, vertical and lateral extent are defined for toluene.

Trichlorofluoromethane was detected in soil above the EQL at locations 21-01908, 21-01914, 21-01915, 21-01916, and 21-01917. The concentrations ranged from 0.01 to 0.017 mg/kg, and all were 1994 samples that are surrounded by 2006 samples, which defined vertical and lateral extent.

B-2.4.5 COPC Identification of Radionuclides at SWMU 21-013(c)

Radionuclides in Soil

Forty-eight soil samples were collected and analyzed for gamma-emitting radionuclides, isotopic plutonium, strontium-90, and tritium. Twenty-eight of the 48 samples were analyzed for americium-241. Thirty-eight of the 48 samples were analyzed for isotopic uranium. Table 3.1-4 summarizes the soil samples collected and the requested radionuclide analyses for each sample. Extent of radionuclide contamination in soil is discussed in section B-2.4.6.

Table 6.3-23 and Figures 6.3-11 and 6.3-12 present the radionuclide results at SWMU 21-013(c).

Americium-241, plutonium-239, strontium-90, and tritium were detected above their respective FVs (LANL 1998, 059730) and/or at depths where FVs do not apply in at least one sample. These four radionuclides were retained as COPCs in soil.

Radionuclides in Tuff

Eighteen tuff samples were collected and analyzed for americium-241, radionuclides from gamma spectroscopy, isotopic uranium, isotopic plutonium, tritium, and strontium-90. Table 3.1-4 summarizes the tuff samples collected and the requested radionuclide analyses for each sample. Extent of radionuclide contamination in tuff is discussed in section B-2.4.6.

Table 6.3-24 and Figures 6.3-11 and 6.3-12 present the radionuclide results at SWMU 21-013(c).

Americium-241, cesium-137, plutonium-239, tritium, and uranium-235 were detected or detected above BVs in at least one tuff sample. These five radionuclides were retained as COPCs in tuff.

B-2.4.6 Nature and Extent of Radionuclides

Six radionuclides were identified as COPCs (americium-241, cesium-137, plutonium-239, strontium-90, tritium, and uranium-235).

Americium-241 was detected above its FV or at depths where the FV does not apply in 10 soil samples at locations 21-25648, 21-25649, 21-25656, 21-25659, 21-25663, 21-25664, and 21-25666 through 21-25669 and detected in one tuff sample at location 21-25653. All activities decreased with depth at each location, except for location 21-25653. Therefore, vertical extent is not defined at location 21-25653. Lateral extent is not defined on the perimeter of the site: north of locations 21-25666 or 21-25667, west of 21-25663 or 21-25666, east of 21-25667 or 21-25668, or south of 21-25663 because there are no sampling locations in the indicated directions.

Cesium-137 was detected at a depth where its FV does not apply in one tuff sample at location 21-25653. Activity decreased with depth. Therefore, vertical extent is defined. Lateral extent is defined at this location by surrounding samples.

Plutonium-239 was detected above its FV or at depths where the FV does not apply in 29 soil samples and detected in one tuff sample at location 21-25653. All activities decreased with depth except for location 21-25653 where activities remained approximately the same. Therefore, vertical extent is defined at this location. Lateral extent is not defined on the perimeter of the site: north of location 21-25667; east of 21-25652, 21-25667, or 21-25668; west of 21-25647, 21-25657, 21-25665, or 21-25666; or south of 21-25660 because there are no sampling locations in the indicated directions.

Strontium-90 was detected at depths collected in 1994 where the FV does not apply in two soil samples at locations 21-01909 and 21-01914. The 2006 data from samples surrounding the 1994 sampling locations are lower in activity; therefore, extent is defined.

Tritium was detected in 47 soil and 18 tuff samples. Activities were low and ranged from 0.007 to 0.402 pCi/g. SWMU 21-013(c) adjoins the tritium facility tower at TA-21, which is known to have spread tritium throughout TA-21 via air deposition. The level of tritium activity observed at this unit does not indicate it is SWMU related and further sampling is not warranted.

Uranium-235 was detected slightly above its BV in one tuff sample at location 21-25669. The detected concentration (0.0937 pCi/g) is approximately the same as the BV (0.09 pCi/g); therefore, extent is defined for uranium-235.

B-2.5 SWMU 21-024(c)

Figures 6.3-13, 6.3-14, and 6.3-15 present the analytical results for inorganic chemicals, organic chemicals, and radionuclides, respectively, at SWMU 21-024(c). Nature and extent were not determined for SWMU 21-024(c) since this site will be undergoing remediation and soil removal.

B-2.5.1 COPC Identification of Inorganic Chemicals at SWMU 21-024(c)

Inorganic Chemicals in Soil

Twenty-five soil samples were collected and analyzed for inorganic chemicals, including nitrate, cyanide, and perchlorate. Table 3.1-5 summarizes the soil samples collected and the requested inorganic chemical analyses for each sample.

Table 6.3-25 and Figure 6.3-13 present the inorganic chemical results detected above the BV, detected inorganic chemicals with no BV, inorganic chemicals with DLs above BV, and/or their locations at SWMU 21-024(c).

- Aluminum, barium, iron, magnesium, nickel, and potassium were detected within the range of background concentrations (LANL 1998, 059730). These inorganic chemicals were not retained as COPCs in soil.
- Cyanide, mercury, and silver were detected above their BVs (LANL 1998, 059730). These are retained as COPCs in soil.
- Arsenic, cadmium, chromium, copper, lead, selenium, uranium, vanadium, and zinc were detected with at least one concentration above the range of background concentrations (LANL 1998, 059730). These inorganic chemicals were retained as COPCs in soil.
- Perchlorate and nitrate were detected in at least one sample but have no BVs. These inorganic chemicals were retained as COPCs in soil.
- Calcium was detected above the range of background concentrations in 1 out of 25 samples (LANL 1998, 059730). It was not detected above 2 times the maximum background concentration. It was infrequently detected above the maximum background concentration. Because calcium is an essential nutrient, it was not retained as a COPC (EPA 1989, 008021).

Inorganic Chemicals in Tuff

Twenty-one tuff samples were collected and analyzed for inorganic chemicals, including nitrate, cyanide, and perchlorate. Table 3.1-5 summarizes the tuff samples collected and the requested inorganic chemical analyses for each sample.

Table 6.3-26 and Figure 6.3-13 present the inorganic chemical results detected above the BV, detected inorganic chemicals with no BV, inorganic chemicals with DLs above BV, and/or their locations at SWMU 21-024(c).

- Arsenic, iron, magnesium, and vanadium were detected within the range of background concentrations. These were not retained as a COPC in tuff.

- Aluminum, barium, chromium, copper, lead, nickel, silver, uranium, and zinc were detected with at least one concentration above the range of background concentrations (LANL 1998, 059730). These inorganic chemicals were retained as COPCs in tuff.
- Mercury and selenium were detected above their BVs (LANL 1998, 059730). Mercury and selenium are retained as COPCs in tuff.
- Nitrate and perchlorate were detected in at least one sample but have no BVs. Therefore, these were retained as COPCs in tuff.
- Calcium was detected above the range of background concentrations in 10 samples (LANL 1998, 059730). It was detected in four samples above 2 times the maximum background concentration. It was infrequently detected above 2 times the maximum background concentration. Because calcium is an essential nutrient, it was not retained as a COPC (EPA 1989, 008021).

B-2.5.2 COPC Identification of Organic Chemicals at SWMU 21-024(c)

Organic Chemicals in Soil

Twenty-five soil samples were collected and analyzed for SVOCs and PCBs; seven of these were analyzed for VOCs. One of the 25 samples was analyzed for explosive compounds and dioxin/furans. Table 3.1-5 summarizes the soil samples collected and the requested organic chemical analyses for each sample.

Table 6.3-27 and Figure 6.3-14 present the detected concentrations for the organic COPCs in soil and their locations at SWMU 21-024(c).

Sixteen dioxin/furan congeners were detected. Per NMED, no additional sampling for dioxin/furans was necessary (Chamberlain 2006, 093677); therefore, they were not retained as COPCs.

All other organic chemicals detected in at least one sample were retained as COPCs in soil (acenaphthylene; anthracene; Aroclor 1242, Aroclor 1254, and Aroclor 1260; benzene; benzo(a)anthracene; benzo(a)pyrene; benzo(b)fluoranthene; benzo(k)fluoranthene; bis(2-ethylhexyl)phthalate; carbon disulfide; chlorobenzene; chrysene; di-n-butylphthalate; dichlorobenzene[1,4-]; dichloroethane[1,1-]; dichloroethene[1,1-]; ethylbenzene; fluoranthene; hexachlorobenzene; isopropyltoluene[4-]; phenanthrene; propylbenzene[1-]; pyrene; tetrachloroethene; toluene; trichloroethene; trimethylbenzene[1,2,4-]; trimethylbenzene[1,3,5-]; xylene[1,2-]; and xylene[1,3-]+xylene[1,4-]).

Organic Chemicals in Tuff

Twenty-one tuff samples were collected and analyzed for SVOCs and VOCs; 19 of these were analyzed for PCBs. Table 3.1-5 summarizes the soil samples collected and the requested organic chemical analyses for each sample.

Table 6.3-28 and Figure 6.3-14 present the detected concentrations for the organic COPCs in soil and their locations at SWMU 21-024(c).

All organic chemicals detected in at least one sample were retained as COPCs in tuff (anthracene; Aroclor 1254 and Aroclor 1260; bis(2-ethylhexyl)phthalate; chloroform; di-n-butylphthalate; dichlorobenzene[1,4-]; fluoranthene; isopropyltoluene[4-]; methylene chloride; pyrene; styrene; tetrachloroethene; toluene; and trichloroethene).

B-2.5.5 COPC Identification of Radionuclides at SWMU 21-024(c)

Radionuclides in Soil

Twenty-five soil samples were collected and analyzed for americium-241, gamma-emitting radionuclides, isotopic uranium, isotopic plutonium, tritium, and strontium-90. Table 3.1-5 summarizes the soil samples collected and the requested radionuclide analyses for each sample.

Table 6.3-29 and Figure 6.3-15 present the radionuclide results at SWMU 21-024(c).

Americium-241, cesium-137, plutonium-238, plutonium-239, tritium, uranium-234, uranium-235, and uranium-238 were detected above their respective FVs (LANL 1998, 059730) and/or at depths where the FV does not apply in at least one sample. These radionuclides were retained as COPCs in soil.

Radionuclides in Tuff

Twenty-one tuff samples were collected and analyzed for americium-241, gamma-emitting radionuclides, isotopic uranium, isotopic plutonium, tritium, and strontium-90. Table 3.1-5 summarizes the tuff samples collected and the requested radionuclide analyses for each sample.

Table 6.3-30 and Figure 6.3-15 present radionuclide results at SWMU 21-024(c)

Americium-241, cesium-137, plutonium-238, plutonium-239, tritium, uranium-234, uranium-235, and uranium-238 were detected in at least one tuff sample. These radionuclides were retained as COPCs in tuff.

B-3.0 FACILITY-UNIMPACTED CORRECTIVE ACTION SITES: OVERVIEW OF RFI DATA

The data for the eight unimpacted facility corrective action sites [SWMUs 21-012(b), 21-024(a), 21-024(e), 21-024(g), 21-024(o), and 21-027(c) and Consolidated Units 21-024(l)-99 and 21-026(a)-99] were from samples collected in 2006 and 2007. The data include analytical data from 140 surface samples and 357 subsurface samples (Table 3.0-2). Figures 1.2-8 through 1.2-15 and Plates 5, 6, and 7 show the sampling locations for the eight facility-unimpacted corrective action sites.

B-3.1 SWMU 21-012(b)

Plate 5 and 6 and Figures 6.4-1 and 6.4-2 present the analytical results for inorganic chemicals, organic chemicals, and radionuclides, respectively, at SWMU 21-012(b).

B-3.1.1 COPC Identification of Inorganic Chemicals at SWMU 21-012(b)

Inorganic Chemicals in Soil

Forty-four soil samples were collected and analyzed for inorganic chemicals, including cyanide, nitrate, perchlorate, and strontium. Twenty-three of the 44 samples were also analyzed for lithium and molybdenum. Table 3.3-1 summarizes the soil samples collected and the requested inorganic chemical analyses for each sample. Extent of inorganic chemical contamination is discussed in section B-3.1.2.

Table 6.4-2 and Plates 5 and 6 present the inorganic chemical results detected above BV, detected inorganic chemicals with no BV, inorganic chemicals with DLs above BV, and/or their locations at SWMU 21-012(b).

- Aluminum and calcium were detected within the range of background concentrations (LANL 1998, 059730). These inorganic chemicals were not retained as COPCs in soil.
- Cadmium, copper, iron, lead, selenium, uranium, and zinc were detected with at least one concentration above the range of background concentrations (LANL 1998, 059730). These inorganic chemicals are retained as COPCs in soil.
- Cyanide and mercury were detected above their BVs (LANL 1998, 059730). These inorganic chemicals are retained as COPCs in soil.
- Lithium, molybdenum, nitrate, perchlorate, and strontium were detected in at least one sample but have no BVs. These inorganic chemicals are retained as COPCs in soil.
- Sodium was detected above the range of background concentration in soil (LANL 1998, 059730). Sodium was infrequently detected above BV (two samples) and not detected above 2 times the maximum soil background concentration. Additionally, it is an essential nutrient and is not retained as a COPC (EPA 1989, 008021).

Inorganic Chemicals in Tuff

Fifty-seven tuff samples were collected and analyzed for inorganic chemicals, including cyanide, nitrate, perchlorate, and strontium. Fifty-five of the 57 samples were also analyzed for lithium and molybdenum. Table 3.3-1 summarizes the tuff samples collected and the requested inorganic chemical analyses for each sample. Extent of inorganic chemical contamination is discussed in section B-3.1.2.

Table 6.4-3 and Plates 5 and 6 present the inorganic chemical results detected above BV, detected inorganic chemicals with no BV, inorganic chemicals with DLs above BV, and/or their locations at SWMU 21-012(b).

- Iron and manganese were detected within the range of background concentrations (LANL 1998, 059730). These inorganic chemicals were not retained as COPCs in tuff.
- Aluminum, arsenic, barium, beryllium, chromium, copper, lead, nickel, uranium, vanadium, and zinc were detected with at least one concentration above the range of background concentrations (LANL 1998, 059730). These inorganic chemicals are retained as COPCs in tuff.
- Cobalt, cyanide, mercury, and selenium were detected above their BVs (LANL 1998, 059730). They are retained as COPCs in tuff.
- Lithium, molybdenum, nitrate, perchlorate, and strontium were detected in at least one sample but have no BVs. These inorganic chemicals are retained as COPCs in tuff.
- Antimony had DLs above its BV (LANL 1998, 059730) and is retained as a COPC in tuff.
- Calcium was detected above the range of background concentrations (LANL 1998, 059730). It was detected above 2 times the maximum tuff background concentration in nine samples at seven locations. Six samples out of 99 had concentrations of calcium above 2 times the maximum tuff background concentration. Calcium is an essential nutrient and is not retained as a COPC in tuff (EPA 1989, 008021).

- Magnesium was detected above the range of background concentrations at two locations but within 2 times the maximum tuff background concentration (LANL 1998, 059730). Magnesium is an essential nutrient and is not retained as a COPC in tuff (EPA 1989, 008021).

B-3.1.2 Nature and Extent of Inorganic Chemicals

Twenty-two inorganic chemicals were identified as COPCs (aluminum, antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, cyanide, iron, lead, lithium, mercury, molybdenum, nickel, nitrate, perchlorate, selenium, strontium, uranium, vanadium, and zinc).

Aluminum was detected above the maximum background concentration in 14 tuff samples at nine locations (21-25797, 21-25798, 21-25800, 21-25801, 21-25809, 21-25810, 21-25812, 21-25815, and 21-25816). Concentrations decreased with depth at these locations; therefore, vertical extent is defined. Lateral extent is defined along the pipelines and at the outfall by a decreasing trend in the downslope direction. At the former blowdown pits, all aluminum concentrations were less than 2 times the maximum tuff background concentration; therefore, lateral extent is also defined from aluminum.

Antimony was not detected; therefore, vertical and lateral extent are defined.

Arsenic and beryllium were detected above the maximum background concentrations in tuff samples from one location (21-25797). Arsenic concentrations slightly increased with depth at this location (5.51 to 6.58 mg/kg), but these concentrations were less than 2 times the maximum background concentration, defining vertical extent of arsenic. Beryllium concentrations decreased with depth at this location. Therefore, vertical extent for beryllium is defined. Lateral extent is defined for arsenic and beryllium by samples to the east, west, and downslope of location 21-25797.

Barium was detected above the maximum background concentration in 20 tuff samples from 14 locations. Barium concentrations decreased with depth at all locations, except locations 21-25808, 21-25810, and 21-25817; however, concentrations at these locations were within 2 times the maximum tuff background concentration. Therefore, vertical extent is defined. Lateral extent is defined along the pipelines and at the outfall by a decreasing trend in the downslope direction. At the former blowdown pits, all barium concentrations were less than 2 times the maximum background concentration; therefore, lateral extent is also defined for barium.

Cadmium was not detected above the maximum soil background concentration. Therefore, extent is defined.

Chromium was detected above the maximum background concentration in 11 tuff samples at eight locations (21-25797, 21-25800, 21-25806, 21-25811, 21-25813, 21-25814, 21-25816, and 21-25817). Chromium concentrations decreased with depth at all locations except at locations 21-25800, 21-25806, 21-25811, 21-25813, 21-25814, and 21-25817. Concentrations were less than 2 times the maximum tuff background concentration at locations 21-25806, 21-25813, 21-25814, and 21-25817, defining vertical extent at these locations. At locations 21-25800 and 21-25811, vertical extent is not defined because concentrations increase with depth and are greater than 2 times the maximum tuff background concentration. Lateral extent is defined along the pipelines and at the outfall by downslope and surrounding samples. Lateral extent is not defined east of location 21-25816 at blowdown pit 21-267.

Cobalt was detected above its BV in two tuff samples at locations 21-25797 and 21-25800. Concentrations decreased with depth at both locations. Therefore, vertical extent is defined. Lateral extent is defined at these locations by downslope and surrounding samples.

Copper was detected above the maximum background concentration in 35 soil samples and 27 tuff samples. Concentrations increased with depth at locations 21-25779, 21-25781, 21-25787, 21-25788, 21-25808, and 21-25815; therefore, vertical extent is not defined at these locations. Lateral extent is not defined at the outfall south of location 21-25786; west of 21-25778, 21-25780, and 21-25783; and east of 21-25788, 21-25791; and 21-25792. Lateral extent is not defined west of location 21-25808 at blowdown pit 21-266 and east of location 21-25816 at blowdown pit 21-267.

Cyanide was detected above BV in one soil sample at location 21-25784 and two tuff samples at locations 21-27671 and 21-27673. Concentrations decreased with depth at location 21-27673. Cyanide was only detected above BV at the total borehole depth (76 ft) and not above BV in the shallower samples. Vertical and lateral extent are defined for cyanide.

Iron was detected above maximum background concentrations at the eastern outfall in one soil sample at location 21-25787 and one tuff sample at location 21-25797. Concentrations increased with depth at location 21-25787. However, vertical extent is defined by lesser concentrations at a deeper depth at nearby sample 21-25797 (less than 10 ft away). Lateral extent is defined by surrounding samples.

Lead was detected above maximum background concentrations in seven soil samples at locations 21-25783, 21-25786, 21-25787, and 21-25788 and in five tuff samples from locations 21-25797, 21-25800, 21-25807, 21-27672, and 21-27673. Concentrations increased with depth at locations 21-25783 and 21-25787. At location 21-25783, concentrations were detected less than 2 times the maximum soil background concentration. Therefore, vertical extent is defined at this location. At location 21-25787, vertical extent is defined by lesser concentrations at deeper depths at nearby sample location 21-25797 (less than 10 ft away). Lateral extent is not defined south of location 21-25786 at the outfall.

Lithium was detected in all samples from the site. Soil concentrations ranged from 5.9 to 27 mg/kg and tuff concentrations from 1.95 to 27.6 mg/kg. As presented in the approved work plan (NMED 2005, 089314; NMED 2007, 097461), the average concentration of lithium at DP Aggregate sites is 11 mg/kg. Lithium was detected in two samples at concentrations exceeding 2 times the average lithium concentration (locations 21-25795 and 21-25809). Concentrations decreased with depth at location 21-25795; therefore, vertical extent is defined at this location. Lateral extent is defined by surrounding sampling locations. Concentrations increased with depth at location 21-25809; however, vertical extent is provided by lesser concentrations at deeper depths in nearby location 21-27673 (less than 10 ft away). Lateral extent is defined by surrounding sampling locations.

Mercury was detected above its BV in 17 soil and 5 tuff samples. Concentrations decreased or remained approximately the same with depth at all locations except at locations 21-25787 and 21-25788; however, vertical extent is defined by nearby location 21-25797 (less than 10 ft away) with a nondetect for mercury at a deeper depth. Lateral extent is not defined west of locations 21-25778 or 21-25783 at the outfall.

Molybdenum was detected in all soil samples and all but one tuff sample. Soil concentrations ranged from 0.419 to 3.81 mg/kg, and tuff concentrations ranged from 0.182 to 2.53 mg/kg. While concentrations do not decrease with depth at all locations, the low concentrations at which molybdenum was detected do not warrant additional sampling at the site. Additionally, the molybdenum concentrations at the site are likely naturally occurring.

Nickel was detected above the maximum tuff background concentration in four tuff samples from two locations (21-25797 and 21-25816). Nickel concentrations decreased with depth at both locations, defining vertical extent. Additionally, nickel concentrations at these locations were less than 2 times the maximum background concentration; therefore, lateral extent is defined.

Nitrate was detected in 31 soil and 52 tuff samples. Soil concentrations ranged from 0.759 to 12.9 mg/kg, and tuff concentrations ranged from 0.509 to 34.2 mg/kg. Concentrations either decreased or remained approximately the same with depth, except for locations 21-25810 and 21-25817. Therefore, vertical extent is not defined at these two locations. Lateral extent is defined.

Perchlorate was detected in 27 soil and 7 tuff samples. All concentrations were below the EDL of 0.002 mg/kg, except at locations 21-25778, 21-25783, and 21-25788. These were only slightly above the EDLs, ranging from 0.003 to 0.004 mg/kg. Therefore, vertical and lateral extent are defined.

Selenium was detected above its BV in 2 soil and 19 tuff samples. Detections in tuff were below the DLs. All detections in soil were below or similar to DLs, except at location 21-25803. The selenium concentration at this location decreased with depth. Therefore, vertical and lateral extent are defined.

Strontium was detected in all soil and tuff samples. As presented in the approved work plan (LANL 2004, 087461; LANL 2005, 087836), the average concentration of strontium at the DP Aggregate sites is 36 mg/kg. At locations 21-25783, 21-25786, 21-25793, 21-25797, 21-25807, 21-25809, 21-25810, and 21-27672, strontium was detected above 36 mg/kg. At locations 21-25786, 21-25797, 21-25809, and 21-25810, it was detected above 2 times the average concentration. Concentrations increased with depth at locations 21-25797 and 21-25810. Therefore, vertical extent is not defined at these two locations. Laterally, to the east of location 21-25797 and to the west of location 21-25810, extent is not defined.

Uranium was detected above maximum background concentrations in two tuff samples and two soil samples from four locations (21-25784, 21-25786, 21-25806, and 21-25809). Uranium concentrations decreased with depth at two locations but increased at 21-25806 and 21-25809; however, concentrations were within 2 times the maximum tuff background concentration. Therefore, vertical extent is defined at these locations. Lateral extent is not defined south of location 21-25786 at the outfall area.

Vanadium was detected above the maximum tuff background concentration in four samples from two locations (21-25797 and 21-25809). Vanadium concentrations remained approximately the same with depth and were less than 2 times the maximum background concentration; therefore, vertical and lateral extent are defined.

Zinc was detected above maximum background concentrations in 15 soil and 7 tuff samples from 14 locations. Concentrations increased with depth at locations 21-25787 and 21-25808; however, vertical extent is provided by nearby locations 21-25797, 21-25807, 21-25809, and 21-25812 (less than 10 ft away). Lateral extent is also defined. Lateral extent is not defined west of location 21-25808 at blowdown pit 21-266. At the outfall, lateral extent is not defined west of location 21-25783 or east of location 21-25788.

B-3.1.3 COPC Identification of Organic Chemicals at SWMU 21-012(b)

Organic Chemicals in Soil

Forty-seven soil samples were collected from soil and analyzed for organic chemicals. Forty-four soil samples were collected and analyzed for SVOCs. Twenty-two of the 44 samples were also analyzed for VOCs. Three of the 44 samples were also analyzed for PCBs. Three samples were only analyzed for VOCs. Table 3.3-1 summarizes the soil samples collected and the requested organic chemical analyses for each sample. Extent of organic chemical contamination is discussed in section B-3.1.4.

Table 6.4-4 and Figure 6.4-1 present the detected concentrations for the organic COPCs in soil and their locations at SWMU 21-012(b).

All organic chemicals detected in at least one sample were retained as COPCs in soil (acetone, benzo[a]anthracene, benzo[b]fluoranthene, benzoic acid, chloroform, chrysene, dichlorobenzene[1,4-], fluoranthene, isopropyltoluene[4-], methylene chloride, phenanthrene, pyrene, toluene, trichloroethene, and xylene[1,3-]+xylene[1,4-]).

Organic Chemicals in Tuff

Fifty-nine tuff samples were collected and analyzed for organic chemicals. Fifty-seven tuff samples were analyzed for SVOCs and VOCs. Seventeen of the 57 samples were also analyzed for PCBs, and 1 of the 57 samples was analyzed for explosive compounds and dioxin/furans. Two samples were analyzed for VOCs only. Table 3.3-1 summarizes the tuff samples collected and the requested organic chemical analyses for each sample. Extent of organic chemical contamination is discussed in section B-3.1.4.

Table 6.4-5 and Figure 6.4-1 present the detected concentrations for the organic chemical COPCs in tuff and their locations at SWMU 21-012(b).

One dioxin and Aroclor 1260 were detected. Per NMED, no additional sampling for these organic chemicals was necessary (Roberts 2007, 098470); therefore, these are not retained as COPCs.

All other organic chemicals detected in at least on sample were retained as COPCs in tuff (acetone; chloroform; methylene chloride; methylnaphthalene[2-]; phenanthrene; toluene, trimethylbenzene[1,2,4-]; and xylene[1,3-]+xylene[1,4-]).

B-3.1.4 Nature and Extent of Organic Chemicals

Seventeen organic chemicals were detected (acetone, benzo[a]anthracene; benzo[b]fluoranthene; benzoic acid, chloroform, chrysene, dichlorobenzene[1,4-]; fluoranthene; isopropyltoluene[4-]; methylene chloride; methylnaphthalene[2-]; phenanthrene, pyrene; toluene; trichloroethene; trimethylbenzene[1,2,4-]; and xylene[1,3-]+xylene[1,4-]).

Thirteen organic chemicals were detected at or below their respective EQLs in one to four samples (benzo(a)anthracene; benzo(b)fluoranthene; benzoic acid,;chloroform, chrysene; dichlorobenzene[1,4-]; isopropyltoluene[4-]; methylene chloride; methylnaphthalene[2-]; phenanthrene; trichloroethene; trimethylbenzene[1,2,4-]; and xylene[1,3-]+xylene[1,4-]). Therefore, vertical and lateral extent are defined for these organic chemicals.

Acetone was detected above the EQL in two tuff samples (locations 21-25817 and 21-27672) at a low concentration of 0.0226 mg/kg, at 2 times the EQL concentration. Therefore, vertical and lateral extent are defined.

Fluoranthene and pyrene were detected above the EQL in one soil sample at location 21-25785. Concentrations decreased with depth at this location. Lateral extent is defined by surrounding samples. Therefore, vertical and lateral extent are defined.

Toluene was detected above the EQL in seven tuff samples from five locations (21-25809, 21-25811, 21-25812, 21-25813, and 21-25815). Lateral extent is defined for these locations at the blowdown pits. At location 21-25811, concentrations increased with depth; therefore, vertical extent is not defined at this location. Concentrations decreased or remained approximately the same with depth at the other three locations. Therefore, vertical extent is not defined for toluene.

B-3.1.5 COPC Identification of Radionuclides at SWMU 21-012(b)

Radionuclides in Soil

Forty-four soil samples were analyzed for americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, strontium-90, and tritium. Table 3.3-1 summarizes the soil samples collected and the requested radionuclide analyses for each sample. Extent of radionuclide contamination in soil is discussed in section B-3.1.6.

Table 6.4-6 and Figure 6.4-2 present the radionuclide results at SWMU 21-012(b).

Americium-241, cesium-134, cesium-137, plutonium-238, plutonium-239, tritium, uranium-234, and uranium-238 were detected above their respective FVs, BVs, (LANL 1998, 059730) and/or at depths where FVs do not apply in at least one sample. These radionuclides were retained as COPCs in soil.

Radionuclides in Tuff

Fifty-seven tuff samples were analyzed for americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, strontium-90, and tritium. Table 3.3-1 summarizes the tuff samples collected and the requested radionuclide analyses for each sample. Extent of radionuclide contamination in tuff is discussed in section B-3.1.6.

Table 6.4-7 and Figure 6.4-2 present the radionuclide results at SWMU 21-012(b).

Americium-241, cesium-137, plutonium-238, plutonium-239, tritium, uranium-234, uranium-235, and uranium-238 were detected or detected above BV in at least one tuff sample. These radionuclides were retained as COPCs in tuff.

B-3.1.6 Nature and Extent of Radionuclides

Nine radionuclides were identified as COPCs (americium-241, cesium-134, cesium-137, plutonium-238, plutonium-239, tritium, uranium-234, uranium-235, and uranium-238).

Americium-241 was detected above its FV or at depths where the FV does not apply in 27 soil and 4 tuff samples. Activities decreased with depth at all locations, except 21-25791. However, vertical extent is provided by nearby location 21-25797 (less than 10 ft away). Lateral extent is not defined west of location 21-25778 or south and west of 21-25784 at the outfall.

Cesium-134 was detected in the surface soil at location 21-25790. Concentrations decreased with depth, defining vertical extent. Lateral extent is defined by surrounding samples.

Cesium-137 was detected above its FV or at depths where the FV does not apply in 11 soil and 2 tuff samples. Activities decreased with depth at all locations, except 21-25780. However, vertical extent is provided by nearby sample 21-25810. Lateral extent is not defined east of location 21-25788, south and east of 21-25793, south and west of 21-25784, or west of 21-25780 and 21-25778 at the outfall.

Plutonium-238 was detected above its FV or at depths where the FV does not apply in four soil and four tuff samples. Activities decreased with depth at all locations, except 21-25797 and 21-25804. Vertical extent is not defined at these locations. Lateral extent is not defined west of location 21-25778 or south and west of 21-25784.

Plutonium-239 was detected above its FV or at depths where the FV does not apply in all soil samples and 12 tuff samples. Activities decreased with depth at all locations except 21-25780, 21-25783, and 21-25787. However, vertical extent is defined by nearby boreholes at locations 21-25810 and 21-25797 (less than 10 ft away). Lateral extent is not defined south of location 21-25793, south and west of location 21-25784, or south of location 21-25786.

Tritium was detected in all but four samples. Tritium activities were low and ranged from 0.02 to 0.2 pCi/g. Activities decreased or stayed approximately the same with depth. Therefore, vertical extent is defined. Lateral extent is also defined. The tritium facility tower at TA-21 is known to have spread tritium throughout TA-21 via air deposition. The level of tritium activity observed at this site indicates air deposition from the tritium facility tower and is not SWMU related, and further sampling is not warranted.

Uranium-234 was detected above its BV in one soil and five tuff samples. Activities decreased or remained approximately the same with depth at all locations, defining vertical extent. Additionally, activities were within 2 times the background activity; therefore, lateral extent is also defined. Lateral extent is also defined at the outfall.

Uranium-235 was detected above its BV in nine tuff samples from seven locations. Activities decreased with depth at all locations, except 21-25809 (activities slightly increased with depth); however, activities were within 2 times the background activity at this location. Therefore, vertical and lateral extent are defined at this location. Lateral extent is also defined at the outfall.

Uranium-238 was detected above its BV in two soil and four tuff samples. Activities decreased with depth at all locations, except 21-25809 (activities slightly increased with depth); however, activities were within 2 times the background activity at this location. Therefore, vertical and lateral extent are defined at this location. Lateral extent is also defined at the outfall.

B-3.2 SWMU 21-024(a)

Figures 6.4-3, 6.4-4, and 6.4-5 present the analytical results for inorganic chemicals, organic chemicals, and radionuclides, respectively, at SWMU 21-024(a).

B-3.2.1 COPC Identification of Inorganic Chemicals at SWMU 21-024(a)

Inorganic Chemicals in Soil

Twenty-one soil samples were collected and analyzed for inorganic chemicals including cyanide, nitrate, and perchlorate. Table 3.3-2 summarizes the soil samples collected and the requested inorganic chemical analyses for each sample. Extent of inorganic chemical contamination is discussed in section B-3.2.2.

Table 6.4-8 and Figure 6.4-3 present the inorganic chemical results detected above the BV, detected inorganic chemicals with no BV, inorganic chemicals with DLs above BV, and/or their locations at SWMU 21-024(a).

- Cadmium and calcium were detected within the range of background concentrations (LANL 1998, 059730). These inorganic chemicals were not retained as COPCs in soil.
- Copper, lead, uranium, and zinc were detected with at least one concentration above the range of background concentrations (LANL 1998, 059730). These inorganic chemicals were retained as COPCs in soil.

- Cyanide was detected in one sample at approximately the same concentration as the BV (0.542 mg/kg vs. 0.5 mg/kg) (LANL 1998, 059730). Cyanide was not retained as a COPC in soil.
- Mercury was detected above its BV (LANL 1998, 059730). Mercury was retained as a COPC in soil.
- Nitrate and perchlorate were detected in at least one sample but have no BVs. These inorganic chemicals were retained as COPCs in soil.
- Selenium was detected within the range of background concentrations (LANL 1998, 059730). However, because detection limits were above the range of background concentrations, selenium was retained as a COPC in soil.

Inorganic Chemicals in Tuff

Twenty-two samples tuff were collected and analyzed for inorganic chemicals including cyanide, nitrate, and perchlorate. Table 3.3-2 summarizes the tuff samples collected and the requested inorganic chemical analyses for each sample. Extent of inorganic chemical contamination is discussed in section B-3.2.2.

Table 6.4-9 and Figure 6.4-3 present the inorganic chemical results detected above the BV, detected inorganic chemicals with no BV, inorganic chemicals with DLs above BV, and/or their locations at SWMU 21-024(a).

- Arsenic, beryllium, and iron were detected within the range of background concentrations (LANL 1998, 059730). These inorganic chemicals were not retained as COPCs in tuff.
- Aluminum, barium, chromium, copper, lead, nickel, selenium, uranium, and vanadium were detected with at least one concentration above the range of background concentrations (LANL 1998, 059730). These inorganic chemicals were retained as COPCs in tuff.
- Cobalt and mercury were detected above their BVs (LANL 1998, 059730). These inorganic chemicals were retained as COPCs in tuff.
- Nitrate and perchlorate were detected in at least one sample but have no BVs. These inorganic chemicals were retained as COPCs in tuff.
- Calcium and magnesium were each detected with two concentrations out of 21 above the range of background concentrations (LANL 1998, 059730). All magnesium concentrations were less than 2 times the maximum tuff background concentration. Calcium concentrations in 19 out of 21 samples were less than 2 times the maximum tuff background concentration. Calcium and magnesium were detected infrequently and slightly above background, are essential nutrients, and were not retained as COPCs in tuff (EPA 1989, 008021).

B-3.2.2 Nature and Extent of Inorganic Chemicals

Fourteen inorganic chemicals were identified as COPCs (aluminum, barium, cobalt, chromium, copper, lead, mercury, nickel, nitrate, perchlorate, selenium, uranium, vanadium, and zinc).

Aluminum was detected above the maximum tuff background concentration in one tuff sample at location 21-27325. Concentrations increased with depth at this location and were above 2 times the maximum background concentration. Therefore, vertical extent is not defined. Lateral extent is not defined to the west of this location.

Barium was detected above the maximum tuff background concentration in three tuff samples at locations 21-27325, 21-27336, and 21-27341. Concentrations decreased with depth at locations 21-27336 and 21-27341. Concentrations increased with depth at location 21-27325, and barium was detected above 2 times the maximum background concentration. Therefore, vertical extent is not defined at this location. Lateral extent is not defined to the west of location 21-27325.

Chromium was detected above the maximum tuff background concentration in four tuff samples at locations 21-27325, 21-27330, 21-27341, and 21-27342. Concentrations increased with depth at locations 21-27325 and 21-27330; therefore, vertical extent is not defined at these locations. At location 21-27342, concentrations increased to approximately the maximum background concentration (13.3 mg/kg vs.13 mg/kg). Therefore, vertical extent is defined at this location. Concentrations decreased with depth at location 21-27341. Lateral extent is not defined west of location 21-27325 or to the east of location 21-27330.

Copper was detected above the maximum background concentrations in nine soil and four tuff samples at nine locations. Concentrations increased with depth at locations 21-27322 and 21-27325. At location 21-27322, the deeper concentration was greater than 2 times the maximum background concentration; therefore, vertical extent is not defined at this location. There are no samples west of location 21-27320; however, copper concentrations were less than 2 times the maximum tuff background concentration. Therefore, lateral extent is defined at this location. Lateral extent is provided by samples from the surrounding locations including those from adjacent SWMU 21-012(b).

Lead was detected above the maximum background concentration in three soil samples (locations 21-27322, 21-27326, and 21-27335) and two tuff samples (locations 21-27325 and 21-27332). At locations 21-27322, 21-27325, and 21-27332, concentrations increased with depth; however, concentrations was less than 2 times the maximum background concentration; therefore, vertical extent is defined. Although there are no sampling locations west of 21-27322 or 21-27325; concentrations were less than 2 times the maximum background concentration; therefore, lateral extent is defined at these locations. For locations 21-27326, 21-27332, and 21-2733, lateral extent is defined by surrounding samples.

Three COPCs (cobalt, nickel, and vanadium) were detected above the maximum tuff background concentrations at locations 21-27325 and 21-27341. Concentrations decreased or stayed approximately the same with depth at these locations. Lateral extent is defined by other site samples. Therefore, vertical and lateral extent are defined for these COPCs.

Three COPCs (mercury, selenium, and uranium) had decreasing concentrations with depth; therefore, vertical extent is defined. Because these COPCs were not detected above background in the furthest downslope samples, lateral extent is defined.

Nitrate was detected in 19 soil samples and 13 tuff samples. Soil concentrations ranged from 0.395 to 9.73 mg/kg and tuff concentrations ranged from 0.492 mg/kg to 6.67 mg/kg. Concentrations either decreased or remained approximately the same with depth. In addition, nitrate concentrations are likely naturally occurring. Therefore, lateral and vertical extent are defined.

Perchlorate was detected in four soil samples and three tuff samples and all detections were estimated values below EDLs. Therefore, vertical and lateral extent are defined.

Zinc was detected above the maximum background concentration in four soil samples and at locations 21-27322, 21-27323, 21-27326, and 21-27335. At location 21-27322, concentrations increased with

depth; however, zinc concentrations were within 2 times the maximum background concentration. Therefore, vertical extent is defined. Lateral extent is defined at the remaining locations.

B-3.2.3 COPC Identification of Organic Chemicals at SWMU 21-024(a)

Organic Chemicals in Soil

Twenty-three soil samples were collected and analyzed for organic chemicals. Twenty-one soil samples were collected and analyzed for SVOCs. Seven of the 21 samples were also analyzed for VOCs. Two samples were analyzed for VOCs only. Table 3.3-2 summarizes the soil samples collected and the requested organic chemical analyses for each sample. Extent of organic chemical contamination is discussed in section B-3.2.4.

Table 6.4-10 and Figure 6.4-4 present the detected concentrations for the organic COPCs in soil and their locations at SWMU 21-024(a).

All organic chemicals detected in at least one sample were retained as COPCs in soil [acetone; anthracene; benzo[a]anthracene; benzo[b]fluoranthene; benzoic acid; bis[2-ethylhexyl]phthalate; chloroaniline[4-]; chloroform; chrysene; fluoranthene; methylene chloride; phenanthrene; pyrene; toluene; and trichloroethene].

Organic Chemicals in Tuff

Twenty-three tuff samples were collected and analyzed for organic chemicals. Twenty-one tuff samples were collected and analyzed for SVOCs. Eighteen of the 21 samples were analyzed for VOCs. One sample was analyzed for VOCs only. One sample was analyzed for explosive compounds, PCBs, and dioxin/furans. Table 3.3-2 summarizes the tuff samples collected and the requested organic chemical analyses for each sample. Extent of organic chemical contamination is discussed in section B-3.2.4.

Table 6.4-11 and Figure 6.4-4 present the detected concentrations for the organic chemical COPCs in tuff and their locations at SWMU 21-024(a).

Six dioxin/furan congeners were detected. Per NMED, no additional sampling for dioxin/furans was necessary (Roberts 2007, 098470); therefore, these organic chemicals were not retained as COPCs.

All other organic chemicals detected in at least one sample were retained as COPCs in tuff (acetone, chloroform, dichlorobenzene[1,4-], isopropyltoluene[4-], toluene, trichloroethene, and xylene[1,3-]+xylene[1,4-]).

B-3.2.4 Nature and Extent of Organic Chemicals

Eighteen organic chemicals were identified as COPCs (acetone; anthracene; benzo(a)anthracene; benzo(b)fluoranthene; benzoic acid; bis(2-ethylhexyl)phthalate; chloroaniline[4-]; chloroform; chrysene; dichlorobenzene[1,4-]; fluoranthene; isopropyltoluene[4-]; methylene chloride; phenanthrene; pyrene; toluene; trichloroethene; and xylene[1,3-]+xylene[1,4-]).

The following were detected at concentrations below their respective EQLs in one to seven samples: anthracene, benzo(a)anthracene; benzo(b)fluoranthene, benzoic acid, bis(2-ethylhexyl)phthalate, chloroform; chrysene; dichlorobenzene[1,4-], fluoranthene; isopropyltoluene[4-], methylene chloride; phenanthrene; and xylene[1,3-]+xylene[1,4-]. Therefore, lateral and vertical extent is defined for these organic chemicals.

Acetone was detected above the EQL in one soil sample at location 21-27338 and one tuff sample at location 21-27339. Concentrations increased with depth at these two locations, but acetone was not detected in the shallower samples. Therefore, vertical extent is defined. Lateral extent is defined by nondetects in downslope samples.

Chloroaniline[4-] was detected above the EQL in one soil sample at location 21-27323. Concentrations increased with depth to approximately the same concentration as the EQL (0.46 mg/kg vs. 0.36 mg/kg); therefore, vertical extent is defined at this location. Lateral extent is defined by surrounding samples.

Pyrene was detected at a concentration (0.049 mg/kg) slightly above the EQL (0.035 mg/kg) in one soil sample at location 21-27328. Concentrations decreased with depth at this location; therefore, vertical extent is defined. Lateral extent is defined by surrounding samples.

Toluene was detected above the EQL in four soil samples (locations 21-27322, 21-27323, 21-27326, and 21-27329) and five tuff samples (locations 21-27320, 21-27321, 21-27325, 21-27328, and 21-27339). Location 21-27339 was sampled from two depths and concentrations decreased with depth. At locations 21-27320, 21-27321, and 21-27328, only one depth was analyzed for VOCs; however, concentrations are approximately the same as the EQLs; therefore, vertical extent is defined at these locations. At locations 21-27322, 21-27323, 21-27325, 21-27326, and 21-27329, only one depth was analyzed for VOCs and the concentrations are more than 2 times the EQL concentrations. Therefore, vertical extent is not defined at these locations. Lateral extent is defined by other site samples because toluene was not detected in downslope samples.

Trichloroethene was detected above the EQL in one soil sample at location 21-27329. The concentration (0.00286 mg/kg) was slightly above 2 times the EQL (0.001 mg/kg). VOCs were analyzed for in only one depth; therefore, vertical extent is not defined at this location. Lateral extent is defined by surrounding samples.

B-3.2.5 COPC Identification of Radionuclides at SWMU 21-024(a)

Radionuclides in Soil

Twenty-one soil samples were collected and analyzed for americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, strontium-90, and tritium. Table 3.3-2 summarizes the soil samples collected and the requested radionuclide analyses for each sample. Extent of radionuclide contamination is discussed in section B-3.2.6.

Table 6.4-12 and Figure 6.4-5 present the radionuclide results at SWMU 21-024(a).

Americium-241, cesium-137, plutonium-239, tritium, uranium-234, and uranium-238 were detected above their respective FVs, BVs (LANL 1998, 059730), and/or at depths where FVs do not apply in at least one sample. These radionuclides were retained as COPCs in soil.

Plutonium-238 was detected within the range of fallout activities. Plutonium-238 was not retained as a COPC in soil.

Radionuclides in Tuff

Twenty-one tuff samples were collected and analyzed for americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, strontium-90, and tritium. Table 3.3-2 summarizes the tuff samples

collected and the requested radionuclide analyses for each sample. Extent of radionuclide contamination is discussed in section B-3.2.6.

Table 6.4-13 and Figure 6.4-5 present the radionuclide results at SWMU 21-024(a).

Americium-241, cesium-137, plutonium-238, plutonium-239, strontium-90, tritium, uranium-234, uranium-235, and uranium-238 were detected or detected above BV in at least one tuff sample. These radionuclides were retained as COPCs in tuff.

B-3.2.6 Nature and Extent of Radionuclides

Nine radionuclides were identified as COPCs (americium-241, cesium-137, plutonium-238, plutonium-239, strontium-90, tritium, uranium-234, uranium-235, and uranium-238).

Americium-241, plutonium-238, uranium-234, uranium-235, and uranium-238 activities decreased with depth; therefore, vertical extent is defined for these radionuclides. Extent is also defined laterally by other samples at the site because these COPCs were not detected in the furthest downslope samples.

Cesium-137 activity slightly increased with depth at location 21-27322 (from 0.195 to 0.33 pCi/g). Therefore, vertical extent is not defined at this location. Lateral extent is defined by location 21-27333, which is approximately 20 ft downslope from location 21-27322 and is lower in activity.

Plutonium-239 was detected in the majority of samples from the site at activities ranging from 0.029 to 2.32 pCi/g in soil and from 0.042 to 0.753 pCi/g in tuff. Activities decreased with depth at all locations with the exception of location 21-27322. Therefore, vertical extent is not defined at this location. Lateral extent is defined by other samples from the site.

Strontium-90 was detected at a depth where the FV does not apply at location 21-27330. Activity decreased with depth at this location. Therefore, vertical extent is defined. Lateral extent is defined by other samples because strontium-90 is not detected at downslope locations.

Tritium was detected in the majority of samples from the site at activities ranging from 0.013 to 0.097 pCi/g in soil and from 0.004 to 0.0587 pCi/g in tuff. Activities slightly increased with depth at four locations (21-27320, 21-27325, 21-27336, and 21-27341). The tritium facility tower at TA-21 is known to have spread tritium throughout TA-21 via air deposition. The level of tritium observed indicates air deposition from the tritium facility tower and is not SWMU related.

B-3.3 SWMU 21-024(e)

Figures 6.4-6, 6.4-7, and 6.4-8 present the analytical results for inorganic chemicals, organic chemicals, and radionuclides, respectively, at SWMU 21-024(e).

B-3.3.1 COPC Identification of Inorganic Chemicals at SWMU 21-024(e)

Inorganic Chemicals in Soil

Thirty soil samples were collected and analyzed for inorganic chemicals including cyanide, nitrate, and perchlorate. Twenty-four of the 30 samples were also analyzed for molybdenum. Table 3.3-3 summarizes the soil samples collected and the requested inorganic chemical analyses for each sample. Extent of inorganic chemical contamination is discussed in section B-3.3.2.

Table 6.4-14 and Figure 6.4-6 present the inorganic chemical results detected above BV, detected inorganic chemicals with no BV, inorganic chemicals with DLs above BV, and/or their locations at SWMU 21-024(e).

- Chromium and nickel were detected above their respective BVs, but all detections were within the range of background concentrations (LANL 1998, 059730). These inorganic chemicals are not retained as COPCs in soil.
- Antimony, cadmium, copper, lead, uranium, and zinc were detected with at least one concentration above the range of background concentrations (LANL 1998, 059730). These inorganic chemicals are retained as COPCs in soil.
- Cyanide, mercury, and silver were detected above their BVs (LANL 1998, 059730). These are retained as COPCs in soil.
- Molybdenum, nitrate, and perchlorate were detected in at least on sample but have no BVs. These inorganic chemicals are retained as COPCs in soil.
- Selenium was not detected above the BV; however, detection limits are above the range of background concentrations (LANL 1998, 059730). Therefore, selenium is retained as a COPC in soil.

Inorganic Chemicals in Tuff

Twenty-six tuff samples collected and analyzed for inorganic chemicals including cyanide, molybdenum, nitrate, and perchlorate. Table 3.3-3 summarizes the tuff samples collected and the requested inorganic chemical analyses for each sample. Extent of inorganic chemical contamination is discussed in section B-3.3.2.

Table 6.4-15 and Figure 6.4-6 present the inorganic chemical results detected above BV, detected inorganic chemicals with no BV, inorganic chemicals with DLs above BV, and/or their locations at SWMU 21-024(e).

- Aluminum and arsenic were detected within the range of background concentrations (LANL 1998, 059730). These inorganic chemicals were not retained as COPCs in tuff.
- Uranium and vanadium were detected at approximately the same concentrations as the maximum background concentrations (5.08 mg/kg vs. 5.00 mg/kg for uranium; 21.1 mg/kg vs. 21 mg/kg for vanadium) (LANL 1998, 059730). Therefore, these inorganic chemicals were not retained as COPCs in tuff.
- Barium, cadmium, chromium, copper, lead, and zinc were detected with at least one concentration above the range of background concentrations (LANL 1998, 059730). These inorganic chemicals were retained as COPCs in tuff.
- Molybdenum, nitrate, and perchlorate were detected in at least one sample but have no BVs. These inorganic chemicals were retained as COPCs in tuff.
- Calcium was detected above the range of background concentrations in one tuff sample at approximately 3 times the maximum background concentration (LANL 1998, 059730). It was infrequently detected above background and is an essential nutrient. Calcium is not retained as a COPC in tuff (EPA 1989, 008021).
- Mercury and selenium were detected above their BVs (LANL 1998, 059730). These inorganic chemicals are retained as COPCs in tuff.

- Cobalt was detected at approximately the same concentration as its BV (3.23 mg/kg vs. 3.14 mg/kg) (LANL 1998, 059730). Cobalt is not retained as a COPC.

B-3.3.2 Nature and Extent of Inorganic Chemicals

Fifteen inorganic chemicals were identified as COPCs (antimony, barium, cadmium, chromium, copper, cyanide, lead, mercury, molybdenum, nitrate, perchlorate, selenium, silver, uranium, and zinc).

Nine COPCs (antimony, barium, cadmium, copper, cyanide, mercury, silver, uranium, and zinc) have decreasing concentrations below their maximum background concentrations with depth; therefore, vertical extent is defined. Lateral extent is defined by other site samples.

Chromium was detected in tuff above the maximum background concentration at locations 21-27249 and 21-27259. Although concentrations increased with depth at both locations; concentrations were less than 2 times the maximum tuff background concentration. Therefore, vertical and lateral extent are defined.

Lead was detected above the maximum background concentrations in six soil samples (locations 21-27245, 21-27260, 21-27264, 21-27265, 21-27269, and 21-27273) and four tuff samples (locations 21-27253, 21-27260, 21-27265, and 21-27269). Concentrations increased with depth at locations 21-27253 and 21-27265. Concentrations were within 2 times the maximum tuff background concentration at 21-27253. Therefore, vertical and lateral extent are defined at location 21-27253. Vertical extent is not defined at location 21-27265; concentrations increased with depth and were not within 2 times the maximum tuff background concentration. Lateral extent is defined at all locations.

Molybdenum was detected in 22 soil and 26 tuff samples from 27 locations. Concentrations ranged from 0.32 to 1.94 mg/kg in soil and from 0.245 pCi/g to 2.24 mg/kg in tuff. Concentrations decreased or remained approximately the same with depth at 10 locations but increased with depth at 11 locations (21-27244, 21-27246, 21-27248, 21-27249, 21-27259, 21-27260, 21-27265, 21-27266, 21-27268, 21-27271, and 21-27273). At locations 21-27250, 21-27251, 21-27252, 21-27253, 21-27254, and 21-27255, molybdenum was analyzed for in only one depth. While concentrations do not decrease with depth at all locations and some were sampled from only one depth, the low concentrations at which molybdenum was detected (likely naturally occurring) do not warrant additional sampling at the site for molybdenum.

Nitrate was detected in 22 soil and 15 tuff samples. Concentrations ranged from 1.17 to 13.3 mg/kg in soil and from 0.929 to 23.8 mg/kg in tuff. Concentrations either decreased or remained approximately the same with depth, except at locations 21-27267 and 21-27269. Both locations have nearby and downslope samples where nitrate concentrations decrease with depth or are not detected. In addition, the nitrate concentrations at the site are likely naturally occurring. Therefore, lateral and vertical extent are defined at these locations for nitrate.

Perchlorate was detected in nine soil and two tuff samples. All detections were below EDLs except at location 21-27242 where it was detected at approximately the same concentration (0.00284 mg/kg) as the EDL (0.0021 mg/kg). Therefore, vertical and lateral extent are defined.

Selenium was not detected above BV; however, detection limits were above the range of background concentrations. Therefore, nature and extent are defined for selenium.

B-3.3.3 COPC Identification of Organic Chemicals at SWMU 21-024(e)

Organic Chemicals in Soil

Thirty soil samples were collected and analyzed for SVOCs. Twenty-three of the 30 samples were analyzed for VOCs. Table 3.3-3 summarizes the soil samples collected and the requested organic chemical analyses for each sample. Extent of organic chemical contamination in soil is discussed in section B-3.3.4.

Table 6.4-16 and Figure 6.4-7 present the detected concentrations for the organic COPCs in soil and their locations at SWMU 21-024(e).

All organic chemicals detected in at least one sample were retained as COPCs in soil (acenaphthene; acenaphthylene; acetone; anthracene; benzo[a]anthracene; benzo[a]pyrene; benzo[b]fluoranthene; benzo[g,h,i]perylene; benzo[k]fluoranthene; bis[2-ethylhexyl]phthalate; chloroaniline[4-]; chrysene; di-n-butylphthalate; dichlorobenzene[1,4-]; ethylbenzene; fluoranthene; fluorene; indeno[1,2,3-cd]pyrene; isopropyltoluene[4-], methylene chloride, methylnaphthalene[2-], naphthalene, phenanthrene; pyrene; toluene; trichloroethene, trimethylbenzene[1,2,4-], xylene[1,2-], and xylene[1,3-]+xylene[1,4-]).

Organic Chemicals in Tuff

Twenty-six tuff samples were collected and analyzed for SVOCs and VOCs. One additional sample was analyzed for explosive compounds, PCBs, and dioxin/furans. Table 3.3-3 summarizes the tuff samples collected and the requested organic chemical analyses for each sample. Extent of organic chemical contamination is discussed in section B-3.3.4.

Table 6.4-17 and Figure 6.4-7 present the detected concentrations for the organic chemical COPCs in tuff and their locations at SWMU 21-024(e).

Two dioxin/furan congeners were detected. Per NMED, no additional sampling for dioxin/furans was necessary (Roberts 2007, 098470); therefore, these organic chemicals were not retained as COPCs.

All other organic chemicals detected in at least one sample were retained as COPCs in tuff (acetone; benzo[b]fluoranthene; benzo[g,h,i]perylene; benzo[k]fluoranthene; bis[2-ethylhexyl]phthalate; butanone[2-]; chrysene; di-n-butylphthalate; fluoranthene; isopropyltoluene[4-]; phenanthrene; pyrene; and toluene).

B-3.3.4 Nature and Extent of Organic Chemicals

Thirty organic chemicals were identified as COPCs (acenaphthene; acenaphthylene; acetone; anthracene; benzo[a]anthracene; benzo[a]pyrene; benzo[b]fluoranthene; benzo[g,h,i]perylene; benzo[k]fluoranthene; bis[2-ethylhexyl]phthalate; butanone[2-]; chloroaniline[4-]; chrysene; dichlorobenzene[1,4-]; di-n-butylphthalate; ethylbenzene; fluoranthene; fluorene; indeno[1,2,3[cd]pyrene; isopropyltoluene[4-]; methylene chloride; methylnaphthalene[2-]; naphthalene; phenanthrene; pyrene; trichloroethene; trimethylbenzene[1,2,4-]; toluene; xylene[1,2-]; and xylene[1,3-]+xylene[1,4-]).

Fifteen organic chemicals (acenaphthene; acenaphthylene; acetone; butanone[2-]; chloroaniline[4-]; dichlorobenzene[1,4-]; di-n-butylphthalate; ethylbenzene; fluorene; indeno[1,2,3-cd]pyrene; isopropyltoluene[4-]; methylene chloride; methylnaphthalene[2-]; naphthalene; and trimethylbenzene[1,2,4-],) were detected at or below their respective EQLs. Therefore, vertical and lateral extent are defined for these organic chemicals.

Thirteen organic chemicals were detected above EQLs in at least one sample but detected concentrations at these locations decreased with depth (anthracene; benzo(a)anthracene; benzo(a)pyrene; benzo(b)fluoranthene; benzo(g,h,i)perylene; benzo(k)fluoranthene; chrysene; fluoranthene; phenanthrene; pyrene; trichloroethene; xylene[1,2-]; and xylene[1,3-]+xylene[1,4-]; therefore, vertical extent is defined. Lateral extent is defined by surrounding samples at the site.

Bis(2-ethylhexyl)phthalate was detected slightly above 2 times the EQL in one soil sample (location 21-27270). However, samples collected at nearby location 21-27259 (within 10 ft) do not have detections of bis(2-ethylhexyl)phthalate above the EQL at deeper depths, and samples downslope do not have it detected. Therefore, lateral and vertical extent is defined for bis(2-ethylhexyl)phthalate.

Toluene was detected above EQLs in 9 soil samples and 10 tuff samples at 15 locations. At locations 21-27250, 21-27251, 21-27252, 21-27253, 21-27254, and 21-27255, VOC analyses were performed at only one depth. Therefore, vertical extent is not defined. At locations 21-27242 through 21-27249 and 21-27264, concentrations decreased with depth. Lateral extent is not defined west of location 21-27250 or east or south of location 21-27255.

B-3.3.5 COPC Identification of Radionuclides at SWMU 21-024(e)

Radionuclides in Soil

Thirty soil samples were collected and analyzed for americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, strontium-90, and tritium. Table 3.3-3 summarizes the soil samples collected and the requested radionuclide analyses for each sample. Extent of radionuclide contamination is discussed in section B-3.3.6.

Table 6.4-18 and Figure 6.4-8 present the radionuclide results at SWMU 21-024(e).

Americium-241, cesium-137, plutonium-238, plutonium-239, tritium, uranium-234, uranium-235, and uranium-238 were detected above their respective FVs, BVs (LANL 1998, 059730), and/or at depths where FVs do not apply in at least one sample. These radionuclides were retained as COPCs in soil.

Radionuclides in Tuff

Twenty-six tuff samples were collected and analyzed for americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, strontium-90, and tritium. Table 3.3-3 summarizes the tuff samples collected and the requested radionuclide analyses for each sample. Extent of radionuclide contamination is discussed in section B-3.3.6.

Table 6.4-19 and Figure 6.4-8 present the radionuclide results at SWMU 21-024(e).

Americium-241, cesium-137, plutonium-239, strontium-90, tritium, uranium-234, uranium-235, and uranium-238 were detected or detected above BVs in at least one tuff sample. These radionuclides were retained as COPCs in tuff.

B-3.3.6 Nature and Extent of Radionuclides

Nine radionuclides were identified as COPCs (americium-241, cesium-137, plutonium-238, plutonium-239, strontium-90, tritium, uranium-234, uranium-235, and uranium-238).

For americium-241, plutonium-238, uranium-234, uranium-235, and uranium-238, activities decreased with depth; therefore, vertical extent is defined for these radionuclides. Extent is also defined laterally by other samples at the site.

Cesium[137 was detected at depths where the FV does not apply in four soil samples in three locations (21-27267, 21-27269, and 21-27270) and in three tuff samples at locations 21-27250, 21-27252, and 21-27254. At locations 21-27250 and 21-27269, the surface and subsurface samples, respectively, were rejected. Therefore, vertical extent is not defined at these locations. At the remaining locations listed above, activities decreased with depth, and vertical extent is defined. Lateral extent is not defined to the west of location 21-27250.

Plutonium-239 was detected at every location. Activities decreased with depth at all locations. Therefore, vertical extent is defined. Lateral extent is not defined east of location 21-27255 or west of location 21-27247.

Strontium-90 was detected in tuff at location 21-27250. Activities remained approximately the same with depth. Therefore, vertical extent is defined at this location. Lateral extent is not defined west of this location.

Tritium was detected in 12 soil and 8 tuff samples. Tritium activities decreased or remained approximately the same at most locations where it was detected. Measured tritium activities were low and ranged from 0.005 to 0.108 pCi/g across the site. The tritium facility tower at TA-21 is known to have spread tritium throughout TA-21 via air deposition. The level of tritium activity observed at this site is indicative of air deposition from the tritium facility tower and is not SWMU related.

B-3.4 SWMU 21-024(g)

Figures 6.4-9, 6.4-10, and 6.4-11 present the analytical results for inorganic chemicals, organic chemicals, and radionuclides, respectively, at SWMU 21-024(g).

B-3.4.1 COPC Identification of Inorganic Chemicals at SWMU 21-024(g)

Inorganic Chemicals in Soil

Thirty-three soil samples were collected and analyzed for inorganic chemicals, including cyanide, nitrate, and perchlorate. Table 3.3-4 summarizes the soil samples collected and the requested inorganic chemical analyses for each sample. Extent of inorganic chemical contamination is discussed in section B-3.4.2.

Table 6.4-20 and Figure 6.4-9 present the inorganic chemical results detected above BV, detected inorganic chemicals with no BV, inorganic chemicals with DLs above BV, and/or their locations at SWMU 21-024(g).

- Cadmium, chromium, and sodium were detected within the range of background concentrations (LANL 1998, 059730). These inorganic chemicals were not retained as COPCs in soil.
- Copper, lead, uranium, and zinc were detected with at least one concentration above the range of background concentrations (LANL 1998, 059730). These inorganic chemicals were retained as COPCs in soil.
- Cyanide and mercury were detected above their BVs (LANL 1998, 059730). Cyanide and mercury are retained as COPCs in soil.

- Nitrate and perchlorate were detected in at least one sample but have no BVs. These inorganic chemicals were retained as COPCs in soil.
- Selenium was not detected in any soil samples; however, because 12 samples had detection limits above the range of background concentrations (LANL 1998, 059730), selenium was retained as a COPC in soil.

Inorganic Chemicals in Tuff

Fifty-two tuff samples were collected and analyzed for inorganic chemicals, including cyanide, nitrate, and perchlorate. Table 3.3-4 summarizes the tuff samples collected and the requested inorganic chemical analyses for each sample. Extent of inorganic chemical contamination is discussed in section B-3.4.2.

Table 6.4-21 and Figure 6.4-9 present the inorganic chemical results detected above BV, detected inorganic chemicals with no BV, inorganic chemicals with DLs above BV, and/or their locations at SWMU 21-024(g).

- Beryllium, magnesium, and uranium were detected within the range of background concentrations (LANL 1998, 059730). These inorganic chemicals were not retained as COPCs in tuff.
- Aluminum, arsenic, barium, chromium, copper, iron, lead, nickel, selenium, and zinc were detected with at least one concentration above the range of background concentrations (LANL 1998, 059730). These inorganic chemicals were retained as COPCs in tuff.
- Cobalt and mercury were detected above their BVs (LANL 1998, 059730). Cobalt and mercury are retained as COPCs in tuff.
- Vanadium was detected in one tuff sample slightly above the range of background concentrations (LANL 1998, 059730). The detected concentration of 21.3 mg/kg is approximately the same as the maximum background concentration (21.0 mg/kg). Therefore, vanadium is not retained as a COPC in tuff.
- Two tuff samples had DLs of antimony slightly above the BV (LANL 1998, 059730). The DLs of 0.511 and 0.548 mg/kg are approximately the same as the BV (0.5 mg/kg). Therefore, antimony is not retained as a COPC in tuff.
- Cadmium was not detected above the BV but had one sample with a DL above the BV (LANL 1998, 059730). Cadmium was retained as a COPC in tuff.
- Perchlorate and nitrate were detected in at least one sample but have no BVs. These inorganic chemicals were retained as COPCs in tuff.
- Calcium was detected with at least one result above the range of background concentrations (LANL 1998, 059730) in eight samples and was detected less than 2 times the maximum background concentrations in five of these samples. Additionally, calcium is an essential nutrient and was not retained as a COPC in tuff (EPA 1989, 008021).

B-3.4.2 Nature and Extent of Inorganic Chemicals

Seventeen inorganic chemicals were identified as COPCs (aluminum, arsenic, barium, cadmium, chromium, cobalt, copper, cyanide, iron, lead, mercury, nickel, nitrate, perchlorate, selenium, uranium, and zinc).

Aluminum was detected above the maximum background concentration in five tuff samples (locations 21-27597, 21-27601, 21-27602, 21-27620, and 21-27622). Concentrations increased with depth at locations 21-27597, 21-27601, and 21-27620; however, concentrations were less than 2 times the maximum background concentration; therefore, vertical extent is defined. Lateral extent was defined by surrounding sampling locations with the exception of two locations. At location 21-27601, the eastern edge of the storm and building drain outfall, lateral extent is not defined to the east in the surface (0–0.5 ft) because there is not a sampling location to the east. At location 21-27602, the western edge of this outfall across the road, lateral extent is not defined to the west at the 2–2.5-ft depth because there is no sampling location to the west. However, aluminum was detected at concentrations less than 2 times the maximum background concentration at these two locations. Therefore, vertical and lateral extent are defined for aluminum.

Arsenic was detected above the maximum background concentration in four tuff samples in 3 locations (21-27595, 21-27608, and 21-27620). At location 21-27595, in the center of the former septic tank outfall, concentrations decreased with depth; therefore, vertical extent is defined at this location. Lateral extent is defined by surrounding samples. At location 21-27608, at the top of the former septic tank outfall, concentrations decrease with depth, and lateral extent is defined by surrounding samples.
At location 21-27620 beneath the inlet line connection to the septic tank, arsenic increases in concentration with depth. A deeper sample, immediately downslope at location 21-27627 at the center of the septic tank, defines vertical extent for location 21-27620, with a concentration less than BV. Therefore, vertical extent is defined. Lateral extent is defined at this location by a decreasing trend in the downslope samples collected in the center of the septic tank excavation pit (location 21-27627) and at the outlet pipe connection (location 21-27621). Lateral extent for arsenic is defined.

Barium was detected above the maximum background concentration in most locations. Barium vertical extent was defined by decreasing concentrations with depth except for the top of the storm drain outfall. Lateral extent was defined by surrounding sampling locations except for locations 21-27602 on the west side of this outfall and 21-27625 on the west side of the site. Vertical and lateral extent are not defined.

Cadmium was not detected above the BV but had one sample with a DL above the BV; nature and extent are defined for cadmium.

Chromium was detected above the maximum background concentration in most locations. Chromium vertical and lateral extent are not defined at the septic tank outfall, at the one sample at the very western edge of the site, or downslope of the storm drain. Vertical extent is not defined just north of building 21-031 or at one of the samples just south of the road. Lateral extent is not defined downslope of one of the samples just south of the road or downslope of the end of the pipe coming from the northeast corner of building 21-031 or from the west side of the site.

Cobalt was detected above its BV (3.14 mg/kg) in one tuff sample (location 21-27617). The concentration decreased with depth at this location; therefore, vertical extent is defined. Lateral extent is defined at this location by downslope sample location 21-27618.

Copper was detected above the maximum background concentration in three soil samples (locations 21-27595 and 21-27598) and four tuff samples (locations 21-27575, 21-27601, 21-27611, and 21-27622). Vertical extent is defined by decreasing concentrations with depth at all locations. Lateral extent is defined by the decreasing trend to the east and west and/or in the downslope direction, except for the bottom of the septic tank outfall.

Cyanide was detected above its BV (0.5 mg/kg) in four soil samples in 3 locations (21-27594, 21-27595, and 21-27598). At each location, concentrations decrease with depth, and lateral extent is provided by surrounding samples. Therefore, vertical and lateral extent are defined for cyanide.

Iron was detected above the maximum background concentration in one tuff sample at location 21-27622. Concentrations decreased with depth at this location; therefore, vertical extent is defined. Lateral extent is defined by downslope location 21-27623.

Lead was detected above the maximum background concentration in most locations. Vertical extent is defined by decreasing concentrations with depth at all locations except for location 21-27593 in the lower outfall and in location 21-27614 just north of building 21-031. Lateral extent is not defined in the outfalls, particularly along the sides, as well as downslope of the septic tank excavation.

Mercury was detected above the maximum background concentration in most locations. Vertical extent is defined by decreasing concentrations with depth at all locations except for location 21-27608 at the septic tank outfall. Lateral extent is defined by surrounding sample locations at all site locations except for location 21-27608. Extent is not defined in the downslope direction at this outfall.

Nickel was detected above the maximum background concentration in two tuff samples (locations 21-27614 and 21-27622). At location 21-27614, at the north side of building 21-031, concentrations decreased in the downslope direction and to the east and west; therefore, lateral extent is defined. Although concentrations increase at this location, they were less than 2 times the maximum background concentration. Therefore, vertical extent is defined. At location 21-27622, nickel decreases with depth and in the downslope direction; therefore, vertical and lateral extent are defined for nickel at this location. Therefore, lateral and vertical extent are defined for nickel.

Nitrate was detected in 16 soil samples and 24 tuff samples at 24 locations. Soil concentrations ranged from 0.865 to 4.6 mg/kg and tuff concentrations ranged from 0.604 to 4.69 mg/kg. Concentrations either decreased or remained approximately the same with depth. In addition, the nitrate concentrations at the site are likely naturally occurring. Therefore, vertical and lateral extent are defined.

Perchlorate was detected in two soil samples and four tuff samples at four locations. Soil concentrations ranged from 0.00062 to 0.00075 mg/kg and tuff concentrations ranged from 0.00084 to 0.00248 mg/kg; all concentrations were below or approximately equal to the EDLs. Therefore, vertical and lateral extent are defined.

Selenium was detected above the BV in five tuff samples (locations, 21-27597, 21-27615, 21-27622, 21-27623, and 21-27627). Vertical extent is defined by decreasing concentrations with depth at all locations except for location 21-27622. Lateral extent is not defined at the bottom of the septic tank outfall or south of location 21-27623.

Uranium was detected above the maximum soil background concentration in five soil samples in 4 locations(locations 21-27595, 21-27598, 21-27609, 21-27616). Concentrations decrease at these locations; therefore, vertical extent is defined. At locations 21-27609 and 21-27616, concentrations decrease in the downslope direction, therefore, vertical and lateral extent are defined on the mesa top. Locations 21-27595 and 21-27598 are in the center of the lower outfall, and sampling locations to the east and west define lateral extent; however, concentrations increase in the downslope direction and there are no sampling locations further downslope to define downslope extent.

Zinc was detected above the maximum background concentration in six soil samples (locations 21-27595, 21-27598, 21-27604, 21-27611, and 21-27613) and one tuff sample

(location 21-27595). Concentrations decrease with depth at these locations; therefore, vertical extent is defined. Locations 21-27611, 21-27604 and 21-27613 are at the mouth of the storm drain outfall, in the middle of that outfall on the eastern edge, and at the bottom of that outfall on the eastern edge, respectively. Concentrations decrease from the top of the outfall to the bottom of the outfall; therefore, downslope extent is defined at these locations. However, eastern lateral extent has not been defined. Locations 21-27595 and 21-27598 at the septic tank outfall have lateral extent defined by decreasing concentrations to the east and west of each location. However, concentrations increase in the downslope direction and there is no sampling location further downslope. Therefore, lateral extent is not defined.

B-3.4.3 COPC Identification of Organic Chemicals at SWMU 21-024(g)

Organic Chemicals in Soil

Thirty-three soil samples were collected and analyzed for SVOCs, 10 of which were also analyzed for VOCs. Table 3.3-4 summarizes the soil samples collected and the requested organic chemical analyses for each sample. Extent of organic chemical contamination is discussed in section B-3.4.4.

Table 6.4-22 and Figure 6.4-10 present the detected concentrations for the organic COPCs in soil and their locations at SWMU 21-024(g).

All organic chemicals detected in at least one sample were retained as COPCs in soil (acenaphthene; acenaphthylene; acetone; anthracene; benzo[a]anthracene; benzo[a]pyrene; benzo[b]fluoranthene; benzo[g,h,i]perylene; benzo[k]fluoranthene; bis[2-ethylhexyl]phthalate; chrysene; ethylbenzene; fluoranthene; fluorene; indeno[1,2,3-cd]pyrene; isopropyltoluene[4-]; methylnaphthalene[2-]; naphthalene; phenanthrene; pyrene,; toluene; and xylene[1,3-]+xylene[1,4-]).

Organic Chemicals in Tuff

Fifty-two tuff samples were collected and analyzed for SVOCs. Fifty of the 52 samples were analyzed for VOCs. One sample was analyzed for explosive compounds, PCBs, and dioxin/furans. Table 3.3-4 summarizes the tuff samples collected and the requested organic chemical analyses for each sample. Extent of organic chemical contamination is discussed in section B-3.4.4

Table 6.4-23 and Figure 6.4-10 present the detected concentrations for the organic chemical COPCs in tuff and their locations at SWMU 21-024(g).

Four dioxin/furan congeners and two Aroclors were detected. Per NMED, no additional sampling for these organic chemicals was necessary (Roberts 2007, 098470); therefore, these organic chemicals were not retained as COPCs.

All other organic chemicals detected in at least one sample were retained as COPCs in tuff (acetone; anthracene; benzo[a]anthracene; benzo[a]pyrene; benzo[b]fluoranthene; benzo[g,h,i]perylene; benzo[k]fluoranthene; benzoic acid; bis[2-ethylhexyl]phthalate; chloroform; chrysene; di-n-butylphthalate; fluoranthene; indeno[1,2,3-cd]pyrene; isopropyltoluene[4-]; phenanthrene; pyrene; and toluene).

B-3.4.4 Nature and Extent of Organic Chemicals

Twenty-four organic chemicals were identified as COPCs (acenaphthene; acenaphthylene, acetone; anthracene; benzo[a]anthracene; benzo[a]pyrene; benzo[b]fluoranthene; benzo[g,h,i]perylene; benzoic acid; benzo[k]fluoranthene bis[2-ethylhexyl]phthalate; chloroform; chrysene; di-n-butylphthalate;

ethylbenzene; fluoranthene; fluorene; indeno[1,2,3-cd]pyrene; isopropyltoluene[4-]; methylnaphthalene[2-]; naphthalene; phenanthrene; pyrene; toluene; and xylene[1,3-]+xylene[1,4-]).

The following were detected below their respective EQLs in one to six samples: acenaphthene; acenaphthylene; benzoic acid; bis(2-ethylhexyl)phthalate; chloroform; di-n-butylphthalate; ethylbenzene; fluorene; indeno(1,2,3-cd)pyrene; isopropyltoluene[4-]; methylnaphthalene[2-]; and xylene[1,3-]+xylene[1,4-]. Therefore, vertical and lateral extent are defined for these organic chemicals.

Acetone was detected above the EQL in one soil and one tuff sample at location 21-27610. However, concentrations decreased with depth at this location. Therefore, vertical extent is defined at this location. Lateral extent is defined by other samples at the site.

Anthracene was detected above the EQL in two soil samples (locations 21-27606 and 21-27613) and one tuff sample (location 21-27622). Concentrations decreased with depth at these locations; therefore, vertical extent is defined. There are no sample locations to the north or east of location 21-27613; however, the detected concentration is only slightly above the EQL (0.0551 mg/kg vs. 0.042 mg/kg). Therefore, lateral extent is defined at this location. Lateral extent is not defined north of location 21-27606 across the road.

Benzo(a)anthracene was detected above EQL in three soil samples (locations 21-27606 21-27611, and 21-27613) and one tuff sample (location 21-27622). Concentrations decreased with depth; therefore, vertical extent is defined. There are no sample locations to the north or east of location 21-27613; therefore, lateral extent is not defined.

Benzo(a)pyrene was detected above EQL in one soil sample (location 21-27606) and two tuff samples (locations 21-27606 and 21-27622). Concentrations decreased with depth. Therefore, vertical extent is defined. Lateral extent is not defined north of 21-27606 across the road.

Benzo(b)fluoranthene was detected above the EQL in two soil samples (locations 21-27597and 21-27603) and one tuff sample (location 21-27622). Concentrations decreased with depth. Therefore, vertical extent is defined. Lateral extent is defined by other samples at the site.

Benzo(g,h,i)perylene was detected above the EQL in one soil and one tuff sample at location 21-27606. Concentrations decreased with depth. Therefore, vertical extent is defined. Lateral extent is not defined north of location 21-27606 across the road.

Benzo(k)fluoranthene was detected above the EQL in one tuff sample (location 21-27606) and one soil sample (location 21-27607). Concentrations increased with depth at location 21-27606; therefore, vertical extent is not defined. Concentrations decreased with depth at location 21-27607. Lateral extent is not defined north of location 21-27606 across the road.

Chrysene was detected above the EQL in five soil samples in four locations (21-27600, 21-27611, 21-27613, and 21-27629) and one tuff sample (location 21-27622).Concentrations decreased with depth. Therefore, vertical extent is defined. There are no sample locations to the north or east of location 21-27613; therefore, lateral extent is not defined.

Fluoranthene was detected above the EQL in nine soil samples in nine locations (21-27597, 21-27600, 21-27601, 21-27603, 21-27606, 21-27611, 21-27612, 21-27613, and 21-27629) and two tuff samples (21-27593 and 21-27622). Concentrations decreased with depth, except at location 21-27593 where the concentration increased slightly above EQL (0.0487 mg/kg vs. 0.038 mg/kg). Therefore, vertical extent is defined. There are no sample locations to the north or east of location 21-27613; therefore, lateral extent is not defined. Lateral extent is not defined north of location 21-27606 across the road.

Naphthalene was detected at approximately the same concentration (0.0435 mg/kg) as the EQL (0.042 mg/kg) in one soil sample at location 21-27613. Concentrations decreased with depth. Therefore, vertical extent is defined.

Phenanthrene was detected above the EQL in two soil samples (locations 21-27611 and 21-27613) and one tuff sample (location 21-27622). Concentrations decreased with depth. Therefore, vertical extent is defined. There are no sample locations to the north or east of location 21-27613; therefore, lateral extent is not defined.

Pyrene was detected above the EQL in eight soil samples (locations 21-27600, 21-27601, 21-27603, 21-27606, 21-27611, 21-27612, 21-27613, and 21-27629) and two tuff samples (21-27593 and 21-27622). Concentrations decreased or remained approximately the same with depth at these locations, except at location 21-27593. However, the detected concentration at location 21-27593 (0.0565 mg/kg) is less than 2 times the EQL (0.038 mg/kg). Therefore, vertical extent is defined. There are no sample locations north of location 21-27606 across the road; therefore, lateral extent is not defined.

Toluene was detected above the EQL in two soil samples (locations 21-27598 and 21-27619) and two tuff samples (locations 21-27595, and 21-27622). VOCs were analyzed for in only one sample depth at locations 21-27595 and 21-27598. The toluene concentrations were within 2 to 3 times the EQL concentration. Therefore, vertical and lateral extent are defined. At the remaining two locations, concentrations decreased with depth. These detections (0.00127 mg/kg in soil and 0.00184 mg/kg in tuff) were slightly above the EQL (0.0012 mg/kg). Therefore, vertical and lateral extent are defined.

B-3.4.5 COPC Identification of Radionuclides at SWMU 21-024(g)

Radionuclides in Soil

Twenty-one soil samples were collected and analyzed for americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, strontium-90, and tritium. Table 3.3-4 summarizes the tuff samples collected and the requested radionuclide analyses for each sample. Extent of radionuclide contamination is discussed in section B-3.4.6.

Table 6.4-24 and Figure 6.4-11 present the radionuclide results at SWMU 21-024(g).

Americium-241, cesium-137, plutonium-238, plutonium-239, tritium, uranium-234, uranium-235, and uranium-238 were detected above their respective FVs, BVs (LANL 1998, 059730), and/or at depths where FVs do not apply in at least one sample. These eight radionuclides were retained as COPCs in soil.

Radionuclides in Tuff

Fifty-two tuff samples were collected and analyzed for americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, strontium-90, and tritium. Table 3.3-4 summarizes the tuff samples collected and the requested radionuclide analyses for each sample. Extent of radionuclide contamination is discussed in section B-3.4.6.

Table 6.4-25 and Figure 6.4-11 present the radionuclide results at SWMU 21-024(g).

Americium-241, cesium-137, plutonium-239, tritium, uranium-234, uranium-235, and uranium-238 were detected or detected above BVs in at least one tuff sample. These seven radionuclides were retained as COPCs in tuff.

B-3.4.6 Nature and Extent of Radionuclides

Eight radionuclides were identified as COPCs (americium-241, cesium-137, plutonium-238, plutonium-239, tritium, uranium-234, uranium-235, and uranium-238).

Americium-241 was detected above its FV or at depths where the FV does not apply in 11 soil samples (locations 21-27594, 21-27595, 21-27596, 21-27598, 21-27599, 21-27600, 21-27601, 21-27604, 21-27612, and 21-27630) and detected in two tuff samples (locations 21-27593 and 21-27601). All activities decreased with depth, except at location 21-27593; however, location 21-27608 is 5 ft east of this location, and americium-241 was not detected at a deeper depth. Therefore, vertical extent is defined. Lateral extent is not defined at locations 21-27598 or 21-27599, the most downslope samples in the outfall. Lateral extent is not defined at location 21-27630 because there are no sampling locations further downslope. Lateral extent is defined at other locations by surrounding and downslope samples.

Cesium-137 was detected above its FV or at depths where the FV does not apply in three soil samples (locations 21-27594, 21-27598, and 21-27619) and detected in four tuff samples (locations 21-27593, 21-27595, 21-27596, 21-27611). All activities decreased with depth, except at location 21-27693; however, location 21-27608 is 5 ft east of this location, and cesium-137 was not detected at 6 ft below ground surface. Therefore, vertical extent is defined. Lateral extent is defined by downslope sampling locations except for location 21-27606.

Plutonium-238 was detected above the FV in one soil sample at location 21-27595. Activities decreased with depth; therefore, vertical extent is defined. Lateral extent is defined by downslope locations.

Plutonium-239 was detected above its FV or at depths where the FV does not apply in 32 soil samples and was detected in 26 tuff samples. Activities decreased with depth at all locations except for locations 21-27593, 21-27601, and 21-27606. Therefore, vertical extent is not defined these locations. Activities increase downslope in the septic tank outfall; therefore, lateral extent is not defined.

Tritium was detected in 12 soil and 26 tuff samples. Activities were low and ranged from 0.003 to 0.577 pCi/g. The tritium facility tower at TA-21 is known to have spread tritium throughout TA-21 via air deposition. The level of tritium activity observed at this site is indicative of air deposition from the tritium facility tower and is not SWMU related.

Uranium-234 was detected above its BV in four soil samples in three locations (21-27598, 21-27609, and 21-27616) and three tuff samples (locations 21-27614, 21-27615, and 21-27617). Activities decreased with depth at all locations, except at 21-27614. Therefore, vertical extent is not defined at this location. Activities increase downslope in the outfall; therefore, lateral extent is not defined.

Uranium-235 was detected at approximately the same activities as the BV in two soil samples and two tuff samples. Uranium-235 was detected above the BV in seven tuff samples (locations 21-27609, 21-27614, 21-27615, 21-27616, 21-27617, and 21-27621). Activities decreased or stayed approximately the same with depth at all locations. Therefore, vertical extent is defined. Activities increase downslope in the outfall; therefore, lateral extent is not defined.

Uranium-238 was detected above its BV in four soil samples in three locations (21-27598, 21-27609, and 21-27616) and four tuff samples (locations 21-27614, 21-27615, 21-27616, and 21-27617). Activities decreased with depth at all locations, except at location 21-27614, where the activities remained approximately the same. Therefore, vertical extent is defined. Activities increase downslope in the outfall; therefore lateral extent is not defined.

B-3.5 Consolidated Unit 21-024(l)-99

Plate 7 and Figures 6.4-12 and 6.4-13 present the analytical results for inorganic chemicals, organic chemicals, and radionuclides, respectively, at Consolidated Unit 21-024(l)-99.

B-3.5.1 COPC Identification of Inorganic Chemicals at Consolidated Unit 21-024(l)-99

Inorganic Chemicals in Soil

Forty-nine soil samples were collected and analyzed for inorganic chemicals, including cyanide, lithium, nitrate, and perchlorate. Table 3.3-5 summarizes the soil samples collected and the requested inorganic chemical analyses for each sample. Extent of inorganic chemical contamination in soil is discussed in section B-3.5.2.

Table 6.4-26 and Figure 6.4-12 present the inorganic chemical results detected above BV, detected inorganic chemicals with no BV, inorganic chemicals with DLs above BV, and/or their locations at Consolidated Unit 21-024(l)-99.

- Aluminum, barium, calcium, chromium, iron, magnesium, potassium, uranium, and vanadium were detected within the range of background concentrations (LANL 1998, 059730). These inorganic chemicals were not retained as COPCs in soil.
- Cadmium was not detected above its BV; however, it had detection limits above the range of background concentrations in one sample (LANL 1998, 059730). Therefore, cadmium was retained as a COPC in soil.
- Copper, lead, selenium, and zinc were detected with at least one concentration above the range of background concentrations (LANL 1998, 059730). These inorganic chemicals were retained as COPCs in soil.
- Mercury was detected above its BV (LANL 1998, 059730). Mercury is retained as a COPC in soil.
- Lithium, nitrate, and perchlorate were detected in at least one sample but have no BVs. These inorganic chemicals were retained as COPCs in soil.

Inorganic Chemicals in Tuff

Twenty-two tuff samples were collected and analyzed for inorganic chemicals including cyanide, lithium, nitrate, and perchlorate. Table 3.3-5 summarizes the tuff samples collected and the requested inorganic chemical analyses for each sample. Extent of inorganic chemical contamination in tuff is discussed in section B-3.5.2.

Table 6.4-27 and Figure 6.4-12 present the inorganic chemical results detected above the BV, detected inorganic chemicals with no BV, inorganic chemicals with DLs above BV, and/or their locations at Consolidated Unit 21-024(l)-99.

- Arsenic, magnesium, manganese, nickel, and vanadium were detected within the range of background concentrations (LANL 1998, 059730). These inorganic chemicals were not retained as COPCs in tuff.
- Aluminum, barium, chromium, copper, lead, selenium, and zinc were detected with at least one concentration above the range of background concentrations (LANL 1998, 059730). These inorganic chemicals were retained as COPCs in tuff.

- Cobalt was detected above its BV (LANL 1998, 059730). Cobalt is retained as a COPC in tuff.
- Calcium was infrequently detected above the range of background concentrations (four tuff samples) and was not detected above 2 times the maximum tuff background concentration (LANL 1998, 059730). Additionally, it is an essential nutrient and is not retained as a COPC (EPA 1989, 008021).
- Lithium, nitrate, and perchlorate were detected in at least one sample but have no BVs. These inorganic chemicals were retained as COPCs in tuff.

B-3.5.2 Nature and Extent of Inorganic Chemicals

Thirteen inorganic chemicals were identified as COPCs (aluminum, barium, cadmium, chromium, cobalt, copper, lead, lithium, mercury, nitrate, perchlorate, selenium, and zinc).

Cadmium was not detected above its BV; therefore, vertical and lateral extent are defined.

Aluminum, barium, and cobalt were infrequently detected above the maximum tuff background concentrations or BV. Aluminum was detected twice above the maximum tuff background concentration (locations 21-27525 and 21-27544). Barium was detected four times above the maximum tuff concentration (locations 21-27525, 21-27544, and 21-27545). Cobalt was detected three times above the tuff BV (locations 21-27525, 21-27539, and 21-27544). Concentrations decrease with depth; therefore, vertical extent is defined. Lateral extent is defined by surrounding and downslope locations.

Chromium was detected above the maximum tuff background concentration in five tuff samples (locations 21-27522, 21-27539, 21-27543, 21-27544, and 21-27545). Concentrations increased with depth; however, all were less than 2 times the maximum background concentration. Therefore, vertical extent is defined. Lateral extent is defined at all these locations by surrounding samples.

Copper was detected above the maximum background concentrations in three soil samples (locations 21-27520 and 21-27524) and four tuff samples at four locations (21-27525, 21-27533, 21-27539, and 21-27544). Concentrations decreased with depth; therefore, vertical extent is defined. Lateral extent is defined at all locations, except location 21-27533 because there are not surrounding sampling locations. However, the copper concentration at this location was less than 2 times the maximum background concentration. Therefore, lateral extent is defined.

Lead was detected above the maximum background concentrations in 13 soil and 5 tuff samples from 15 locations. Lead concentrations increased with depth at four locations (21-27443, 21-27514, 21-27517, and 21-27522). Therefore, vertical extent is not defined at these locations. Lateral extent is not defined east of location 21-27443, east or west of location 21-27514, or north or west of 21-27517.

Lithium was detected in all samples at concentrations ranging from 3.52 to17.8 mg/kg in soil and from 2.3 to 29.6 mg/kg in tuff in tuff. As presented in the approved work plan (LANL 2004, 087461; LANL 2005, 087836), the average concentration of lithium at the DP sites is 11 mg/kg. Only one sample exceeded 2 times the average concentration (29.6 mg/kg in tuff at location 21-27514). Lithium concentrations decreased with depth at this location; therefore, vertical extent is defined. Lateral extent is defined by surrounding and downslope sampling locations.

Mercury was detected above the BV in three soil samples (locations 21-27439, 21-27442, and 21-27517). Concentrations increased with depth at location 21-27517 but were less than 2 times the BV (0.192 mg/kg vs. 0.1 mg/kg). Therefore, vertical extent is defined. Lateral extent is not defined west of location 21-27442.

Nitrate was detected in 29 soil and 12 tuff samples from 26 locations. Soil concentrations ranged from 0.694 to 6.1 mg/kg and in tuff from 1 to 3.8 mg/kg. Concentrations either decreased or remained approximately the same with depth. In addition, nitrate concentrations are likely naturally occurring. Therefore, lateral and vertical extent are defined.

Perchlorate was detected in 21 soil samples and 1 tuff sample from 16 locations. Soil concentrations ranged from 0.000609 to 0.00632 mg/kg, and in tuff the only detection was 0.00106 mg/kg. All concentrations were below EDLs. Therefore, vertical and lateral extent are defined for perchlorate.

Selenium was detected above the maximum soil background concentration in two soil samples (locations 21-27521 and 21-27522) and above the tuff BV in 11 tuff samples (locations 21-27514, 21-27522, 21-27525, 21-27533, 21-27536, 21-27539 and 21-27544) . Concentrations decreased or remained approximately the same with depth; therefore, vertical extent is defined. Lateral extent is not defined at location 21-27514 at the 14-ft depth because surrounding samples do not have samples collected from that depth. Lateral extent is not defined at location 21-27533 because there are not surrounding sampling locations.

Zinc was detected above the maximum background concentrations in 11 soil and four tuff samples from 12 locations. Concentrations increased with depth at locations 21-27517, 21-27521, 21-27525, 21-27539, and 21-27546. Therefore, vertical extent is not defined at these locations. Lateral extent is not defined north or west of location 21-27517.

B-3.5.3 COPC Identification of Organic Chemicals at Consolidated Unit 21-024(l)-99

Organic Chemicals in Soil

Forty-nine soil samples were collected and analyzed for SVOCs. Thirty-seven of the 49 samples were also analyzed for VOCs. Table 3.3-5 summarizes the soil samples collected and the requested organic chemical analyses for each sample. Extent of organic chemical contamination in soil is discussed in section B-3.5.4.

Table 6.4-28 and Plate 7 present the detected concentrations for the organic COPCs in soil and their locations at Consolidated Unit 21-024(l)-99.

All organic chemicals detected in at least one sample were retained as COPCs in tuff (acenaphthene; acenaphthylene; acetone; anthracene; benzo[a]anthracene; benzo[a]pyrene; benzo[b]; benzo[g,h,i]perylene; benzo[k]fluoranthene; bis[2-ethylhexyl]phthalate; chloroform; chrysene; dibenzofuran; dichlorobenzene[1,4-]; fluoranthene; fluorene; indeno[1,2,3-cd]pyrene; methylene chloride; methylnaphthalene[2-]; naphthalene; phenanthrene; pyrene; toluene; and xylene[1,3-]+xylene[1,4-]).

Organic Chemicals in Tuff

Twenty-two tuff samples were collected and analyzed for SVOCs. Twenty-one of the 22 samples were analyzed for VOCs. One additional sample was analyzed for explosive compounds, PCBs, and dioxin/furans. Table 3.3-5 summarizes the tuff samples collected and the requested organic chemical analyses for each sample. Extent of organic chemical contamination in tuff is discussed in section B-3.5.4.

Table 6.4-29 and Plate 7 present the detected concentrations for the organic chemical COPCs in tuff and their locations at Consolidated Unit 21-024(l)-99.

Five dioxin/furans were detected. Per NMED, no additional sampling for dioxin/furans was necessary (Roberts 2007, 098470); therefore, these organic chemicals were not retained as COPCs.

All other organic chemicals detected in at least one sample were retained as COPCs in tuff (acenaphthene; anthracene; benzo[a]anthracene; benzo[a]pyrene; benzo[b]fluoranthene; benzo[g,h,i]perylene; benzo[k]fluoranthene; chrysene; fluoranthene; fluorene; indeno[1,2,3-cd]pyrene; isopropyltoluene[4-]; methylnaphthalene[2-]; naphthalene; phenanthrene; pyrene; and toluene).

B-3.5.4 Nature and Extent of Organic Chemicals

Twenty-five organic chemicals were detected (acenaphthene; acenaphthylene; acetone; anthracene; benzo[a]anthracene; benzo[a]pyrene; benzo[b]fluoranthene; benzo[g,h,i]perylene;, benzo[k]fluoranthene;, bis[2-ethylhexyl]phthalate; chloroform; chrysene; dibenzofuran; dichlorobenzene[1,4-]; fluoranthene; fluorene; indeno[1,2,3-cd]pyrene; isopropyltoluene[4-]; methylene chloride; methylnaphthalene[2-]; naphthalene; phenanthrene; pyrene; toluene; and xylene[1,3-]+xylene[1,4-]).

Seven organic chemicals were detected at or below their respective EQLs (acenaphthylene; bis[2-ethylhexyl]phthalate; chloroform; dichlorobenzene[1,4-]; isopropyltoluene[4-]; methylene chloride; and xylene[1,3-]+xylene[1,4-]). Therefore, vertical and lateral extent are defined for these organic chemicals.

VOCs for acetone and toluene were detected above their respective EQLs at nine locations. Concentrations of acetone increased with depth at location 21-27521, and concentrations of toluene increased with depth at location 21-27439. Therefore, vertical extent for these two chemicals is not defined at these locations. Only one depth was sampled for toluene at locations 21-27517, 21-27518, and 21-27540; however, concentrations were approximately the same as their respective EQLs. Therefore, vertical extent is defined at these locations. Lateral extent is not defined for toluene west of 21-27517, east of 21-27540, or north of 21-27540 for toluene. Lateral extent is defined for acetone by surrounding and downslope sampling locations.

One or more of the following SVOCs detected above their respective EQLs increased with depth at locations 21-27514, 21-27519, 21-27524, 21-27525, 21-27530, and 21-27547: acenaphthene; anthracene; benzo[a]anthracene; benzo[a]pyrene; benzo[b]fluoranthene; benzo[g,h,i]perylene; benzo[k]fluoranthene; chrysene; dibenzofuran fluoranthene; fluorene; indeno[1,2,3-cd]pyrene; methylnaphthalene[2-]; naphthalene; phenanthrene; and pyrene. Therefore, vertical extent is not defined at these locations. Lateral extent is not defined west of locations 21-27442 or 21-27517; west or east of location 21-27514; east of locations 21-27525, 21-27526, 27540, 21-27541, or 21-25743; or north of locations 21-27538 and 21-27540 for SVOCs.

B-3.5.5 COPC Identification of Radionuclides at Consolidated Unit 21-024(l)-99

Radionuclides in Soil

Forty-nine soil samples were collected and analyzed for americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, strontium-90, and tritium. Table 3.3-5 summarizes the soil samples collected and the requested radionuclide analyses for each sample. Extent of radionuclide contamination in soil is discussed in section B-3.5.6.

Table 6.4-30 and Figure 6.4-13 present the radionuclide results at Consolidated Unit 21-024(l)-99.

Americium-241, cesium-137, plutonium-238, plutonium-239, tritium, uranium-234, and uranium-235 were detected above their respective FVs, BVs (LANL 1998, 059730), and/or at depths where FVs do not apply in at least one sample. These radionuclides were retained as COPCs in soil.

Radionuclides in Tuff

Twenty-two tuff samples were collected and analyzed for americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, strontium-90, and tritium. Table 3.3-5 summarizes the tuff samples collected and the requested radionuclide analyses for each sample. Extent of radionuclide contamination in tuff is discussed in section B-3.5.6.

Table 6.4-31 and Figure 6.4-13 present the radionuclide results at Consolidated Unit 21-024(l)-99.

Americium-241, plutonium-238, plutonium-239, tritium, and uranium-235 were detected or detected above BVs in at least one tuff sample. These radionuclides were retained as COPCs in tuff.

B-3.5.6 Nature and Extent of Radionuclides

Seven radionuclides were identified as COPCs (americium-241, cesium-137, plutonium-238, plutonium-239, tritium, uranium-234, and uranium-235).

Americium-241 was detected above its FV or at depths where the FV does not apply in 25 samples from 18 locations. Activities decreased with depth at all locations, except 21-27514 and 21-27517. Therefore, vertical extent is not defined at these locations. Lateral extent is not defined to the north of locations 21-27517, 21-27533, or 21-27540; to the west of locations 21-27514 or 27517; or to the east of 21-27533 or 21-27540.

Cesium-137 was detected at depths where the FV does not apply in three soil samples (locations 21-27439, 21-27517, and 21-27520). Activities increased with depth at location 21-27517; therefore, vertical extent is not defined at this location. Lateral extent is defined at locations 21-27439 and 21-27520 by other site samples but not at location 21-27517.

Plutonium-238 was detected above its FV or at depths where the FV does not apply in 12 samples from nine locations (21-27439, 21-27443, 21-27516, 21-27517, 21-27533, 21-27536, 21-27537, 21-27538, and 21-27543). Activities decreased with depth at all locations, except 21-27443 and 21-27517; therefore, vertical extent is not defined at these locations. Lateral extent is not defined to the north of locations 21-27517 or 21-27533, east of 21-27533 or 21-27537, or west of 21-27517.

Plutonium-239 was detected above its FV or at depths where the FV does not apply in 65 samples at every location. Activities increased with depth at locations 21-27440, 21-27514, 21-27517, and 21-27534. Therefore, vertical extent is not defined at these locations. Lateral extent is not defined to the north of locations 21-27517, 21-27533, or 21-27540; to the west of locations 21-27514 or 21-27517; or to the east of 21-27533 or 21-27540.

Tritium was detected in 54 samples. Tritium activities were low and ranged from 0.01 to 2.06 pCi/g across the site. The tritium facility tower at TA-21 is known to have spread tritium throughout TA-21 via air deposition. The level of tritium activity observed at this sit is indicative of air deposition from the tritium facility tower and is not SWMU related; therefore, further sampling is not warranted.

Uranium-234 was detected above its BV in two soil samples at locations 21-27517 and 21-27542. Activities decreased with depth at both locations; therefore, vertical extent is defined. No samples were

collected to the north or west of location 21-27517; however, the detected activity is approximately the same as the BV (2.61 pCi/g vs. 2.59 pCi/g). There is no sampling location from 21-27542; however, the detected activity is less than 2 times the BV. Therefore, vertical and lateral extent are defined for uranium-234.

Uranium-235 was detected above its BV in one soil sample (location 21-27542) and two tuff samples (locations 21-27515 and 21-27533). Activities decreased with depth; therefore, vertical extent is defined. There are no samples to the north or west of location 21-27515 or downslope of location 21-27533; however, the detected activities (0.136 pCi/g and 0.113 pCi/g, respectively) were less than 2 times the BV (0.09 pCi/g). Therefore, vertical and lateral extent are defined for uranium-235.

B-3.6 SWMU 21-024(o)

Figures 6.4-14, 6.4-15, and 6.4-16 present the analytical results for inorganic chemicals, organic chemicals, and radionuclides, respectively, at SWMU 21-024(o).

B-3.6.1 COPC Identification of Inorganic Chemicals at SWMU 21-024(o)

Inorganic Chemicals in Soil

Eighteen soil samples were collected and analyzed for inorganic chemicals, including nitrate, cyanide, and perchlorate. Table 3.3-6 summarizes the soil samples collected and the requested inorganic chemical analyses for each sample. Extent of inorganic chemical contamination is discussed in section B-3.6.2.

Table 6.4-32 and Figure 6.4-14 present the inorganic chemical results detected above BV, detected inorganic chemicals with no BV, inorganic chemicals with DLs above BV, and/or their locations at SWMU 21-024(o).

- Copper and manganese were detected within the range of background concentrations (LANL 1998, 059730). These inorganic chemicals were not retained as COPCs in soil.
- Cyanide, lead, uranium, and zinc were detected with at least one concentration above the range of background concentrations. These inorganic chemicals were retained as COPCs in soil.
- Nitrate and perchlorate were detected in at least one sample but have no BVs. These inorganic chemicals were retained as COPCs in soil.
- Cadmium and selenium had DLs above their respective BVs. However, DLs were within the range of background concentrations; and cadmium and selenium were not retained as COPCs in soil.

Inorganic Chemicals in Tuff

Four tuff samples were collected and analyzed for inorganic chemicals, including nitrate, cyanide, and perchlorate. Table 3.3-6 summarizes the tuff samples collected and the requested inorganic chemical analyses for each sample. Extent of inorganic chemical contamination is discussed in section B-3.6.2.

Table 6.4-33 and Figure 6.4-14 present the inorganic chemical results detected above BV, detected inorganic chemicals with no BV, inorganic chemicals with DLs above BV, and/or their locations at SWMU 21-024(o).

- Barium and copper were detected within the range of background concentrations (LANL 1998, 059730). These inorganic chemicals were not retained as COPCs in tuff.
- Aluminum and chromium were detected with at least one concentration above the range of background concentrations (LANL 1998, 059730). These inorganic chemicals were retained as COPCs in tuff.
- Perchlorate and nitrate were detected in at least one sample but have no BVs. These inorganic chemicals were retained as COPCs in tuff.
- Selenium had DLs above the BV and above the range of background concentrations (LANL 1998, 059730). Selenium was retained as a COPC in tuff.

B-3.6.2 Nature and Extent of Inorganic Chemicals

Nine inorganic chemicals were identified as COPCs (aluminum, chromium, cyanide, lead, nitrate, perchlorate, selenium, uranium, and zinc).

Four COPCs (aluminum, cyanide, lead, and uranium) had decreasing concentrations with depth; therefore, vertical extent is defined. Lateral extent is provided by surrounding samples, including samples collected at adjoining SWMU 21-024(e).

There were no detections of selenium; therefore, vertical and lateral extent are defined.

Chromium was detected above the maximum tuff background concentration at locations 21-27348 and 21-27350. Concentrations increased with depth at these locations; however, concentrations were less than 2 times the maximum background concentration. Therefore, vertical extent is defined. There are no samples east of location 21-27350; however, concentrations were less than 2 times the maximum background concentration. Therefore, lateral extent is defined.

Nitrate was detected in 14 soil samples and 3 tuff samples. Soil concentrations ranged from 0.766 to 38 mg/kg and tuff concentrations ranged from 0.768 to 16.1 mg/kg. Concentrations decreased with depth at all locations where nitrate was detected, except at location 21-27351, where concentrations remained approximately the same with depth. In addition, the nitrate concentrations at the site are likely naturally occurring. Therefore, vertical and lateral extent are defined for nitrate.

Perchlorate was detected in nine soil samples and one tuff sample, and all were estimated values below EDLs. Estimated soil concentrations ranged from 0.000539 to 0.00141 mg/kg, and the estimated tuff concentration was 0.000759 mg/kg. Concentrations decreased with depth at all locations where perchlorate was detected, except at location 21-27350, where concentrations remained approximately the same with depth. Vertical and lateral extent are defined for perchlorate.

Zinc was detected above the maximum soil background concentration in six soil samples (locations 21-27346 to 21-27349, 21-27352, and 21-27355). Concentrations decreased with depth at all locations. Therefore, vertical extent is defined. Zinc was detected at location 21-27347 above 2 times the maximum background concentration. Lateral extent is not defined east of location 21-27347.

B-3.6.3 COPC Identification of Organic Chemicals at SWMU 21-024(o)

Organic Chemicals in Soil

Eighteen soil samples were collected and analyzed for SVOCs. Seven of the 18 samples were analyzed for VOCs. Table 3.3-6 summarizes the soil samples collected and the requested organic chemical analyses for each sample. Extent of organic chemical contamination is discussed in section B-3.6.4

Table 6.4-34 and Figure 6.4-15 present the detected concentrations for the organic COPCs in soil and their locations at SWMU 21-024(o).

All organic chemicals detected in at least one sample were retained as COPCs in soil (acenaphthene; anthracene; benzo[a]anthracene; benzo[a]pyrene; benzo[b]fluoranthene; benzo[g,h,i]perylene; benzo[k]fluoranthene; benzoic acid; bis[2-ethylhexyl]phthalate; chrysene; fluoranthene; fluorene; hexachlorobenzene; methylnaphthalene[2-]; naphthalene; phenanthrene; pyrene; and toluene).

Organic Chemicals in Tuff

Four tuff samples were collected and analyzed for SVOCs and VOCs. One additional sample was analyzed for PCBs and dioxins/furans. Table 3.3-6 summarizes the soil samples collected and the requested organic chemical analyses for each sample. Extent of organic chemical contamination is discussed in section B-3.6.4.

Table 6.4-35 and Figure 6.4-15 present the detected concentrations for the organic COPCs in tuff and their locations at SWMU 21-024(o).

Seven dioxin/furan congeners and Aroclor 1260 were detected. Per NMED, no additional sampling for these organic chemicals was necessary (Roberts 2007, 098470); therefore, these organic chemicals were not retained as COPCs.

All other organic chemicals detected in at least one sample were retained as COPCs in tuff (acenaphthene; acetone; benzo[a]anthracene; bis[2-ethylhexyl]phthalate; chrysene; fluoranthene; phenanthrene; pyrene; and toluene).

B-3.6.4 Nature and Extent of Organic Chemicals

Nineteen organic chemicals were identified as COPCs (acenaphthene; acetone; anthracene; benzo[a]anthracene; benzo[a]pyrene; benzo[b]fluoranthene; benzo[g,h,i]perylene; benzoic acid; benzo[k]fluoranthene; bis[2-ethylhexyl]phthalate; chrysene; fluoranthene; fluorene; hexachlorobenzene; methylnaphthalene[2-]; naphthalene, phenanthrene; pyrene, and toluene).

Nine organic chemicals were detected at concentrations at or below their respective EQLs in one to six samples (acetone; benzo[a]pyrene; benzo[b]fluoranthene; benzo[g,h,i]perylene; benzo[k]fluoranthene; benzoic acid; bis(2-ethylhexyl)phthalate; hexachlorobenzene, and methylnaphthalene[2-]. Vertical and lateral extent are defined for these organic chemicals.

Eight organic chemicals had concentrations decreasing with depth at all locations where they were detected above EQLs (anthracene; benzo[a]anthracene; chrysene; fluoranthene; fluorene; naphthalene; phenanthrene; and pyrene). At all locations with detections of organic chemicals above EQLs, lateral extent is bounded by other samples from the site. Therefore, vertical and lateral extent are defined.

Acenaphthene was detected above the EQL in four soil samples (locations 21-27347, 21-27348, 21-27349, and 21-27355) and one tuff sample (location 21-27346). Concentrations increased with depth at location 21-27346; therefore, vertical extent is not defined. Lateral extent is defined by other samples from the site.

Toluene was detected above the EQL in three tuff samples (locations 21-27346, 21-27347, and 21-27350). The toluene concentration at location 21-27350 (0.00126 mg/kg) is approximately the same as the EQL (0.0011 mg/kg); therefore, vertical and lateral extent are defined at this location. Only one sample depth was analyzed for VOCs at the remaining two locations. Therefore, vertical extent is not defined. Lateral extent is defined by other samples from the site.

B-3.6.5 COPC Identification of Radionuclides at SWMU 21-024(o)

Radionuclides in Soil

Eighteen soil samples were collected and analyzed for americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, strontium-90, and tritium. Table 3.3-6 summarizes the soil samples collected and the requested radionuclide analyses for each sample. Extent of radionuclide contamination is discussed in section B-3.6.6.

Table 6.4-36 and Figure 6.4-16 present the radionuclide results at AOC 21-024(o).

Four radionuclides (americium-241, plutonium-238, plutonium-239, and tritium) were detected above their respective FVs (LANL 1998, 059730) in at least one sample and were retained as COPCs in soil.

Radionuclides in Tuff

Four tuff samples were collected and analyzed for americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, strontium-90, and tritium. Table 3.3-6 summarizes the tuff samples collected and the requested radionuclide analyses for each sample. Extent of radionuclide contamination is discussed in section B-3.6.6.

Table 6.4-37 and Figure 6.4-16 present the radionuclide results at SWMU 21-024(o).

Three radionuclides (cesium-137, plutonium-239, and tritium) were detected in at least one tuff sample and were retained as COPCs in tuff.

B-3.6.6 Nature and Extent of Radionuclides

Five radionuclides were identified as COPCs (americium-241, cesium-137, plutonium-238, plutonium-239, and tritium).

Americium-241 was detected above its FV or at depths where the FV does not apply in nine soil samples at locations 21-27347 to 21-27355. Activities decreased with depth. Therefore, vertical extent is defined for americium-241. Lateral extent is not defined east of locations 21-27347 or 21-27349.

Cesium-137 was detected in one tuff sample (location 21-27346) in the deepest sample collected at this location. Therefore, vertical extent is not defined at this location. Lateral extent is defined by downslope sampling locations.

Plutonium-238 was detected above its FV in one soil sample (location 21-27352). Vertical extent is defined as plutonium-238 was not detected in the deeper sample. Lateral extent is defined by surrounding and downslope sampling locations.

Plutonium-239 was detected above its FV or at depths where the FV does not apply in 16 soil samples and detected in three tuff samples. All activities decreased with depth; therefore, vertical extent is defined. Lateral extent is not defined to the east of location 21-27347.

Tritium was detected in four soil samples (locations 21-27348, 21-27349, and 21-27356) and two tuff samples (locations 21-27348 and 21-27350). Detected activities of tritium were low and ranged from 0.00382 to 0.0214 pCi/g. Samples collected near this location laterally and downslope had detections of tritium that were approximately the same or decreased with depth. The tritium facility tower at TA-21 is known to have spread tritium throughout TA-21 via air deposition. The level of tritium observed at the site is indicative of air deposition from the tritium facility tower and is not SWMU related; therefore, vertical and lateral extent are defined.

B-3.7 Consolidated Unit 21-026(a)-99

Figures 6.4-17, 6.4-18, and 6.4-19 present the analytical results for inorganic chemicals, organic chemicals, and radionuclides, respectively, at Consolidated Unit 21-026(a)-99.

B-3.7.1 COPC Identification of Inorganic Chemicals at Consolidated Unit 21-026(a)-99

Inorganic Chemicals in Soil

Twenty-eight soil samples were collected and analyzed for inorganic chemicals, including cyanide, nitrate, and perchlorate. Table 3.3-7 summarizes the soil samples collected and the requested inorganic chemical analyses for each sample. Extent of inorganic chemical contamination in soil is discussed in section B-3.7.2

Table 6.4-38 and Figure 6.4-17 present the inorganic chemical results detected above BV, detected inorganic chemicals with no BV, inorganic chemicals with DLs above BV, and/or their locations at Consolidated Unit 21-026(a)-99.

- Calcium was detected above its BV but within the range of background concentrations (LANL 1998, 059730). Calcium is not retained as a COPC in soil.
- Cyanide, mercury, and silver were detected above their BVs (LANL 1998, 059730). These inorganic chemicals are retained as COPCs in soil.
- Antimony, arsenic, barium, cadmium, chromium, copper, lead, nickel, selenium, uranium, and zinc were detected with at least one concentration above the range of background concentrations (LANL 1998, 059730). These inorganic chemicals were retained as COPCs in soil.
- Nitrate and perchlorate were detected in at least one sample but have no BVs. These inorganic chemicals were retained as COPCs in soil.

Inorganic Chemicals in Tuff

Forty-two tuff samples were collected and analyzed for inorganic chemicals, including cyanide, nitrate, and perchlorate. Table 3.3-7 summarizes the tuff samples collected and the requested inorganic chemical

analyses for each sample. Extent of inorganic chemical contamination in tuff is discussed in section B-3.7.2.

Table 6.4-39 and Figure 6.4-17 present the inorganic chemical results detected above the BV, detected inorganic chemicals with no BV, inorganic chemicals with DLs above BV, and/or their locations at Consolidated Unit 21-026(a)-99.

- Arsenic and uranium were detected within the range of background concentrations (LANL 1998, 059730). These inorganic chemicals were not retained as COPCs in tuff.
- Aluminum, barium, calcium, chromium, copper, lead, nickel, selenium, silver, and zinc detected with at least one concentration above the range of background concentrations (LANL 1998, 059730). These inorganic chemicals were retained as COPCs in tuff.
- Mercury was detected above its BV (LANL 1998, 059730). Mercury is retained as a COPC in tuff.
- Cyanide had DLs above its BV (LANL 1998, 059730). Cyanide is retained as a COPC in tuff.
- Magnesium was detected above the range of background concentrations in tuff (LANL 1998, 059730). Magnesium was detected above the maximum tuff background concentration at one location. Magnesium is an essential nutrient and was not retained as COPCs in tuff (EPA 1989, 008021).
- Nitrate and perchlorate were detected in at least one sample but have no BVs. These inorganic chemicals were retained as COPCs in tuff.

B-3.7.2 Nature and Extent of Inorganic Chemicals

Eighteen inorganic chemicals were identified as COPCs (aluminum, antimony, arsenic, barium, cadmium, calcium, chromium, copper, cyanide, lead, mercury, nickel, nitrate, perchlorate, selenium, silver, uranium, and zinc).

Antimony and arsenic were detected once above their respective maximum soil background concentrations at location 21-27576. Concentrations decreased with depth; therefore, vertical extent is defined. Additionally, lateral extent is defined by surround sampling locations.

Aluminum was detected above the maximum background concentration in one tuff sample (location 21-27557). The aluminum concentration was less than 2 times the maximum background concentration. Therefore, vertical and lateral extent are defined for aluminum.

Barium was infrequently detected above the maximum background concentrations in one soil sample (location 21-27576) and four tuff samples (21-27553, 21-27565, 21-27576, and 21-27581). Concentrations decreased or remained approximately the same with depth at these locations, except at 21-27565. At location 21-27565, concentrations increased with depth; however, concentrations were less than 2 times the maximum background concentration; therefore, vertical extent is defined. Lateral extent is defined by other site sampling locations.

Cadmium was detected above the maximum soil background concentration in two soil samples (locations 21-27576 and 21-27579). Concentrations decreased with depth; therefore, vertical extent is defined. Lateral extent is defined at both locations by other site sampling locations.

Calcium was detected above the maximum background concentration in 21 tuff samples at 12 locations (21-27550, 21-27551, 21-27553, 21-27554, 21-27559, 21-27564, 21-27565, 21-27566, 21-27568, 21-27570, 21-27571, and 21-27581). Concentrations increased with depth at locations 21-27553,

21-27554, 21-27559, 21-27565, and 21-27568. Vertical extent is defined for 21-27568 by nearby location 21-27551 (less than 5 ft away). Lateral extent is not defined north of location 21-27553.

Chromium was detected above the maximum background concentration in two soil samples (locations 21-27576 and 21-27579) and four tuff samples (locations 21-27554, 21-27562, 21-27571, and 21-27576,). Concentrations increased with depth at locations 21-27562 and 21-27571. At these locations, chromium concentrations were within 2 times the maximum background concentration. There are also nearby samples that provide vertical extent. Lateral extent is also defined at these locations by site sampling locations.

Copper was detected above the maximum background concentration in three soil samples (locations 21-27570, 21-27576, and 21-27579) and six tuff samples (locations 21-27550, 21-27570, 21-27571, 21-27575, 21-27576, and 21-27579). Concentrations increased with depth at locations 21-27550 and 21-27575; however, copper was less than 2 times the maximum background concentration; therefore, vertical extent is defined. Locations where copper was above 2 times maximum background concentration are defined laterally by other samples at the site, except for the downslope direction from location 21-27579.

Cyanide and uranium were detected above the maximum background concentrations in soil at locations 21-27576 and 21-27579. Concentrations decreased with depth at both locations; therefore, vertical extent is defined. Lateral extent for cyanide and uranium is not defined downslope from location 21-27579.

Lead was detected above the maximum background concentration in two soil samples (locations 21-27576 and 21-27579) and eight tuff samples (locations 21-27564, 21-27564, 21-27565, 21-27570, 21-27570, 21-27571, 21-27571, and 21-27576). Concentrations increased with depth at locations 21-27565 and 21-27571. At location 21-27565, concentrations were detected less than 2 times the maximum background concentration; therefore, vertical extent is defined at this location. At location 21-27571, lead was detected above 2 times the maximum background concentration and increased with depth; therefore, vertical extent is not defined at this location. Lateral extent is provided by surrounding site samples.

Mercury was detected above its BV in five soil samples (locations 21-27570, 21-27571, 21-27576, 21-27578, and 21-27579) and four tuff samples (locations 21-27550, 21-27575, 21-27576, and 21-27579). Concentrations increased with depth at locations 21-27550 and 21-27575. However, the detected concentrations are low, between 1 to 2 times the BV concentration (0.158 and 0.22 mg/kg). Therefore, vertical and lateral extent of mercury are defined.

Nickel and zinc were detected at locations 21-27576 and 21-27579 above the maximum concentration in soil and/or tuff. Nickel and zinc concentrations decreased with depth at both locations. Therefore, vertical extent is defined. Zinc was also detected at location 21-27570 above the maximum background concentration. Concentrations decreased with depth at this location; therefore, vertical extent is defined. Lateral extent is defined at all three locations.

Nitrate was detected in 21 soil and 5 tuff samples at 23 locations. In soil, concentrations ranged from 0.69 to 9.8 mg/kg and in tuff from 0.98 to 2.21 mg/kg. Concentrations either decreased or remained approximately the same with depth across the site. In addition, the nitrate concentrations at the site are likely naturally occurring. Therefore, vertical and lateral extent of nitrate are defined.

Perchlorate was detected in 2 soil and 16 tuff samples at 12 locations. In soil, concentrations ranged from 0.000991 to 0.00134 mg/kg and in tuff from 0.000551 to 0.00471 mg/kg. Perchlorate was slightly above

the EDL in one sample at location 21-27568 (0.00352 mg/kg vs. 0.0022 mg/kg); all other samples had concentrations of perchlorate below EDLs. Therefore, vertical and lateral extent of perchlorate are defined.

Selenium was detected above the maximum soil background concentration in one soil sample (location 21-27576). Concentrations decreased with depth at this location. It was not detected in tuff above EDLs. Lateral extent is defined by site samples.

Silver was detected above the soil BV in three soil samples (locations 21-27576, 21-27578, and 21-27579) and above the maximum tuff background concentration in three samples (locations 21-27575, 21-27576, and 21-27579). Concentrations increased with depth at location 21-27575 and are greater than 2 times the maximum background concentration. Therefore, vertical extent is not defined at this location. Lateral extent is not defined to the west of location 21-27575 and 21-27578 or downslope from location 21-27579.

B-3.7.3 COPC Identification of Organic Chemicals at Consolidated Unit 21-026(a)-99

Organic Chemicals in Soil

Twenty-eight soil samples were analyzed for SVOCs. Five of the 28 samples were also analyzed for VOCs. Table 3.3-7 summarizes the soil samples collected and the requested organic chemical analyses for each sample. Extent of organic chemical contamination in soil is discussed in section B-3.7.4.

Table 6.4-40 and Figure 6.4-18 present the detected concentrations for the organic COPCs in soil and their locations at Consolidated Unit 21-026(a)-99.

All organic chemicals detected in at least one sample were retained as COPCs in soil. (acenaphthene; anthracene; benzo[a]anthracene; benzo[a]pyrene; benzo[b]fluoranthene; benzo[g,h,i]perylene; benzo[k]fluoranthene; benzoic acid; bis[2-ethylhexyl]phthalate; butylbenzylphthalate; chrysene; di-n-butylphthalate; di-n-octylphthalate; dibenz[a,h]anthracene; dibenzofuran; dichlorobenzene[1,4-]; dimethylphenol[2,4-]; fluoranthene; fluorene; indeno[1,2,3-cd]pyrene; phenanthrene; pyrene; and trimethylbenzene[1,2,4-])

Organic Chemicals in Tuff

Forty-two tuff samples were collected and analyzed for SVOCs. Forty-one of the 42 samples were also analyzed for VOCs. One additional sample was analyzed for explosive compounds, PCBs, and dioxin/furans. Table 3.3-7 summarizes the tuff samples collected and the requested organic chemical analyses for each sample. Extent of organic chemical contamination in tuff is discussed in section B-3.7.4.

Table 6.4-41 and Figure 6.4-18 present the detected concentrations for the organic chemical COPCs in tuff and their locations at Consolidated Unit 21-026(a)-99.

Two Aroclors and two dioxins were detected. Per NMED, no additional sampling was necessary for these organic chemicals (Roberts 2007, 098470); therefore, these organic chemicals were not retained as COPCs.

All other organic chemicals detected in at least one sample were retained as COPCs in tuff (anthracene; benzo[a]anthracene; benzo[a]pyrene; benzo[b]fluoranthene; benzo[g,h,i]perylene; benzo[k]fluoranthene; benzoic acid; bis[2-ethylhexyl]phthalate; butylbenzylphthalate; chloroform,;chrysene; di-n-butylphthalate;

ethylbenzene; fluoranthene; indeno[1,2,3-cd]pyrene; phenanthrene; pyrene; toluene; trimethylbenzene[1,2,4-]; and xylene[1,3-]+xylene[1,4-]).

B-3.7.4 Nature and Extent of Organic Chemicals

Twenty-seven organic chemicals were detected (acenaphthene; anthracene; benzo[a]anthracene; benzo[a]pyrene; benzo[b]fluoranthene; benzo[g,h,i]perylene; benzo[k]fluoranthene; benzoic acid; bis[2-ethylhexyl]phthalate; butylbenzylphthalate; chloroform; chrysene; dibenz[a,h]anthracene; dibenzofuran,; dichlorobenzene[1,4-]; dimethylphenol[2,4-]; di-n-butylphthalate; di-n-octylphthalate; ethylbenzene; fluoranthene; fluorene; indeno[1,2,3-cd]pyrene; phenanthrene; pyrene; toluene; trimethylbenzene[1,2,4-]; and xylene[1,3-]+xylene[1,4-]).

Eleven organic chemicals were detected at or below EQLs (benzoic acid; chloroform; dibenz[a,h]anthracene; dibenzofuran; dichlorobenzene[1,4-]; dimethylphenol[2,4-]; di-n-octylphthalate; ethylbenzene; fluorene; trimethylbenzene[1,2,4-]; and xylene[1,3-]+xylene[1,4-]). Therefore, vertical and lateral extent are defined and additional sampling is not required for these COPCs.

Acenaphthene was detected in soil above the EQL at location 21-27552. Concentrations decreased with depth at this location; therefore, vertical extent is defined. Lateral extent is defined by surrounding site samples.

Anthracene, di-n-butylphlalate, and phenanthrene were detected in soil above EQLs at one location (21-27579). Concentrations decreased with depth at this location, defining vertical extent. Lateral extent is not defined downslope of location 21-27579.

Benzo(a)anthracene was detected above the EQL in two soil samples (locations 21-27576 and 21-27579) and two tuff samples (locations 21-27550 and 21-27576). Concentrations increased with depth at location 21-27550; therefore, vertical extent is not defined at this location. Lateral extent is not defined downslope of location 21-27579.

Benzo(a)pyrene and benzo(k)fluoranthene were detected above EQLs in one soil sample (location 21-27570) and one tuff sample (location 21-27550). Concentrations increased with depth at location 21-27550; therefore, vertical extent is not defined at this location. Lateral extent is defined by site samples.

Benzo(b)fluoranthene was detected above the EQL in two soil samples (locations 21-27570 and 21-27571) and two tuff samples (locations 21-27550 and 21-27576). Concentrations increased with depth at location 21-27550; therefore, vertical extent is not defined at this location. Lateral extent is defined by site samples.

Benzo(g,h,i)perylene and indeno[1,2,3-cd]pyrene were detected in soil above EQLs at location 21-27570. Concentrations decreased with depth; therefore, vertical extent is defined. Lateral extent is also defined by site samples.

Bis(2-ethylhexyl)phthalate and butylbenzylphthalate were detected in soil above EQLs at locations 21-27576 and 21-27579. Concentrations decreased with depth at these locations; therefore, vertical extent is defined. Lateral extent is not defined downslope of location 21-27579.

Chrysene, fluoranthene, and pyrene were detected in soil and tuff above EQLs at locations 21-27550, 21-27570, 21-27571, 21-27576, and 21-27579. Concentrations decreased with depth at all of these

locations, except at 21-27550; therefore, vertical extent is not defined at this location. Lateral extent is not defined downslope of location 21-27579.

Toluene was detected above EQLs in two tuff samples (locations 21-27568 and 21-27581). Concentrations increased with depth at location 21-27568; however, vertical extent is defined by nearby location 21-27551. Lateral extent is defined by site samples.

B-3.7.5 COPC Identification of Radionuclides at Consolidated Unit 21-026(a)-99

Radionuclides in Soil

Twenty-eight soil samples were collected and analyzed for americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, strontium-90, and tritium. Table 3.3-7 summarizes the soil samples collected and the requested radionuclide analyses for each sample. Extent of radionuclide contamination in soil is discussed in section B-3.7.6.

Table 6.4-42 and Figure 6.4-19 present the radionuclide results at Consolidated Unit 21-026(a)-99.

Americium-241, cesium-137, plutonium-238, plutonium-239, tritium, uranium-234, uranium-235, and uranium-238 were detected above their respective FVs, BVs (LANL 1998, 059730), and/or at depths where FVs do not apply in at least one sample. These radionuclides were retained as COPCs in soil.

Radionuclides in Tuff

Forty-two tuff samples were collected and analyzed for americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, strontium-90, and tritium. Table 3.3-7 summarizes the tuff samples collected and the requested radionuclide analyses for each sample. Extent of radionuclide contamination in tuff is discussed in section B-3.7.6.

Table 6.4-43 and Figure 6.4-19 present the radionuclide results at Consolidated Unit 21-026(a)-99.

Americium-241, cesium-137, plutonium-238, plutonium-239, tritium, uranium-234, and uranium-235 were detected or detected above BVs in at least one tuff sample. These radionuclides were retained as COPCs in tuff.

B-3.7.6 Nature and Extent of Radionuclides

Eight radionuclides were identified as COPCs (americium-241, cesium-137, plutonium-238, plutonium-239, tritium, uranium-234, uranium-235, and uranium-238).

Americium-241 was detected above the FV or where the FV does not apply in 19 samples at 11 locations. Activities decreased with depth at all locations except location 21-27575. Therefore, vertical extent is not defined at this location. Lateral extent is defined at all locations, except in the downslope direction from locations 21-27578 and 21-27579.

Cesium-137 was detected where the FV does not apply in three soil samples (locations 21-27552, 21-27561, and 21-27563) and two tuff samples (locations 21-27555 and 21-27564). Activities decreased or remained approximately the same with depth at all locations except 27-27555 and 21-27563; therefore, vertical extent is not defined at these locations. Lateral extent is defined at all locations, except east of location 21-27561.

Plutonium-238 was detected above the FV in four soil samples (locations 21-27557, 21-27570, 21-27576, and 21-27579) and where the FV does not apply in four tuff samples (locations 21-27550, 21-27575, 21-27576, and 21-27579). Activities decreased with depth at all locations except location 27-27575; therefore, vertical extent is not defined at this location. Lateral extent is defined at all locations, except in the downslope direction of locations 21-27557, 21-27578, and 21-27579.

Plutonium-239 was detected above the FV or where the FV does not apply in 30 samples at 19 locations. Activities decreased or remained approximately the same with depth at all locations, except 21-27560, 21-27565, and 21-27575. Lateral extent is defined at some locations because of nearby samples without detections of plutonium-239 above the FV. However there are two clusters of locations where lateral extent is not defined: (1) north and east of sludge drying beds, structure 21-230 (location 21-27570); and (2) the farthest downslope edge of the site (locations 21-27557, 21-27558, 21-27578, 21-27579, and 21-27580).

Tritium was detected in the majority of samples from the site. Detected activities of tritium were low and ranged from 0.003 to 6.12 pCi/g. Activities decreased or stayed approximately the same with depth, defining vertical extent. The tritium facility tower at TA-21 is known to have spread tritium throughout TA-21 via air deposition. Activities of tritium are indicative of air deposition from the tritium facility tower and not site-related. Therefore, vertical and lateral extent are defined.

Uranium-234, uranium-235, and uranium-238 were detected above their BVs at two locations (21-27576 and 21-27579). Activities of all three radionuclides decreased with depth at both locations, defining vertical extent. Lateral extent is defined by nearby samples without detections of these radionuclides above FVs, but lateral extent is not defined downslope of location 21-27579.

B-3.8 SWMU 21-027(c)

Figures 6.4-20, 6.4-21, and 6.4-22 present the analytical results for inorganic chemicals, organic chemicals, and radionuclides, respectively, at SWMU 21-027(c).

B-3.8.1 COPC Identification of Inorganic Chemicals at SWMU 21-027(c)

Inorganic Chemicals in Soil

Thirty-four soil samples were collected and analyzed for inorganic chemicals including cyanide, nitrate, and perchlorate. Table 3.3-8 summarizes the soil samples collected and the requested inorganic chemical analyses for each sample. Extent of inorganic chemical contamination in soil is discussed in section B-3.8.2.

Table 6.4-44 and Figure 6.4-20 present the inorganic chemical results detected above BV, detected inorganic chemicals with no BV, inorganic chemicals with DLs above BV, and/or their locations at SWMU 21-027(c).

- Cadmium was not detected above BVs but had DLs within the range of background concentrations (LANL 1998, 059730). Cadmium is not retained as a COPC in soil.
- Mercury was detected above its BV (LANL 1998, 059730). Mercury is retained as a COPC in soil.
- Chromium, copper, lead, uranium, and zinc were detected in at least one concentration above the range of background concentrations (LANL 1998, 059730). These inorganic chemicals are retained as COPCs in soil.

- Selenium had DLs above the range of background concentrations (LANL 1998, 059730). Selenium is retained as a COPC in soil.
- Nitrate and perchlorate were detected in at least one sample but have no BVs. These inorganic chemicals are retained as COPCs in soil.
- Calcium was detected above the range of background concentrations in one soil sample (LANL 1998, 059730). Calcium was infrequently detected above background, and concentrations were less than 2 times the maximum background concentrations. Additionally, it is an essential nutrient and calcium is not retained as a COPC (EPA 1989, 008021).

Inorganic Chemicals in Tuff

One tuff sample was collected and analyzed for inorganic chemicals, including cyanide, nitrate, and perchlorate. Table 3.3-8 summarizes the tuff samples collected and the requested inorganic chemical analyses for each sample. Extent of inorganic chemical contamination in tuff is discussed in section B-3.8.2.

Table 6.4-45 and Figure 6.4-20 present the inorganic chemical results detected above BV, detected inorganic chemicals with no BV, inorganic chemicals with DLs above BV, and/or their locations at SWMU 21-027(c).

- Arsenic and manganese were detected within the range of background concentrations (LANL 1998, 059730). These inorganic chemicals were not retained as COPCs in tuff.
- Barium, copper, and lead were detected above the range of background concentrations (LANL 1998, 059730). These inorganic chemicals are retained as COPCs in tuff.
- Cobalt was detected above its BV (LANL 1998, 059730). Cobalt is retained as a COPC in tuff.
- Selenium had DLs above its BV (LANL 1998, 059730). Selenium is retained as a COPC in tuff.

B-3.8.2 Nature and Extent of Inorganic Chemicals

Eleven inorganic chemicals were identified as COPCs (barium, chromium, cobalt, copper, lead, mercury, nitrate, perchlorate, selenium, uranium, and zinc).

Barium was detected above the maximum tuff background concentration in one tuff sample (location 21-27399), and uranium was detected above the maximum soil background concentration in one sample (location 21-27413). Concentrations remained approximately the same or decreased with depth; therefore, vertical extent is defined. Lateral extent is defined by other sample locations.

Chromium was detected above the maximum background soil concentration in one sample (location 21-27404). Chromium concentrations increased with depth at this location; however, the concentration was less than 2 times the maximum background concentration. Therefore, vertical and lateral extent are defined.

Cobalt was detected above the BV in one tuff sample at location 21-27399. Concentrations increased slightly with depth at this location; however, the concentration was less than 2 times the BV. Therefore, vertical and lateral extent are defined.

Copper was detected above the maximum background concentration in four soil samples (locations 21-27399, 21-27404, and 21-27413) and one tuff sample (location 21-27399). Concentrations decreased

with depth at these locations; therefore, vertical extent is defined. Lateral extent is defined by site samples.

Lead was detected above the maximum background concentrations in 10 soil and 1 tuff sample at six locations. Lead concentrations decreased with depth at all locations, except 21-27402, 21-27403 and 21-27412. Vertical extent is not defined at these three locations. Lateral extent is not defined to the east or south of location 21-27412.

Mercury was detected above the BV in four soil samples (locations 21-27399, 21-27404, and 21-27415). Mercury concentrations decreased with depth at all locations except for 21-27415. Therefore, vertical extent is not defined at this location. Lateral extent is not defined east of location 21-27415.

Nitrate was detected in 10 soil samples. Concentrations ranged from 0.788 to 2.75 mg/kg. Nitrate concentrations either decreased or remained approximately the same with depth. In addition, the nitrate concentrations at the site are likely naturally occurring. Therefore, vertical and lateral extent are defined.

Perchlorate was detected in four soil samples. Concentrations ranged from 0.000649 to 0.00155 mg/kg; all were below EDLs. Therefore, vertical and lateral extent are defined.

Selenium was not detected in any soil or tuff samples. Therefore, vertical and lateral extent are defined.

Zinc was detected above the maximum soil background concentration in six soil samples (locations (21-27399, 21-27402, 21-27404, 21-27406, and 21-27413). Concentrations decreased with depth at these locations; therefore, vertical extent is defined. There are no samples west or east of locations 21-27404 or 21-27406, respectively; however, zinc concentrations are less than 2 times the maximum soil background concentration at these locations. Therefore, lateral extent is defined.

B-3.8.3 COPC Identification of Organic Chemicals at SWMU 21-027(c)

Organic Chemicals in Soil

Thirty-four soil samples were collected and analyzed for SVOCs. Twenty of the 34 samples were also analyzed for VOCs. One sample was analyzed for explosive compounds, PCBs, and dioxin/furans. Table 3.3-8 summarizes the soil samples collected and the requested organic chemical analyses for each sample. Extent of organic chemical contamination in soil is discussed in section B-3.8.4.

Table 6.4-46 and Figure 6.4-21 present the detected concentrations for the organic COPCs in soil and their locations at SWMU 21-027(c).

Five dioxin/furan congeners and Aroclor 1260 were detected. Per NMED, no additional sampling for dioxin/furans was necessary (Roberts 2007, 098470); therefore, these organic chemicals were not retained as COPCs.

All other organic chemicals detected in at least one sample were retained as COPCs in soil (acenaphthene; acenaphthylene; acetone; anthracene; benzo[a]anthracene; benzo[a]pyrene; benzo[b]fluoranthene; benzo[g,h,i]perylene; benzo[k]fluoranthene; benzoic acid; bis[2-ethylhexyl]phthalate; chrysene; di-n-butylphthalate; dibenzofuran; dichlorobenzene[1,4-]; fluoranthene; fluorene; indeno[1,2,3-cd]pyrene; isopropyltoluene[4-]; methylene chloride; methylnaphthalene[2-]; naphthalene; phenanthrene; pyrene; toluene; and trichloroethene).

Organic Chemicals in Tuff

One tuff sample was collected and analyzed for SVOCs and VOCs. Table 3.3-8 summarizes the tuff samples collected and the requested organic chemical analyses for each sample. Extent of organic chemical contamination in tuff is discussed in section B-3.8.4.

Table 6.4-47 and Figures 6.4-21 present the detected concentration for the organic COPC in tuff and the location at SWMU 21-027(c).

Acetone was detected in one sample. Acetone was retained as a COPC in tuff.

B-3.8.4 Nature and Extent of Organic Chemicals

Twenty-six organic chemicals were identified as COPCs (acenaphthene; acenaphthylene; acetone; anthracene; benzo[a]anthracene; benzo[a]pyrene; benzo[b]fluoranthene; benzo[g,h,i]perylene; benzo[k]fluoranthene; benzoic acid; bis[2-ethylhexyl]phthalate; chrysene, di-n-butylphthalate; dibenzofuran; dichlorobenzene[1,4-]; fluoranthene; fluorene; indeno[1,2,3-cd]pyrene; isopropyltoluene[4-]; methylene chloride; methylnaphthalene[2-]; naphthalene; phenanthrene, pyrene; toluene; and trichloroethene).

Ten organic chemicals were detected at or below their respective EQLs (acenaphthylene; benzo[a]pyrene; benzo[b]fluoranthene; benzo[g,h,i]perylene benzo[k]fluoranthene; benzoic acid; dibenzofuran; dichlorobenzene[1,4-]; indeno[1,2,3-cd]pyrene; and isopropyltoluene[4-]). Therefore, vertical and lateral extent are defined for these organic chemicals.

Acenaphthene and fluorine were detected in soil above EQLs at locations 21-27402 and 21-27403. Concentrations decreased with depth at these locations; therefore, vertical extent is defined. Lateral extent is defined by site samples.

Acetone was detected in soil above the EQL in one sample at location 21-27411. At this location, VOCs were analyzed for in only one depth; however, acetone was detected at approximately the same concentration (0.00546 mg/kg) as the EQL (0.0053 mg/kg). Therefore, vertical and lateral extent are defined.

Anthracene was detected in soil above the EQL at locations 21-27401, 21-27402, and 21-27403. Concentrations increased with depth at location 21-27401; therefore, vertical extent is not defined. Lateral extent is defined by site samples.

Five SVOCs were infrequently detected above their EQLs in soil (number of locations in parentheses): benzo(a)anthracene (2); bis(2-ethylhexyl)phthalate (1; di-n-butylphthalate (1); methylnaphthalene (1); and naphthalene (1). These organic chemicals were detected above their EQLs at locations 21-27402, 21-27403, 21-27404, and 21-27413. Concentrations decreased with depth at these locations; therefore, vertical extent is defined. Lateral extent is not defined to the east of location 21-27403.

Chrysene, fluoranthene, phenanthrene, and pyrene were detected in soil above their EQLs at the following locations: 21-27401 to 21-27406, 21-27411, 21-27413, 21-27414, and 21-27415. Concentrations decreased with depth at these locations except at location 21-27414. At this location, these SVOCs were only detected in the deepest interval and not in the two shallower intervals. Therefore, vertical extent is defined. Lateral extent is not defined to the east of location 21-27403.

Methylene chloride was detected in soil above the EQL at location 21-27415. Concentrations stayed approximately the same with depth; therefore, vertical extent is defined. Lateral extent is defined by downslope sampling locations.

Toluene was detected above the EQL in six soil samples (locations 21-27399, 21-27403, 21-27404, 21-27407, 21-27412, and 21-27415). Toluene was analyzed for at multiple depths at only two locations (21-27399 and 21-27415). Concentrations decreased with depth at location 21-27399; therefore, vertical extent is defined at this location. Concentrations increased with depth at location 21-27415; therefore, vertical extent is not defined at this location. Toluene was detected at approximately the same concentration (0.00123 and 0.0013 mg/kg) as the EQL (0.0011 mg/kg) at locations 21-27403 and 21-27412, respectively. It was detected at a concentration less than 2 times the EQL at location 21-27404. Vertical extent is defined at these four locations. At location 21-27407, it was detected at a concentration more than 2 times the EQL; therefore, vertical extent is not defined at this location. At all other locations, VOCs were analyzed for in only one depth; therefore, vertical extent is not defined at these locations. Lateral extent is not defined to the east of location 21-27403 or west of 21-27407.

Trichloroethene was detected in soil above the EQL at location 21-27407. VOCs were analyzed from only one depth at this location; however, trichloroethene was detected at approximately the same concentration (0.00188 mg/kg) as the EQL (0.001 mg/kg). Therefore, vertical and lateral extent are defined.

B-3.8.5 COPC Identification of Radionuclides at SWMU 21-027(c)

Radionuclides in Soil

Thirty-four soil samples were collected and analyzed for americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, strontium-90, and tritium. Table 3.3-8 summarizes the soil samples collected and the requested radionuclide analyses for each sample. Extent of radionuclide contamination in soil is discussed in section B-3.8.6.

Table 6.4-48 and Figure 6.4-22 present the radionuclide results at SWMU 21-027(c).

Americium-241, cesium-134, cesium-137, plutonium-238, plutonium-239, strontium-90, tritium, and uranium-234 were detected above their respective FVs, BVs (LANL 1998, 059730), and/or at depths where FVs do not apply in at least one sample. These radionuclides were retained as COPCs in soil.

Radionuclides in Tuff

One tuff sample was collected and analyzed for americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, strontium-90, and tritium. Table 3.3-8 summarizes the tuff samples collected and the requested radionuclide analyses for each sample. Extent of radionuclide contamination in tuff is discussed in section B-3.8.6.

Table 6.4-49 and Figure 6.4-22 present the radionuclide results at SWMU 21-027(c).

Americium-241 and plutonium-239 were detected in the tuff sample collected. These radionuclides were retained as COPCs in tuff.

B-3.8.6 Nature and Extent of Radionuclides

Eight radionuclides were identified as COPCs (americium-241, cesium-134, cesium-137, plutonium-238, plutonium-239, strontium-90, tritium, and uranium-234).

Americium-241 was detected above its FV or at depths where the FV does not apply in 20 soil samples and was detected in one tuff sample (location 21-27399). Activities decreased with depth at all locations except locations 21-27402, 21-27403, and 21-27414. Therefore, vertical extent is not defined at these locations. Lateral extent is not defined east of locations 21-27403, 21-27406, 21-27409, or 21-27415, or south of location 21-27406.

Cesium-134 was detected in the surface-soil sample (location 21-27415). Concentrations decreased with depth; therefore, vertical extent is defined. Lateral extent is not defined east of this location.

Cesium-137 was detected at depths where the FV does not apply in four soil samples (locations 21-27399, 21-27402, and 21-27403). Activities increased with depth at locations 21-27402 and 21-27403. Therefore, vertical extent is not defined at these locations. Lateral extent is defined by other site samples.

Plutonium-238 was detected above its FV or at depths where the FV does not apply in 14 soil samples at nine locations. Activities decreased with depth at all locations, except locations 21-27402 and 21-27403. Therefore, vertical extent is not defined at these locations. Lateral extent is not defined east of 21-27403.

Plutonium-239 was detected above its FV or at depths where the FV does not apply in 32 soil samples and one tuff sample (location 21-27399). Activities decreased or remained approximately the same with depth at all locations, except 21-27402, 21-27403, 21-27405, 21-27414, and 21-27415. Vertical extent is defined for locations 21-27414, and 21-27415 by lesser activities at deeper depths at location 21-27399 (less than 5 ft away). Vertical extent is not defined for locations 21-27402, 21-27403, or 21-27405. Lateral extent is not defined east of locations 21-27406 or 21-27409 or south of location 21-27406.

Strontium-90 was detected above its FV or at depths where the FV does not apply in two soil samples (locations 21-27409 and 21-27410). Activities increased with depth at location 21-27409. Therefore, vertical extent is not defined at this location. Lateral extent is not defined south or west of location 21-27410 or east of location 21-27409.

Tritium was detected in 14 soil samples at 13 locations. Tritium activities were low and ranged from 0.013 to 0.059 pCi/g. Activities decreased or stayed approximately the same with depth. The tritium facility tower at TA-21 is known to have spread tritium throughout TA-21 via air deposition. Additionally, the low levels do not indicate that it is site related. Activities of tritium are indicative of air deposition from the tritium facility tower and is not SWMU related. Therefore, vertical extent is defined. Lateral extent is also defined.

Uranium-234 was detected (3.31 pCi/g) slightly above its BV (2.59 pCi/g) in one soil sample (location 21-27409. Activities decreased with depth at this location; therefore, vertical extent is defined. The activity at this location was less than 2 times its BV. Therefore, lateral extent is also defined.

B-7.0 REFERENCES

The following list includes all documents cited in this appendix. Parenthetical information following each reference provides the author(s), publication date, and ER ID number. This information is also included in text citations. ER ID numbers are assigned by the Environmental Programs Directorate's Records

Processing Facility (RPF) and are used to locate the document at the RPF and, where applicable, in the master reference set.

Copies of the master reference set are maintained at the NMED Hazardous Waste Bureau; the U.S. Department of Energy–Los Alamos Site Office; the U.S. Environmental Protection Agency, Region 6; and the Directorate. The set was developed to ensure that the administrative authority has all material needed to review this document, and it is updated with every document submitted to the administrative authority. Documents previously submitted to the administrative authority are not included.

Chamberlain, K., August 14, 2006. RE: [21-003-99]. E-mail message to M.S. Thacker (LANL) from K. Chamberlain (NMED), Santa Fe, New Mexico. (Chamberlain 2006, 093679)

Chamberlain, K., August 17, 2006. RE: 21-013(c). E-mail message to M.S. Thacker (LANL) from K. Chamberlain (NMED), Santa Fe, New Mexico. (Chamberlain 2006, 093678)

Chamberlain, K., August 22, 2006. RE: Dioxin/Furan for sample RE 21-06-68643. E-mail message to R. Bohn (LANL) from K. Chamberlain (NMED), Santa Fe, New Mexico. (Chamberlain 2006, 093677)

Chamberlain, K., September 5, 2006. RE: Preliminary data attached for Request#5716S. E-mail message to R. Bohn (LANL) from K. Chamberlain (NMED), Santa Fe, New Mexico. (Chamberlain 2006, 095870)

Chamberlain, K., October 2, 2006. RE: PCB data for 21-013(c). E-mail message to R. Bohn (LANL) from K. Chamberlain (NMED), Santa Fe, New Mexico. (Chamberlain 2006, 098708)

EPA (U.S. Environmental Protection Agency), December 1989. “Risk Assessment Guidance for Superfund, Volume I: Human Health Evaluation Manual (Part A), Interim Final,” EPA/540/1-89/002, Office of Emergency and Remedial Response, Washington, D.C. (EPA 1989, 008021)

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

LANL (Los Alamos National Laboratory), August 2004. “Investigation Work Plan for Delta Prime Site Aggregate Area at Technical Area 21,” Los Alamos National Laboratory document LA-UR-04-5009, Los Alamos, New Mexico. (LANL 2004, 087461)

LANL (Los Alamos National Laboratory), March 11, 2005. “Response to the Notice of Disapproval for the Investigation Work Plan for Delta Prime Site Aggregate Area, at Technical Area 21,” Los Alamos National Laboratory document LA-UR-05-1696, Los Alamos, New Mexico. (LANL 2005, 087836)

NMED (New Mexico Environment Department), April 13, 2005. “Approval with Modifications for the Investigation Work Plan for Delta Prime Site Aggregate Area at Technical Area 21,” New Mexico Environment Department letter to D. Gregory (DOE LASO) and G.P. Nanos (LANL Director) from J.P. Bearzi (NMED-HWB), Los Alamos, New Mexico. (NMED 2005, 089314)

NMED (New Mexico Environment Department), June 27, 2007. “Notice of Disapproval of the Work Plan for R-Well Rehabilitation and Replacement, Revision 1,” New Mexico Environment Department letter to D. Gregory (DOE LASO) and D. McInroy (LANL) from J.P. Bearzi (NMED HWB), Santa Fe, New Mexico. (NMED 2007, 097461)

Roberts, K., September 20, 2007. RE: DP Site Aggregate Area Extended Suite Analysis. E-mail message to M.S. Thacker (LANL) from K. Roberts (NMED), Santa Fe, New Mexico. (Roberts 2007, 098470)

Table B-1.2-1
Soil and Tuff Maximum Background Concentrations

Analyte	Soil Maximum (mg/kg)[a]	Tuff Maximum (mg/kg)[a]
Aluminum	61,500	8,370
Antimony	1	0.4
Arsenic	9.3	5
Barium	410	51.6
Beryllium	3.95	1.8
Cadmium	2.6	1.5
Calcium	14,000	2,230
Chloride	303	465
Chromium	36.5	13
Cobalt	9.5	na[b]
Copper	16	6.2
Iron	36,000	19,500
Lead	28	15.5
Magnesium	10,000	2,820
Manganese	1,100	752
Mercury	0.1	na
Nickel	29	7
Potassium	6,850	4,720
Selenium	1.7	0.105
Silver	na	1.9
Sodium	1,800	7,700
Sulfate	1,200	1,430
Tantalum	0.45	2
Thallium	1	1.7
Thorium	21.6	10.4
Uranium	3.6	5
Vanadium	56.5	21
Zinc	75.5	65.6

[a] Values from (LANL 1998, 059730).
[b] na = Not available.

Appendix C

Field Methods and Deviations from the Work Plan

C-1.0 FIELD METHODS

This section summarizes the field methods used at DP Site Aggregate Area sites within Technical Area (TA) 21 at Los Alamos National Laboratory, for characterization and excavation activities that occurred from June to August 2006 and February to July 2007. All activities were conducted in accordance with the most current versions of applicable Standard Operating Procedures (SOPs), which can be found at: http://erproject.lanl.gov/documents/procedures/sops.html.

Table C-1.0-1 summarizes the field methods used. The borehole logs are included as Attachment C-1.

C-2.0 DEVIATIONS FROM THE APPPROVED WORK PLAN

C-2.1 Investigation Sites

Deviations from the approved investigation work plan for the investigation sites within the DP Site Aggregate Area (LANL 2004, 087461; NMED 2005, 089314) include the following:

- At Solis Waste management Unit (SWMU) 21-024(c), borehole (BH) 2 was to be drilled from the edge of the mesa top. The material sampled closer to the edge was tuff and refusal was encountered. Therefore, sampling location 4 prescribed in the approved work plan (location 21-25760, center of the outfall area) was sampled down to 5.5 ft to account for the BH-2 sampling depths that were unable to be collected from the mesa edge.
- At SWMU 21-024(c), polychlorinated biphenyls (PCBs) were inadvertently left out of the sample analysis requests for:
    - Location 21-25752, 1.5–2.0 ft depth interval, under the pipe
    - Location 21-25753, 0–0.5 ft depth interval, under the pipe
    - Location 21-25753, 1.5–2.0 ft depth interval, under the pipe

  These samples will be collected after remediation activities at this site if the soil in these areas is still present.
- At Consolidated Unit 21-003-99, recovery was low at sampling location 22 prescribed in the work plan (location 21-25725), so a deeper depth was sampled (3.0 to 3.5-ft depth). Photoionization detector (PID) results indicated a deeper sample interval was needed at the 3.5- to 4.0-ft depth interval and it was therefore collected.
- Additional analyses at the suspected PCB-contaminated outfall for extended suite (explosive compounds, polychlorinated biphenyls, dioxin/furans) were completed by the analytical laboratory but were not required per the approved work plan.

C-2.2 Facility-Unimpacted Corrective Action Sites

Deviations from the approved investigation work plan for the facility-unimpacted corrective action sites within the DP Site Aggregate Area (LANL 2004, 087461, NMED 2005, 089314) include the following:

- At SWMU 21-012(b), sampling locations 4 and 28 prescribed in the approved work plan (locations 21-25803 and 21-25804, respectively) were moved 10 ft to the north and 15 ft south, respectively to avoid sampling in the road.

- At SWMU 21-024(a), samples from sampling location 10 prescribed in the approved work plan (10 ft east of location 9) were not collected because sampling location 21-25783 from adjoining SWMU 21-012(b) overlapped this area.
- At SWMU 21-024(e), samples were not collected from sampling locations 11 and 13 prescribed in the approved work plan. No evidence of a pipeline coming from building 21-046 and connecting with the pipeline from building 21-014 was found during excavation activities.
- At SWMU 21-024(e), the deepest samples (5–6 ft) at sampling locations 17 and 20 prescribed in the approved work plan (locations 21-27245 and 21-27248, respectively) were inadvertently not collected. However, samples were collected at the 0–0.5 and 2–3 ft depths at these locations.
- At SWMU 21-024(g), samples from sampling locations 1 and 2 prescribed in the approved work plan [beneath the inlet and outlet connections to septic tank 21-125 (#1)] were not collected because no tank or evidence of a tank was found, and it could not be determined where the pipes would have entered and exited the tank. A borehole (location 21-27609) was drilled in the approximate area of the possible former tank based on the sampling maps.
- At SWMU 21-024(g), samples from sampling location 7 prescribed in the approved work plan [beneath the joint connecting the two pipelines from building 21-031) were not collected because no joint or pipe was present.
- At SWMU 21-024(g), samples from sampling location 8 prescribed in the approved work plan (beneath the elbow joint connecting the pipeline from to the drainage ditches) were not collected because no elbow joint was encountered during the removal of the pipeline.
- At SWMU 21-024(g), samples from sampling location 9 prescribed in the approved work plan (beneath the pipeline connection to former building 21-007) were not collected because live site utilities obstructed access to this area.
- At SWMU 21-024(g), septic tank 21-125 (#1) was not excavated because no evidence of the tank or former tank was found. However, samples were collected at the location as directed in the work plan (location 21-27609).
- At SWMU 21-024(g), sampling location 12 prescribed in the approved work plan was moved to the south of the road to avoid sampling in the middle of the road.
- At Consolidated Unit 21-024(l)-99, samples were collected from four additional sampling locations (21-27547 at 0.5–1.5 ft and 2.5–3.5 ft , 21-27546 at 1.0–2.0 and 4.0–5.0 ft, 21-27526 at 4.0–5.0 and 6.0–7.0 ft, and 21-27545 at 3.0–4.0 and 5.0–6.0) to assess if residual contamination was present from a pipeline along the north side of building 21-021 that was not present on any engineering drawings.
- Consolidated Unit 21-024(l)-99, samples from sampling location 7 prescribed in the approved work plan (beneath the semi above ground pipe connection to building 21-021) were not collected because the pipe configuration was found to be different than anticipated in the work plan and location 2 (location 21-25721) adequately covered this area after the excavation activities were completed.
- At SWMU 21-024(o), borehole 1 (0.5 ft downslope of the outfall pipe mouth) prescribed in the approved work plan was not advanced because evidence of a pipe was not found during the trenching at the site. Consequently, samples were not collected along the pipe area because there was no evidence of a pipe found during excavation or building inspection activities. Engineering drawings do not depict a pipe connecting to building 21-046 to the outfall area, but

more of a surface drainage area. Therefore, it was concluded that a pipe never existed in this area.

C-3.0 REFERENCES

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

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LANL (Los Alamos National Laboratory), August 2004. "Investigation Work Plan for Delta Prime Site Aggregate Area at Technical Area 21," Los Alamos National Laboratory document LA-UR-04-5009, Los Alamos, New Mexico. (LANL 2004, 087461)

NMED (New Mexico Environment Department), April 13, 2005. "Approval with Modifications for the Investigation Work Plan for Delta Prime Site Aggregate Area at Technical Area 21," New Mexico Environment Department letter to D. Gregory (DOE LASO) and G.P. Nanos (LANL Director) from J.P. Bearzi (NMED-HWB), Los Alamos, New Mexico. (NMED 2005, 089314)

Table C-1.0-1
Field Methods

Methods	Summary
Spade-and-scoop method for collection of soil samples	This method was used for collection of shallow (approximately 0- to 0.5-ft) soil samples. The spade-and-scoop method involved digging a hole to the desired depth, as prescribed in the sampling and analysis plan, and collecting a discrete grab sample. Typically, the sample was placed in a clean stainless-steel bowl for transfer to various sample containers.
Hand auger and thin-wall tube sampler	This method was used for sampling soil or tuff at depths of less than 15 ft bgs. This method involved hand-turning a stainless-steel bucket auger (typically 3- to 4-in. inside diameter) with an attached thin-wall tube sampler, creating a vertical hole that could be advanced to the desired sample depth. When the desired depth was reached, the auger was decontaminated before advancing the hole through the sample depth. The sample material was transferred from the bucket auger to a stainless-steel sampling bowl before the various required sampled containers were filled.
Split-spoon core-barrel sampling	The split-spoon core barrel is a cylindrical barrel split lengthwise so that the two halves can be separated to expose the core sample. The stainless steel core barrel (3-in. inner-diameter, 5-ft long) is pushed directly into the subsurface media using a hollow-stem auger drilling rig. A continuous length of core was screened for radioactivity and organic vapors, and described in a geologic log. If located within a targeted sample interval, a portion of the core was collected for fixed laboratory analysis.
Field logging, handling, and documentation of borehole materials	Upon reaching the surface, core barrels were immediately opened for field screening, logging, and sampling. Once the core material was logged, selected samples were taken from discrete intervals of the core. All borehole material not sampled was disposed of as investigation-derived waste.
Power auger attachment for backhoe	An auger bit was attached to a backhoe to aid in collecting samples deeper than 6 ft. The auger powered down to the required sampling depth, then, hand-augering was used to collect the sample for analysis.
Handling, packaging, and shipping of samples	Field team members sealed and labeled samples before packing, to ensure the sample containers and the containers used for transport were free of external contamination. All environmental samples were collected, preserved, packaged, and transported to the Sample Management Office (SMO) under chain-of-custody. The SMO arranged for the shipping of the samples to analytical laboratories. Any levels of radioactivity (i.e., action-level or limited quantity ranges) were documented on sample collection logs submitted to the SMO.
Sample control and field documentation	The collection, screening, and transport of samples were documented on standard forms generated by the SMO. These forms included sample collection logs, chain-of-custody forms, sample container labels, and custody seals. Collection logs were completed at the time of sample collection and were signed by the sampler and a reviewer who verified the logs for completeness and accuracy. Corresponding labels were generated and applied to each sample container, and custody seals were placed around container lids or openings. Chain-of-custody forms were completed and signed to verify that the samples were not left unattended.

Methods	Summary
Field quality control (QC) samples	*Field Duplicates*: collected at the same time as a regular sample at a frequency of 10% and submitted for the same analyses. *Equipment Rinsate Blanks*: collected by rinsing sampling equipment with de-ionized water at a frequency of 10%. The water was collected in a sample container and submitted for laboratory analyses. *Trip Blanks*: required for all field events that include the collection of samples for volatile organic chemicals (VOC) analyses. Trip blank containers certified clean were kept with the other sample containers during the sampling process and submitted for laboratory analyses.
PID screening for total VOCs (in accordance with manufacturer's instructions)	Soil and tuff samples were field screened for head-space total VOCs by placing a portion of the sample in a resealable plastic sample bag. The container was sealed and gently shaken, and then allowed to equilibrate for 5 min. The sample was screened by inserting a PID probe into the container and recording any detected VOCs.
Performing and documenting gross radiation scoping surveys	Scoping surveys provide limited site-specific information based on direct measurements. When scoping surveys identify contamination, a characterization survey is typically performed by a qualified radiological control technician (RCT) who has been properly trained in the implementation of survey techniques. A LANL RCT conducted radionuclide screening of all samples for alpha, beta, and gamma emitters. Radionuclide screening consisted of a direct frisk survey using a Ludlum 130 to measure alpha activity and an Eberline ESP-1 to measure beta/gamma activity. Furthermore, a smear survey of the sample was conducted using Nu-con smears. The smears were submitted to the health physics analytical laboratory for detection of contamination, using a Berthold smear counter, to verify nondetectable activity.
Management, Characterization, and Storage of Investigation Derived Waste (IDW)	Investigation-derived waste (IDW) was managed, characterized, and stored in accordance with an approved waste characterization strategy form that documents 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. Drums containing IDW were stored on pallets. The means to store, control, and transport each potential waste type, and classification of the waste was determined before field operations began. A waste storage area was established before waste was generated. Each waste container was individually labeled with waste classification, item identification (ID), and radioactivity (if applicable) immediately following containerization. All waste was segregated by classification and compatibility to prevent cross-contamination.
Containers and Preservation of Samples	Specific requirements/processes for sample containers, preservation techniques, and holding times were based on U.S. Environmental Protection Agency guidance for environmental sampling, preservation, and quality assurance. Specific requirements for each sample were printed in the sample collection logs 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.
Coordinating and Evaluating Global Positioning System (GPS) Surveys	Global positioning system (GPS) surveys focused on obtaining survey data of acceptable quality to use during project investigations. The surveys were conducted with an RTK Trimble 5700 Receiver with Rover, a Trimble Zephyr Antenna, a Pacific Crest Radio, and a KSL base map.

Attachment C-1

Borehole Logs

BOREHOLE LOG

Borehole ID: 21-0126 BH-3

Borehole ID: 21-0126 BH-3 TA/FU: 21 / Drill Depth From: 0 To 10' Page 1 of 3

Driller: D. Stearns / Spectrum Box: N/A Start Date/Time: 6/28/07 8:14 End Date/Time 6/28/07

Drilling Equipment/Method: CME / HSA

Sampling Equipment/Method: CBS

Depth (Feet)	Recovery (feet per feet/%)	VOC Field Screening Results/Temp.	RAD Field Screening Results	PCB Immunoassay Results	Lithology – Petrology – Soil p/x/l: pumice/crystals/lithics G/S/F: gravel/sand/fines	Graphic Log	Lithologic Unit	Notes Analytical Sample ID #
0	3.8/5		NOA		Silty clay fill from 0-4' at 4' fill / tuff interface Fill Color brown/red 10YR 4/4	fill		No Samples taken
					Tuff. weathered pinkish red fine grained pumice - 5% sanidine 5-10% ~~7.5YR 6/2~~ 2.5YR 5/3			
5					Tuff. Pinkish Red, weathered fine grained 5% sanidine (2.5YR 5/3)	Qbt 3		Sampled 5-6'
10								

Prepared By: Frank Cocina / [signature] 6/28/07

Print Name/Signature Date

Checked By: _____ _____

Print Name/Signature Date

BOREHOLE LOG

Borehole ID: ~~BH-2~~ BH-3

Borehole ID: BH-3 TA/FU: 21 / Drill Depth From: 10 To 20' Page 2 of 3

Driller: D. Stearns / Spectrum Box: N/A Start Date/Time: 6/28/07 End Date/Time 6/28/07

Drilling Equipment/Method: CME 75 / HSA

Sampling Equipment/Method: CBS

Depth (Feet)	Recovery (feet per feet/%)	VOC Field Screening Results/Temp.	RAD Field Screening Results	PCB Immunoassay Results	Lithology – Petrology – Soil p/x/l: pumice/crystals/lithics G/S/F: gravel/sand/fines	Graphic Log	Lithologic Unit	Notes Analytical Sample ID #
10	3/5		NDA		More Unweathered tuff, color change ~ 12', Small Sanidine x/s ~ 1mm, small pumice clasts ~ 2-3mm Pumice ~ 10% Sand ~ 10% Grey in Color (7.5 YR 6/1)		abt 3	~~Sampled~~ Sampled 10-11'
15	5/5		NDA		Tuff SAA, Grey in color (7.5 YR 6/1)			~~Sampled~~ Sampled 15-16'
20								

Prepared By: Frank Coina / [signature] 6/28/07

Print Name/Signature Date

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Print Name/Signature Date

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BOREHOLE LOG

Borehole ID: BH-3

Borehole ID: BH-3 TA/FU: / Drill Depth From: 20 To 30' Page 3 of 3

Driller: D. Stearns / Spectrum Box: N/A Start Date/Time: 6/20/07 End Date/Time 6/28/07 8:54

Drilling Equipment/Method: EMC-75 / HSA

Sampling Equipment/Method: CBS

Depth (Feet)	Recovery (feet per feet/%)	VOC Field Screening Results/Temp.	RAD Field Screening Results	PCB Immunoassay Results	Lithology – Petrology – Soil p/x/l: pumice/crystals/lithics G/S/F: gravel/sand/fines	Graphic Log	Lithologic Unit	Notes Analytical Sample ID #
20	5/5				Tuff - SAA Light gry (7.5YR 6/1)		QBt 3	Sampled 20-21
25	5/5		ND/A		Tuff SAA with sam large 20-30 mm pumice clasts light gry (7.5YR 6/1)			Sampled 25-26'
30								

Prepared By: Frank Coim / [signature] 6/28/07

Print Name/Signature Date

Checked By:

Print Name/Signature Date

BOREHOLE LOG

Borehole ID: 21-0126 BH-4

Borehole ID: 21-0126 BH-4 TA/FU: 21 / Drill Depth From: 0 To 10 Page 1 of 3

Driller: D. Stearns / Spectrum Box: N/A Start Date/Time: 6/28/07 9:36 End Date/Time 6/28/07

Drilling Equipment/Method: CME 75 / HSA

Sampling Equipment/Method: CBS

Depth (Feet)	Recovery (feet per feet/%)	VOC Field Screening Results/Temp.	RAD Field Screening Results	PCB Immunoassay Results	Lithology – Petrology – Soil p/x/l: pumice/crystals/lithics G/S/F: gravel/sand/fines	Graphic Log	Lithologic Unit	Notes Analytical Sample ID #
0	4/5		NDA		Fill - Grades from silty sand to clay, then crushed tuff layer ~3' followed by a clay layer at ~3.1', switches to tuff at ~3.8'. Tuff - weathered, finegrained <5% sanidine. Sandy layer 2.5YR 4/2 Clay layer 2.5YR 3/4 Weathered tuff 2.5YR 5/3		Fill Qbt 3	No Sample taken
5	3/5		NDA		Tuff, less weathered than above ~10% Sanidine, small ~1-2mm pumice clasts. Light pinkish Grey (2.5YR 6/2)		Qbt 3	Sampled at 5-6'
10								

Prepared By: Frank Cocine / [signature] 6/28/07

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Print Name/Signature Date

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Los Alamos Environmental Restoration Project

BOREHOLE LOG

Borehole ID: 21-0126 BH-4

Borehole ID: BH-4 (21-0126) TA/FU: 21 / Drill Depth From: 10 To 20' Page 2 of 3

Driller: D. Stearns / Spectrum Box: N/A Start Date/Time: 6/28/07 End Date/Time 6/28/07

Drilling Equipment/Method: CME-75 / HSA

Sampling Equipment/Method: CBS

Depth (Feet)	Recovery (feet per feet/%)	VOC Field Screening Results/Temp.	RAD Field Screening Results	PCB Immunoassay Results	Lithology – Petrology – Soil p/x/l: pumice/crystals/lithics G/S/F: gravel/sand/fines	Graphic Log	Lithologic Unit	Notes Analytical Sample ID #
10	5/5		NDA		Tuff, unweathered, fine grained ~10% sand 2mm, small pumice clast, Brown layer at ~ 4'. ~ 5cm thick. Tuff lighter grey (2.5YR 8/1) Brown layer (7.5YR 5/4		Qbt 3	Sample taken 10-11'
15	5/5				Tuff SAA to ~ 18' Major Brown discoloration, with white & brown mottling, discoloration ~13" thick. Brown lay (7.5YR 5/6) Tuff (2.5YR 6/1)			Sampled 18-19'
20								

Prepared By: Frank Cocina / [signature] 6/28/07
Print Name/Signature Date

Checked By: _____ _____
Print Name/Signature Date

BOREHOLE LOG

Borehole ID: 21-0126 BH-4

Borehole ID: 21-0126 BH-4 TA/FU: 21 / Drill Depth From: 20 To 30' Page 3 of 3

Driller: D. Stearns / Spectrum Box: N/A Start Date/Time: 6/28/07 End Date/Time 6/28/07 10:17

Drilling Equipment/Method: CME 75 / HSA

Sampling Equipment/Method: CDS

Depth (Feet)	Recovery (feet per feet/%)	VOC Field Screening Results/Temp.	RAD Field Screening Results	PCB Immunoassay Results	Lithology – Petrology – Soil p/x/l: pumice/crystals/lithics G/S/F: gravel/sand/fines	Graphic Log	Lithologic Unit	Notes Analytical Sample ID #
20	5/5		N/A		Tuff, unweathered, fine-med grained, large pumice clast at 28", ~~Same~~ clay layer at 19' in fracture. Tuff light grey (2.5YR 6/1)			Sampled 20-21'
25					Tuff, 1st 28 inches, darker color change though matrix is the same as above. below 28" Tuff ~~Other~~ Color SAA. Tuff (2.5YR 6/1) ~~Darker~~ Brown discoloration (7.5YR 5/3)			Sample 25-26 in duplicate
30								

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Print Name/Signature Date

BOREHOLE LOG

Borehole ID: 21-0126 ~~24-0126~~ FJC 6/27/07 BH-5

Borehole ID: 24-0126 BH-5 TA/FU: 21 / Drill Depth From: 0 To 10 Page 1 of 3

Driller: D. Stearns / Spectrum Box: N/A Start Date/Time: 6/27/07 10:57 End Date/Time 6/27/07

Drilling Equipment/Method: CME-75 / HSA

Sampling Equipment/Method: CBS

Depth (Feet)	Recovery (feet per feet/%)	VOC Field Screening Results/Temp.	RAD Field Screening Results	PCB Immunoassay Results	Lithology – Petrology – Soil p/x/l: pumice/crystals/lithics G/S/F: gravel/sand/fines	Graphic Log	Lithologic Unit	Notes Analytical Sample ID #
0	3.2/5		NDA		Fill - Silty soil with larger 5-10mm clasts with medium sand at the bottom foot of fill Tuff starts ~ 4', pumice & Sanadine clasts, Sanadine ~ 20% Pumice ~ 20%, Tuff slightly weathered at top.	Fill		
5	5/5		NDA		Tuff - dark gray larger 5-10mm pumice clasts, ~ 20% Sanadine with xls ~ 1-2mm. Slightly weathered at the top FJC 6/27/07 ~~less weathered~~ at ~10' unweathered	QBt 3		
10								

Prepared By: Frank Cocina / [signature] 6/27/07
Print Name/Signature Date

Checked By: _____ _____
Print Name/Signature Date

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BOREHOLE LOG

21-0126
Borehole ID: BH-5

Borehole ID: BH-5 (21-0126) TA/FU: 21 / Drill Depth From: 10 To 20' Page 2 of 3
Driller: D. Stearns / Spectrum Box: N/A Start Date/Time: 6/27/07 11:15 End Date/Time 6/27/07
Drilling Equipment/Method: CME 75 / HSA
Sampling Equipment/Method: CBS

Depth (Feet)	Recovery (feet per feet/%)	VOC Field Screening Results/Temp.	RAD Field Screening Results	PCB Immunoassay Results	Lithology – Petrology – Soil p/x/l: pumice/crystals/lithics G/S/F: gravel/sand/fines	Graphic Log	Lithologic Unit	Notes Analytical Sample ID #
10	3.8/5		NDA		Tuff. at ~ 13' tuff is very unweathered, color change to lighter pinkish grey. ~ 20% Sandine with some pumice clasts			
15	5/5		NDA		TUFF. Light grey in color ~ 20% Sanadine ~ 10% Pumice clasts. Pumice much smaller, Tuff Unweathered.			
20								

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BOREHOLE LOG

Borehole ID: BH-5 21-0126

Borehole ID: BH-5 (21-0126) TA/FU: / Drill Depth From: 20 To 30 Page 3 of 3

Driller: D. Starns / Spectrum Box: N/A Start Date/Time: 6/27 11:30 End Date/Time 6/27/07 11:43

Drilling Equipment/Method: CME 75 / HSA

Sampling Equipment/Method: CBS

Depth (Feet)	Recovery (feet per feet/%)	VOC Field Screening Results/Temp.	RAD Field Screening Results	PCB Immunoassay Results	Lithology – Petrology – Soil p/x/l: pumice/crystals/lithics G/S/F: gravel/sand/fines	Graphic Log	Lithologic Unit	Notes Analytical Sample ID #
20	5/5		NDA		SAA (Tuff)			
25	5/5		NDA		Tuff. core broken into discs light grey tuff ~20% sanidine little to no pomice clasts			
30								

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Print Name/Signature Date

Checked By:

Print Name/Signature Date

BOREHOLE LOG

Borehole ID: 21-0126 BH-6 FGC 6/27

Borehole ID: BH-6 (21-0126) TA/FU: 21 / Drill Depth From: 54' To 76'64' Page 3 of 3

Driller: D. Stearns / Spectrum Box: N/A Start Date/Time: 6/27/07 14:09 End Date/Time 6/27/07 14:27 FGC 6/27

Drilling Equipment/Method: CME 75 / HSA

Sampling Equipment/Method: CBS

Depth (Feet)	Recovery (feet per feet/%)	VOC Field Screening Results/Temp.	RAD Field Screening Results	PCB Immunoassay Results	Lithology – Petrology – Soil p/x/l: pumice/crystals/lithics G/S/F: gravel/sand/fines	Graphic Log	Lithologic Unit	Notes Analytical Sample ID #
54	5/5		NDA		Tuff - fine grained, few large Pumice Clasts, ~10% Smectite - Light Grey 7.5 6/1 Pumice clasts 10-15mm diameter		qbt_3	Sampled top of core
59	5/5				Tuff. SAA light grey 7.5 6/1			Sampled top of core
64								

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Checked By: _____ _____
Print Name/Signature Date

BOREHOLE LOG

Borehole ID: 21-0126 BH-6

Borehole ID: BH-6 (21-0126) TA/FU: 21 / Drill Depth From: 64 To 74 Page 2 of 3

Driller: D. Stearns / Spectrum Box: N/A Start Date/Time: 6/27/07 14:27 End Date/Time 6/27/07 14:54

Drilling Equipment/Method: CME-75 / HSA

Sampling Equipment/Method: CBS

	Depth (Feet)	Recovery (feet per feet/%)	VOC Field Screening Results/Temp.	RAD Field Screening Results	PCB Immunoassay Results	Lithology – Petrology – Soil p/x/l: pumice/crystals/lithics G/S/F: gravel/sand/fines	Graphic Log	Lithologic Unit	Notes Analytical Sample ID #
64		5/5		NDA		Tuff - SAA Light Grey 7.5 7/1 slight Color change. few large 10-20mm dacite clasts present			Sampled top of Core
9		5/5		NDA		Tuff, SAA, Light grey 7.5 7/1, few large, 10-20mm dacite clasts present			Sampled top of Core
74									

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BOREHOLE LOG

21-0126
Borehole ID: BH-6

21-0126

Borehole ID: BH-6 TA/FU: / Drill Depth From: 74 To 79 Page 3 of 3

Driller: D. Stevens / Spectrum Box: N/A Start Date/Time: 6/27/07 15:01 End Date/Time 6/27/07 15:04

Drilling Equipment/Method: CME 75 / HSA

Sampling Equipment/Method: CBS.

Depth (Feet)	Recovery (feet per feet/%)	VOC Field Screening Results/Temp.	RAD Field Screening Results	PCB Immunoassay Results	Lithology – Petrology – Soil p/x/l: pumice/crystals/lithics G/S/F: gravel/sand/fines	Graphic Log	Lithologic Unit	Notes Analytical Sample ID #
74	Full 6/27/07 5/5 4.5/5				Toff, Same as above, 7.5YR 7/1			Not immediately opening due to high VOC's detected in the last Core. Core taken at 15:13 on 6/27/07. Cleared to open by SSO at 15:15 Sampled top of Core
79					TD			

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Checked By: _____ _____
Print Name/Signature Date

BOREHOLE LOG

21-024(g) T.E 10/31/07

Borehole ID: BH-2

Borehole ID: BH2 TA/FU: 21 / Drill Depth From: 8.5 To 18.5' Page 1 of 2

Driller: D. Stearns / Spectrum Box: N/A Start Date/Time: 6/28/07 11:23 End Date/Time 6/28/07

Drilling Equipment/Method: CME 75 / HSA

Sampling Equipment/Method: CBS

Depth (Feet)	Recovery (feet per feet/%)	VOC Field Screening Results/Temp.	RAD Field Screening Results	PCB Immunoassay Results	Lithology – Petrology – Soil p/x/l: pumice/crystals/lithics G/S/F: gravel/sand/fines	Graphic Log	Lithologic Unit	Notes Analytical Sample ID #
~~10~~ 8.5	5/5		NDA		Fill to 9'4". Tuff to 13.5' Tuff- fairly unweathered, fine-med grained. 10% Sanidine, 5% pumice clasts Tuff, reddish grey (2.5YR 6/1) Fill, dark reddish brown (5YR 3/2)			Sampled bottom of Core
~~15~~ 13.5	5/5		NDA		Tuff- SAA with some larger pumice clasts (2-5mm) reddish grey (2.5YR 6/1)			Sampled bottom of Core
18.5 ~~20~~								

Prepared By: Frank Coina / [signature] 6/28/07
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BOREHOLE LOG

Borehole ID: BH-2

Borehole ID: BH-2 TA/FU: 21 / Drill Depth From: 18.5 To 23.5 Page 2 of 2

Driller: D. Stamos / Spectrum Box: N/A Start Date/Time: 6/28/07 End Date/Time 6/28/07 11:48

Drilling Equipment/Method: CME 75 / HSA

Sampling Equipment/Method: CDS

Depth (Feet)	Recovery (feet per feet/%)	VOC Field Screening Results/Temp.	RAD Field Screening Results	PCB Immunoassay Results	Lithology – Petrology – Soil p/x/l: pumice/crystals/lithics G/S/F: gravel/sand/fines	Graphic Log	Lithologic Unit	Notes Analytical Sample ID #
18.5	5/5		NDA		Tuff SAA (2.5YR 6/1) Some brown discoloration ~ 22' (10YR 4/3)			Sampled bottom of Core
23.5					TD			

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Checked By: Print Name/Signature Date

Appendix D

Surface Water Assessments
(on CD included with this document)

The information presented in the surface water assessments in this appendix may not be current. Los Alamos National Laboratory is in the process of updating this information as part of a National Pollutant Discharge Elimination System permit application that will be submitted to the U.S. Environmental Protection Agency.

Appendix E

Analytical Program

E-1.0 INTRODUCTION

Quality assurance (QA), quality control (QC), and data validation procedures were implemented in accordance with the requirements of the Los Alamos National Laboratory (LANL or the Laboratory) Quality Assurance Project Plan Requirements for Sampling and Analysis (LANL 1996, 054609) and the Laboratory's Environmental Programs Directorate–Environmental Remediation and Support Services (EP-ERSS) Division (formerly the Environmental Restoration Project) analytical services statements of work (SOWs) for contract laboratories (LANL 1995, 049738; LANL 2000, 071233). The results of the QA/QC activities were used to estimate accuracy, bias, and precision of the analytical measurements. QC samples included method blanks, blank spikes, matrix spikes, and laboratory control samples (LCS) to assess accuracy. The type and frequency of QC analyses are described in the analytical services SOWs (LANL 1995, 049738; LANL 2000, 071233). Other QC factors, such as sample preservation and holding times, were also assessed. Evaluating these QC indicators allows estimates to be made of the accuracy, bias, and precision of the analytical results. A focused data validation was performed for all the data packages (also referred to as request numbers). The focused validation followed the same procedure discussed above and included a more detailed review of the raw data generated by the analytical laboratory.

Some analytical results were rejected for various reasons and are not usable for the purposes of this report. The remaining data, including qualified data, lend themselves for evaluation and interpretive purposes. Data qualifier definitions are listed in Appendix A.

Summaries of the analytical methods for inorganic chemicals, radionuclides, and organic chemicals are provided in the following sections.

E-2.0 INORGANIC CHEMICAL ANALYSIS METHODS

The primary method used for the analysis of inorganic chemicals is inductively coupled plasma emission spectroscopy (ICPES), U.S. Environmental Protection Agency (EPA) SW-846 Method 6020/6010B. A variety of methods were used for individual analytes (mercury, nitrate, perchlorate, and total cyanide). The analytical methods used for inorganic chemicals are listed in Table E-2.0-1.

E-2.1 Inorganic Chemical QA/QC

LCSs, method blanks, matrix spike samples, laboratory duplicate samples, interference check samples, and serial dilution samples were analyzed to assess accuracy and precision of inorganic chemical analyses. Each of these QA/QC sample types are defined in the analytical services SOWs (LANL 1995, 049738; LANL 2000, 071233) and described briefly below.

The LCS serves as a monitor of the overall performance of each step during the analysis, including sample digestion. The analytical results for the samples were qualified according to National Functional Guidelines (EPA 1994, 048639) if the individual LCS recoveries were not within method-specific acceptable criteria. LCS recoveries should fall into the control limits of 75%–125% (LANL 1995, 049738; LANL 2000, 071233).

Method blanks serve as a measurement of bias and potential cross-contamination. All target analytes should be below the contract-required detection limit (CRDL) in the preparation blank (LANL 1995, 049738; LANL 2000, 071233).

Matrix spike samples assess the accuracy of inorganic chemical analyses. A matrix spike sample is designed to provide information about the effect of each sample matrix on the sample preparation procedures and analytical technique. The spike sample recoveries should be within the acceptance range of 75%–125% (LANL 1995, 049738; LANL 2000, 071233).

Laboratory duplicate samples assess the precision of inorganic chemical analyses. All relative percent differences between the sample and laboratory duplicate should be +/- 35% (LANL 1995, 049738; LANL 2000, 071233).

Interference check samples (ICS) verify inter-element and background correction factors at the beginning and the end of each analysis run.

Serial dilution samples are used to determine the concentration of an analyte when serial dilution is employed. The purpose of such dilution is to bring the concentration of an analyte in the sample within the range of the analysis or to increase the precision of the detected result.

The validation of inorganic chemical data using QA/QC samples and other methods can result in the assignment of various qualifiers to individual sample results or the rejection of the data. The inorganic chemical data were qualified using the appropriate SOPs and the qualifiers do not affect the usability of the sampling results. The results of qualified data were used as reported. The qualified inorganic chemical data are summarized below.

AOC 21-002(b)

- Eighty-three sampling results were qualified as estimated (J) because the results were between the estimated quantization limit (EQL) and the method detection limit (MDL).
- Thirty-eight sampling results were qualified as estimated (J) because both the sample and duplicate sample results were greater than or equal to 5 times the reporting limit and the duplicate relative percent difference was greater than 35% for soil samples.
- Twenty-six sampling results were qualified as estimated and biased low (J-) because the spike percent recovery value was greater than 30% and less than the lower acceptance limit (75%).
- Eighteen sampling results were qualified as estimated and biased high (J+) because the associated matrix spike was greater than 150%.
- Thirty-four sampling results were qualified as estimated and biased high (J+) because the analyte was recovered above the upper acceptance level but less than 150% of the associated spike sample.
- Eighteen sampling results were qualified as estimated and biased high (J+) because the associated LCS was recovered above the upper warning limit.
- One sampling result was qualified as not detected (U) because in comparison with the preparation blank, the sample result was greater than the estimated detection limit (EDL) but less than or equal to 5 times the concentration of the same analyte in the blank.
- Ten sampling results were qualified as estimated not detected (UJ) because the spike percent recovery value was greater than 30% and less than the lower acceptance limit (75%).

SWMU 21-009

- Twenty-six sampling results were qualified as estimated (J) because the results were between the EQL and the MDL.
- Fifteen sampling results were qualified as estimated (J) because both the sample and duplicate sample results were greater than or equal to 5 times the reporting limit and the duplicate relative percent difference was greater than 35% for soil samples.
- One sampling result was qualified as estimated and biased low (J-) because the spike percent recovery value was greater than 30% and less than the lower acceptance limit (75%).
- Five sampling results were qualified as estimated and biased low (J-) because the percent recovery value of the analyte in the LCS was less than the lower warning limit but greater than or equal to the lower acceptance limit.
- Four sampling results were qualified as estimated biased low (J-) because the holding time was exceeded.
- Sixteen sampling results were qualified as estimated and biased high (J+) because the associated matrix spike was greater than 150%.
- One sampling result was qualified as estimated and biased high (J+) because the associated LCS was recovered above the upper warning limit.
- Four sampling results were qualified as estimated not detected (UJ) because the spike percent recovery value was greater than 30% and less than the lower acceptance limit (75%).
- Five sampling results were qualified as estimated not detected (UJ) because the percent recovery value of the analyte in the LCS was less than the lower acceptance limit.

SWMU 21-013(c)

- Two hundred eleven sampling results were qualified as estimated (J) because the results were between the EQL and the MDL.
- Forty sampling results were qualified as estimated (J) because the result was less than the practical quantitation limit but greater than the method detection limit.
- Sixteen sampling result was qualified as estimated and biased low (J-) because the spike percent recovery value was greater than 30% and less than the lower acceptance limit (75%).
- Fourteen sampling results were qualified as estimated and biased low (J-) because the percent recovery value of the analyte in the LCS was less than the lower warning limit but greater than or equal to the lower acceptance limit.
- Two sampling results were qualified as estimated biased low (J-) because the holding time was exceeded.
- Sixteen sampling results were qualified as estimated and biased high (J+) because the associated matrix spike was greater than 150%.
- Eighteen sampling results were qualified as estimated and biased high (J+) because the analyte was recovered above the upper acceptance level but less than 150% of the associated spike sample.
- Seventy-two sampling results were qualified as estimated and biased high (J+) because the associated LCS was recovered above the upper warning limit.

- Two sampling results were qualified as not detected (U) because in comparison with the preparation blank, the sample result was greater than the EDL but less than or equal to 5 times the concentration of the related analyte in the blank.
- Thirty-nine sampling results were qualified as estimated not detected (UJ) because the spike percent recovery value was greater than 30% and less than the lower acceptance limit (75%).
- Two sampling results were qualified as estimated not detected (UJ) because the holding time was exceeded.

SWMU 21-012(b)

- One hundred seventy-eight sampling results were qualified as estimated (J) because the results were between the EQL and the MDL.
- Eighty-one sampling results were qualified as estimated (J) because both the sample and duplicate sample results were greater than or equal to 5 times the reporting limit and the duplicate relative percent difference was greater than 35% for soil samples.
- Three sampling results were qualified as estimated (J) because the serial dilution sample relative percent difference exceeded criteria.
- Fifty-four sampling results were qualified as estimated (J) because the result was less than the practical quantitation limit but greater than the method detection limit.
- Fifteen sampling results were qualified as estimated and biased low (J-) because the initial calibration verification/continuing calibration verification (ICV/CCV) recovered low.
- One hundred sixty-one sampling results were qualified as estimated and biased low (J-) because the spike percent recovery value was greater than 30% and less than the lower acceptance limit (75%).
- Twenty-three sampling results were qualified as estimated and biased low (J-) because the percent recovery value of the analyte in the LCS was less than the lower warning limit but greater than or equal to the lower acceptance limit.
- Three sampling results were qualified as estimated and biased low (J-) because the associated ICS was recovered below the lower warning limit but greater than or equal to the lower acceptable limit.
- One hundred seventy sampling results were qualified as estimated and biased high (J+) because the associated matrix spike was greater than 150%
- Ninety-seven sampling results were qualified as estimated and biased high (J+) because the analyte was recovered above the upper acceptance level but less than 150% of the associated spike sample.
- Twenty-one sampling results were qualified as estimated and biased high (J+) because the associated LCS was recovered above the upper warning limit.
- Fifteen sampling results were qualified as not detected (U) because in comparison with the preparation blank, the sample result was greater than the EDL but less than or equal to 5 times the concentration of the related analyte in the blank.
- One sampling result was qualified as estimated not detected (UJ) because both the sample and duplicate sample results were greater than or equal to 5 times the reporting limit and the duplicate relative percent difference was greater than 35% for soil samples.

- Eleven sampling results were qualified as estimated not detected (UJ) because the initial calibration verification/continuing calibration verification (ICV/CCV) recovered low.
- Eight sampling results were qualified as estimated not detected (UJ) because the associated matrix spike was greater than 150%.
- Forty-one sampling results were qualified as estimated not detected (UJ) because the spike percent recovery value was greater than 30% and less than the lower acceptance limit (75%).
- Two sampling results were qualified as estimated not detected (UJ) because the associated ICS was recovered below the lower warning limit but greater than or equal to the lower acceptable limit.

SWMU 21-024(a)

- Ninety-six sampling results were qualified as estimated (J) because the results were between the EQL and the MDL.
- Twenty-four sampling results were qualified as estimated (J) because both the sample and duplicate sample results were greater than or equal to 5 times the reporting limit and the duplicate relative percent difference was greater than 35% for soil samples.
- Eight sampling results were qualified as estimated (J) because the result was less than the practical quantitation limit but greater than the method detection limit.
- Four sampling results were qualified as estimated and biased low (J-) because the ICV/CCV recovered low.
- Twenty-nine sampling results were qualified as estimated and biased low (J-) because the spike percent recovery value was greater than 30% and less than the lower acceptance limit (75%).
- Four sampling results were qualified as estimated and biased low (J-) because the percent recovery value of the analyte in the LCS was less than the lower warning limit but greater than or equal to the lower acceptance limit.
- Twenty sampling results were qualified as estimated and biased high (J+) because the associated matrix spike was greater than 150%.
- Forty sampling results were qualified as estimated and biased high (J+) because the analyte was recovered above the upper acceptance level but less than 150% of the associated spike sample.
- Nine sampling results were qualified as estimated and biased high (J+) because the associated LCS was recovered above the upper warning limit.
- Twelve sampling results were qualified as not detected (U) because in comparison with the preparation blank, the sample result was greater than the EDL but less than or equal to five times the concentration of the related analyte in the blank.
- Sixteen sampling results were qualified as estimated not detected (UJ) because the ICV/CCV recovered low.
- Twenty-one sampling results were qualified as estimated not detected (UJ) because the spike percent recovery value was greater than 30% and less than the lower acceptance limit (75%).

SWMU 21-024(e)

- Seventy-six sampling results were qualified as estimated (J) because the results were between the EQL and the MDL.
- Thirty-six sampling results were qualified as estimated (J) because both the sample and duplicate sample results were greater than or equal to 5 times the reporting limit and the duplicate relative percent difference was greater than 35% for soil samples.
- Three sampling results were qualified as estimated (J) because either the sample or duplicate sample results or both were greater than or equal to 5 times the reporting limit and the difference between the samples is greater than 2 times the reporting limit for soil.
- Six sampling results were qualified as estimated (J) because the serial dilution sample relative percent difference exceeded criteria.
- Eighty sampling results were qualified as estimated (J) because the result was less than the practical quantitation limit but greater than the method detection limit.
- Twelve sampling results were qualified as estimated and biased low (J-) because the spike percent recovery value was greater than 30% and less than the lower acceptance limit (75%).
- One sampling result was qualified as estimated and biased high (J+) because the associated ICV/CCV was recovered above the upper warning limit but is less than or equal to the upper acceptable limit.
- Forty-two sampling results were qualified as estimated and biased high (J+) because the associated matrix spike was greater than 150%.
- Thirty-eight sampling results were qualified as estimated and biased high (J+) because the analyte was recovered above the upper acceptance level but less than 150% of the associated spike sample.
- Twenty-two sampling results were qualified as estimated and biased high (J+) because the associated LCS was recovered above the upper warning limit.
- Seven sampling results were qualified as not detected (U) because in comparison with the preparation blank, the sample result was greater than the EDL but less than or equal to five times the concentration of the related analyte in the blank.
- Three sampling results were qualified as estimated not detected (UJ) because the duplicate results were greater than 2 times the reporting limit and the relative percent difference was greater than 35% for soil.
- Sixteen sampling results were qualified as estimated not detected (UJ) because the spike percent recovery value was greater than 30% and less than the lower acceptance limit (75%).

SWMU 21-024(g)

- Eighty sampling results were qualified as estimated (J) because the results were between the EQL and the MDL.
- Forty-seven sampling results were qualified as estimated (J) because both the sample and duplicate sample results were greater than or equal to 5 times the reporting limit and the duplicate relative percent difference was greater than 35% for soil samples.

- One sampling result was qualified as estimated (J) because either the sample or duplicate sample results or both were greater than or equal to 5 times the reporting limit and the difference between the samples is greater than 2 times the reporting limit for soil.
- Ninety-eight sampling results were qualified as estimated (J) because the result was less than the practical quantitation limit but greater than the method detection limit.
- Three sampling results were qualified as estimated and biased low (J-) because the ICV/CCV recovered low.
- Thirty sampling results were qualified as estimated and biased low (J-) because the spike percent recovery value was greater than 30% and less than the lower acceptance limit (75%).
- One sampling result was qualified as estimated and biased high (J+) because the associated ICV/CCV was recovered above the upper warning limit but is less than or equal to the upper acceptable limit.
- Forty-four sampling results were qualified as estimated and biased high (J+) because the associated matrix spike was greater than 150%.
- Eighty-three sampling results were qualified as estimated and biased high (J+) because the analyte was recovered above the upper acceptance level but less than 150% of the associated spike sample.
- Forty-nine sampling results were qualified as estimated and biased high (J+) because the associated LCS was recovered above the upper warning limit.
- Sixteen sampling results were qualified as not detected (U) because in comparison with the preparation blank, the sample result was greater than the EDL but less than or equal to five times the concentration of the related analyte in the blank.
- Five sampling result was qualified as estimated not detected (UJ) because either the sample or duplicate sample results or both were greater than or equal to 5 times the reporting limit and the difference between the samples is greater than 2 times the reporting limit for soil..
- Twenty-nine sampling results were qualified as estimated not detected (UJ) because the ICV/CCV recovered low.
- Two sampling results were qualified as estimated not detected (UJ) because the matrix spike was analyzed on a non-LANL sample.
- Thirty-two sampling results were qualified as estimated not detected (UJ) because the spike percent recovery value was greater than 30% and less than the lower acceptance limit (75%).
- Two sampling results were qualified as estimated not detected (UJ) because the percent recovery value of the analyte in the LCS was less than the lower warning limit but greater than or equal to the lower acceptance limit.

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- Forty-seven sampling results were qualified as estimated (J) because the results were between the EQL and the MDL.
- One hundred seven sampling results were qualified as estimated (J) because both the sample and duplicate sample results were greater than or equal to 5 times the reporting limit and the duplicate relative percent difference was greater than 35% for soil samples.

- One hundred fifty-two sampling results were qualified as estimated (J) because the result was less than the practical quantitation limit but greater than the method detection limit.
- Two sampling results were qualified as estimated and biased low (J-) because the ICV/CCV recovered low.
- Forty sampling results were qualified as estimated and biased low (J-) because the spike percent recovery value was greater than 30% and less than the lower acceptance limit (75%).
- Six sampling results were qualified as estimated and biased low (J-) because the percent recovery value of the analyte in the LCS was less than the lower warning limit but greater than or equal to the lower acceptance limit.
- Four sampling results were qualified as estimated and biased low (J-) because the associated ICS was recovered below the lower warning limit but greater than or equal to the lower acceptable limit.
- Four sampling results were qualified as estimated biased low (J-) because the holding time was exceeded.
- Eighty-nine sampling results were qualified as estimated and biased high (J+) because the associated matrix spike was greater than 150%.
- Fifty-nine sampling results were qualified as estimated and biased high (J+) because the analyte was recovered above the upper acceptance level but less than 150% of the associated spike sample.
- Forty-nine sampling results were qualified as estimated and biased high (J+) because the associated LCS was recovered above the upper warning limit.
- Seven sampling results were qualified as estimated not detected (UJ) because the ICV/CCV recovered low.
- One sampling result was qualified as estimated not detected (UJ) because the associated matrix spike was greater than 150%.
- Thirty-six sampling results were qualified as estimated not detected (UJ) because the spike percent recovery value was greater than 30% and less than the lower acceptance limit (75%).
- Fourteen sampling results were qualified as estimated not detected (UJ) because the associated ICS was recovered below the lower warning limit but greater than or equal to the lower acceptable limit.
- Two sampling results were qualified as estimated not detected (UJ) because the holding time was exceeded.

SWMU 21-024(o)

- Fifty-four sampling results were qualified as estimated (J) because the results were between the EQL and the MDL.
- Six sampling results were qualified as estimated (J) because both the sample and duplicate sample results were greater than or equal to 5 times the reporting limit and the duplicate relative percent difference was greater than 35% for soil samples.
- Twenty-six sampling results were qualified as estimated and biased low (J-) because the spike percent recovery value was greater than 30% and less than the lower acceptance limit (75%).

- Ten sampling results were qualified as estimated and biased low (J-) because the associated ICS was recovered below the lower warning limit but greater than or equal to the lower acceptable limit.
- Twenty sampling results were qualified as estimated and biased high (J+) because the associated matrix spike was greater than 150%.
- Twenty sampling results were qualified as estimated and biased high (J+) because the analyte was recovered above the upper acceptance level but less than 150% of the associated spike sample.
- Twenty-two sampling results were qualified as estimated and biased high (J+) because the associated LCS was recovered above the upper warning limit.
- Two sampling results were qualified as estimated not detected (UJ) because the ICV/CCV recovered low.
- Sixteen sampling results were qualified as estimated not detected (UJ) because the spike percent recovery value was greater than 30% and less than the lower acceptance limit (75%).
- Ten sampling results were qualified as estimated not detected (UJ) because the associated ICS was recovered below the lower warning limit but greater than or equal to the lower acceptable limit.

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- Seventy-nine sampling results were qualified as estimated (J) because the results were between the EQL and the MDL.
- Ninety-three sampling results were qualified as estimated (J) because both the sample and duplicate sample results were greater than or equal to 5 times the reporting limit and the duplicate relative percent difference was greater than 35% for soil samples.
- Twenty-nine sampling results were qualified as estimated (J) because either the sample or duplicate sample results or both were greater than or equal to 5 times the reporting limit and the difference between the samples is greater than 2 times the reporting limit for soil.
- Three sampling results were qualified as estimated (J) because the serial dilution sample relative percent difference exceeded criteria.
- One-hundred forty six sampling results were qualified as estimated (J) because the result was less than the practical quantitation limit but greater than the method detection limit.
- Five sampling results were qualified as estimated and biased low (J-) because the ICV/CCV recovered low.
- Thirty-three sampling results were qualified as estimated and biased low (J-) because the spike percent recovery value was greater than 30% and less than the lower acceptance limit (75%).
- Fifty-four sampling results were qualified as estimated and biased high (J+) because the associated matrix spike was greater than 150%.
- Forty-six sampling results were qualified as estimated and biased high (J+) because the analyte was recovered above the upper acceptance level but less than 150% of the associated spike sample.

- Twenty-five sampling results were qualified as estimated and biased high (J+) because the associated LCS was recovered above the upper warning limit.
- Twenty-eight sampling results were qualified as not detected (U) because in comparison with the preparation blank, the sample result was greater than the EDL but less than or equal to 5 times the concentration of the related analyte in the blank.
- One sampling result was qualified as estimated not detected (UJ) because both the sample and duplicate sample results were greater than or equal to 5 times the reporting limit and the duplicate relative percent difference was greater than 35% for soil samples.
- Two sampling results were qualified as estimated not detected (UJ) because either the sample or duplicate sample results or both were greater than or equal to 5 times the reporting limit and the difference between the samples is greater than 2 times the reporting limit for soil.
- Twenty-seven sampling results were qualified as estimated not detected (UJ) because the ICV/CCV recovered low.
- Fifty sampling results were qualified as estimated not detected (UJ) because the spike percent recovery value was greater than 30% and less than the lower acceptance limit (75%).

SWMU 21-027(c)

- Sixty-two sampling results were qualified as estimated (J) because the results were between the EQL and the MDL.
- Fifty-four sampling results were qualified as estimated (J) because both the sample and duplicate sample results were greater than or equal to 5 times the reporting limit and the duplicate relative percent difference was greater than 35% for soil samples.
- Thirty-four sampling results were qualified as estimated (J) because the result was less than the practical quantitation limit but greater than the method detection limit.
- Fifty-five sampling results were qualified as estimated and biased low (J-) because the spike percent recovery value was greater than 30% and less than the lower acceptance limit (75%).
- Eleven sampling results were qualified as estimated and biased low (J-) because the percent recovery value of the analyte in the LCS was less than the lower warning limit but greater than or equal to the lower acceptance limit.
- Sixty-six sampling results were qualified as estimated and biased high (J+) because the associated matrix spike was greater than 150%.
- Eleven sampling results were qualified as estimated and biased high (J+) because the analyte was recovered above the upper acceptance level but less than 150% of the associated spike sample.
- Five sampling results were qualified as not detected (U) because in comparison with the preparation blank, the sample result was greater than the EDL but less than or equal to five times the concentration of the related analyte in the blank.
- Forty-two sampling results were qualified as estimated not detected (UJ) because the spike percent recovery value was greater than 30% and less than the lower acceptance limit (75%).

The rejected inorganic chemical data are summarized below.

AOC 21-002(b)

- Seventeen antimony results in soil were rejected because the spike percent recovery value was less than 30%.
- Seventeen antimony results in tuff were rejected because the spike percent recovery value was less than 30%.

SWMU 21-009

- Thirteen antimony results in soil were rejected because the spike percent recovery value was less than 30%.
- Two antimony results in tuff were rejected because the spike percent recovery value was less than 30%.

SWMU 21-013(c)

- Twenty-eight antimony results in soil and 18 results in tuff were rejected because the spike percent recovery value was less than 30%.
- Twenty mercury results in soil were rejected. Results from three sample locations were rejected because the spike percent recovery value was less than 30%. Results from seventeen sample locations were rejected because the extraction holding time was exceeded by 2 times the acceptable holding time. These samples were collected in 1994.
- One perchlorate result in soil was rejected because the holding time was exceeded by more than 2 times the acceptable amount.

Although 20 mercury results in soil were rejected at SWMU 21-013(c), all but 3 samples from the recently collected data were usable. The intent of the newer sampling locations was to obtain data that were missing from the 1994 sampling event (the 1994 sampling locations were re-sampled in 2006). Therefore, further sampling for mercury is not warranted.

SWMU 21-012(b)

- Twenty-five antimony, 1 calcium, 1 cyanide, 20 lithium, 20 molybdenum, 20 nickel, and 20 silver results in soil were rejected because the spike percent recovery value was less than 30%.
- One antimony, one calcium, and eight manganese results in tuff were rejected because the spike percent recovery value was less than 30%.

AOC 21-024(a)

- Three antimony results in soil were rejected because the spike percent recovery value was less than 30%.
- Three antimony results in tuff were rejected because the spike percent recovery value was less than 30%.

SWMU-024(e)

- Twenty antimony results in soil were rejected because the spike percent recovery value was less than 30%.
- Fourteen antimony and two total cyanide results in tuff were rejected because the spike percent recovery value was less than 30%.

SWMU-024(g)

- Eleven antimony results in soil were rejected because the spike percent recovery value was less than 30%.
- Five antimony results in tuff were rejected because the spike percent recovery value was less than 30%.

SWMU 21-024(o)

- No inorganic chemical results were rejected.

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- Two nitrate results in tuff were rejected because the ICV/CCV recovered less than 10%.
- Seventeen antimony results in soil were rejected because the spike percent recovery value was less than 30%.
- Five antimony and eleven copper results in tuff were rejected because the spike percent recovery value was less than 30%.

Consolidated Unit 21-026(a)-99

- Eight calcium results and one barium result in soil were rejected because the spike percent recovery value was less than 30%.
- Eight calcium results and one barium result in tuff were rejected because the spike percent recovery value was less than 30%.

SWMU 21-027(c)

- Four total cyanide and twenty potassium results in soil were rejected because the spike percent recovery value was less than 30%.

The rejected data were not used to characterize nature and extent. Although many antimony results were rejected at most of the sites, the reported values were low. At these sites, the laboratory reported all rejected antimony data as non-detects, except for one out of 25 soil samples at SWMU 21-012(b). These rejected data do not affect the nature and extent discussions in Appendix B. Therefore, further sampling for antimony is not warranted.

E-3.0 ORGANIC CHEMICAL ANALYSIS METHODS

Samples were analyzed for one or more of the following organic chemical analytical suites: volatile organic chemicals (VOCs); semivolatile organic chemicals (SVOCs); explosive compounds; polychlorinated biphenyls (PCBs), and dioxins/furans. The analytical methods used for organic chemicals are listed in Table E-3.0-1.

E-3.1 Organic Chemical QA/QC Samples

Calibration verifications, instrument-performance checks, LCSs, method blanks, matrix spike samples, surrogates, and internal standards were analyzed to assess the accuracy and precision of the organic chemical analyses. Each of these QA/QC sample types is defined in the analytical services SOWs (LANL 1995, 049738; LANL 2000, 071233) and described briefly below.

Calibration verification, consisting of initial and continuing verification, is the establishment of a quantitative relationship between the response of the analytical procedure and the concentration of the target analyte. The initial calibration verifies the accuracy of the calibration curve and the individual calibration standards used to perform the calibration. The continuing calibration ensures that the initial calibration is still holding and correct as the instrument is used to process samples. The continuing calibration also serves to determine whether analyte identification criteria, such as retention times and spectral matching, are being met.

Instrument performance checks consist of both background and check source counts for the proportional and liquid scintillation counters and check source counts and full width at half maximum determinations for the gamma spectrometers.

The LCS is a sample of a known matrix that has been spiked with compounds that are representative of the target analytes, and it serves as a monitor of the overall performance of a “controlled” sample. On a daily basis, the LCS is the primary demonstration of the ability to analyze samples with good qualitative and quantitative accuracy. The analytical results for the samples were qualified according to National Functional Guidelines (EPA 1999, 066649) if the individual LCS recoveries were not within method-specific acceptable criteria. LCS recoveries should fall into the control limits of 75%–125% (LANL 1995, 049738; LANL 2000, 071233).

A method blank is an analyte-free matrix to which all reagents are added in the same volumes or proportions as those used in the environmental sample processing, and which is extracted and analyzed in the same manner as the corresponding environmental samples. Method blanks are used to assess the potential for sample contamination during extraction and analysis. All target analytes should be below the CRDL in the method blank (LANL 1995, 049738; LANL 2000, 071233).

Matrix spike samples are used to measure the ability to recover prescribed analytes from a native sample matrix. Matrix spike samples are aliquots of the submitted samples spiked with a known concentration of the target analyte(s). Spiking typically occurs before sample preparation and analysis. The spike sample recoveries should be within the acceptance range of 75%–125% (LANL 1995, 049738; LANL 2000, 071233).

A surrogate compound (surrogate) is an organic chemical compound used in the analyses of organic target analytes that is similar in composition and behavior to the target analytes but not normally found in environmental samples. Surrogates are added to every blank, sample, and spike to evaluate the efficiency with which analytes are recovered during the extraction and analysis. The recovery percentage

of the surrogates must be within specified ranges or the sample may be rejected or assigned a qualifier (LANL 1995, 049738; LANL 2000, 071233).

Internal standards are chemical compounds added to every blank, sample, and standard extract at a known concentration. They are used to compensate for analyte concentration changes that might occur during storage of the extract, and quantitation variations that can occur during analysis. Internal standards are used as the basis for quantitation of target analytes. The percent recovery for internal standards should be within the range of 50%–200% (LANL 1995, 049738; LANL 2000, 071233).

The validation of organic chemical data using QA/QC samples and other methods can result in the assignment of various qualifiers to individual sample results or the rejection of the data. The organic chemical data were qualified using the appropriate SOPs and the qualifiers do not affect the usability of the sampling results. The results of qualified data were used as reported. The qualified organic chemical data are summarized below.

AOC 21-002(b)

- Thirty-six sampling results were qualified as estimated (J) because the result was less than the practical quantitation limit but greater than the method detection limit.
- Six sampling results were qualified as estimated (J) because the area count for the quantitating internal standard was less than 50% of the area count for the previous continuing calibration.
- Two sampling results were qualified as estimated (J) because they were identified in the method blank but were greater than 5 times (10 times for common laboratory contaminants) the concentration of the related analyte in the blank.
- Four sampling results were qualified as estimated (J) because the affected analytes were analyzed with an initial calibration curve that exceeded the percent relative standard deviation criteria and/or a continuing calibration standard that exceeded the percent difference criteria.
- Six sampling results were qualified as not detected (U) because mass spectrum did not meet specifications.
- Thirty-three sampling results were qualified as not detected (U) because the sample result was less than or equal to 5 times (10 times for acetone, methylene chloride, and 2-butanone) the concentration of the related analyte in the method blank.
- Fifty sampling results were qualified as estimated not detected (UJ) because the area count for the quantitating internal standard was less than 50% of the area count for the previous continuing calibration.
- Two hundred thirty-nine sampling results were qualified as estimated not detected (UJ) because the affected analytes were analyzed with an initial calibration curve that exceeded the percent relative standard deviation criteria and/or a continuing calibration standard that exceeded the percent difference criteria.
- Nine sampling results were qualified as estimated not detected (UJ) because the LCS documentation is missing.

SWMU 21-009

- Eighteen sampling results were qualified as estimated (J) because the result was less than the practical quantitation limit but greater than the method detection limit.

- Three sampling results were qualified as estimated (J) because the area count for the quantitating internal standard was less than 50% of the area count for the previous continuing calibration.
- Two sampling results were qualified as estimated (J) because they were identified in the method blank but were greater than 5 times (10 times for common laboratory contaminants) the concentration of the related analyte in the blank.
- Nine sampling results were qualified as not detected (U) because the sample result was less than or equal to 5 times (10 times for acetone, methylene chloride, and 2-butanone) the concentration of the respective analyte in the method blank.
- Seventy-four sampling results were qualified as estimated not detected (UJ) because the area count for the quantitating internal standard was less than 50% of the area count for the previous continuing calibration.
- One hundred twenty-eight sampling results were qualified as estimated not detected (UJ) because the affected analytes were analyzed with an initial calibration curve that exceeded the percent relative standard deviation criteria and/or a continuing calibration standard that exceeded the percent difference criteria.

SWMU 21-013(c)

- One hundred twenty-one sampling results were qualified as estimated (J) because the result was less than the practical quantitation limit but greater than the method detection limit.
- Six sampling results were qualified as estimated (J) because the area count for the quantitating internal standard was less than 50% of the area count for the previous continuing calibration.
- One sampling result was qualified as estimated (J) because it was identified in the method blank but was greater than 5 times (10 times for common laboratory contaminants) the concentration of the related analyte in the blank.
- Twenty-six sampling results were qualified as estimated (J) because the affected analytes were analyzed with an initial calibration curve that exceeded the percent relative standard deviation criteria and/or a continuing calibration standard that exceeded the percent difference criteria.
- One sampling result was qualified as estimated biased high (J+) because the LCS percent recovery was greater than the upper acceptance limit.
- Four sampling results were qualified as not detected (U) because the sample result was a detect but less than 5 times the concentration of the related analyte in the blank.
- One sampling result was qualified as not detected (U) because the sample result was greater than the EQL and less than or equal to 5 times (10 times for common laboratory contaminants) the concentration of the related analyte in the blank.
- Three sampling results were qualified as not detected (U) because mass spectrum did not meet specifications.
- Forty-one sampling results were qualified as not detected (U) because the sample result was less than or equal to 5 times (10 times for acetone, methylene chloride, and 2-butanone) the concentration of the related analyte in the method blank.
- Seven sampling results were qualified as estimated not detected (UJ) because the holding time was exceeded.

- Nineteen sampling results were qualified as estimated not detected (UJ) because the LCS percent recovery was less than the lower acceptance limit but greater than 10%.
- Forty-four sampling results were qualified as estimated not detected (UJ) because the area count for the quantitating internal standard was less than 50% of the area count for the previous continuing calibration.
- Six hundred fifty-five sampling results were qualified as estimated not detected (UJ) because the affected analytes were analyzed with an initial calibration curve that exceeded the percent relative standard deviation criteria and/or a continuing calibration standard that exceeded the percent difference criteria.

SWMU 21-012(b)

- Sixty-six sampling results were qualified as estimated (J) because the result was less than the practical quantitation limit but greater than the method detection limit.
- One sampling result was qualified as estimated (J) because the area count for the quantitating internal standard was less than 50% of the area count for the previous continuing calibration.
- One sampling result was qualified as estimated (J) because the affected analytes were analyzed with an initial calibration curve that exceeded the percent relative standard deviation criteria and/or a continuing calibration standard that exceeded the percent difference criteria.
- One sampling result was qualified as estimated and biased low (J-) because the analytical and/or extraction holding time was exceeded.
- One sampling result was qualified as estimated biased high (J+) because surrogate percent recovery is greater than the upper acceptance limit.
- Two sampling results were qualified as not detected (U) because the sample result was greater than the EQL and less than or equal to 5 times (10 times for common phthalates) the concentration of the related analyte in the blank.
- Eight sampling results were qualified as not detected (U) because the sample result was less than or equal to 5 times (10 times for acetone, methylene chloride, and 2-butanone) the concentration of the related analyte in the method blank.
- One sampling result was qualified as estimated not detected (UJ) because the LCS percent recovery was less than the lower acceptance limit but greater than 10%.
- One hundred fifty-two sampling results were qualified as estimated not detected (UJ) because the area count for the quantitating internal standard was less than 50% of the area count for the previous continuing calibration.
- Five hundred forty-five sampling results were qualified as estimated not detected (UJ) because the affected analytes were analyzed with an initial calibration curve that exceeded the percent relative standard deviation criteria and/or a continuing calibration standard that exceeded the percent difference criteria.
- Two hundred seventy-four sampling results were qualified as estimated not detected (UJ) because the analytical and/or extraction holding time was exceeded.

SWMU 21-024(a)

- Forty-eight sampling results were qualified as estimated (J) because the result was less than the practical quantitation limit but greater than the method detection limit.
- One sampling result was qualified as estimated (J) because it was identified in the method blank but was greater than 5 times (10 times for common laboratory contaminants) the concentration of the related analyte in the blank.
- One sampling result was qualified as estimated (J) because the affected analytes was analyzed with an initial calibration curve that exceeded the percent relative standard deviation criteria and/or a continuing calibration standard that exceeded the percent difference criteria.
- Three sampling results were qualified as not detected (U) because it was identified in the method blank but was greater than 5 times (10 times for common laboratory contaminants) the concentration of the related analyte in the blank.
- Two sampling results were qualified as not detected (U) because mass spectrum did not meet specifications.
- Ninety-four sampling results were qualified as estimated not detected (UJ) because the area count for the quantitating internal standard was less than 50% of the area count for the previous continuing calibration.
- One hundred ninety-nine sampling results were qualified as estimated not detected (UJ) because the affected analytes were analyzed with an initial calibration curve that exceeded the percent relative standard deviation criteria and/or a continuing calibration standard that exceeded the percent difference criteria.

SWMU 21-024(e)

- Eighty-one sampling results were qualified as estimated (J) because the result was less than the practical quantitation limit but greater than the method detection limit.
- Nine sampling results were qualified as estimated (J) because the area count for the quantitating internal standard was less than 50% of the area count for the previous continuing calibration.
- Eight sampling results were qualified as estimated (J) because the affected analytes were analyzed with an initial calibration curve that exceeded the percent relative standard deviation criteria and/or a continuing calibration standard that exceeded the percent difference criteria.
- One sampling result was qualified as estimated biased high (J+) because surrogate percent recovery is greater than the upper acceptance limit.
- One sampling result was qualified as not detected (U) because mass spectrum did not meet specifications.
- Eleven sampling results were qualified as not detected (U) because the sample result was less than or equal to 5 times (10 times for acetone, methylene chloride, and 2-butanone) the concentration of the related analyte in the method blank.
- Three sampling results were qualified as not detected (U) because mass spectrum did not meet specifications.
- Seventy-four sampling results were qualified as estimated not detected (UJ) because the area count for the quantitating internal standard was less than 50% of the area count for the previous continuing calibration.

- Four hundred four sampling results were qualified as estimated not detected (UJ) because the affected analytes were analyzed with an initial calibration curve that exceeded the percent relative standard deviation criteria and/or a continuing calibration standard that exceeded the percent difference criteria.

SWMU 21-024(g)

- One hundred one sampling results were qualified as estimated (J) because the result was less than the practical quantitation limit but greater than the method detection limit.
- Eight sampling results were qualified as estimated (J) because the area count for the quantitating internal standard was less than 50% of the area count for the previous continuing calibration.
- Eight sampling results were qualified as estimated (J) because the affected analytes were analyzed with an initial calibration curve that exceeded the percent relative standard deviation criteria and/or a continuing calibration standard that exceeded the percent difference criteria.
- Eleven sampling results were qualified as not detected (U) because mass spectrum did not meet specifications.
- Two sampling results were qualified as not detected (U) because the result was less than or equal to 5 times (10 times for acetone, methylene chloride, and 2-butanone) the concentration of the related analyte in the method blank.
- Thirty-three sampling results were qualified as estimated not detected (UJ) because the LCS percent recovery was less than the lower acceptance limit but greater than 10%.
- One hundred thirty-three sampling results were qualified as estimated not detected (UJ) because the area count for the quantitating internal standard was less than 50% of the area count for the previous continuing calibration.
- Six hundred eight sampling results were qualified as estimated not detected (UJ) because the affected analytes were analyzed with an initial calibration curve that exceeded the percent relative standard deviation criteria and/or a continuing calibration standard that exceeded the percent difference criteria.

Consolidated Unit 21-024(l)-99

- One hundred thirty-seven sampling results were qualified as estimated (J) because the result was less than the practical quantitation limit but greater than the method detection limit.
- One sampling result was qualified as estimated (J) because the data validator identified quality deficiencies in the reported data.
- Sixty-one sampling results were qualified as estimated (J) because the area count for the quantitating internal standard was less than 50% of the area count for the previous continuing calibration.
- One sampling result was qualified as estimated (J) because the result was greater than the EQL and less than or equal to 5 times (10 times for common phthalates) the concentration of the related analyte in the blank.
- Forty-six sampling results were qualified as estimated (J) because the affected analytes were analyzed with an initial calibration curve that exceeded the percent relative standard deviation criteria and/or a continuing calibration standard that exceeded the percent difference criteria.

- Twelve sampling results were qualified as not detected (U) because mass spectrum did not meet specifications.
- Three sampling results were qualified as estimated not detected (UJ) because the LCS percent recovery was less than the lower acceptance limit but greater than 10%.
- Eighty-nine sampling results were qualified as estimated not detected (UJ) because the area count for the quantitating internal standard was less than 50% of the area count for the previous continuing calibration.
- Four-hundred two sampling results were qualified as estimated not detected (UJ) because the affected analytes were analyzed with an initial calibration curve that exceeded the percent relative standard deviation criteria and/or a continuing calibration standard that exceeded the percent difference criteria.

SWMU 21-024(o)

- Twenty-seven sampling results were qualified as estimated (J) because the result was less than the practical quantitation limit but greater than the method detection limit.
- Twenty-six sampling results were qualified as estimated (J) because the area count for the quantitating internal standard was less than 50% of the area count for the previous continuing calibration.
- One sampling results were qualified as estimated (J) because the affected analytes were analyzed with an initial calibration curve that exceeded the percent relative standard deviation criteria and/or a continuing calibration standard that exceeded the percent difference criteria.
- Five sampling results were qualified as estimated biased high (J+) because surrogate percent recovery is greater than the upper acceptance limit.
- Eleven sampling results were qualified as not detected (U) because mass spectrum did not meet specifications.
- Two sampling results were qualified as not detected (U) because the result was less than or equal to 5 times (10 times for acetone, methylene chloride, and 2-butanone) the concentration of the related analyte in the method blank.
- One hundred fifty-five sampling results were qualified as estimated not detected (UJ) because the area count for the quantitating internal standard was less than 50% of the area count for the previous continuing calibration.
- Forty-one sampling results were qualified as estimated not detected (UJ) because the affected analytes were analyzed with an initial calibration curve that exceeded the percent relative standard deviation criteria and/or a continuing calibration standard that exceeded the percent difference criteria.
- Two sampling results were qualified as estimated not detected (UJ) because the LCS percent recovery was less than the lower acceptance limit but greater than 10%.

Consolidated Unit 21-026(a)-99

- Sixty-nine sampling results were qualified as estimated (J) because the result was less than the practical quantitation limit but greater than the method detection limit.

- One sampling result was qualified as estimated (J) because the multicomponent analyte standard was not analyzed within 72 h of a multicomponent analyte detection.
- Nineteen sampling results were qualified as estimated (J) because the area count for the quantitating internal standard was less than 50% of the area count for the previous continuing calibration.
- Three sampling results were qualified as estimated (J) because the affected analytes were analyzed with an initial calibration curve that exceeded the percent relative standard deviation criteria and/or a continuing calibration standard that exceeded the percent difference criteria.
- Three sampling results were qualified as not detected (U) because mass spectrum did not meet
- Sixteen sampling results were qualified as not detected (U) because the sample result was less than or equal to 5 times (10 times for acetone, methylene chloride, and 2-butanone) the concentration of the related analyte in the method blank.
- Nine sampling results were qualified as estimated not detected (UJ) because the LCS percent recovery was less than the lower acceptance limit but greater than 10%.
- One hundred ninety-nine sampling results were qualified as estimated not detected (UJ) because the area count for the quantitating internal standard was less than 50% of the area count for the previous continuing calibration.
- Three hundred forty-eight sampling results were qualified as estimated not detected (UJ) because the affected analytes were analyzed with an initial calibration curve that exceeded the percent relative standard deviation criteria and/or a continuing calibration standard that exceeded the percent difference criteria.

SWMU 21-027(c)

- Seventy-two sampling results were qualified as estimated (J) because the result was less than the practical quantitation limit but greater than the method detection limit.
- Fifty sampling results were qualified as estimated (J) because the area count for the quantitating internal standard was less than 50% of the area count for the previous continuing calibration.
- Five sampling results were qualified as estimated (J) because the quantitating internal standard area count was less than 10% of the expected value.
- Two sampling results were qualified as estimated biased high (J+) because surrogate percent recovery is greater than the upper acceptance limit.
- Two sampling result was qualified as not detected (U) because mass spectrum did not meet specifications.
- Two hundred fifteen sampling results were qualified as estimated not detected (UJ) because the area count for the quantitating internal standard was less than 50% of the area count for the previous continuing calibration.
- One hundred sixty-one sampling results were qualified as estimated not detected (UJ) because the affected analytes were analyzed with an initial calibration curve that exceeded the percent relative standard deviation criteria and/or a continuing calibration standard that exceeded the percent difference criteria.
- Twenty sampling results were qualified as estimated not detected (UJ) because the extraction holding time is exceeded.

- Four sampling results were qualified as estimated not detected (UJ) because the LCS percent recovery was less than the lower acceptance limit but greater than 10%.

The following organic chemical data were rejected.

SWMU 21-013(c)

- One fluorene result in soil at location 21-01913 was rejected because the mass spectrum documentation is missing.
- One naphthalene result in soil at location 21-01913 was rejected because the mass spectrum documentation is missing.
- Eight tetryl results in soil were rejected because the LCS percent recovery was less than 10%.
- Six tetryl results in tuff were rejected because the LCS percent recovery was less than 10%.

SWMU 21-012(b)

- Eight benzoic acid results in tuff were rejected because the analytes were analyzed with a relative response factor of less than 0.05.

Consolidated Unit 21-024(l)-99

- One fluoranthene result in soil at location 21-27546 was rejected because the result was not analyzed with a valid 5-point calibration curve and/or a standard at the reporting limit.

Consolidated Unit 21-026(a)-99

- Two fluoranthene results in soil at locations 21-27576 and 21-27579 were rejected because the result was not analyzed with a valid 5-point calibration curve and/or a standard at the reporting limit.

SWMU 21-027(c)

- Three benzo(a)pyrene, three benzo(b)fluoranthene, five benzo(g,h,i)perylene, four benzo(k)fluoranthene, five dibenz(a,h)anthracene, five di-n-octylphthalate, and five indeno(1,2,3-cd)pyrene results in soil were rejected because the quantitating internal standard area count was less than 10% of the expected value.
- One benzo(b)fluoranthene, one fluoranthene, one phenanthrene, and one pyrene result in soil at location 21-27402 and one bis(2-ethylhexyl)phthalate result in soil at location 21-27403 were rejected because the result was not analyzed with a valid 5-point calibration curve and/or a standard at the reporting limit.

E-4.0 RADIOCHEMICAL ANALYSIS METHODS

Samples were analyzed for one or more of the following: gamma-emitting radionuclides, americium-241, isotopic plutonium, isotopic uranium, strontium-90, and tritium. The analytical methods used for radionuclides are listed in Table E-4.0-1.

Radionuclides with reported values less than the minimum detectable activity were qualified as not detected (U). Each radionuclide result was also compared with the corresponding one sigma total propagated uncertainty (TPU). If the result was not greater than three times the TPU, the radionuclide was qualified as not detected (U).

The precision and bias of radiochemical analyses performed at external laboratories were assessed using matrix spike samples, LCSs, method blanks, duplicates, and tracers. The analytical services SOW (LANL 1995, 049738; LANL 2000, 071233) specifies that spike sample recoveries should be within +/–25% of the certified value. LCSs were analyzed to assess the accuracy of radionuclide analyses. The LCSs serve as a monitor of the overall performance of each step during the analysis, including the radiochemical separation preparation. The analytical services SOW (LANL 1995, 049738; LANL 2000, 071233) specifies the LCS recoveries should be within +/–25% of the certified value. Method blanks are also used to assess bias. The analytical services SOWs (LANL 1995, 049738; LANL 2000, 071233) specify that the method blank concentration should not exceed the required minimum detectable activity.

The validation of radionuclide data using QA/QC samples and other methods can result in the assignment of various qualifiers to individual sample results or the rejection of the data. The radionuclide data were qualified using the appropriate SOPs and the qualifiers do not affect the usability of the sampling results. The results of qualified data were used as reported. The qualified radionuclide data are summarized below.

AOC 21-002(b)

- Thirteen sampling results were qualified as estimated and biased low (J-) because the associated LCS was less than the lower acceptance limit but greater than 10%
- Seven sampling results were qualified as estimated not detected (UJ) because the associated LCS was less than the lower acceptance limit but greater than 10%.

SMMU 21-009

- There were no qualified data.

SWMU 21-013(c)

- Two sampling results were qualified as estimated not detected (UJ) because the associated tracer recovery was less than 30% but greater than 10%.

SWMU 21-012(b)

- Twelve sampling results were qualified as estimated (J) because the duplicate and sample results have a duplicate error ratio that is greater than 2.0.
- Three sampling results were qualified as estimated and biased low (J-) because the associated LCS was less than the lower acceptance limit but greater than 10%.
- One sampling result was qualified as estimated not detected (UJ) because the associated tracer recovery was less than 30% but greater than 10%.
- Twenty sampling results were qualified as estimated not detected (UJ) because the associated LCS was less than the lower acceptance limit but greater than 10%.

SWMU 21-024(a)

- Three sampling results were qualified as estimated and biased low (J-) because the associated LCS was less than the lower acceptance limit but greater than 10%.
- One sampling result was qualified as estimated not detected (UJ) because the associated tracer recovery was less than 30% but greater than 10%.

SWMU-024(e)

- Five sampling results were qualified as estimated and biased low (J-) because the associated LCS was less than the lower acceptance limit but greater than 10%.
- One sampling result was qualified as estimated not detected (UJ) because the associated tracer recovery was less than 30% but greater than 10%.
- Seven sampling results were qualified as estimated not detected (UJ) because the associated LCS was less than the lower acceptance limit but greater than 10%.

SWMU 21-024(g)

- Five sampling results were qualified as estimated and biased low (J-) because the tracer percent recovery value was less than 30% but greater than 10%.
- Five sampling results were qualified as estimated biased high (J+) because the LCS percent recovery was greater than the upper acceptance limit.
- Two sampling results were qualified as estimated not detected (UJ) because the associated tracer recovery was less than 30% but greater than 10%.

Consolidated Unit 21-024(l)-99

- Eleven sampling results were qualified as estimated and biased low (J-) because the associated LCS was less than the lower acceptance limit but greater than 10%.
- One sampling result was qualified as estimated not detected (UJ) because the associated tracer recovery was less than 30% but greater than 10%.
- Eleven sampling results were qualified as estimated not detected (UJ) because the associated LCS was less than the lower acceptance limit but greater than 10%.

SWMU 21-024(o)

- There were no qualified data.

Consolidated Unit 21-026(a)-99

- Four sampling result was qualified as estimated not detected (UJ) because the associated tracer recovery was less than 30% but greater than 10%.

SWMU 21-027(c)

- There were no qualified data.

The following radionuclide results were rejected.

AOC 21-002(b)

- Eight cesium-134 results in soil were rejected because spectral interferences prevented positive identification.
- Eleven cesium-134 results in tuff were rejected because spectral interferences prevented positive identification.

SWMU 21-009

- Ten cesium-134 results and one cesium-137 result in soil were rejected because spectral interferences prevented positive identification.
- Two cesium-134 results in tuff were rejected because spectral interferences prevented positive identification.

SWMU 21-013(c)

- Eighteen cesium-134 results in soil and 17 results in tuff were rejected because spectral interferences prevented positive identification.
- Two cesium-137 results in soil were rejected because spectral interferences prevented positive identification.
- One plutonium-239 result in soil was rejected because spectral interferences prevented positive identification.

SWMU 21-012(b)

- Twenty-four cesium-134 results in soil were rejected because spectral interferences prevented positive identification.
- Thirty six cesium-134 results in tuff were rejected because spectral interferences prevented positive identification.

SWMU 21-024(a)

- Fifteen cesium-134 results in soil were rejected because spectral interferences prevented positive identification.
- Thirteen cesium-134 results and one cesium-137 result in tuff were rejected because spectral interferences prevented positive identification.

SWMU 21-024(e)

- Fifteen cesium-134 and three cesium-137 results in soil were rejected because spectral interferences prevented positive identification.
- Eleven cesium-134 results, one cesium-137 result, and one cobalt-60 result in tuff were rejected because spectral interferences prevented positive identification.

SWMU 21-024(g)

- Nineteen cesium-134 and one cesium-137 results in soil were rejected because spectral interferences prevented positive identification.
- Thirty-three cesium-134 results, three cesium-137 results, one cobalt-60 result, and one sodium-22 result in tuff were rejected because spectral interferences prevented positive identification.

Consolidated Unit 21-024(l)-99

- Twenty-three cesium-134 and five cesium-137 results in soil were rejected because spectral interferences prevented positive identification.
- Eleven cesium-134 and two cesium-137 results in soil were rejected because spectral interferences prevented positive identification.

SWMU 21-024(o)

- Fifteen cesium-134 and two cesium-137 results in soil were rejected because spectral interferences prevented positive identification.
- Two cesium-134 results and one cesium-137 result in tuff were rejected because spectral interferences prevented positive identification.

Consolidated Unit 21-026(a)-99

- Twelve results in soil were rejected because spectral interferences prevented positive identification.
- Sixteen cesium-134, two cesium-137 results, one plutonium-238 result, and one plutonium 239/240 result in tuff were rejected because spectral interferences prevented positive identification.

SWMU 21-027(c)

- Twenty-one cesium-134 results, four cesium-137 results, one cobalt-60 result, and one sodium-22 result in soil were rejected because spectral interferences prevented positive identification.

The rejected data were not used to characterize the nature and extent. Although many cesium-134 results were rejected, the usable data were reported as non-detects at all sites, except for SWMU 21-012(b) and 21-027(c). Cesium-134 was detected once out of 41 usable samples at SWMU 21-012(b) and once out of 14 usable samples at SWMU 21-027(c). Additionally, the half-life of cesium-134 is 2.1 years. These rejected data do not affect the nature and extent discussions in Appendix B. Therefore, further sampling for cesium-137 is not warranted.

E-5.0 REFERENCES

The following list includes all documents cited in this appendix. Parenthetical information following each reference provides the author(s), publication date, and ER ID number. This information is also included in text citations. ER ID numbers are assigned by the Environmental Programs Directorate's Records

Processing Facility (RPF) and are used to locate the document at the RPF and, where applicable, in the master reference set.

Copies of the master reference set are maintained at the NMED Hazardous Waste Bureau; the U.S. Department of Energy–Los Alamos Site Office; the U.S. Environmental Protection Agency, Region 6; and the Directorate. The set was developed to ensure that the administrative authority has all material needed to review this document, and it is updated with every document submitted to the administrative authority. Documents previously submitted to the administrative authority are not included.

EPA (U.S. Environmental Protection Agency), February 1994. “USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review,” EPA-540/R-94/013, Office of Emergency and Remedial Response, Washington, D.C. (EPA 1994, 048639)

EPA (U.S. Environmental Protection Agency), October 1999. “USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review,” EPA540/R-99/008, Office of Emergency and Remedial Response, Washington, D.C. (EPA 1999, 066649)

LANL (Los Alamos National Laboratory), July 1995. “Statement of Work (Formerly Called "Requirements Document") - Analytical Support, (RFP number 9-XS1-Q4257), (Revision 2 - July, 1995),” Los Alamos National Laboratory, Los Alamos, New Mexico. (LANL 1995, 049738)

LANL (Los Alamos National Laboratory), March 1996. “Quality Assurance Project Plan Requirements for Sampling and Analysis,” Los Alamos National Laboratory document LA-UR-96-441, Los Alamos, New Mexico. (LANL 1996, 054609)

LANL (Los Alamos National Laboratory), December 2000. “University of California, Los Alamos National Laboratory (LANL), I8980SOW0-8S, Statement of Work for Analytical Laboratories,” Rev. 1, Los Alamos National Laboratory, Los Alamos, New Mexico. (LANL 2000, 071233)

Table E-2.0-1
Analytical Methods for Inorganic Chemical Analyses

Analytical Method	Analytical Description	Analytical Suite
EPA 300	Ion chromatography	Nitrate
EPA SW-846:6850	High performance liquid chromatography/electrospray ionization/mass spectrometry	Perchlorate
SW-846:9045C	Electrometric	pH
EPA SW-846: 6010/6010B	ICPES-atomic emission spectroscopy	Aluminum, antimony, arsenic, barium, beryllium, boron, calcium, cadmium, cobalt, chromium, copper, iron, lead, lithium, magnesium, manganese, mercury, nickel, potassium, selenium, silver, sodium, thallium, uranium, vanadium, and zinc (target analyte list [TAL] metals)
EPA SW-846:6020	Inductively coupled plasma mass spectrometry	Aluminum, antimony, arsenic, barium, beryllium, boron, calcium, cadmium, cobalt, chromium, copper, iron, lead, magnesium, manganese, nickel, potassium, selenium, silicon, silver, sodium, thallium, titanium, vanadium, and zinc (TAL metals)
EPA SW-846:7470A	Cold vapor atomic absorption	Mercury
EPA-SW 846:9012A	Automated colorimetric, with off-line distillation	Cyanide (Total)

Table E-3.0-1
Analytical Methods for Organic Chemical Analyses

Analytical Method	Analytical Description	Target Compound List
EPA SW-846:8321A modified	Explosives	Explosive compounds
EPA SW-846:8270 EPA SW-846:8270C	SVOCs	See analytical services SOW (LANL 1995, 49738; LANL 2000, 71233)
EPA SW-846:8260 EPA SW-846:8260B	VOCs	
EPA SW-846:8082	Gas chromatography	PCBs
EPA SW-846:8290	High-resolution gas chromatography/high resolution mass spectrometry	Dioxin/furans

Table E-4.0-1
Analytical Methods for Radiochemical Analyses

Radionuclide	Analytical Technique
Gamma-emitting radionuclides	EPA 901.1 Gamma Spectroscopy
Americium-241, isotopic plutonium, isotopic uranium	HASL-300 Alpha Spectroscopy
Strontium-90	ASTM:D5811-95M, EPA 905.0, Gas Flow Proportionate Counting
Tritium	EPA 906.0 Liquid Scintillation

Appendix F

Analytical Suites and Results,
Chain-of-Custody Forms, and Sample Collection Logs
(on DVDs included with this document)

Appendix G

Photographs

Photograph G-1 AOC 21-002(b) looking north

Photograph G-2 Consolidated Unit 21-003-99 looking south

Photograph G-3 SWMU 21-009 looking south

Photograph G-4 SWMU 21-013(c) looking northeast

Photograph G-5 SWMU 21-024(c) looking south

Photograph G-6 Septic tank area at SWMU 21-024(c) looking south

Photograph G-7 Area north of SWMU 21-024(m)

Photograph G-8 SWMU 21-012(b) looking northeast

Photograph G-9 SWMU 21-024(a) looking south

Photograph G-10 SWMU 21-024(e) looking southeast towards former septic tank area

Photograph G-11 SWMU 21-024(g) looking south towards building 21-031

Photograph G-12 Consolidated Unit 21-024(l)-99 looking south towards former building 21-021

Photograph G-13 SWMU 21-024(o) looking north towards building 21-014

Photograph G-14 Consolidated Unit 21-026(a)-99 looking south

Photograph G-15 Consolidated Unit 21-026(a)-99 looking north toward the outfall

Photograph G-16 SWMU 21-027(c) looking north toward building 21-002

Photograph G-17 SWMU 21-027(c) looking south toward outfall area

Appendix H

Waste Management

H-1.0 INTRODUCTION

This appendix contains the waste management plans, waste storage activities, and disposal records for waste streams generated during the 2006 and 2007 excavations and/or field activities at the 14 sites addressed in Delta Prime (DP) Site Aggregate Area investigation report: Area of Concern (AOC) 21-002(b), Consolidated Units 21-003-99, 21-024(l)-99, and 21-026(a)-99, and Solid Waste Management Units (SWMUs) 21-009, 21-013(c), 21-012(b), 21-024(a), 21-024(c), 21-024(e), 21-024(g), 21-024(o), and 21-027(c) as well as the suspected polychlorinated biphenyl (PCB) contaminated outfall. At AOC 21-002(b), Consolidated Unit 21-003-99, SWMUs 21-009, 21-013(c), and 21-024(o) and the suspected PCB-contaminated outfall, only personal protective equipment (PPE) and sampling wastes were generated, and they were included in the waste with the other sites.

Consistent with Los Alamos National Laboratory (LANL or the Laboratory) procedures, a waste characterization strategy form (WCSF) was prepared for the waste anticipated from the field investigation to identify in advance and plan for the anticipated wastes, their respective waste characterization approaches, and applicable on-site storage and final disposal methods. Ten anticipated and potential waste streams were documented in the WCSF. Seven of these waste streams were generated during the field activities at these SWMUs:

- Waste stream #2, borehole drilling cuttings;
- Waste stream #3, septic tank structures and pipes;
- Waste stream #4, septic tank contents and sludge;
- Waste stream #5, liquids from within sump/tanks;
- Waste stream #6, PPE and sampling wastes;
- Waste stream #7, excavated rock and soil; and
- Waste stream #9, asphalt and construction debris.

Wastes were initially placed in one satellite accumulation area and three less-than-90-day accumulation areas established for the project wastes. Wastes are being managed conservatively as hazardous and radioactive, pending completion of characterization. The investigation-derived waste (IDW) characterization is based on analytical data for the media sampled. At present, all waste stored in the less-than-90-day accumulation areas have been sampled as described in the amendment to the WCSF. Some analytical data have not yet been received; therefore, characterization is ongoing for wastes held less than 90 days.

The analytical data for the media sampled is used to develop waste profile forms (WPFs). Final WPFs have been prepared to address the wastes generated by this field investigation project, as discussed in section H-5.0. WPFs for other waste streams listed in the WCSF will be developed if those waste streams are produced in future investigations. Manifests are included in Attachment H-1 to this appendix for the low-level waste (LLW) to be disposed of. The rest of the waste is pending characterization for treatment or disposal

All IDW generated is being/has been managed in accordance with applicable Environmental Programs Directorate–Environment and Remediation Support Services (EP-ERSS) standard operating procedures (SOPs). These SOPs incorporate the requirements of all applicable U.S. Environmental Protection Agency (EPA) and New Mexico Environment Department (NMED) regulations, U.S. Department of Energy (DOE) orders, and internal Laboratory requirements.

The SOP applicable to the characterization and management of IDW is EP-ERSS-SOP-5022, Characterization and Management of Environmental Restoration (ER) Project Waste. This SOP is available online at http://www.lanl.gov/environment/all/docs/qa/ep_qa/EP-ERSS-SOP-5022.pdf.

H-2.0 IDW SUMMARY

The bulk of IDW consisted of overburden soil (waste stream #7), asphalt (waste stream #9), and vitrified clay pipe (VCP) (waste stream #3). These wastes are stored in roll-off bins staged on site along with 55-gal. drums containing contact wastes. Table H-2.0-1 identifies waste generated during the investigation activities and provides information on the SWMU number, container identification, waste volume, waste description, and current disposition status. The table is organized by SWMU and waste type. Because waste management activities are still in progress, some of the final waste characterization documentation has not yet been generated. A number of overburden soil bins listed in Table H-2.0-1 are categorized as “clean backfill” under waste type with a SWMU number listed as final destination in the table. Soil samples from these bins were screened against NMED residential soil screening-levels (SSLs), as described in section H-6.0. Soil in bins that passed the screening was used as backfill for the areas excavated at the SWMU indicated under final destination.

A “no longer contained in” request for the soil and asphalt in container 22 was approved by NMED on June 19, 2007. The determination allows the contents of bin 22 to be managed as nonhazardous waste. A “no longer contained in” request for the soil in containers 24 and 25, as well as the asphalt in containers 23 and 31, was approved by NMED on July 9, 2007. Copies of the approval for each of the “no longer contained in” requests are included in Attachment H-1. The determination allows the contents of these bins to be managed as nonhazardous waste. Because low-level radiological constituents are present, the contents of these five bins will be managed in the same manner as the other LLW from this site.

H-3.0 THE WCSF

A WCSF for the DP Site Aggregate Area investigation was prepared and approved by the Laboratory in June 2006, before IDW was generated. WCSF ER2006-0476, dated June 21, 2006, provides a description of 10 waste streams either anticipated or identified as having potential to be generated during sampling and excavation activities. The WSCF was amended on January 17, 2007 (Final Amendment 1) to include a direct waste sampling strategy for waste containers (roll-off bins, 55-gal. drums, and wrangler bags) and in situ waste material (including the contents of septic tanks and drainlines). This amendment also modified the contents of waste streams #3, #4, and #7 to include steel and/or small amounts of rusted steel. Steel was added to the waste streams after the discovery of a steel septic tank at SWMU 21-024(c) instead of the anticipated concrete septic tank. A copy of the approved and signed WCSF and the amendment are included in Attachment H-1.

H-4.0 INTERIM WASTE STAGING AND STORAGE

In addition to waste stream description and characterization approach, the WCSF addresses storage and disposal plans for each waste stream. Wastes from the field activities have been managed conservatively as hazardous and radioactive waste in the satellite accumulation area or the-less-than-90-day accumulation areas pending characterization results based on investigation and bin sample analyses.

Three less-than-90-day accumulation areas were identified and prepared for the investigation. They are located

- at Material Disposal Area (MDA) V (decommissioned on July 9, 2007);
- in the parking lot behind the trailers at the DP Site Aggregate Area; and
- on one site that encompasses storage at a number of SWMUs within the aggregate.

The one satellite accumulation area was located at SWMU 21-024(a). This area was used to store two waste streams from SWMU 21-024(c) that were subsequently moved to the less-than-90-day accumulation areas. The waste accumulation areas have been inspected as required by Laboratory procedures.

Table H-4.0-1 provides a summary of waste storage and disposal plans for IDW based on characterization results, as applicable, for waste streams actually generated during the investigation of these sites.

H-5.0 WPFS

WPFs have been prepared identifying the waste streams in a standardized format that supports planning and final disposition of the wastes. These forms are not required for soil used for clean backfill but have been generated for other wastes. Fifteen final WPFs are included in Attachment H-1. The WPFs for waste from SWMUs 21-012(b), 21-024(a), 21-024(c), and 21-024(g) and Consolidated Unit 21-026(a)-99 are included in this appendix. Table H-5.0-1 correlates the WPF numbers to the corresponding waste containers. Manifests have been generated for some of the wastes covered by this appendix and are included in Attachment H-1.

H-6.0 WASTE RESULTS SCREENING FOR POTENTIAL REUSE

The investigations of five of the sites generated 46 20-yd^3 roll-off bins containing overburden soil. The soil in the roll-off bins was sampled in accordance with Final Amendment 1 of the WCSF. If concentrations of all detected analytes were below their respective residential SSLs or screening action levels (SALs), the soil in the bin was considered acceptable for use to backfill areas excavated during the investigation of the DP Site Aggregate Area as described in the approved work plan for the site and the attached amended WCSF. To date, the soil from 33 bins has been used as backfill. Table H-2.0-1 lists each site at which the soil was used for backfill (final destination column).The results of the screening against NMED residential SSLs for these bins are presented in Tables H-6.0-1 to H-6.0-6.

H-7.0 REFERENCE

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

Copies of the master reference set are maintained at the NMED Hazardous Waste Bureau; the U.S. Department of Energy–Los Alamos Site Office; the U.S. Environmental Protection Agency, Region 6; and the Directorate. The set was developed to ensure that the administrative authority has all material

needed to review this document, and it is updated with every document submitted to the administrative authority. Documents previously submitted to the administrative authority are not included.

EPA (U.S. Environmental Protection Agency), May 4, 2007. "EPA Region 6 Human Health Medium-Specific Screening Levels," U.S. EPA Region 6, Dallas, Texas. (EPA 2007, 095866)

LANL (Los Alamos National Laboratory), May 2005. "Derivation and Use of Radionuclide Screening Action Levels, Revision 1," Los Alamos National Laboratory document LA-UR-05-1849, Los Alamos, New Mexico. (LANL 2005, 088493)

NMED (New Mexico Environment Department), June 2006. "Technical Background Document for Development of Soil Screening Levels, Revision 4.0, Volume 1, Tier 1: Soil Screening Guidance Technical Background Document," New Mexico Environment Department, Hazardous Waste Bureau and Ground Water Quality Bureau Voluntary Remediation Program, Santa Fe, New Mexico. (NMED 2006, 092513)

Table H-2.0-1
Summary of DP Site Aggregate Area IDW Generated

SWMU	Waste Description	Container Type	Container ID	Waste Type	Waste Quantity (yd^3)	Final Destination	Clean Backfill Quantity (yd^3)
21-024(c)	Lower level soil	20-yd^3 roll-off	3	Clean backfill	19	21-026(a)	19
21-024(c)	Lower level soil	20-yd^3 roll-off	5	Clean backfill	19	21-022(h)	19
21-024(c)	Lower level soil	20-yd^3 roll-off	7	LLW w/PCBs	19	Pending	0
21-024(c)	Lower level soil	20-yd^3 roll-off	8	LLW w/PCBs	19	Pending	0
21-024(c)	Lower level soil	20-yd^3 roll-off	9	LLW w/PCBs	19	Pending	0
21-024(c)	PCB (soil) 0.0–1.0 ft	20-yd^3 roll-off	4	LLW w/PCBs	19	Pending	0
21-024(c)	PCB (soil) 0.0–1.0 ft	20-yd^3 roll-off	6	LLW w/PCBs	19	Pending	0
21-024(c)	PPE	55-gal. drum	109	Mixed LLW (MLLW)	0.07	Technical Area (TA) 54, Area G	0
21-024(c)	Septic tank sludge	55-gal. drum	108	MLLW	0.10	TA-54, Area G	0
21-024(c)	VCP	55-gal. drum	102	LLW	0.25	TA-54, Area G	0
21-024(c)	VCP	55-gal. drum	103	LLW	0.26	TA-54, Area G	0
21-024(c)	VCP	55-gal. drum	104	LLW	0.19	TA-54, Area G	0
21-024(c)	VCP	55-gal. drum	105	LLW	0.26	TA-54, Area G	0
21-024(c)	VCP	55-gal. drum	106	LLW	0.26	TA-54, Area G	0
21-024(c)	VCP	55-gal. drum	107	LLW	0.26	TA-54, Area G	0
21-024(c)	Asphalt	20-yd^3 Roll-off	22	LLW	5.00	TA-54, Area G	0
All SWMUs	PPE (for all SWMUs)	55-gal. drum	115	LLW	0.27	Pending	0
All SWMUs	PPE	55-gal. drum	136	Pending	0.07	Pending	0
21-012(b)	Asphalt	20-yd^3 roll-off	13	LLW	18	TA-54, Area G	0
21-012(b)	Asphalt	20-yd^3 roll-off	14	LLW	18	TA-54, Area G	0

Table H-2.0-1 (continued)

SWMU	Waste Description	Container Type	Container ID	Waste Type	Waste Quantity (yd^3)	Final Destination	Clean Backfill Quantity (yd^3)
21-012(b)	Asphalt	20-yd^3 roll-off	15	LLW	18	TA-54, Area G	0
21-012(b)	Asphalt	20-yd^3 roll-off	16	LLW	20	TA-54, Area G	0
21-012(b)	Asphalt	20-yd^3 roll-off	21	LLW	18	TA-54, Area G	0
21-012(b)	Cast-iron pipe	20-yd^3 roll-off	1	LLW	19	TA-54, Area G	0
21-012(b)	Concrete	20-yd^3 roll-off	19	LLW	18	TA-54, Area G	0
21-012(b)	Overburden soil	20-yd^3 roll-off	2	Clean backfill	19	21-026(a)	19
21-012(b)	Overburden soil	20-yd^3 roll-off	17	Clean backfill	20	21-026(a)	20
21-012(b)	Overburden soil	20-yd^3 roll-off	18	Clean backfill	10	21-026(a)	10
21-012(b)	Overburden soil-seepage pit	20-yd^3 roll-off	20	Clean backfill	5	21-026(a)	5
21-012(b)	VCP	55-gal. drum	100	LLW	0.26	Pending	0
21-012(b)	VCP	55-gal. drum	101	LLW	0.26	Pending	0
21-012(b)	VCP	55-gal. drum	113	LLW	0.07	Pending	0
21-012(b)	VCP	55-gal. drum	114	LLW	0.26	Pending	0
21-024(a)	Iron pipe	55-gal. drum	111	LLW	0.26	Pending	0
21-024(a)	Iron pipe	55-gal. drum	112	LLW	0.26	Pending	0
21-024(a)	Lower level soil	20-yd^3 roll-off	10	LLW	10	TA-54, Area G	0
21-024(a)	Septic tank 21-053 concrete	20-yd^3 roll-off	12	LLW	12	TA-54, Area G	0
21-024(a)	Septic tank 21-053 contents	20-yd^3 roll-off	11	LLW	15	Pending	0
21-024(a)	VCP	55-gal. drum	110	LLW	0.26	Pending	0
21-024(g)	Asphalt	20-yd^3 roll-off	23	LLW	14	TA-54, Area G	0
21-024(g)	Asphalt	20-yd^3 roll-off	31	LLW	7	TA-54, Area G	0

Table H-2.0-1 (continued)

SWMU	Waste Description	Container Type	Container ID	Waste Type	Waste Quantity (yd^3)	Final Destination	Clean Backfill Quantity (yd^3)
21-024(g)	Drill auger cuttings	55-gal. drum	123	LLW	0.26	Pending	0
21-024(g)	Drill auger cuttings	55-gal. drum	124	LLW	0.27	Pending	0
21-024(g)	Drill auger cuttings	55-gal. drum	125	LLW	0.26	Pending	0
21-024(g)	Metal pipe	55-gal. drum	118	LLW	0.20	Pending	0
21-024(g)	Overburden soil	20-yd^3 roll-off	24	LLW	18	TA-54, Area G	0
21-024(g)	Overburden soil	20-yd^3 roll-off	25	LLW	19	TA-54, Area G	0
21-024(g)	Overburden soil	20-yd^3 roll-off	26	Clean backfill	14	21-022(h)	14
21-024(g)	Overburden soil	20-yd^3 roll-off	30	Clean backfill	6	21-022(h)	6
21-024(g)	Septic tank contents	20-yd^3 roll-off	27	MLLW	16	Energy Solutions	0
21-024(g)	Septic tank debris	20-yd^3 roll-off	28	MLLW	14	Energy Solutions	0
21-024(g)	Septic tank debris	20-yd^3 roll-off	29	MLLW	5	Energy Solutions	0
21-024(g)	VCP	55-gal. drum	116	LLW	0.27	Pending	0
21-024(g)	VCP	55-gal. drum	117	LLW	0.26	Pending	0
21-026(a)	Auger cuttings	55-gal. drum	126	LLW	0.26	Pending	0
21-026(a)	Overburden soil	20-yd^3 roll-off	32	Clean backfill	18	21-022(h)	18
21-026(a)	Overburden soil	20-yd^3 roll-off	33	Clean backfill	19	21-022(h)	19
21-026(a)	Overburden soil	20-yd^3 roll-off	34	Clean backfill	19	21-022(h)	19
21-026(a)	Overburden soil	20-yd^3 roll-off	35	Clean backfill	19	21-022(h)	19
21-026(a)	Overburden soil	20-yd^3 roll-off	36	Clean backfill	19	21-026(a)	19
21-026(a)	Overburden soil	20-yd^3 roll-off	37	Clean backfill	19	21-026(a)	19
21-026(a)	Overburden soil	20-yd^3 roll-off	38	Clean backfill	19	21-026(a)	19

Table H-2.0-1 (continued)

SWMU	Waste Description	Container Type	Container ID	Waste Type	Waste Quantity (yd^3)	Final Destination	Clean Backfill Quantity (yd^3)
21-026(a)	Overburden soil	20-yd^3 roll-off	39	Clean backfill	19	21-026(a)	19
21-026(a)	Overburden soil	20-yd^3 roll-off	40	Clean backfill	19	21-026(a)	19
21-026(a)	Overburden soil	20-yd^3 roll-off	41	Clean backfill	19	21-026(a)	19
21-026(a)	Overburden soil	20-yd^3 roll-off	42	Clean backfill	19	21-026(a)	19
21-026(a)	Overburden soil	20-yd^3 roll-off	43	Clean backfill	19	21-026(a)	19
21-026(a)	Overburden soil	20-yd^3 roll-off	44	Clean backfill	19	21-024(e)	19
21-026(a)	Overburden soil	20-yd^3 roll-off	45	Clean backfill	19	21-024(e)	19
21-026(a)	Overburden soil	20-yd^3 roll-off	46	Clean backfill	19	21-026(a)	19
21-026(a)	VCP	55-gal. drum	127	LLW	0.26	Pending	0
21-026(a)	VCP	55-gal. drum	128	LLW	0.26	Pending	0
21-026(a)	VCP	55-gal. drum	129	LLW	0.27	Pending	0
21-026(a)	VCP	55-gal. drum	130	LLW	0.20	Pending	0
21-026(a)	VCP	55-gal. drum	132	LLW	0.26	Pending	0
21-026(a)	VCP	55-gal. drum	131	LLW	0.26	Pending	0
21-012(b)	Drill auger cuttings	55-gal. drum	145	LLW	0.25	Pending	0
21-012(b)	Drill auger cuttings	55-gal. drum	146	LLW	0.25	Pending	0
21-012(b)	Drill auger cuttings	55-gal. drum	147	LLW	0.25	Pending	0
21-012(b)	Drill auger cuttings	55-gal. drum	148	LLW	0.25	Pending	0
21-012(b)	Drill auger cuttings	55-gal. drum	149	LLW	0.25	Pending	0
21-012(b)	Drill auger cuttings	55-gal. drum	152	LLW	0.25	Pending	0
21-012(b)	Drill auger cuttings	55-gal. drum	153	LLW	0.25	Pending	0

Table H-2.0-1 (continued)

SWMU	Waste Description	Container Type	Container ID	Waste Type	Waste Quantity (yd^3)	Final Destination	Clean Backfill Quantity (yd^3)
21-012(b)	Drill auger cuttings/PPE	55-gal. drum	150	LLW	0.25	Pending	0
21-024(e)	Concrete, asphalt (layback)	20-yd^3 roll-off	111	LLW	18.00	Pending	0
21-024(e)	Concrete, asphalt, VCP	20-yd^3 roll-off	110	LLW	18.00	Pending	0
21-024(e)	Concrete,VCP, PPE, asphalt (trace)	20-yd^3 roll-off	67	LLW	0.25	Pending	0
21-024(e)	Overburden soil	20-yd^3 roll-off	65	LLW	18.00	Pending	0
21-024(e)	Overburden soil	20-yd^3 roll-off	66	LLW	18.00	Pending	0
21-024(e)	Overburden soil	20-yd^3 roll-off	68	LLW	18.00	Pending	0
21-024(e)	Overburden soil	20-yd^3 roll-off	69	Clean backfill	18.00	Pending	0
21-024(e)	Overburden soil	20-yd^3 roll-off	71	Clean backfill	18.00	Pending	0
21-024(e)	Overburden soil	20-yd^3 roll-off	72	Clean backfill	18.00	Pending	0
21-024(e)	Overburden soil	20-yd^3 roll-off	73	Clean backfill	18.00	Pending	0
21-024(e)	Overburden soil	20-yd^3 roll-off	74	Clean backfill	18.00	Pending	0
21-024(e)	Overburden soil	20-yd^3 roll-off	75	Clean backfill	18.00	Pending	0
21-024(e)	Overburden soil	20-yd^3 roll-off bin	76	LLW	18.00	Pending	0
21-024(e)	Overburden soil	20-yd^3 roll-off bin	77	LLW	18.00	Pending	0
21-024(e)	Overburden soil	20-yd^3 roll-off bin	78	LLW	18.00	Pending	0
21-024(e)	Overburden soil	Stockpile	104	LLW	0.27	Pending	0
21-024(g)	Drill auger cuttings	55-gal. drum	151	LLW	0.25	Pending	0
21-024(l)-99	Brick, soil	20-yd^3 roll-off bin	63	LLW	18.00	Pending	0
21-024(l)-99	Metal pipe	20-yd^3 roll-off bin	60	LLW	15.00	Pending	0
21-024(l)-99	Overburden soil	20-yd^3 roll-off bin	57	Clean backfill	18.00	21-024(e)	18
21-024(l)-99	Overburden soil	20-yd^3 roll-off bin	58	Clean backfill	18.00	21-024(e)	18

Table H-2.0-1 (continued)

SWMU	Waste Description	Container Type	Container ID	Waste Type	Waste Quantity (yd^3)	Final Destination	Clean Backfill Quantity (yd^3)
21-024(l)-99	Overburden soil	20-yd^3 roll-off bin	59	Clean backfill	18.00	21-024(e)	18
21-024(l)-99	Overburden soil	20-yd^3 roll-off bin	61	Clean backfill	0.00	21-024(e)	0
21-024(l)-99	Overburden soil	20-yd^3 roll-off bin	64	Clean backfill	18.00	21-024(e)	18
21-024(l)-99	Pipe, brick, soil, metal-sump lid	20-yd^3 roll-off bin	62	LLW	18.00	Pending	0
21-024(l)-99	Water from sump	55-gal. drum	143	LLW	0.22	Pending	0
21-024(l)-99	Water from sump	55-gal. drum	144	LLW	0.20	Pending	0
21-026(a)	Concrete	20-yd^3 roll-off bin	49	LLW	15.00	TA-54, Area G	0
21-026(a)	Concrete	20-yd^3 roll-off bin	50	LLW	15.00	TA-54, Area G	0
21-026(a)	Concrete	20-yd^3 roll-off bin	51	LLW	15.00	TA-54, Area G	0
21-026(a)	Construction debris	20-yd^3 roll-off bin	56	LLW	8.00	TA-54, Area G	0
21-026(a)	Metal pipe	20-yd^3 roll-off bin	52	LLW	6.00	TA-54, Area G	0
21-026(a)	Overburden soil	20-yd^3 roll-off bin	47	Clean backfill	18.00	21-022(h)	18
21-026(a)	Overburden soil	20-yd^3 roll-off bin	48	Clean backfill	18.00	21-022(h)	18
21-026(a)	Overburden soil	20-yd^3 roll-off bin	53	Clean backfill	19.00	21-024(e)	19
21-026(a)	Overburden soil	20-yd^3 roll-off bin	54	Clean backfill	16.00	21-024(e)	16
21-026(a)	Overburden soil	20-yd^3 roll-off bin	55	Clean backfill	15.00	21-024(e)	15
21-026(a)	Pump, pipe from sump	55-gal. drum	141	Non–RCRA*	0.12	Pending	0
21-026(a)	Rain water from sump	55-gal. drum	139	Non–RCRA	0.26	TA-46, Water treatment plant	0
21-026(a)	Rain water from sump	55-gal. drum	140	Non–RCRA	0.26	TA-46, Water treatment plant	0
21-026(a)	VCP	55-gal. drum	137	LLW	0.26	Pending	0
21-026(a)	VCP	55-gal. drum	138	LLW	0.26	Pending	0

Table H-2.0-1 (continued)

SWMU	Waste Description	Container Type	Container ID	Waste Type	Waste Quantity (yd^3)	Final Destination	Clean Backfill Quantity (yd^3)
21-026(a)	VCP	55-gal. drum	142	LLW	0.26	Pending	0
21-027 (c)	Overburden soil	20-yd^3 roll-off bin	70	LLW	18.00	Pending	0

*Non–RCRA = Non–Resource Conservation and Recovery Act waste.

Table H-4.0-1
DP Site Aggregate Area Waste Storage and Disposal Plans by Waste Stream

Waste Stream # from WCSF	Waste Stream	Waste Storage	Waste Disposal Based on Characterization
2	Borehole drill cuttings	55-gal. drum	LLW will be disposed of at TA-54 East. Nonhazardous waste will be disposed of off-site at a Laboratory-approved industrial disposal facility. Hazardous waste will be sent off-site for treatment/disposal in a permitted facility.
3	Rebar reinforced concrete, VCP, cast iron pipe, rusty metal, metal sump lid, pump, and metal pipes	55-gal. drum and 20-yd^3 roll-off bin	
4	Septic tank contents (sludge) and contaminated debris including metal	55-gal. drum and 20-yd^3 roll-off bin	
5	Septic tank liquids	55-gal. drum	
6	PPE and sampling wastes	55-gal. drum	
7	Excavated soil, rock, sand, small pieces of rusty metal	20-yd^3 Roll-off bins	LLW will be disposed of at TA-54 East. Nonhazardous waste will be disposed of off-site at a Laboratory-approved industrial disposal facility. Hazardous waste will be sent off-site for treatment/disposal in a permitted facility. See section H-5.0 for soil reuse as clean backfill.
9	Asphalt and construction debris	20-yd3 Roll-off bin	LLW will be disposed of at TA-54 East. Nonhazardous waste will be disposed of off-site at a Laboratory-approved industrial disposal facility. Hazardous waste will be sent off-site for treatment/disposal in a permitted facility.

Table H-5.0-1
WPF for Profiled Containers

SWMU	WPF#	Container ID	Container Type
21-024(c)	40112	109	55-gal. drum
21-024(c)	40113	108	55-gal. drum
21-024(c)	40187	9	20-yd^3 roll-off
21-024(c)	40281	7	20-yd^3 roll-off
21-024(c)	40281	8	20-yd^3 roll-off
21-024(c)	40281	4	20-yd^3 roll-off
21-024(c)	40281	6	20-yd^3 roll-off
21-024(c)	40320	22	20-yd^3 roll-off
21-024(c)	40329	102	55-gal. drum
21-024(c)	40329	103	55-gal. drum
21-024(c)	40329	104	55-gal. drum
21-024(c)	40329	105	55-gal. drum
21-024(c)	40329	106	55-gal. drum
21-024(c)	40329	107	55-gal. drum
21-024(g)	40169	27	20-yd^3 roll-off bin
21-024(g)	40170	28	20-yd^3 roll-off bin
21-024(g)	40170	29	20-yd^3 roll-off bin
21-012(b)	40280	13	20-yd^3 roll-off bin
21-012(b)	40280	14	20-yd^3 roll-off bin
21-012(b)	40280	15	20-yd^3 roll-off bin
21-012(b)	40280	16	20-yd^3 roll-off bin
21-012(b)	40280	21	20-yd^3 roll-off bin
21-012(b)	40282	1	20-yd^3 roll-off bin
21-024(a)	40282	12	20-yd^3 roll-off bin
21-012(b)	40282	19	20-yd^3 roll-off bin
21-026(a)	40282	49	20-yd^3 roll-off bin
21-026(a)	40282	50	20-yd^3 roll-off bin
21-026(a)	40282	51	20-yd^3 roll-off bin
21-026(a)	40282	52	20-yd^3 roll-off bin
21-026(a)	40282	56	20-yd^3 roll-off bin
21-012(b)	40282	100	55-gal. drum
21-012(b)	40282	101	55-gal. drum
21-024(a)	40282	110	55-gal. drum
21-024(a)	40282	111	55-gal. drum
21-024(a)	40282	112	55-gal. drum
21-012(b)	40282	113	55-gal. drum

Table H-5.0-1 (continued)

SWMU	WPF#	Container ID	Container Type
21-012(b)	40282	114	55-gal. drum
21-026(a)	40282	127	55-gal. drum
21-026(a)	40282	128	55-gal. drum
21-026(a)	40282	129	55-gal. drum
21-026(a)	40282	130	55-gal. drum
21-026(a)	40282	131	55-gal. drum
21-026(a)	40282	132	55-gal. drum
21-026(a)	40282	137	55-gal. drum
21-026(a)	40282	138	55-gal. drum
21-026(a)	40282	142	55-gal. drum
21-024(g)	40313	23	20-yd^3 roll-off bin
21-024(g)	40313	31	20-yd^3 roll-off bin
21-024(g)	40319	24	20-yd^3 roll-off bin
21-024(g)	40319	25	20-yd^3 roll-off bin
21-024(g)	40321	116	55-gal. drum
21-024(g)	40321	117	55-gal. drum
21-024(g)	40321	118	55-gal. drum
21-024(g)	40346	123	55-gal. drum
21-024(g)	40346	124	55-gal. drum
21-024(g)	40346	125	55-gal. drum
21-024(a)	40363	10	20-yd^3 roll-off bin

Table H-6.0-1
Screening of Detected Analytes Against Residential SSLs and SALs for SWMU 21-024(c)

Event ID	Bin Number	Sample ID	Analyte	Result	Units	Qualifier	Residential SSL/SAL[a]	Exceeds SSL or SAL?
11922	3, 5	RE21-07-76244	Acetone	7.20E-02	mg/kg	J	2.81E+04	No
11922	3, 5	RE21-07-76244	DB[2,4-]	4.70E-03	mg/kg	J	4.90E+02	No
11922	3, 5	RE21-07-76244	Aroclor-1254	1.20E-01	mg/kg	NQ[b]	1.12E+00	No
11922	3, 5	RE21-07-76244	Aroclor-1260	1.70E-01	mg/kg	NQ	1.12E+00	No
11922	3, 5	RE21-07-76244	TPH-DRO	3.10E+00	mg/kg	J	2.00E+02	No
11922	3, 5	RE21-07-76244	Barium	1.10E+03	µg/l	J	1.56E+04	No
11922	3, 5	RE21-07-76244	Iron	7.90E+03	mg/kg	J	2.35E+04	No
11922	3, 5	RE21-07-76244	Lead	7.30E+00	mg/kg	J	4.00E+02	No
11922	3, 5	RE21-07-76244	Zinc	2.20E+01	mg/kg	J	2.35E+04	No
11922	3, 5	RE21-07-76244	Barium	6.60E+01	mg/kg	J	1.56E+04	No
11922	3, 5	RE21-07-76244	Cobalt	1.70E+00	mg/kg	J	1.52E+03	No
11922	3, 5	RE21-07-76244	Copper	3.40E+00	mg/kg	J	3.13E+03	No
11922	3, 5	RE21-07-76244	Nickel	4.50E+00	mg/kg	J	1.56E+03	No
11922	3, 5	RE21-07-76244	Sodium	9.30E+01	mg/kg	J	n/a[c]	n/a
11922	3, 5	RE21-07-76244	Arsenic	2.40E+00	mg/kg	J	3.90E+00	No
11922	3, 5	RE21-07-76244	Cadmium	7.90E-02	mg/kg	J	3.90E+01	No
11922	3, 5	RE21-07-76244	Calcium	2.50E+03	mg/kg	J	n/a	n/a
11922	3, 5	RE21-07-76244	Aluminum	5.40E+03	mg/kg	J	7.78E+04	No
11922	3, 5	RE21-07-76244	Chromium	4.00E+00	mg/kg	J	2.10E+03	No
11922	3, 5	RE21-07-76244	Selenium	4.30E-01	mg/kg	J	3.91E+02	No
11922	3, 5	RE21-07-76244	Thallium	7.80E-01	mg/kg	J	5.16E+00	No
11922	3, 5	RE21-07-76244	Vanadium	9.70E+00	mg/kg	J	7.82E+01	No
11922	3, 5	RE21-07-76244	Beryllium	6.80E-01	mg/kg	J	1.56E+02	No
11922	3, 5	RE21-07-76244	Magnesium	1.20E+03	mg/kg	J	n/a	n/a
11922	3, 5	RE21-07-76244	Mercury	4.40E-02	mg/kg	J	23[d]	No
11922	3, 5	RE21-07-76244	Manganese	1.50E+02	mg/kg	J	3.59E+03	No
11922	3, 5	RE21-07-76244	Potassium	6.30E+02	mg/kg	J	na[e]	n/a
11922	3, 5	RE21-07-76244	Potassium-40	2.79E+01	pCi/g	NQ	na	n/a
11922	3, 5	RE21-07-76244	Bismuth-214	1.28E+00	pCi/g	NQ	na	n/a
11922	3, 5	RE21-07-76244	Lead-212	2.07E+00	pCi/g	NQ	na	n/a
11922	3, 5	RE21-07-76244	Lead-214	1.39E+00	pCi/g	NQ	na	n/a
11922	3, 5	RE21-07-76244	Thallium-208	5.61E-01	pCi/g	NQ	na	n/a
11922	3, 5	RE21-07-76244	Gross beta	2.94E+00	pCi/g	NQ	na	n/a
11922	3, 5	RE21-07-76244	Gross alpha	4.10E+00	pCi/g	J+	na	n/a
11922	3, 5	RE21-07-76244	Tritium	1.26E-01	pCi/g	NQ	7.50E+02	No

Table H-6.0-1 (continued)

Event ID	Bin Number	Sample ID	Analyte	Result	Units	Qualifier	Residential SSL/SAL[a]	Exceeds SSL or SAL?
11922	3, 5	RE21-07-76244	Plutonium-239	1.04E-01	pCi/g	NQ	3.30E+01	No
11922	3, 5	RE21-07-76244	Uranium-234	9.20E-01	pCi/g	J+	1.70E+02	No
11922	3, 5	RE21-07-76244	Uranium-238	7.70E-01	pCi/g	J+	8.60E+01	No
11922	SD[f]	RE21-06-68645	Nitrate	6.53E+01	mg/kg	NQ	1.00E+05	No
11922	SD	RE21-06-68659	Perchlorate	2.24E-03	mg/kg	NQ	5.50E+01[d]	No

[a] SSLs from NMED (2006, 092513), unless otherwise noted. SALs from LANL (2005, 088493).

[b] NQ = Not qualified.

[c] n/a = Not applicable.

[d] Value from EPA Region 6 (2007, 095866).

[e] na = Not available.

[f] SD = Site data.

Table H-6.0-2
Screening of Detected Analytes Against Residential SSLs and SALs for SWMU 21-012(b)

Event ID	Bin Number	Sample ID	Analyte	Std Result	Units	Reporting Qualifier	Residential SSL/SAL[a]	Exceeds SSL or SAL?
11892	2	RE21-07-76173	Aluminum	4500	mg/kg	NQ[b]	77800	no
11892	2	RE21-07-76173	Americium-241	0.057	pCi/g	NQ	30	no
11892	2	RE21-07-76173	Aroclor-1260	0.016	mg/kg	J	1.12	no
11892	2	RE21-07-76173	Arsenic	1.7	mg/kg	NQ	3.9	no
11892	2	RE21-07-76173	Barium	58	mg/kg	NQ	15600	no
11892	2	RE21-07-76173	Beryllium	0.56	mg/kg	NQ	156	no
11892	2	RE21-07-76173	Cadmium	0.093	mg/kg	J	39	no
11892	2	RE21-07-76173	Calcium	2800	mg/kg	NQ	no SSL	n/a[c]
11892	2	RE21-07-76173	Chromium	4.2	mg/kg	NQ	2100	no
11892	2	RE21-07-76173	Cobalt	1.8	mg/kg	NQ	1520	no
11892	2	RE21-07-76173	Copper	16	mg/kg	NQ	3130	no
11892	2	RE21-07-76173	Gross alpha	6	pCi/g	J+	no SAL	n/a
11892	2	RE21-07-76173	Gross beta	3.5	pCi/g	NQ	no SAL	n/a
11892	2	RE21-07-76173	Iron	7700	mg/kg	NQ	23500	no
11892	2	RE21-07-76173	Lead	14	mg/kg	NQ	400	no
11892	2	RE21-07-76173	Magnesium	910	mg/kg	NQ	no SSL	n/a
11892	2	RE21-07-76173	Manganese	190	mg/kg	NQ	3590	no
11892	2	RE21-07-76173	Mercury	0.069	mg/kg	NQ	23[d]	no
11892	2	RE21-07-76173	Nickel	4.1	mg/kg	NQ	1560	no
11892	2	RE21-07-76173	Plutonium-239/240	0.592	pCi/g	NQ	33	no
11892	2	RE21-07-76173	Potassium	770	mg/kg	NQ	no SSL	n/a
11892	2	RE21-07-76173	Selenium	0.4	mg/kg	J	391	no
11892	2	RE21-07-76173	Sodium	120	mg/kg	J	no SSL	n/a
11892	2	RE21-07-76173	Tritium	0.0679775	pCi/g	NQ	750	no
11892	2	RE21-07-76173	Uranium-234	0.92	pCi/g	NQ	170	no
11892	2	RE21-07-76173	Uranium-238	0.885	pCi/g	NQ	86	no
11892	2	RE21-07-76173	Vanadium	8.9	mg/kg	NQ	78.2	no
11892	2	RE21-07-76173	Zinc	64	mg/kg	NQ	23500	no
11892	18, 20	RE21-07-76175	Aluminum	8200	mg/kg	J+	77800	no
11892	18, 20	RE21-07-76175	Americium-241	12.8	pCi/g	NQ	30	no
11892	18, 20	RE21-07-76175	Arsenic	2.83	mg/kg	NQ	3.9	no
11892	18, 20	RE21-07-76175	Barium	73.4	mg/kg	NQ	15600	no
11892	18, 20	RE21-07-76175	Beryllium	0.45	mg/kg	NQ	156	no
11892	18, 20	RE21-07-76175	Calcium	4370	mg/kg	NQ	no SSL	n/a
11892	18, 20	RE21-07-76175	Cesium-134	0.0882	pCi/g	R	2.4	no

Table H-6.0-2 (continued)

Event ID	Bin Number	Sample ID	Analyte	Std Result	Units	Reporting Qualifier	Residential SSL/SAL[a]	Exceeds SSL or SAL?
11892	18, 20	RE21-07-76175	Cesium-137	0.285	pCi/g	NQ	5.6	no
11892	18, 20	RE21-07-76175	Chromium	8.65	mg/kg	NQ	2100	no
11892	18, 20	RE21-07-76175	Cobalt	1.62	mg/kg	NQ	1520	no
11892	18, 20	RE21-07-76175	Copper	35.8	mg/kg	NQ	3130	no
11892	18, 20	RE21-07-76175	Gross alpha/beta	24.1	pCi/g	NQ	no SAL	n/a
11892	18, 20	RE21-07-76175	Gross beta	33.5	pCi/g	NQ	no SAL	n/a
11892	18, 20	RE21-07-76175	Iron	7640	mg/kg	NQ	23500	no
11892	18, 20	RE21-07-76175	Lead	8.67	mg/kg	NQ	400	no
11892	18, 20	RE21-07-76175	Magnesium	1680	mg/kg	J+	no SSL	n/a
11892	18, 20	RE21-07-76175	Manganese	170	mg/kg	NQ	3590	no
11892	18, 20	RE21-07-76175	Mercury	0.103	mg/kg	NQ	23[d]	no
11892	18, 20	RE21-07-76175	Nickel	4.54	mg/kg	NQ	1560	no
11892	18, 20	RE21-07-76175	Plutonium-238	1.49	pCi/g	NQ	37	no
11892	18, 20	RE21-07-76175	Plutonium-239/240	3.5	pCi/g	NQ	33	no
11892	18, 20	RE21-07-76175	Potassium	1280	mg/kg	J+	no SSL	n/a
11892	18, 20	RE21-07-76175	Silver	0.0554	mg/kg	J	391	no
11892	18, 20	RE21-07-76175	Sodium	847	mg/kg	NQ	no SSL	n/a
11892	18, 20	RE21-07-76175	Thallium	0.096	mg/kg	J	5.16	no
11892	18, 20	RE21-07-76175	Total Petroleum Hydrocarbons–Diesel Range Organics	9.27	mg/kg	J	no SSL	n/a
11892	18, 20	RE21-07-76175	Tritium	0.0193733	pCi/g	NQ	750	no
11892	18, 20	RE21-07-76175	Uranium-234	2.01	pCi/g	NQ	170	no
11892	18, 20	RE21-07-76175	Uranium-235	0.0744	pCi/g	NQ	17	no
11892	18, 20	RE21-07-76175	Uranium-238	1.76	pCi/g	NQ	86	no
11892	18, 20	RE21-07-76175	Vanadium	12.8	mg/kg	NQ	78.2	no
11892	18, 20	RE21-07-76175	Zinc	56.5	mg/kg	NQ	23500	no
11892	17	RE21-07-76176	Aluminum	17200	mg/kg	J+	77800	no
11892	17	RE21-07-76176	Arsenic	3.5	mg/kg	NQ	3.9	no
11892	17	RE21-07-76176	Barium	88.4	mg/kg	NQ	15600	no
11892	17	RE21-07-76176	Beryllium	0.764	mg/kg	NQ	156	no
11892	17	RE21-07-76176	Calcium	5140	mg/kg	NQ	no SSL	n/a
11892	17	RE21-07-76176	Cesium-134	0.129	pCi/g	R	2.4	no
11892	17	RE21-07-76176	Chromium	10.4	mg/kg	NQ	2100	no
11892	17	RE21-07-76176	Cobalt	3.09	mg/kg	NQ	1520	no
11892	17	RE21-07-76176	Copper	17	mg/kg	NQ	3130	no

Table H-6.0-2 (continued)

Event ID	Bin Number	Sample ID	Analyte	Std Result	Units	Reporting Qualifier	Residential SSL/SAL[a]	Exceeds SSL or SAL?
11892	17	RE21-07-76176	Gross alpha/beta	12.9	pCi/g	NQ	no SAL	n/a
11892	17	RE21-07-76176	Gross beta	37	pCi/g	NQ	no SAL	n/a
11892	17	RE21-07-76176	Iron	12400	mg/kg	NQ	23500	no
11892	17	RE21-07-76176	Lead	12.1	mg/kg	NQ	400	no
11892	17	RE21-07-76176	Magnesium	2820	mg/kg	J+	no SSL	n/a
11892	17	RE21-07-76176	Manganese	221	mg/kg	NQ	3590	no
11892	17	RE21-07-76176	Mercury	0.0278	mg/kg	NQ	23[d]	no
11892	17	RE21-07-76176	Nickel	5.24	mg/kg	NQ	1560	no
11892	17	RE21-07-76176	Plutonium-238	0.0538	pCi/g	NQ	37	no
11892	17	RE21-07-76176	Plutonium-239/240	0.123	pCi/g	NQ	33	no
11892	17	RE21-07-76176	Potassium	2360	mg/kg	J+	no SSL	n/a
11892	17	RE21-07-76176	Silver	0.0616	mg/kg	J	391	no
11892	17	RE21-07-76176	Sodium	533	mg/kg	NQ	no SSL	n/a
11892	17	RE21-07-76176	Thallium	0.142	mg/kg	J	5.16	no
11892	17	RE21-07-76176	Total Petroleum Hydrocarbons Diesel Range Organics	13.3	mg/kg	J	no SSL	n/a
11892	17	RE21-07-76176	Tritium	0.0494118	pCi/g	NQ	750	no
11892	17	RE21-07-76176	Uranium-234	1.71	pCi/g	NQ	170	no
11892	17	RE21-07-76176	Uranium-235	0.0729	pCi/g	NQ	17	no
11892	17	RE21-07-76176	Uranium-238	1.65	pCi/g	NQ	86	no
11892	17	RE21-07-76176	Vanadium	20.5	mg/kg	NQ	78.2	no
11892	17	RE21-07-76176	Zinc	40.5	mg/kg	NQ	23500	no
na[e]	17, 18, 20	SD[f]	Nitrate	34.2	mg/kg	J-	100000	no
na	17, 18, 20	SD	Perchlorate	0.00397	mg/kg	J-	55[d]	no

[a] SSLs from NMED (2006, 092513), unless otherwise noted. SALs from LANL (2005, 088493).

[b] NQ = Not qualified.

[c] n/a = Not applicable.

[d] Value from EPA Region 6 (2007, 095866).

[e] na = Not available.

[f] SD = Site data.

Table H-6.0-3
Screening of Detected Analytes Against Residential SSLs and SALs for SWMU 21-024(g)

Event ID	Bin Number	Sample ID	Analyte	Std Result	Units	Reporting Qualifier	Residential SSL/SAL[a]	Exceeds SSL or SAL?
11992	26, 30	RE21-07-76380	Iron	6800	mg/kg	J	23500	no
11992	26, 30	RE21-07-76380	Lead	14	mg/kg	J	400	no
11992	26, 30	RE21-07-76380	Zinc	23	mg/kg	J	23500	no
11992	26, 30	RE21-07-76380	Barium	67	mg/kg	J	15600	no
11992	26, 30	RE21-07-76380	Cobalt	2.30	mg/kg	J	1520	no
11992	26, 30	RE21-07-76380	Copper	4.20	mg/kg	J	3130	no
11992	26, 30	RE21-07-76380	Nickel	4.10	mg/kg	J	1560	no
11992	26, 30	RE21-07-76380	Sodium	190	mg/kg	J	no SSL	n/a[b]
11992	26, 30	RE21-07-76380	Arsenic	1.90	mg/kg	J	3.9	no
11992	26, 30	RE21-07-76380	Cadmium	0.11	mg/kg	J	39	no
11992	26, 30	RE21-07-76380	Calcium	1700	mg/kg	J	no SSL	n/a
11992	26, 30	RE21-07-76380	Aluminum	3900	mg/kg	J	77800	no
11992	26, 30	RE21-07-76380	Antimony	0.5	mg/kg	J	31.3	no
11992	26, 30	RE21-07-76380	Chromium	3.60	mg/kg	J	2100	no
11992	26, 30	RE21-07-76380	Selenium	0.45	mg/kg	J	391	no
11992	26, 30	RE21-07-76380	Vanadium	10	mg/kg	J	78.2	no
11992	26, 30	RE21-07-76380	Beryllium	0.55	mg/kg	J	156	no
11992	26, 30	RE21-07-76380	Magnesium	830	mg/kg	J	no SSL	n/a
11992	26, 30	RE21-07-76380	Manganese	240	mg/kg	J	3590	no
11992	26, 30	RE21-07-76380	Potassium	640	mg/kg	J	no SSL	n/a
11992	26, 30	RE21-07-76380	Mercury	0.033	mg/kg	J	23[c]	no
11992	26, 30	RE21-07-76380	Potassium-40	28.5	pCi/g	NQ[d]	no SAL	n/a
11992	26, 30	RE21-07-76380	Bismuth-214	1.01	pCi/g	NQ	no SAL	n/a
11992	26, 30	RE21-07-76380	Cesium-137	0.162	pCi/g	NQ	5.6	no
11992	26, 30	RE21-07-76380	Mercury-203	0.14	pCi/g	R	no SAL	n/a
11992	26, 30	RE21-07-76380	Lead-212	1.80	pCi/g	NQ	no SAL	n/a
11992	26, 30	RE21-07-76380	Lead-214	1.38	pCi/g	NQ	no SAL	n/a
11992	26, 30	RE21-07-76380	Radium-224	2.71	pCi/g	R	no SAL	n/a
11992	26, 30	RE21-07-76380	Radium-228	1.22	pCi/g	NQ	5	no
11992	26, 30	RE21-07-76380	Thallium-208	0.46	pCi/g	NQ	no SAL	n/a
11992	26, 30	RE21-07-76380	Gross beta	2.94	pCi/g	NQ	no SAL	n/a
11992	26, 30	RE21-07-76380	Gross alpha	4.66	pCi/g	J+	no SAL	n/a
11992	26, 30	RE21-07-76380	Plutonium-239/ Plutonium-240	0.75	pCi/g	NQ	33	no
11992	26, 30	RE21-07-76380	Uranium-234	1.03	pCi/g	NQ	170	no
11992	26, 30	RE21-07-76380	Uranium-235	0.08	pCi/g	NQ	17	no

Table H-6.0-3 (continued)

Event ID	Bin Number	Sample ID	Analyte	Std Result	Units	Reporting Qualifier	Residential SSL/SAL[a]	Exceeds SSL or SAL?
11992	26, 30	RE21-07-76380	Uranium-238	0.83	pCi/g	NQ	86	no
11992	26, 30	RE21-07-76380	DDD[4,4'-]	0.0018	mg/kg	R	24.4	no
11992	26, 30	RE21-07-76380	DDE[4,4'-]	0.0018	mg/kg	R	17.2	no
11992	26, 30	RE21-07-76380	Acetone	0.022	mg/kg	R	28100	no
na[e]	26, 30	SD[f]	Nitrate	3.58	mg/kg	NQ	100000	no
na	26, 30	SD	Perchlorate	0.00138	mg/kg	NQ	55[c]	no

[a] SSLs from NMED (2006, 092513), unless otherwise noted. SALs from LANL (2005, 088493).

[b] n/a = Not applicable.

[c] Value from EPA Region 6 (2007, 095866).

[d] NQ = Not qualified.

[e] na = Not available.

[f] SD = Site data.

Table H-6.0-4
Screening of Detected Analytes Against
Residential SSLs and SALs for Consolidated Unit 21-026(a)-99

Event ID	Bin Number	Sample ID	Analyte	Std Result	Units	Reporting Qualifier	Residential SSL/SAL[a]	Exceeds SSL or SAL?
48	32, 33, 34	RE21-07-584	Aluminum	3870	mg/kg	NQ[b]	7.78E+04	no
48	32, 33, 34	RE21-07-584	Aroclor-1254	0.0287	mg/kg	J	1.12E+00	no
48	32, 33, 34	RE21-07-584	Arsenic	1.52	mg/kg	J	3.90E+00	no
48	32, 33, 34	RE21-07-584	Barium	51.8	mg/kg	NQ	1.56E+04	no
48	32, 33, 34	RE21-07-584	Beryllium	0.525	mg/kg	NQ	1.56E+02	no
48	32, 33, 34	RE21-07-584	Bismuth-211	2.36	pCi/g	R	no SAL	n/a[c]
48	32, 33, 34	RE21-07-584	Bismuth-214	0.81	pCi/g	NQ	no SAL	n/a
48	32, 33, 34	RE21-07-584	Cadmium-109	2.13	pCi/g	R	no SAL	n/a
48	32, 33, 34	RE21-07-584	Calcium	11500	mg/kg	NQ	no SSL	n/a
48	32, 33, 34	RE21-07-584	Chloride	12.8	mg/kg	NQ	no SSL	n/a
48	32, 33, 34	RE21-07-584	Chromium	3.28	mg/kg	NQ	2.10E+03	no
48	32, 33, 34	RE21-07-584	Cobalt	1.03	mg/kg	NQ	1.52E+03	no
48	32, 33, 34	RE21-07-584	Copper	4.21	mg/kg	NQ	3.13E+03	no
48	32, 33, 34	RE21-07-584	Fluoride	2.12	mg/kg	J-	3.67E+03	no
48	32, 33, 34	RE21-07-584	Gross alpha/beta	6.73	pCi/g	NQ	no SAL	n/a
48	32, 33, 34	RE21-07-584	Gross beta	24.6	pCi/g	NQ	no SAL	n/a
48	32, 33, 34	RE21-07-584	Iron	7280	mg/kg	J+	2.35E+04	no
48	32, 33, 34	RE21-07-584	Lead	78.5	mg/kg	J+	4.00E+02	no
48	32, 33, 34	RE21-07-584	Lead-212	1.22	pCi/g	NQ	no SAL	n/a
48	32, 33, 34	RE21-07-584	Lead-214	0.819	pCi/g	NQ	no SAL	n/a
48	32, 33, 34	RE21-07-584	Magnesium	1290	mg/kg	NQ	no SSL	n/a
48	32, 33, 34	RE21-07-584	Manganese	219	mg/kg	NQ	3.59E+03	no
48	32, 33, 34	RE21-07-584	Mercury	0.0183	mg/kg	NQ	23[d]	no
48	32, 33, 34	RE21-07-584	Nickel	5.24	mg/kg	NQ	1.56E+03	no
48	32, 33, 34	RE21-07-584	Nitrate	1.4	mg/kg	J-	1.00E+05	no
48	32, 33, 34	RE21-07-584	Potassium	462	mg/kg	NQ	no SSL	n/a
48	32, 33, 34	RE21-07-584	Potassium-40	22.8	pCi/g	NQ	no SAL	n/a
48	32, 33, 34	RE21-07-584	Radium-224	4.05	pCi/g	R	no SAL	n/a
48	32, 33, 34	RE21-07-584	Radium-226	0.81	pCi/g	NQ	5.00E+00	no
48	32, 33, 34	RE21-07-584	Radium-228	1.13	pCi/g	NQ	5.00E+00	no
48	32, 33, 34	RE21-07-584	Silver	0.084	mg/kg	J	3.91E+02	no
48	32, 33, 34	RE21-07-584	Sodium	98.4	mg/kg	NQ	no SSL	n/a
48	32, 33, 34	RE21-07-584	Strontium-85	0.0963	pCi/g	R	no SAL	n/a
48	32, 33, 34	RE21-07-584	Sulfate	9.76	mg/kg	J-	no SSL	n/a

Table H-6.0-4 (continued)

Event ID	Bin Number	Sample ID	Analyte	Std Result	Units	Reporting Qualifier	Residential SSL/SAL[a]	Exceeds SSL or SAL?
48	32, 33, 34	RE21-07-584	Thallium	0.25	mg/kg	NQ	5.16E+00	no
48	32, 33, 34	RE21-07-584	Thallium-208	0.336	pCi/g	NQ	no SAL	n/a
48	32, 33, 34	RE21-07-584	Tritium	0.0111572	pCi/g	NQ	7.50E+02	no
48	32, 33, 34	RE21-07-584	Uranium-234	0.609	pCi/g	NQ	1.70E+02	no
48	32, 33, 34	RE21-07-584	Uranium-235	0.0414	pCi/g	NQ	1.70E+01	no
48	32, 33, 34	RE21-07-584	Uranium-238	0.66	pCi/g	NQ	8.60E+01	no
48	32, 33, 34	RE21-07-584	Vanadium	7.8	mg/kg	NQ	7.82E+01	no
48	32, 33, 34	RE21-07-584	Zinc	38.7	mg/kg	NQ	2.35E+04	no
48	35, 36, 37	RE21-07-585	Aluminum	4480	mg/kg	NQ	7.78E+04	no
48	35, 36, 37	RE21-07-585	Aroclor-1242	0.0592	mg/kg	NQ	1.12E+00	no
48	35, 36, 37	RE21-07-585	Aroclor-1254	0.192	mg/kg	NQ	1.12E+00	no
48	35, 36, 37	RE21-07-585	Aroclor-1260	0.108	mg/kg	NQ	1.12E+00	no
48	35, 36, 37	RE21-07-585	Arsenic	1.09	mg/kg	J	3.90E+00	no
48	35, 36, 37	RE21-07-585	Barium	75	mg/kg	NQ	1.56E+04	no
48	35, 36, 37	RE21-07-585	Beryllium	0.447	mg/kg	NQ	1.56E+02	no
48	35, 36, 37	RE21-07-585	Bismuth-211	3.87	pCi/g	R	no SAL	n/a
48	35, 36, 37	RE21-07-585	Bismuth-214	1.14	pCi/g	NQ	no SAL	n/a
48	35, 36, 37	RE21-07-585	Cadmium-109	4.83	pCi/g	R	no SAL	n/a
48	35, 36, 37	RE21-07-585	Calcium	7640	mg/kg	NQ	no SSL	n/a
48	35, 36, 37	RE21-07-585	Cesium-134	0.118	pCi/g	R	2.40E+00	no
48	35, 36, 37	RE21-07-585	Chloride	17.1	mg/kg	NQ	no SSL	n/a
48	35, 36, 37	RE21-07-585	Chromium	10.8	mg/kg	NQ	2.10E+03	no
48	35, 36, 37	RE21-07-585	Cobalt	2.67	mg/kg	NQ	1.52E+03	no
48	35, 36, 37	RE21-07-585	Copper	6.57	mg/kg	NQ	3.13E+03	no
48	35, 36, 37	RE21-07-585	Fluoride	1.41	mg/kg	J-	3.67E+03	no
48	35, 36, 37	RE21-07-585	Gross alpha/beta	9.4	pCi/g	NQ	no SSL	n/a
48	35, 36, 37	RE21-07-585	Gross beta	34.5	pCi/g	NQ	no SSL	n/a
48	35, 36, 37	RE21-07-585	Iron	9450	mg/kg	J+	2.35E+04	no
48	35, 36, 37	RE21-07-585	Lead	24.5	mg/kg	J+	4.00E+02	no
48	35, 36, 37	RE21-07-585	Lead-212	1.92	pCi/g	NQ	no SAL	n/a
48	35, 36, 37	RE21-07-585	Lead-214	1.35	pCi/g	NQ	no SAL	n/a
48	35, 36, 37	RE21-07-585	Magnesium	1790	mg/kg	NQ	no SSL	n/a
48	35, 36, 37	RE21-07-585	Manganese	238	mg/kg	NQ	3.59E+03	no
48	35, 36, 37	RE21-07-585	Mercury	0.0191	mg/kg	NQ	23[d]	no
48	35, 36, 37	RE21-07-585	Nickel	4.29	mg/kg	NQ	1.56E+03	no
48	35, 36, 37	RE21-07-585	Potassium	628	mg/kg	NQ	no SSL	n/a
48	35, 36, 37	RE21-07-585	Potassium-40	32.8	pCi/g	NQ	no SAL	n/a

Table H-6.0-4 (continued)

Event ID	Bin Number	Sample ID	Analyte	Std Result	Units	Reporting Qualifier	Residential SSL/SAL[a]	Exceeds SSL or SAL?
48	35, 36, 37	RE21-07-585	Radium-224	5.49	pCi/g	R	no SAL	n/a
48	35, 36, 37	RE21-07-585	Radium-226	1.14	pCi/g	NQ	5.00E+00	no
48	35, 36, 37	RE21-07-585	Radium-228	1.91	pCi/g	NQ	5.00E+00	no
48	35, 36, 37	RE21-07-585	Silver	0.119	mg/kg	J	3.91E+02	no
48	35, 36, 37	RE21-07-585	Sodium	115	mg/kg	NQ	no SSL	n/a
48	35, 36, 37	RE21-07-585	Strontium-85	0.09	pCi/g	R	no SAL	n/a
48	35, 36, 37	RE21-07-585	Sulfate	12.1	mg/kg	J-	no SSL	n/a
48	35, 36, 37	RE21-07-585	Thallium	0.132	mg/kg	J	5.16E+00	no
48	35, 36, 37	RE21-07-585	Thallium-208	0.616	pCi/g	NQ	no SAL	n/a
48	35, 36, 37	RE21-07-585	Thorium-231	0.387	pCi/g	R	no SAL	n/a
48	35, 36, 37	RE21-07-585	Tritium	0.0191568	pCi/g	NQ	7.50E+02	no
48	35, 36, 37	RE21-07-585	Uranium-234	0.814	pCi/g	NQ	1.70E+02	no
48	35, 36, 37	RE21-07-585	Uranium-235	0.0436	pCi/g	NQ	1.70E+01	no
48	35, 36, 37	RE21-07-585	Uranium-238	0.843	pCi/g	NQ	8.60E+01	no
48	35, 36, 37	RE21-07-585	Vanadium	13.6	mg/kg	NQ	7.82E+01	no
48	35, 36, 37	RE21-07-585	Zinc	35	mg/kg	NQ	2.35E+04	no
48	38,39,40	RE21-07-587	Nitrate	1.7	mg/kg	NQ	100000	no
48	38,39,40	RE21-07-587	Aluminum	3210	mg/kg	NQ	77800	no
48	38,39,40	RE21-07-587	Antimony	0.066	mg/kg	J-	31.3	no
48	38,39,40	RE21-07-587	Arsenic	1.1	mg/kg	NQ	3.9	no
48	38,39,40	RE21-07-587	Barium	36.1	mg/kg	NQ	15600	no
48	38,39,40	RE21-07-587	Beryllium	0.33	mg/kg	NQ	156	no
48	38,39,40	RE21-07-587	Cadmium	0.044	mg/kg	J	39	no
48	38,39,40	RE21-07-587	Calcium	4860	mg/kg	NQ	no SSL	n/a
48	38,39,40	RE21-07-587	Chromium	2.4	mg/kg	NQ	2100	no
48	38,39,40	RE21-07-587	Cobalt	0.87	mg/kg	NQ	1520	no
48	38,39,40	RE21-07-587	Copper	2.7	mg/kg	NQ	3130	no
48	38,39,40	RE21-07-587	Iron	4630	mg/kg	NQ	23500	no
48	38,39,40	RE21-07-587	Lead	9.3	mg/kg	J	400	no
48	38,39,40	RE21-07-587	Magnesium	753	mg/kg	NQ	no SSL	n/a
48	38,39,40	RE21-07-587	Manganese	157	mg/kg	J	3590	no
48	38,39,40	RE21-07-587	Nickel	2.8	mg/kg	NQ	1560	no
48	38,39,40	RE21-07-587	Potassium	412	mg/kg	NQ	no SSL	n/a
48	38,39,40	RE21-07-587	Selenium	0.21	mg/kg	NQ	391	no
48	38,39,40	RE21-07-587	Silver	0.24	mg/kg	NQ	391	no
48	38,39,40	RE21-07-587	Sodium	96.7	mg/kg	NQ	no SSL	n/a
48	38,39,40	RE21-07-587	Thallium	0.11	mg/kg	J	5.16	no

Table H-6.0-4 (continued)

Event ID	Bin Number	Sample ID	Analyte	Std Result	Units	Reporting Qualifier	Residential SSL/SAL[a]	Exceeds SSL or SAL?
48	38,39,40	RE21-07-587	Vanadium	5.4	mg/kg	J	78.2	no
48	38,39,40	RE21-07-587	Zinc	21.7	mg/kg	J	23500	no
48	38,39,40	RE21-07-587	Mercury	0.055	mg/kg	NQ	23[d]	no
48	38,39,40	RE21-07-587	Aroclor-1254	0.71	mg/kg	J	1.12	no
48	38,39,40	RE21-07-587	DDE[4,4'-]	0.0053	mg/kg	NQ	17.2	no
48	38,39,40	RE21-07-587	Endrin Aldehyde	0.0072	mg/kg	NQ	18.3	no
48	38,39,40	RE21-07-587	Lead-212	1.7	pCi/g	NQ	no SAL	n/a
48	38,39,40	RE21-07-587	Potassium-40	28.3	pCi/g	NQ	no SAL	n/a
48	38,39,40	RE21-07-587	Radium-224	10.4	pCi/g	NQ	no SAL	n/a
48	38,39,40	RE21-07-587	Radium-228	1.23	pCi/g	NQ	5	no
48	38,39,40	RE21-07-587	Thallium-208	0.46	pCi/g	NQ	no SAL	n/a
48	38,39,40	RE21-07-587	Gross alpha	19.6	pCi/g	NQ	no SAL	n/a
48	38,39,40	RE21-07-587	Gross beta	37	pCi/g	NQ	no SAL	n/a
48	38,39,40	RE21-07-587	Tritium	0.0112	pCi/g	NQ	750	no
48	38,39,40	RE21-07-587	Plutonium-239/ Plutonium-240	0.0559	pCi/g	NQ	33	no
48	38,39,40	RE21-07-587	Uranium-234	0.79	pCi/g	NQ	170	no
48	38,39,40	RE21-07-587	Uranium-238	0.97	pCi/g	NQ	86	no
48	41,42,43	RE21-07-588	Nitrate	0.59	mg/kg	NQ	100000	no
48	41,42,43	RE21-07-588	Aluminum	3840	mg/kg	NQ	77800	no
48	41,42,43	RE21-07-588	Antimony	0.084	mg/kg	J-	31.3	no
48	41,42,43	RE21-07-588	Arsenic	1.1	mg/kg	NQ	3.9	no
48	41,42,43	RE21-07-588	Barium	38.6	mg/kg	NQ	15600	no
48	41,42,43	RE21-07-588	Beryllium	0.35	mg/kg	NQ	156	no
48	41,42,43	RE21-07-588	Cadmium	0.076	mg/kg	J	39	no
48	41,42,43	RE21-07-588	Calcium	6250	mg/kg	NQ	no SSL	n/a
48	41,42,43	RE21-07-588	Chromium	3.2	mg/kg	NQ	2100	no
48	41,42,43	RE21-07-588	Cobalt	1.1	mg/kg	NQ	1520	no
48	41,42,43	RE21-07-588	Copper	3.8	mg/kg	NQ	3130	no
48	41,42,43	RE21-07-588	Iron	5440	mg/kg	NQ	23500	no
48	41,42,43	RE21-07-588	Lead	24.8	mg/kg	J	400	no
48	41,42,43	RE21-07-588	Magnesium	946	mg/kg	NQ	no SSL	n/a
48	41,42,43	RE21-07-588	Manganese	167	mg/kg	J	3590	no
48	41,42,43	RE21-07-588	Nickel	3	mg/kg	NQ	1560	no
48	41,42,43	RE21-07-588	Potassium	551	mg/kg	NQ	no SSL	n/a
48	41,42,43	RE21-07-588	Selenium	0.2	mg/kg	J	391	no
48	41,42,43	RE21-07-588	Silver	0.25	mg/kg	NQ	391	no
48	41,42,43	RE21-07-588	Sodium	110	mg/kg	NQ	no SSL	n/a

Table H-6.0-4 (continued)

Event ID	Bin Number	Sample ID	Analyte	Std Result	Units	Reporting Qualifier	Residential SSL/SAL[a]	Exceeds SSL or SAL?
48	41,42,43	RE21-07-588	Thallium	0.13	mg/kg	J	5.16	no
48	41,42,43	RE21-07-588	Vanadium	7.2	mg/kg	J	78.2	no
48	41,42,43	RE21-07-588	Zinc	27.2	mg/kg	J	23500	no
48	41,42,43	RE21-07-588	Mercury	0.055	mg/kg	NQ	23[d]	no
48	41,42,43	RE21-07-588	Aroclor-1254	0.36	mg/kg	J	1.12	no
48	41,42,43	RE21-07-588	DDE[4,4'-]	0.0052	mg/kg	NQ	17.2	no
48	41,42,43	RE21-07-588	Endrin Aldehyde	0.0074	mg/kg	NQ	18.3	no
48	41,42,43	RE21-07-588	Acetone	0.015	mg/kg	J	28100	no
48	41,42,43	RE21-07-588	Americium-241	0.041	pCi/g	NQ	30	no
48	41,42,43	RE21-07-588	Lead-212	1.73	pCi/g	NQ	no SAL	n/a
48	41,42,43	RE21-07-588	Potassium-40	28.5	pCi/g	NQ	no SAL	n/a
48	41,42,43	RE21-07-588	Radium-228	1.11	pCi/g	NQ	5	no
48	41,42,43	RE21-07-588	Thallium-208	0.48	pCi/g	NQ	no SAL	n/a
48	41,42,43	RE21-07-588	Gross alpha	25.4	pCi/g	NQ	no SAL	n/a
48	41,42,43	RE21-07-588	Gross beta	32	pCi/g	NQ	no SAL	n/a
48	41,42,43	RE21-07-588	Tritium	0.0212	pCi/g	NQ	750	no
48	41,42,43	RE21-07-588	Plutonium-238	0.0191	pCi/g	NQ	37	no
48	41,42,43	RE21-07-588	Plutonium-239/ Plutonium-240	0.086	pCi/g	NQ	33	no
48	41,42,43	RE21-07-588	Uranium-234	0.803	pCi/g	NQ	170	no
48	41,42,43	RE21-07-588	Uranium-238	0.91	pCi/g	NQ	86	no
48	44,45,46	RE21-07-589	Nitrate	0.44	mg/kg	NQ	100000	no
48	44,45,46	RE21-07-589	Aluminum	4050	mg/kg	NQ	77800	no
48	44,45,46	RE21-07-589	Antimony	0.095	mg/kg	J-	31.3	no
48	44,45,46	RE21-07-589	Arsenic	1	mg/kg	J	3.9	no
48	44,45,46	RE21-07-589	Barium	42.2	mg/kg	NQ	15600	no
48	44,45,46	RE21-07-589	Beryllium	0.37	mg/kg	NQ	156	no
48	44,45,46	RE21-07-589	Cadmium	0.065	mg/kg	J	39	no
48	44,45,46	RE21-07-589	Calcium	6160	mg/kg	NQ	no SSL	n/a
48	44,45,46	RE21-07-589	Chromium	3	mg/kg	NQ	2100	no
48	44,45,46	RE21-07-589	Cobalt	1.1	mg/kg	NQ	1520	no
48	44,45,46	RE21-07-589	Copper	3.5	mg/kg	NQ	3130	no
48	44,45,46	RE21-07-589	Iron	5230	mg/kg	NQ	23500	no
48	44,45,46	RE21-07-589	Lead	31.5	mg/kg	J	400	no
48	44,45,46	RE21-07-589	Magnesium	905	mg/kg	NQ	no SSL	n/a
48	44,45,46	RE21-07-589	Manganese	154	mg/kg	J	3590	no
48	44,45,46	RE21-07-589	Nickel	3	mg/kg	NQ	1560	no
48	44,45,46	RE21-07-589	Potassium	526	mg/kg	NQ	no SSL	n/a

Table H-6.0-4 (continued)

Event ID	Bin Number	Sample ID	Analyte	Std Result	Units	Reporting Qualifier	Residential SSL/SAL[a]	Exceeds SSL or SAL?
48	44,45,46	RE21-07-589	Selenium	0.23	mg/kg	NQ	391	no
48	44,45,46	RE21-07-589	Silver	0.18	mg/kg	J	391	no
48	44,45,46	RE21-07-589	Sodium	96	mg/kg	NQ	no SSL	n/a
48	44,45,46	RE21-07-589	Thallium	0.2	mg/kg	J	5.16	no
48	44,45,46	RE21-07-589	Vanadium	6.5	mg/kg	J	78.2	no
48	44,45,46	RE21-07-589	Zinc	24.3	mg/kg	J	23500	no
48	44,45,46	RE21-07-589	Mercury	0.04	mg/kg	NQ	23[d]	no
48	44,45,46	RE21-07-589	Aroclor-1254	0.21	mg/kg	J	1.12	no
48	44,45,46	RE21-07-589	DDE[4,4'-]	0.003	mg/kg	NQ	17.2	no
48	44,45,46	RE21-07-589	Endrin Aldehyde	0.0048	mg/kg	NQ	18.3	no
48	44,45,46	RE21-07-589	Acetone	0.014	mg/kg	J	28100	no
48	44,45,46	RE21-07-589	Americium-241	0.048	pCi/g	NQ	30	no
48	44,45,46	RE21-07-589	Lead-212	1.38	pCi/g	NQ	no SAL	n/a
48	44,45,46	RE21-07-589	Potassium-40	28.7	pCi/g	NQ	no SAL	n/a
48	44,45,46	RE21-07-589	Radium-228	1.56	pCi/g	NQ	5	no
48	44,45,46	RE21-07-589	Thallium-208	0.57	pCi/g	NQ	no SAL	n/a
48	44,45,46	RE21-07-589	Thorium-234	3.8	pCi/g	NQ	no SAL	n/a
48	44,45,46	RE21-07-589	Gross alpha	19.2	pCi/g	NQ	no SAL	n/a
48	44,45,46	RE21-07-589	Gross beta	33.2	pCi/g	NQ	no SAL	n/a
48	44,45,46	RE21-07-589	Tritium	0.0222	pCi/g	NQ	750	no
48	44,45,46	RE21-07-589	Plutonium-239/ Plutonium-240	0.047	pCi/g	NQ	33	no
48	44,45,46	RE21-07-589	Uranium-234	0.833	pCi/g	NQ	170	no
48	44,45,46	RE21-07-589	Uranium-238	0.76	pCi/g	NQ	86	no
48	54,55	RE21-07-591	Acetone	0.00336	mg/kg	J	28100	no
48	54,55	RE21-07-591	Aluminum	2520	mg/kg	J-	77800	no
48	54,55	RE21-07-591	Aroclor-1242	0.0754	mg/kg	NQ	1.12	no
48	54,55	RE21-07-591	Aroclor-1254	0.195	mg/kg	NQ	1.12	no
48	54,55	RE21-07-591	Aroclor-1260	0.111	mg/kg	NQ	1.12	no
48	54,55	RE21-07-591	Arsenic	2.31	mg/kg	NQ	3.9	no
48	54,55	RE21-07-591	Barium	53.1	mg/kg	NQ	15600	no
48	54,55	RE21-07-591	Benzo(a)anthracene	0.0131	mg/kg	J	6.21	no
48	54,55	RE21-07-591	Benzo(b)fluoranthene	0.0208	mg/kg	J	6.21	no
48	54,55	RE21-07-591	Beryllium	0.327	mg/kg	NQ	156	no
48	54,55	RE21-07-591	Calcium	6880	mg/kg	NQ	No SSL	n/a
48	54,55	RE21-07-591	Chloride	6.68	mg/kg	J+	No SSL	n/a
48	54,55	RE21-07-591	Chromium	7.6	mg/kg	NQ	2100	no
48	54,55	RE21-07-591	Chrysene	0.011	mg/kg	J	615	no

Table H-6.0-4 (continued)

Event ID	Bin Number	Sample ID	Analyte	Std Result	Units	Reporting Qualifier	Residential SSL/SAL[a]	Exceeds SSL or SAL?
48	54,55	RE21-07-591	Cobalt	2.07	mg/kg	NQ	1520	no
48	54,55	RE21-07-591	Copper	9.21	mg/kg	NQ	3130	no
48	54,55	RE21-07-591	Fluoranthene	0.0128	mg/kg	J	2290	no
48	54,55	RE21-07-591	Fluoride	1.2	mg/kg	NQ	3670	no
48	54,55	RE21-07-591	Iron	7750	mg/kg	NQ	23500	no
48	54,55	RE21-07-591	Isopropyltoluene[4-]	0.000424	mg/kg	J	271	no
48	54,55	RE21-07-591	Lead	11.7	mg/kg	NQ	400	no
48	54,55	RE21-07-591	Magnesium	1220	mg/kg	NQ	No SSL	n/a
48	54,55	RE21-07-591	Manganese	163	mg/kg	NQ	3590	no
48	54,55	RE21-07-591	Mercury	0.107	mg/kg	NQ	23[d]	no
48	54,55	RE21-07-591	Nickel	6.05	mg/kg	NQ	1560	no
48	54,55	RE21-07-591	Nitrate	1.43	mg/kg	J-	100000	no
48	54,55	RE21-07-591	Perchlorate	0.000791	mg/kg	J	55[d]	no
48	54,55	RE21-07-591	Potassium	618	mg/kg	NQ	No SSL	n/a
48	54,55	RE21-07-591	Pyrene	0.0116	mg/kg	J	2290	no
48	54,55	RE21-07-591	Selenium	0.66	mg/kg	J	391	no
48	54,55	RE21-07-591	Silver	1.22	mg/kg	NQ	391	no
48	54,55	RE21-07-591	Sodium	79.3	mg/kg	NQ	No SSL	n/a
48	54,55	RE21-07-591	Sulfate	8.27	mg/kg	NQ	No SSL	n/a
48	54,55	RE21-07-591	Thallium	0.0878	mg/kg	J	5.16	no
48	54,55	RE21-07-591	Toluene	0.000315	mg/kg	J	252	no
48	54,55	RE21-07-591	Vanadium	14.8	mg/kg	NQ	78.2	no
48	54,55	RE21-07-591	Zinc	27.7	mg/kg	NQ	23500	no
48	54,55	RE21-07-591	Americium-241	0.048	pCi/g	NQ	30	no
48	54,55	RE21-07-591	Bismuth-211	2.38	pCi/g	R	No SAL	n/a
48	54,55	RE21-07-591	Bismuth-214	0.656	pCi/g	NQ	No SAL	n/a
48	54,55	RE21-07-591	Cadmium-109	2.09	pCi/g	R	No SAL	n/a
48	54,55	RE21-07-591	Cesium-137	0.2	pCi/g	R	5.6	no
48	54,55	RE21-07-591	Gross alpha	8.31	pCi/g	NQ	No SAL	n/a
48	54,55	RE21-07-591	Gross beta	26	pCi/g	NQ	No SAL	n/a
48	54,55	RE21-07-591	Lead-212	0.923	pCi/g	NQ	No SAL	n/a
48	54,55	RE21-07-591	Lead-214	0.827	pCi/g	NQ	No SAL	n/a
48	54,55	RE21-07-591	Plutonium-239/ Plutonium-240	0.103	pCi/g	NQ	33	no
48	54,55	RE21-07-591	Potassium-40	21.3	pCi/g	NQ	No SAL	n/a
48	54,55	RE21-07-591	Radium-224	3.39	pCi/g	R	No SAL	n/a
48	54,55	RE21-07-591	Radium-226	0.656	pCi/g	NQ	5	no
48	54,55	RE21-07-591	Radium-228	1	pCi/g	NQ	5	no

Table H-6.0-4 (continued)

Event ID	Bin Number	Sample ID	Analyte	Std Result	Units	Reporting Qualifier	Residential SSL/SAL[a]	Exceeds SSL or SAL?
48	54,55	RE21-07-591	Strontium-85	0.15	pCi/g	R	No SAL	n/a
48	54,55	RE21-07-591	Thallium-208	0.251	pCi/g	NQ	No SAL	n/a
48	54,55	RE21-07-591	Thorium-231	0.508	pCi/g	R	No SAL	n/a
48	54,55	RE21-07-591	Tritium	0.0084702	pCi/g	NQ	750	no
48	54,55	RE21-07-591	Uranium-234	0.684	pCi/g	NQ	170	no
48	54,55	RE21-07-591	Uranium-235	0.0737	pCi/g	NQ	17	no
48	54,55	RE21-07-591	Uranium-238	0.634	pCi/g	NQ	86	no
48	47,48,53	RE21-07-592	Aluminum	3480	mg/kg	J-	77800	no
48	47,48,53	RE21-07-592	Aroclor-1242	0.0826	mg/kg	NQ	1.12	no
48	47,48,53	RE21-07-592	Aroclor-1254	0.231	mg/kg	NQ	1.12	no
48	47,48,53	RE21-07-592	Aroclor-1260	0.0972	mg/kg	NQ	1.12	no
48	47,48,53	RE21-07-592	Arsenic	1.95	mg/kg	NQ	3.9	no
48	47,48,53	RE21-07-592	Barium	79.3	mg/kg	NQ	15600	no
48	47,48,53	RE21-07-592	Benzo(a)anthracene	0.0531	mg/kg	NQ	6.21	no
48	47,48,53	RE21-07-592	Benzo(a)pyrene	0.0393	mg/kg	NQ	0.621	no
48	47,48,53	RE21-07-592	Benzo(b)fluoranthene	0.0595	mg/kg	NQ	6.21	no
48	47,48,53	RE21-07-592	Benzo(g,h,i)perylene	0.0155	mg/kg	J	2290	no
48	47,48,53	RE21-07-592	Beryllium	0.448	mg/kg	NQ	156	no
48	47,48,53	RE21-07-592	Calcium	4680	mg/kg	NQ	No SSL	n/a
48	47,48,53	RE21-07-592	Chloride	9.79	mg/kg	J+	No SSL	n/a
48	47,48,53	RE21-07-592	Chromium	5.27	mg/kg	NQ	2100	no
48	47,48,53	RE21-07-592	Chrysene	0.0537	mg/kg	NQ	615	no
48	47,48,53	RE21-07-592	Cobalt	1.51	mg/kg	NQ	1520	no
48	47,48,53	RE21-07-592	Copper	9.73	mg/kg	NQ	3130	no
48	47,48,53	RE21-07-592	Fluoranthene	0.0558	mg/kg	NQ	2290	no
48	47,48,53	RE21-07-592	Fluoride	1.87	mg/kg	NQ	3670	no
48	47,48,53	RE21-07-592	Indeno(1,2,3-cd)pyrene	0.0195	mg/kg	J	6.21	no
48	47,48,53	RE21-07-592	Iron	7500	mg/kg	NQ	23500	no
48	47,48,53	RE21-07-592	Lead	15.5	mg/kg	NQ	400	no
48	47,48,53	RE21-07-592	Magnesium	939	mg/kg	NQ	No SSL	n/a
48	47,48,53	RE21-07-592	Manganese	197	mg/kg	NQ	3590	no
48	47,48,53	RE21-07-592	Mercury	0.0725	mg/kg	NQ	23[d]	no
48	47,48,53	RE21-07-592	Nickel	4.26	mg/kg	NQ	1560	no
48	47,48,53	RE21-07-592	Nitrate	2.26	mg/kg	J-	100000	no
48	47,48,53	RE21-07-592	Perchlorate	0.000864	mg/kg	J	55[d]	no
48	47,48,53	RE21-07-592	Potassium	514	mg/kg	NQ	No SSL	n/a
48	47,48,53	RE21-07-592	Pyrene	0.0531	mg/kg	NQ	2290	no

Table H-6.0-4 (continued)

Event ID	Bin Number	Sample ID	Analyte	Std Result	Units	Reporting Qualifier	Residential SSL/SAL[a]	Exceeds SSL or SAL?
48	47,48,53	RE21-07-592	Selenium	0.684	mg/kg	J	391	no
48	47,48,53	RE21-07-592	Silver	0.381	mg/kg	NQ	391	no
48	47,48,53	RE21-07-592	Sodium	89.9	mg/kg	NQ	No SSL	n/a
48	47,48,53	RE21-07-592	Sulfate	17.5	mg/kg	NQ	No SSL	n/a
48	47,48,53	RE21-07-592	Thallium	0.13	mg/kg	J	5.16	no
48	47,48,53	RE21-07-592	Vanadium	11.5	mg/kg	NQ	78.2	no
48	47,48,53	RE21-07-592	Zinc	29.4	mg/kg	NQ	23500	no
48	47,48,53	RE21-07-592	Americium-241	0.029	pCi/g	NQ	30	no
48	47,48,53	RE21-07-592	Bismuth-211	3.03	pCi/g	R	No SAL	n/a
48	47,48,53	RE21-07-592	Bismuth-214	0.942	pCi/g	NQ	No SAL	n/a
48	47,48,53	RE21-07-592	Cadmium-109	2.78	pCi/g	R	No SAL	n/a
48	47,48,53	RE21-07-592	Cesium-134	0.12	pCi/g	R	2.4	no
48	47,48,53	RE21-07-592	Cesium-137	0.122	pCi/g	NQ	5.6	no
48	47,48,53	RE21-07-592	Gross alpha	14.7	pCi/g	NQ	No SAL	n/a
48	47,48,53	RE21-07-592	Gross beta	32.6	pCi/g	NQ	No SAL	n/a
48	47,48,53	RE21-07-592	Lead-212	1.37	pCi/g	NQ	No SAL	n/a
48	47,48,53	RE21-07-592	Lead-214	1.06	pCi/g	NQ	No SAL	n/a
48	47,48,53	RE21-07-592	Plutonium-239/ Plutonium-240	0.0748	pCi/g	NQ	33	no
48	47,48,53	RE21-07-592	Potassium-40	25.5	pCi/g	NQ	No SAL	n/a
48	47,48,53	RE21-07-592	Radium-224	3.6	pCi/g	R	No SAL	n/a
48	47,48,53	RE21-07-592	Radium-226	0.942	pCi/g	NQ	5	no
48	47,48,53	RE21-07-592	Radium-228	1.31	pCi/g	NQ	5	no
48	47,48,53	RE21-07-592	Strontium-85	0.11	pCi/g	R	No SAL	No
48	47,48,53	RE21-07-592	Thallium-208	0.351	pCi/g	NQ	No SAL	n/a
48	47,48,53	RE21-07-592	Thorium-231	0.443	pCi/g	R	No SAL	n/a
48	47,48,53	RE21-07-592	Thorium-234	2.67	pCi/g	R	No SAL	n/a
48	47,48,53	RE21-07-592	Uranium-234	0.95	pCi/g	NQ	170	no
48	47,48,53	RE21-07-592	Uranium-235	0.0748	pCi/g	NQ	17	no
48	47,48,53	RE21-07-592	Uranium-238	0.778	pCi/g	NQ	86	no

[a] SSLs from NMED (2006, 092513), unless otherwise noted. SALs from LANL (2005, 088493).

[b] NQ = Not qualified.

[c] n/a = Not applicable.

[d] Value from EPA Region 6 (2007, 095866).

Table H-6.0-5
Screening of Detected Analytes Against
Residential SSLs and SALs for Consolidated Unit 21-024(I)-99

Event ID	Bin Number	Sample ID	Analyte	Std Result	Units	Reporting Qualifier	Residential SSL/SAL[a]	Exceeds SSL or SAL?
140	57,58,59	RE21-07-3964	Acenaphthene	0.021	mg/kg	J	3730	no
140	57,58,59	RE21-07-3964	Aluminum	9320	mg/kg	NQ[b]	77800	no
140	57,58,59	RE21-07-3964	Americium-241	0.0334	pCi/g	NQ	30	no
140	57,58,59	RE21-07-3964	Anthracene	0.025	mg/kg	J	22000	no
140	57,58,59	RE21-07-3964	Aroclor-1254	0.018	mg/kg	J	1.12	no
140	57,58,59	RE21-07-3964	Arsenic	4.07	mg/kg	NQ	3.9	Yes[c]
140	57,58,59	RE21-07-3964	Barium	147	mg/kg	NQ	15600	no
140	57,58,59	RE21-07-3964	Benzo(a)anthracene	0.109	mg/kg	NQ	6.21	no
140	57,58,59	RE21-07-3964	Benzo(a)pyrene	0.117	mg/kg	J	0.621	no
140	57,58,59	RE21-07-3964	Benzo(b)fluoranthene	0.206	mg/kg	J	6.21	no
140	57,58,59	RE21-07-3964	Benzo(g,h,i)perylene	0.0669	mg/kg	J	2290	no
140	57,58,59	RE21-07-3964	Beryllium	0.503	mg/kg	NQ	156	no
140	57,58,59	RE21-07-3964	Bismuth-211	3.33	pCi/g	R	no SAL	n/a[d]
140	57,58,59	RE21-07-3964	Bismuth-214	1.11	pCi/g	NQ	no SAL	n/a
140	57,58,59	RE21-07-3964	Calcium	4000	mg/kg	NQ	no SSL	n/a
140	57,58,59	RE21-07-3964	Cesium-134	0.0907	pCi/g	R	2.4	no
140	57,58,59	RE21-07-3964	Chloride	3.24	mg/kg	NQ	no SSL	n/a
140	57,58,59	RE21-07-3964	Chromium	8.8	mg/kg	NQ	2100	no
140	57,58,59	RE21-07-3964	Chrysene	0.148	mg/kg	NQ	615	no
140	57,58,59	RE21-07-3964	Cobalt	5.23	mg/kg	NQ	1520	no
140	57,58,59	RE21-07-3964	Copper	8.44	mg/kg	NQ	3130	no
140	57,58,59	RE21-07-3964	Fluoranthene	0.291	mg/kg	NQ	2290	no
140	57,58,59	RE21-07-3964	Fluorene	0.0137	mg/kg	J	2660	no
140	57,58,59	RE21-07-3964	Fluoride	1.54	mg/kg	J-	3670	no
140	57,58,59	RE21-07-3964	Gross alpha/beta	13.9	pCi/g	J-	no SAL	n/a
140	57,58,59	RE21-07-3964	Gross beta	24.8	pCi/g	NQ	no SAL	n/a
140	57,58,59	RE21-07-3964	Indeno(1,2,3-cd)pyrene	0.0625	mg/kg	J	6.21	no
140	57,58,59	RE21-07-3964	Iron	16200	mg/kg	J+	23500	no
140	57,58,59	RE21-07-3964	Lead	27.9	mg/kg	NQ	400	no
140	57,58,59	RE21-07-3964	Lead-212	1.39	pCi/g	NQ	no SAL	n/a
140	57,58,59	RE21-07-3964	Lead-214	1.16	pCi/g	NQ	no SAL	n/a
140	57,58,59	RE21-07-3964	Magnesium	2060	mg/kg	J+	no SSL	n/a
140	57,58,59	RE21-07-3964	Manganese	396	mg/kg	NQ	3590	no
140	57,58,59	RE21-07-3964	Mercury	0.0143	mg/kg	NQ	23[e]	no

Table H-6.0-5 (continued)

Event ID	Bin Number	Sample ID	Analyte	Std Result	Units	Reporting Qualifier	Residential SSL/SAL[a]	Exceeds SSL or SAL?
140	57,58,59	RE21-07-3964	Nickel	4.41	mg/kg	NQ	1560	no
140	57,58,59	RE21-07-3964	Perchlorate[e]	0.000803	mg/kg	J	55	no
140	57,58,59	RE21-07-3964	Phenanthrene	0.19	mg/kg	NQ	1830	no
140	57,58,59	RE21-07-3964	Plutonium-239/240	0.484	pCi/g	NQ	33	no
140	57,58,59	RE21-07-3964	Potassium	1250	mg/kg	NQ	no SSL	n/a
140	57,58,59	RE21-07-3964	Potassium-40	21.2	pCi/g	NQ	no SAL	n/a
140	57,58,59	RE21-07-3964	Pyrene	0.232	mg/kg	NQ	2290	no
140	57,58,59	RE21-07-3964	Radium-224	4.99	pCi/g	R	no SAL	n/a
140	57,58,59	RE21-07-3964	Radium-226	1.11	pCi/g	NQ	5	no
140	57,58,59	RE21-07-3964	Radium-228	1.07	pCi/g	NQ	5	no
140	57,58,59	RE21-07-3964	Selenium	1.44	mg/kg	J	391	no
140	57,58,59	RE21-07-3964	Sodium	119	mg/kg	NQ	no SSL	n/a
140	57,58,59	RE21-07-3964	Strontium-85	0.177	pCi/g	R	no SAL	n/a
140	57,58,59	RE21-07-3964	Sulfate	9.06	mg/kg	NQ	no SSL	n/a
140	57,58,59	RE21-07-3964	Thallium	0.124	mg/kg	J	5.16	no
140	57,58,59	RE21-07-3964	Thallium-208	0.386	pCi/g	NQ	no SAL	n/a
140	57,58,59	RE21-07-3964	Thorium-231	0.491	pCi/g	R	no SAL	n/a
140	57,58,59	RE21-07-3964	Thorium-234	1.92	pCi/g	R	no SAL	n/a
140	57,58,59	RE21-07-3964	Uranium-234	0.872	pCi/g	NQ	170	no
140	57,58,59	RE21-07-3964	Uranium-235	0.0847	pCi/g	NQ	17	no
140	57,58,59	RE21-07-3964	Uranium-238	0.868	pCi/g	NQ	86	no
140	57,58,59	RE21-07-3964	Vanadium	23	mg/kg	NQ	78.2	no
140	57,58,59	RE21-07-3964	Zinc	38.6	mg/kg	NQ	23500	no
140	61, 64	RE21-07-3965	Acenaphthene	0.126	mg/kg	NQ	3730	no
140	61, 64	RE21-07-3965	Aluminum	10300	mg/kg	NQ	77800	no
140	61, 64	RE21-07-3965	Americium-241	0.208	pCi/g	NQ	30	no
140	61, 64	RE21-07-3965	Anthracene	0.33	mg/kg	NQ	22000	no
140	61, 64	RE21-07-3965	Antimony	0.41	mg/kg	R	31.3	no
140	61, 64	RE21-07-3965	Aroclor-1254	0.178	mg/kg	NQ	1.12	no
140	61, 64	RE21-07-3965	Aroclor-1260	0.0503	mg/kg	NQ	1.12	no
140	61, 64	RE21-07-3965	Arsenic	4.21	mg/kg	NQ	3.9	Yes[c]
140	61, 64	RE21-07-3965	Barium	124	mg/kg	NQ	15600	no
140	61, 64	RE21-07-3965	Benzo(a)anthracene	1.1	mg/kg	NQ	6.21	no
140	61, 64	RE21-07-3965	Benzo(g,h,i)perylene	0.438	mg/kg	NQ	2290	no
140	61, 64	RE21-07-3965	Benzo(k)fluoranthene	1.7	mg/kg	NQ	62.1	no
140	61, 64	RE21-07-3965	Beryllium	0.398	mg/kg	J	156	no
140	61, 64	RE21-07-3965	Bismuth-211	4.01	pCi/g	R	no SAL	n/a

Table H-6.0-5 (continued)

Event ID	Bin Number	Sample ID	Analyte	Std Result	Units	Reporting Qualifier	Residential SSL/SAL[a]	Exceeds SSL or SAL?
140	61, 64	RE21-07-3965	Bismuth-214	1.21	pCi/g	NQ	no SAL	n/a
140	61, 64	RE21-07-3965	Cadmium-109	3.21	pCi/g	R	no SAL	n/a
140	61, 64	RE21-07-3965	Calcium	4600	mg/kg	NQ	no SSL	n/a
140	61, 64	RE21-07-3965	Cesium-137	0.134	pCi/g	R	5.6	no
140	61, 64	RE21-07-3965	Chloride	5.37	mg/kg	NQ	no SSL	n/a
140	61, 64	RE21-07-3965	Chromium	10.4	mg/kg	NQ	2100	no
140	61, 64	RE21-07-3965	Chrysene	0.978	mg/kg	NQ	615	no
140	61, 64	RE21-07-3965	Cobalt	4.6	mg/kg	NQ	1520	no
140	61, 64	RE21-07-3965	Copper	10.1	mg/kg	NQ	3130	no
140	61, 64	RE21-07-3965	Dibenzofuran	0.072	mg/kg	J	142	no
140	61, 64	RE21-07-3965	Fluoranthene	2.13	mg/kg	NQ	2290	no
140	61, 64	RE21-07-3965	Fluorene	0.134	mg/kg	NQ	2660	no
140	61, 64	RE21-07-3965	Fluoride	1.23	mg/kg	J-	3670	no
140	61, 64	RE21-07-3965	Gross alpha/beta	28.4	pCi/g	J-	no SAL	n/a
140	61, 64	RE21-07-3965	Gross beta	33.4	pCi/g	NQ	no SAL	n/a
140	61, 64	RE21-07-3965	Indeno(1,2,3-cd)pyrene	0.422	mg/kg	NQ	6.21	no
140	61, 64	RE21-07-3965	Iron	12400	mg/kg	NQ	23500	no
140	61, 64	RE21-07-3965	Lead	25.6	mg/kg	NQ	400	no
140	61, 64	RE21-07-3965	Lead-212	1.46	pCi/g	NQ	no SAL	n/a
140	61, 64	RE21-07-3965	Lead-214	1.39	pCi/g	NQ	no SAL	n/a
140	61, 64	RE21-07-3965	Magnesium	2040	mg/kg	NQ	no SSL	n/a
140	61, 64	RE21-07-3965	Manganese	347	mg/kg	NQ	3590	no
140	61, 64	RE21-07-3965	Mercury	0.0362	mg/kg	NQ	23 [e]	no
140	61, 64	RE21-07-3965	Methylnaphthalene[2-]	0.0219	mg/kg	J	79.5	no
140	61, 64	RE21-07-3965	Naphthalene	0.0554	mg/kg	NQ	79.5	no
140	61, 64	RE21-07-3965	Nickel	4.07	mg/kg	J+	1560	no
140	61, 64	RE21-07-3965	Phenanthrene	1.37	mg/kg	NQ	1830	no
140	61, 64	RE21-07-3965	Plutonium-238	0.0532	pCi/g	NQ	37	no
140	61, 64	RE21-07-3965	Plutonium-239/ 240	7.18	pCi/g	NQ	33	no
140	61, 64	RE21-07-3965	Potassium	1300	mg/kg	J+	no SSL	n/a
140	61, 64	RE21-07-3965	Potassium-40	26	pCi/g	NQ	no SAL	n/a
140	61, 64	RE21-07-3965	Pyrene	1.74	mg/kg	NQ	2290	no
140	61, 64	RE21-07-3965	Radium-224	3.48	pCi/g	R	no SAL	n/a
140	61, 64	RE21-07-3965	Radium-226	1.21	pCi/g	NQ	5	no
140	61, 64	RE21-07-3965	Radium-228	1.45	pCi/g	NQ	5	no
140	61, 64	RE21-07-3965	Selenium	0.653	mg/kg	J	391	no
140	61, 64	RE21-07-3965	Silver	0.0535	mg/kg	J	391	no

Table H-6.0-5 (continued)

Event ID	Bin Number	Sample ID	Analyte	Std Result	Units	Reporting Qualifier	Residential SSL/SAL[a]	Exceeds SSL or SAL?
140	61, 64	RE21-07-3965	Sodium	100	mg/kg	NQ	no SSL	n/a
140	61, 64	RE21-07-3965	Strontium-85	0.115	pCi/g	R	no SAL	n/a
140	61, 64	RE21-07-3965	Sulfate	11.2	mg/kg	J+	no SSL	n/a
140	61, 64	RE21-07-3965	Thallium	0.211	mg/kg	NQ	5.16	no
140	61, 64	RE21-07-3965	Thallium-208	0.509	pCi/g	NQ	no SAL	n/a
140	61, 64	RE21-07-3965	Tritium	0.109	pCi/g	NQ	750	no
140	61, 64	RE21-07-3965	Uranium-234	0.936	pCi/g	NQ	170	no
140	61, 64	RE21-07-3965	Uranium-235	0.079	pCi/g	NQ	17	no
140	61, 64	RE21-07-3965	Uranium-238	0.846	pCi/g	NQ	86	no
140	61, 64	RE21-07-3965	Vanadium	25	mg/kg	NQ	78.2	no
140	61, 64	RE21-07-3965	Zinc	65.6	mg/kg	NQ	23500	no

[a] SSLs from NMED (2006, 092513), unless otherwise noted. SALs from LANL (2005, 088493).

[b] NQ = Not qualified.

[c] Results for arsenic for both samples exceed the residential SSL of 3.9 mg/kg, but are below the soil background value of 8.17 mg/kg. Therefore, the concentrations are not greater than background and reflect naturally occurring levels of arsenic.

[d] n/a = Not applicable.

[e] Value from EPA Region 6 (2007, 095866).

Table H-6.0-6
DP Aggregate Screening of Detected Analytes Against Residential SSLs and SALs for 21-024(e)

Event ID	Bin Number	Sample ID	Analyte	Std Result	Units	Reporting Qualifier	Residential SSL/SAL[a]	Exceeds SSL or SAL?
145	69,71,72	RE21-07-4047	Aluminum	5360	mg/kg	NQ[b]	77800	no
145	69,71,72	RE21-07-4047	Aroclor-1260	0.0024	mg/kg	J	1.12	no
145	69,71,72	RE21-07-4047	Arsenic	2.4	mg/kg	NQ	3.9	no
145	69,71,72	RE21-07-4047	Barium	75.4	mg/kg	J+	15600	no
145	69,71,72	RE21-07-4047	Beryllium	0.688	mg/kg	NQ	156	no
145	69,71,72	RE21-07-4047	Bismuth-211	4.43	pCi/g	R	no SAL	n/a[c]
145	69,71,72	RE21-07-4047	Bismuth-214	1.2	pCi/g	NQ	no SAL	n/a
145	69,71,72	RE21-07-4047	Bromide	6.73	mg/kg	NQ	no SSL	n/a
145	69,71,72	RE21-07-4047	Cadmium-109	4.73	pCi/g	R	no SAL	n/a
145	69,71,72	RE21-07-4047	Calcium	2300	mg/kg	NQ	no SSL	n/a
145	69,71,72	RE21-07-4047	Cerium-139	0.0818	pCi/g	R	no SAL	n/a
145	69,71,72	RE21-07-4047	Cesium-134	0.107	pCi/g	R	2.4	no
145	69,71,72	RE21-07-4047	Chloride	600	mg/kg	NQ	no SSL	n/a
145	69,71,72	RE21-07-4047	Chromium	5.09	mg/kg	NQ	2100	no
145	69,71,72	RE21-07-4047	Cobalt	2.77	mg/kg	NQ	1520	no
145	69,71,72	RE21-07-4047	Copper	5.55	mg/kg	NQ	3130	no
145	69,71,72	RE21-07-4047	Fluoride	4.54	mg/kg	J-	3670	no
145	69,71,72	RE21-07-4047	Gross alpha/beta	14	pCi/g	NQ	no SAL	n/a
145	69,71,72	RE21-07-4047	Gross beta	28.4	pCi/g	NQ	no SAL	n/a
145	69,71,72	RE21-07-4047	Iron	9220	mg/kg	NQ	23500	no
145	69,71,72	RE21-07-4047	Lead	13.5	mg/kg	NQ	400	no
145	69,71,72	RE21-07-4047	Lead-212	1.66	pCi/g	NQ	no SAL	n/a
145	69,71,72	RE21-07-4047	Lead-214	1.54	pCi/g	NQ	no SAL	n/a
145	69,71,72	RE21-07-4047	Magnesium	1210	mg/kg	J+	no SSL	n/a
145	69,71,72	RE21-07-4047	Manganese	315	mg/kg	NQ	3590	no
145	69,71,72	RE21-07-4047	Mercury	0.0329	mg/kg	NQ	23[d]	no
145	69,71,72	RE21-07-4047	Nickel	6.87	mg/kg	NQ	1560	no
145	69,71,72	RE21-07-4047	Nitrate	6.03	mg/kg	NQ	100000	no
145	69,71,72	RE21-07-4047	Perchlorate	0.000757	mg/kg	J	55[d]	no
145	69,71,72	RE21-07-4047	Plutonium-239/ Plutonium-240	0.0748	pCi/g	NQ	33	no
145	69,71,72	RE21-07-4047	Potassium	762	mg/kg	J+	no SSL	n/a
145	69,71,72	RE21-07-4047	Potassium-40	26.9	pCi/g	NQ	no SAL	n/a
145	69,71,72	RE21-07-4047	Radium-224	5.8	pCi/g	R	no SAL	n/a
145	69,71,72	RE21-07-4047	Radium-226	1.2	pCi/g	NQ	5	no

Table H-6.0-6 (continued)

Event ID	Bin Number	Sample ID	Analyte	Std Result	Units	Reporting Qualifier	Residential SSL/SAL[a]	Exceeds SSL or SAL?
145	69,71,72	RE21-07-4047	Radium-228	2.05	pCi/g	NQ	5	no
145	69,71,72	RE21-07-4047	Selenium	0.792	mg/kg	J	391	no
145	69,71,72	RE21-07-4047	Silver	0.117	mg/kg	J	391	no
145	69,71,72	RE21-07-4047	Sodium	167	mg/kg	NQ	no SSL	n/a
145	69,71,72	RE21-07-4047	Strontium-85	0.131	pCi/g	R	no SAL	n/a
145	69,71,72	RE21-07-4047	Sulfate	23	mg/kg	NQ	no SSL	n/a
145	69,71,72	RE21-07-4047	Thallium	0.214	mg/kg	NQ	5.16	no
145	69,71,72	RE21-07-4047	Thallium-208	0.505	pCi/g	NQ	no SAL	n/a
145	69,71,72	RE21-07-4047	Thorium-231	0.953	pCi/g	R	no SAL	n/a
145	69,71,72	RE21-07-4047	Tritium	0.008702828	pCi/g	NQ	750	no
145	69,71,72	RE21-07-4047	Uranium-234	0.984	pCi/g	NQ	170	no
145	69,71,72	RE21-07-4047	Uranium-235	0.103	pCi/g	NQ	17	no
145	69,71,72	RE21-07-4047	Uranium-238	0.842	pCi/g	NQ	86	no
145	69,71,72	RE21-07-4047	Vanadium	13.2	mg/kg	NQ	78.2	no
145	69,71,72	RE21-07-4047	Zinc	30.5	mg/kg	NQ	23500	no
145	73, 74, 75	RE21-07-4050	Aluminum	6380	mg/kg	NQ	77800	no
145	73, 74, 75	RE21-07-4050	Antimony	0.407	mg/kg	R	31.3	no
145	73, 74, 75	RE21-07-4050	Arsenic	3.17	mg/kg	NQ	3.9	no
145	73, 74, 75	RE21-07-4050	Barium	140	mg/kg	J+	15600	no
145	73, 74, 75	RE21-07-4050	Beryllium	0.663	mg/kg	NQ	156	no
145	73, 74, 75	RE21-07-4050	Bismuth-211	3.52	pCi/g	R	no SAL	n/a
145	73, 74, 75	RE21-07-4050	Bismuth-214	1.06	pCi/g	NQ	no SAL	n/a
145	73, 74, 75	RE21-07-4050	Bromide	13.4	mg/kg	NQ	no SSL	n/a
145	73, 74, 75	RE21-07-4050	Cadmium-109	2.97	pCi/g	R	no SAL	n/a
145	73, 74, 75	RE21-07-4050	Calcium	8260	mg/kg	NQ	no SSL	n/a
145	73, 74, 75	RE21-07-4050	Chloride	1310	mg/kg	NQ	no SSL	n/a
145	73, 74, 75	RE21-07-4050	Chromium	7.43	mg/kg	NQ	2100	no
145	73, 74, 75	RE21-07-4050	Cobalt	3.62	mg/kg	NQ	1520	no
145	73, 74, 75	RE21-07-4050	Copper	6.62	mg/kg	NQ	3130	no
145	73, 74, 75	RE21-07-4050	DDT[4,4'-]	0.0489	mg/kg	NQ	17.2	no
145	73, 74, 75	RE21-07-4050	Fluoride	3.45	mg/kg	J-	3670	no
145	73, 74, 75	RE21-07-4050	Gross alpha/beta	10.5	pCi/g	NQ	no SAL	n/a
145	73, 74, 75	RE21-07-4050	Gross beta	22	pCi/g	NQ	no SAL	n/a
145	73, 74, 75	RE21-07-4050	Iron	11100	mg/kg	NQ	23500	no
145	73, 74, 75	RE21-07-4050	Lead	14	mg/kg	NQ	400	no
145	73, 74, 75	RE21-07-4050	Lead-212	1.64	pCi/g	NQ	no SAL	n/a
145	73, 74, 75	RE21-07-4050	Lead-214	1.22	pCi/g	NQ	no SAL	n/a

Table H-6.0-6 (continued)

Event ID	Bin Number	Sample ID	Analyte	Std Result	Units	Reporting Qualifier	Residential SSL/SAL[a]	Exceeds SSL or SAL?
145	73, 74, 75	RE21-07-4050	Magnesium	1970	mg/kg	J+	no SSL	n/a
145	73, 74, 75	RE21-07-4050	Manganese	287	mg/kg	NQ	3590	no
145	73, 74, 75	RE21-07-4050	Mercury	0.0216	mg/kg	NQ	23[d]	no
145	73, 74, 75	RE21-07-4050	Methylene Chloride	0.00263	mg/kg	J	182	no
145	73, 74, 75	RE21-07-4050	Nickel	7.58	mg/kg	NQ	1560	no
145	73, 74, 75	RE21-07-4050	Nitrate	6.42	mg/kg	NQ	100000	no
145	73, 74, 75	RE21-07-4050	Perchlorate	0.000855	mg/kg	J	55[d]	no
145	73, 74, 75	RE21-07-4050	Plutonium-239/240	0.115	pCi/g	NQ	33	no
145	73, 74, 75	RE21-07-4050	Potassium	1040	mg/kg	J+	no SSL	n/a
145	73, 74, 75	RE21-07-4050	Potassium-40	25.2	pCi/g	NQ	no SAL	n/a
145	73, 74, 75	RE21-07-4050	Radium-224	5.13	pCi/g	R	no SAL	n/a
145	73, 74, 75	RE21-07-4050	Radium-226	1.06	pCi/g	NQ	5	no
145	73, 74, 75	RE21-07-4050	Radium-228	1.36	pCi/g	NQ	5	no
145	73, 74, 75	RE21-07-4050	Selenium	0.723	mg/kg	J	391	no
145	73, 74, 75	RE21-07-4050	Silver	0.136	mg/kg	J	391	no
145	73, 74, 75	RE21-07-4050	Sodium	370	mg/kg	NQ	no SSL	n/a
145	73, 74, 75	RE21-07-4050	Strontium-85	0.139	pCi/g	R	no SAL	n/a
145	73, 74, 75	RE21-07-4050	Sulfate	70.8	mg/kg	NQ	no SSL	n/a
145	73, 74, 75	RE21-07-4050	Thallium	0.184	mg/kg	J	5.16	no
145	73, 74, 75	RE21-07-4050	Thallium-208	0.441	pCi/g	NQ	no SAL	n/a
145	73, 74, 75	RE21-07-4050	Tritium	0.0149333	pCi/g	NQ	750	no
145	73, 74, 75	RE21-07-4050	Uranium-234	0.779	pCi/g	NQ	170	no
145	73, 74, 75	RE21-07-4050	Uranium-235	0.0684	pCi/g	NQ	17	no
145	73, 74, 75	RE21-07-4050	Uranium-238	0.844	pCi/g	NQ	86	no
145	73, 74, 75	RE21-07-4050	Vanadium	18.4	mg/kg	NQ	78.2	no
145	73, 74, 75	RE21-07-4050	Zinc	32.5	mg/kg	NQ	23500	no

[a] SSLs from NMED (2006, 092513), unless otherwise noted. SALs from LANL (2005, 088493).

[b] NQ = Not qualified.

[c] n/a = Not applicable.

[d] Value from EPA Region 6 (2007, 095866).

Attachment H-1

Waste Documentation
(on CD included with this document)